Regulations for a Safer, Attractive and Well Planned Built Environment

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BUILDING AUTHORITY OF KENYA

National Building Regulations 2015

REPUBLIC OF KENYA

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BUILDING AUTHORITY OF KENYA

Planning

Spacing

Materials

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National Building Regulations **2015**

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FOREWORD

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THE CABINET SECRETARY,
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The review of the Building Laws and Regulations arose from the disasters the country has experienced in the recent past. The existing laws regulating the building environment have been found not effective to overcome these challenges.

The current Building Code and By-Laws have been an impediment to delivery of housing and a redundant to the entire building and construction sector. There is therefore overdue and urgent need to re-engineer the industry through incorporation of best practices and emerging building technologies in order to revolutionize the industry and to spur sustainable growth as there is need for performance oriented laws rather than those based on material prescription.

An open and democratic process was initiated and a committee comprising private sector, academia, professionals and government ministries and departments have been working on the review on the Building Laws and Regulations.

The Building Laws Review and Harmonization Committee assembled in 2009, was mandated to, in nutshell, come up with a set of effective building regulations and legal framework and finally propose a national and county institutional framework that implements the new regulatory regime.

The work of this committee together with all relevant stakeholders has put together the best building laws for our country which carry best practice and standards benchmarked with world class building regimes. These Regulations are expected to replace the archaic building code which dates back to 1948 and which is largely inconsistent with emerging trends, materials and technologies. Thus, the regulations will create the necessary vibrancy to spur adequate supply of decent and affordable housing to all Kenyans as well as ensure professional responsibility and accountability in the building process.

The Regulations are designed and packaged in detachable parts which represent the various stages/elements in the building process. Different specialties or trades can obtain the relevant sections without having to keep the entire volume.

A handbook for the comprehensive building regulations has also been developed for ease of understanding and interpretation by the various tradesmen involved in the building process.

It is my hope and desire that these new Building Regulations will serve our country and ensure a healthier, safer and attractive built environment.

Prof. Jacob Kaimenyi,
Cabinet Secretary
Ministry of Land, Housing & Urban Development

INTRODUCTION

BACKGROUND

The National Building Regulations (NBR) 2015 is a set of rules to be used by professionals in the building industry to guide design, construction and maintenance of buildings in Kenya. It is one among a set of key legislative and policy documents that have resulted from an extensive review of building laws and policies in Kenya. The review was necessitated by the frequent disasters that have befallen the country in the recent past and the generally decaying built environment.

The review process which kicked off in April 2009 was spearheaded by the Ministry of Housing which has since been amalgamated with other ministries to become the Ministry of Land, Housing and Urban Development. The committee that undertook the review drew its membership from the private sector, academia, public sector and government departments and ministries. Its task was to harmonize and make necessary changes to the existing laws and regulations guiding the built sector. These laws and regulations were previously scattered, uncoordinated, outdated and lacked sufficient enforcement mechanisms. This had led to disorder and endless blame games for the mess in the sector.

The NBR 2015 effectively replaces the outdated 1968 Building Code which has been in use since the colonial era. The 1968 Building Code had many shortcomings and could not adequately address the needs of a safer, secure, healthier, attractive and well maintained built environment. It remained static and failed to move in tandem with the trends and shifts in building industry, such as emerging technologies and materials, green building and security intelligence.

Because of its prescriptive nature, the 1968 Building Code was one of the impediments to adequate supply of housing stock occasioned by a rapidly growing population. In stark contrast to its predecessor, the NBR 2015 encourages innovation in use of materials and methods applied as long as they meet functional requirements and performance standards.

The NBR 2015 is informed by the Constitution of Kenya 2010, Vision 2030 and other relevant unfolding reviews such as the National Construction Act which seeks to register contractors in Kenya. All areas of potential conflict with existing laws have been harmonized.

The NBR 2015 is to be used in conjunction with the NBR Handbook, the National Building Maintenance Policy, the Built Environment Act and Building Surveyors Act to bring accountability and adherence to standards and professionalism in the built sector. Some of the envisaged benefits of these laws and regulations include:-

(i) Orderly and coordinated developments.
(ii) Appreciation of appropriate building materials and technologies.
(iii) Professional Maintenance of our building stock
(iv) Accountability and responsibility within the built environment.
(v) Utilization of professional services in the built sector.

The NBR 2015 is broken down into eight parts for ease of understanding. The parts are informed by the building process as well as elements of a building.

Part A: Interpretation and Administration

This part is the link between the Bill and the draft Regulations. It gives the catalogue of definitions of technical and often used words used in the construction industry. It takes one through all the stages of development from land planning through the design of the building, approval of the same to construction, inspection to completion of the building. It also gives procedures for issuance of occupation certificate and maintenance.

Part B: Planning, Dimensions, Sitting and Space within and Around the Buildings

The regulations in this part cover all provisions relating to the plot and the manner in which buildings are to be placed in the plot including access to plots, boundary walls, plot coverage and ratio, parking, width of the streets, width of pedestrian ways, building frontage, hoardings windows, doors, ventilation, firefighting lifts , rescue stairway and swimming pools.

Part C: Advertisements

This part deals with various components including application of consent, application for licenses, fees, exemption to fee, location requirements power of authority therein, and dangerous advertisement.

Part D & E: Demolitions Work, Site Preparation and Operations

This part makes provision for site preparations prior to commencement of construction works. Where the site has a building situated thereon, specific provisions on how to demolish such a building are provided. It provides for the de-construction elements of construction. It also provides for safety measures to be undertaken during the process of demolition.

Part F: Structure, Foundations and Excavations

This part provides details on building sub-structural elements – excavations and foundations. Technical details on structural elements of a building necessary for its stability, serviceability, and durability are elaborately set out. Provision is also made for the control of quality of materials and workmanship. These are now made mandatory in the regulations and penalties for non- compliance are well spelt out.

Part G, H, J & K: Materials and Workmanship, Floors, Walls and Roofs

This part provides details on quality of both materials and workmanship required for construction of buildings.

Part L: Glazings, Cladding Materials and Protection

Dangers posed by glass and glazing in buildings have been addressed in the regulations contained in this part.

Part M: Stairways, Ramps, Guards and Lifts

This part provides details and regulations guiding ingress, egress and circulation within and without buildings. It includes detailed requirements for staircases, ramps, parking, lifts, hoists, and the full range of movement channels required for goods and persons in and around buildings.

Part N: Lighting, Ventilation, Condensation and Space Heating, Noise Control and Thermal Insulation

The section covers natural lighting and ventilation, special provision of natural lighting, approval of artificial ventilation systems and testing of artificial ventilation systems. It also deals with area of windows, back-to-back dwellings, and ventilation of habitable rooms, staircases ventilation and lighting, ventilation of shops, garages and lighting of buildings of the warehouse class, lighting and ventilation of public buildings. Also covered are chimneys, hearths and fire places, fuel appliances, and ventilation in roof spaces, offences and penalties.

Part O: Water Service, Drainage, Water Disposal and Storm Water

This section covers compulsory drainage of buildings, design of drainage installations, control of objectionable discharge of industrial effluent, unauthorized drainage work, inspection and testing of drainage installations and materials.

Part P: Non-Water-Borne Means of Sanitary Disposal

Covers non-water-borne means of sanitary disposal and comprises permission to construct pit latrines, construction, siting and access to the latrine, latrines and ablutions.

Part Q: Electrical Installations

It provides for standards of performance and regulations relating to electrical installations in a building, its reticulations and maintenance requirement.

Part R: Refuse Disposal

This section covers regulations on Refuse Disposal. It stipulates areas of refuge storage, access to such areas, domestic developments, non-domestic developments, sitting, minimum dimensions of storage chambers, refuse chutes, refuse collection and disposal.

Part S: Fire Safety and Installations

It provides for standards of safety and fire installations in general.

Part T: Inspection of Buildings and Maintenance

This section deals with the periodic inspections of developed properties and their routine and special maintenance to assure integrity during use.

Part U: Construction Risk Management

This part deals with risk management. It recognizes that impact can be reduced through a good understanding of preventive risk management based on sensible risk assessment, good knowledge of certain life-saving tools and techniques, which when used at the time of the event of disaster can control the total damage to life and belongings.

SECTION A

SCOPE, APPROVALS, CLASSIFICATION, NOTICES, FEES AND PERMITS

CONTENTS

SECTION A

SCOPE, APPROVALS, CLASSIFICATION, NOTICES, FEES AND PERMITS

A - 1 PREFACE

Development in the building industry is a dynamic process. With passage of time, new materials and technology become available, design methods are refined and innovative building systems and techniques are introduced, as such planning and building regulations cannot remain static.

Although these Regulations differ considerably in appearance and content from previous building By Laws, this does not mean that the buildings constructed in accordance with these Regulations need differ to any great extent in terms of site planning, design, construction and maintenance, from those built under previous Building Code. The Regulations have been revised in order to encourage the use of innovative design, new materials and new construction methods; optimization of resources and; adherence to building and planning standards. Any building designed and constructed with the principles of good building practice should comply with these new regulations.

These Regulations are a guide on good planning and building practice. They set out, in the simplest and shortest way possible, requirements to ensure that buildings will be designed and built in such a way that persons may live and work in a healthy, safe and convenient environment.

The overall aim of these regulations is to encourage optimal use of resources; enhance safety, health and convenience; and to improve acceptability and compliance of these Regulations.

In order to ensure that these Regulations will remain valid and up-to-date, they will be reviewed and any necessary revision will be published at least 5 yearly intervals.

A - 2 SCOPE

These Regulations cover provisions for site planning, building site operations, building design, building and infrastructure services, disaster management, construction and maintenance of all buildings as contained in these regulations.

A - 3 DEFINITIONS

A - 3.1 For the purpose of these Regulations the following definitions shall have the assigned meanings:

Abattoir A building in which cattle or other animals are slaughtered.

Abutment Construction intended to resist lateral thrust, usually from an arch or bridge.

Acceptable
Adequate
Satisfactory
Suitable Means acceptable, adequate, satisfactory, or suitable -
(a) in the opinion of any local authority; or
(b) in relation to any document issued by an approving authority.

Access Balcony Balcony often intended to give access to a number of separate dwellings or other units of accommodation.

Access Door An entrance door to an emergency route.

Access Opening Entrance leading to a building/structure

Accredited Checker A person who is a registered civil / structural engineer of minimum 15 years experience under cap 530.

Additive Material added in small quantities to a liquid or granular material to produce some desired modification to its properties.

Admixture Additive added during mixing.

Advertisement Any visual form of advertising exhibited or displayed on any hoarding, structure, apparatus or device erected on, in or over any premises or land and visible from any street or building and includes any advertisement that is projected on to any external surface of a building or structure by light or any other means.

Aggregate An inert material such as crushed rock, gravel or sand which forms the greater part of the concrete.

Air changes The rate of air entering or leaving a space by natural or mechanical means in terms of the volume of the space.

Air conditioning The process of treating air so as to control simultaneously its temperature, humidity, purity, distribution and movement to meet the requirements of the air conditioned space.

Air Conditioning Control System	An automatic control system, designed to stop mechanically induced air movement within a designated fire compartment, actuated by smoke detectors and provided with a central, manually operated back up facility.
Air Conditioning System	A system of mechanical ventilation where air that has been cleansed is supplied to a building under conditions of controlled temperature, humidity, distribution and movement
Air Drying	Removing moisture from a material by exposure to air to the extent that no further moisture is released on contact with the air.
Air Duct	A pipe, tube, conduit or enclosed space used or to be used in any building for the transmission of air in an artificial ventilation system.
Air Handling System	A system for the purpose of providing air in a positive and controlled manner to specific enclosures by means of one or more are handing units, ducts, plenums, air distribution devices and automatic controls.
Air Lock	Enclosed space with two doors, situated between two environments with different air conditions that makes it possible to pass from one environment to the other without significant disturbance to either.
Air Supported structure	Structure formed by a thin flexible membrane that is supported by air pressure.
Aircraft	Any machine, structure or contrivance, especially a vehicle, designed to be supported by the air, either by the dynamic action of the air upon the surfaces of the structure or object or by its own buoyancy.
Airport	Whole of the land and installations necessary for air traffic serving a town or a region.
Air Port Runway	Aircraft any machine often hard surfaced, within a landing strip, for landing and take off of aircraft.
Airshaft / Airwell	An open space surrounded by the walls of a building or biddings to provide ventilation for windows.
Amendment Plan	A plan showing any deviation from or amendment to or addition to an approved plan of building works.
Anchorage	A means of holding load bearing bars, wires or bolts.

Annealing	Treatment of metal, alloys or glass with heat and then cooling to remove internal stresses making the material less brittle
Apartment	A suite of rooms in a house or building allotted to the use of an individual or party.
Apparatus	Electrical apparatus including machines, equipment or fittings in which conductors are used or of which they form a part
Appliance	Any device which uses electricity, excluding a light fitting or an independent motor.
Applicant	Any person who makes an application under these regulations.
Application	An application made under these regulations.
Approved	Approved by the approving authority.
Appurtenances	Belonging as a property or right. Appertaining as if by right, appropriate to.
Apron	1. Hard paving surrounding a building. 2. Hard paving for parking of aircraft. 3. A strip of lead which conducts the drip of a wall into the gutter. 4. A board on an interior wall beneath a window sill 5. A slab placed at the bottom of a sluice or entrance or exit to a dock, or culvert so as to intercept the fall of water. 6. The vertical rear panel of a sink attached to a wall.
Aqueous Solution	A solution with the solvent as water
Arch	Structural member usually curved in a vertical plane and spanning an opening.
Architect	A person who is registered in accordance with cap. 525.
Artificial Ventilation system	A system in which air is caused to circulate through a room by means of a mechanical apparatus which forces air into or extracts air from such room.
Ashlar	Squared stonework as opposed to rubble.
Asphalt	Mixture of bitumen and mineral aggregate.

Assembly Drawings	Drawings used to show in details the construction of buildings, junctions in and between elements and components, and between components.
Atrium	An open court located within a building or can also be a covered central area of a high-rise building.
Audio/visual Advisory System	Equipment which is supplementary to exit signs and fire alarm warning devices which, when operated in the event of a fire, provides audio/visual indication of safe direction of egress from the area.
Audio/Visual Production Facilities	Premises used for audio/visual production such as film and television studios.
Authorised Officer	A person registered under the cap 525, 530 and 526 with a minimum of 5 yrs post registration experience
Automatic Actuating Devices	Building components such as doors, shutters, dampers, and fire curtains, the devices for automatically controlling their movement in the events of fire.
Automatic Fixed Installation Using Water	A system of water supplies, pumps, pipes, valves and delivery points so arranged as to automatically detect and instantaneously attack a fire with water and sound an alarm. Such requirements for this item may include sprinklers, drenchers, deluge or water spray systems as required and appropriate.
Automatic Fixed Installations Not Using Water	A system of cylinders, pipes, valves, and delivery points so designed as to automatically detect and instantaneously attack a fire with an inert medium and sound an alarm (e.G. Co2 protection of electrical equipment).
Back Siphonage	The backflow of water resulting from negative pressure in a water installation or in the water supply system.
Back Vent	A ventilating pipe connecting a branch discharge pipe, to which unvented fixture discharge pipes are connected, to a vent stack or to a stack vent.
Backfill	Earth refill of a trench or an excavation around a building, bridge abutment and the like.
Backflow	The flow of water in any pipe in a direction opposite to the normal direction of flow.
Baffle plate	A plate used to prevent the movement of a fluid in the direction in which it would normally flow, and direct it into the desired path.

Balcony Any stage, platform, oriel window or other similar structure projecting outwards from or recessed into the wall of a building and supported by brackets or cantilevered.

Ball valve A valve in which the fluid flow is regulated by a ball moving relative to a spherical socket as a result of fluid pressure and the weight of the ball.

Baluster or Banister Post holding up the handrail of a staircase, a balcony etc.

Balustrade
1. Protective barrier formed by series of light vertical members surmounted by a handrail.
2. Protective barrier formed by a series of heavy vertical members surmounted by a coping.

Balustrade Wall A wall serving the purposes of a balustrade.

Bar Rigid solid section of any cross-sectional area small in relation to its length.

Barge board Board fixed along the top edge of a gable or eaves.

Bathroom sink Permanently installed and connected to water supply drainage pipe

Base course
1. The lowest or first course of a wall.
2. The first layer of material laid down in the construction of a pavement or road.

Basement Garage Any premises or part thereof below ground level used for the storing, parking, housing or washing of motor vehicles.

Basement Storey A storey the floor of which is situated at such a level that more than half the height of the storey is below the level of the ground adjoining its perimeter walls for more than half the length of the perimeter walls.

Bath Long open vessel for washing oneself in

Batten Small section usually of timber, to which sheet materials, slates and tiles or similar are fixed for outside walling of houses, flooring, roofs and such.

Beam Structural member designed to carry loads between or beyond points of support, usually narrow in relation to its length and horizontal or nearly so.

Bearing pad Horizontal footing of vertical post or pile which carries the weight of a foundation, transmitting the load of a structure to the bedrock or subsoil without detrimental settlement.

Benching Concrete sloped up from the concrete bed foundation on which a pipe line rests; it slopes up the sides of the pipe, and gives support along the whole of its length and to some extent laterally.

Bending moment The moment at any section of a beam of all the forces that acts on one side of that section.

Bending stress An internal tensile or compressive longitudinal stress developed in a beam in response to curvature induced by an external load.

Bidet Low basin for sitting astride on to wash genitals.

Bill of Quantities Document for tendering, usually prepared in a standard form, comprising both a descriptive list of quantities of works and descriptions of the materials, workmanship and other matters required for a construction works.

Bitumen Viscous liquid or solid consisting essentially of hydrocarbons and their derivatives and which is soluble in carbon disulfide.

Building Control Officer A person with a minimum qualification of a diploma in any of the disciplines in built environment.

Blast Furnace Slag A by-product of steel manufacture which is sometimes used as a substitute for portland cement.

Block Any masonry unit which has a length of more than 300mm or a width of more than 130mm.

Block plans Plans used to identify site and locate outline of buildings in relation to town plan or other wider context.

Bond
1. Arrangement of units in masonry and paving.
2. Adhesion between materials.

Bored pile Pile formed by boring a hole in the ground and filling it with concrete.

Borehole A sinking made in the ground by the process of boring so as to obtain water.

Boundary In relation to a building or compartment means the boundary of the plot or lot belonging to the building.

Boundary Wall Any wall, fence, enclosure or screen built on or along the boundary line of a parcel of land for the purpose of separating the land from another adjoining parcel of land.

Bracing System of structural members acting in compression or tension used for supporting and strengthening a frame e.G. To resist horizontal forces.

Bracket Support projecting horizontally from a vertical surface.

Branch Discharge A horizontal discharge pipe conveying the discharge from one or more sanitary
Pipe fixtures to a discharge stack.

Branch Drain The communicating drain between a gully, soil pipe or sanitary fitting and the main drain.

Branch Vent A horizontal discharge pipe connecting two or more trap vents to a vent stack or to a stack vent.

Brandering
1. The process of nailing small fillets of wood in a counter direction and on the undersides of floor joists and the topside of ceilings.
2. Frame from brandering.

Brass Primarily a name applied to an alloy of copper and zinc, but other elements such as aluminium, iron, magnesium, nickel, tin and lead are frequently added. There are numerous varieties.

Breakwater Civil engineering works to reduce or break the force of waves.

Brick Any masonry unit which is not a block

Bridge Civil engineering works affording passage to pedestrians, animals, road or rail vehicles, waterways and services above obstacles or between two points at a height above the ground.

Bridge Abutment End support of a bridge that also connects the structure with the ground.

Brief Statement of the client's requirements for a project.

Builder A person who is or will be responsible for the work on site.

Building Construction work that has the provision of shelter for its occupants or contents as one of its main purposes and is normally designed to stand in one place.

Building Component Drawings used to show the basis sizes, system of reference and performance drawings
Data on a set of standard components of a given type.

Building Element Major functional part of a building, for example: foundation, floor, roof, wall, services.

Building Envelope The elements of a building which enclose air conditioned spaces through which thermal energy may be transferred from the exterior.

Building Height The dimensional height in metres measured from the lowest ground level abutting any part of the building to the level of

(a) the underside of a flat roof; or
(b) the underside of a roof of any plant room on such flat roof where the plant area of the plant room is more than 10% of the area of such flat roof; or
(c) a horizontal ceiling which is immediately under any pitched roof; or
(d) halfway between the eaves level and the ridge of any pitched roof where there is no ceiling below such roof or where the ceiling follows the pitch of such roof.

Building Line In relation to a site, means a line prescribed in any town planning scheme or any other law designating the boundaries of the area of the site outside of which the erection above ground of any building is prohibited.

Building Plan A drawing of a building done to wit.

Buttress

1. An upright projection that supports or resists lateral forces in a building.
2. A pier constructed at right angles to a restraining wall on the side opposite to the restrained material; it increases the strength and thrust resistance of the wall.

Cableway

1. A transporting system consisting of a cable extended between two or more points on which cars are propelled to transport bulk materials or people; or
2. A tray or space in which service cables are positioned or located.

Camber Deviation from a straight line; applied to a convex, edgewise sweep or curve, or to the increase in diameter at the centre of rolled material.

Canal An artificial open waterway used for transportation, water power or irrigation.

Canopy A roof like ornamental projection, over a niche, door, window, etc., A covering, an overhanging shade or shelter used especially of the firmament.

Cantilever A projecting beam, truss, or slab supported only at one end.

Capacity Of any storage tank means the volume of such tank between the operating level of the water contained in such tank and the invert of the outlet from the tank.

Car Parking See "car port" and "garage" facilities

Carcass Building of which only the structure is complete.

Carpenter Shop Any premises where timber is fashioned by hand or by the use of light portable machinery.

Carport A building intended to provide shelter for a motor vehicle, caravan or boat and having a roof but having walls on not more than two sides.

Carriageway That part of a private street, cul-de-sac or access road used or intended to be used by vehicular traffic.

Casement Component, fixed or opening, consisting essentially of a frame the infilling of which consists of glazing, a grille, a solid panel or slats.

Cast iron Hard alloy of iron, carbon, and silicon cast in mould.

Cast-in-situ Cast in place; cast liquid in its permanent location, where it hardens as part of the building, as opposed to pre-cast.

Catwalk A narrow raised platform or pathway used for passage to otherwise inaccessible areas.

Causeway A highway, a paved way, the paved part of a way, a small area paved with cobbles, stones, bricks connecting two land masses and constructed at ground level.

Cavity Wall A wall constructed in two separate thicknesses with an air space in between. Also known as a hollow wall.

Ceiling Construction made of plaster, boards, or other material covering the underside of a floor or roof to provide the overhead surface of an enclosed space.

Cellar Basement used for storage, heating plant and for purposes other than habitation.

Cement	A finely ground compound which in the presence of an appropriate quantity of water hardens and adheres to suitable aggregate thus binding them into hard agglomerations known as concrete mortar and complies with ks02-21.
Centering	Temporary support on which an arch is formed.
Ceramic	A product made by the baking or firing of a non-metallic mineral.
Chair rail	A border or paneling over the lower half of the walls of a room, but above the skirting, which prevents chairs when pushed back against a wall, from damaging the surface.
Chase	A groove cut into a wall or floor to receive a small pipe, conduit, cable or flashing.
Chemical Closet	A closet with a fixed pan, the excreta from which pass into a tank where they are acted upon by chemicals which sterilize and break them down.
Chimney	A vertical, hollow structure of masonry, steel, or concrete, built to convey gaseous products of combustion from a building.
Circuit	An arrangement of conductors for the purpose of transmitting electric current.
Circuit Breaker	A mechanical device for making or breaking a circuit under normal or abnormal conditions such as those of a short circuit, the circuit being broken automatically.
Circulation Space	A space which is solely or predominantly used as a means of access between a room and a protected shaft or between a room or a protected shaft and an exit from the building or compartment.
Cistern	A tank or open vessel for storing water at atmospheric pressure in a water supply system.
Civil Engineering Works	Construction works comprising a structure, such as a dam, bridge, road, or the Results of operations such as dredging, de-watering, soil stabilization, but excluding a building and its associated site works.

Cladding
1. To furnish, surround, adorn, to cover, conceal exterior of a building.
2. A material used for covering a structural element.

Clamping Device Tool for binding or pressing two or more parts together, holding them firmly in their relative position.

Class
1. In relation to a fire door or fire shutter, means the class thereof as defined in the kenya bureau of standards.
2. A method of differentiating between different types of the same materials of objects.

Cleaning Eye An access opening to the interior of a discharge pipe or trap provided for the purposes of internal cleaning, and which remains permanently accessible after completion of the drainage installation.

Clear span Distance between opposite faces of supports.

Clearance The distance between two objects, or between a moving and stationary part of a system.

Clerk of Works Includes any superintendent, supervisor or inspector of building works but does not include a person employed by a builder.

Cofferdam Water tight enclosure, used for construction under water

Cold Storage Area Any area incorporating a unit of specific volume which is entirely given over to storage in an atmosphere of less than 10°c above zero.

Colliery A place where coal is worked or wood charcoal is made.

Column Structural member of slender form, usually vertical, that transmits to its base the forces, primarily in compression, that are applied to it.

Combustible In relation to a material, means the material is not capable of withstanding the non-combustibility test approved by the kenya bureau of standards.

Combustion The burning of gas, liquid or solid, in which the fuel is oxidized, evolving heat and often light.

Commercial Building A building, or that part of the building, constructed or intended to be used for business, trade or entertainment.

Common drain	That portion of a drain which conveys sewage other than or in addition to that sewage which emanates from the site through which such drain runs.
Common Waste Pipe	A waste pipe to which more than one pipe is connected in any one storey.
Communication Pipe	Any pipe in a water supply system to which any water installation is connected.
Compartment	Any part of a building separated from all other parts by a compartment wall or floor, and, for the purposes of these regulations, if any part of the top storey of a building is within a compartment, the compartment shall also include any roof space above such part of the top storey.
Competent Authority	The competent authority appointed or approved under these regulations
Competent Person	A person who is qualified by virtue of his experience and training
Component	Product manufactured as a distinct unit to serve a specific function or functions.
Composite Building	Any building which is constructed or intended to be used fora combination of any two or more of the following purposes, and in respect of each of these purposesseparate sections of these regulations shall apply: (a) domestic (b) commercial (c) institutional (d) hotel
Concrete	A mixture of cement, sand, and gravel, with water in varying proportions, according to the use which is to be made of it in compliance with the specifications for concrete in these regulations
Concrete Masonry Construction	Masonry wall constructed using concrete blocks.
Concrete Slab	Rigid horizontal or nearly horizontal concrete construction of a large area relative to its thickness.
Conditions Of	Fundamental terms that collectively describe the rights and obligations of contract Contracting parties and the agreed procedures for administering their contract.

Conductor In relation to a core or a cable, means the conducting portion whether consisting of a single wire or group of wires in contact with each other.

Conduit
1. A natural or artificial channel for conveying liquids;
2. A tube, usually of plastic or metal, which encloses electrical wires or cables.

Connecting Sewer A pipe vested in the local authority which connects a drainto a sewer.

Conservancy Tank A covered tank without outflow used for the reception and temporary retention of sewage and which requires emptying at intervals.

Conservatory A glazed building in which plants may be grown under controlled atmospheric conditions.

Construct To alter, erect, extend, install or fit, and "construction" shall be construed accordingly.

Construction Works Everything that is constructed or results from construction operations.

Consumer Any person who is obtaining a supply of water from the local authority.

Continuous Beam Beam that is intended to span two or more supports.

Contours A line connecting points on the ground surface which are at the same height above datum.

Contract Legally enforceable agreement to supply goods, execute work or provide services.

Contract Document Document forming a part of contract.

Cooling Tower A tower of wood, concrete, etc. Used to cool water after circulation through condensers. The water is allowed to trickle down over wood slats thus exposing a large surface area to atmospheric cooling.

Coping A cap of stone, brick or concrete for the top of a wall. It frequently projects beyond either or both faces of the wall, partly for protection from the weather, and partly for decoration.

Copper Reddish brown ductile metallic element.

Cornice The crowning, overhanging part of an architectural structure.

Corridor Narrow enclosed circulation space giving access to rooms or spaces.

Corrugated Sheets Roof sheet which has been corrugated partly for flexural stiffness and partly to provide drainage channels for rainwater; the sheets could be made of galvanized mild steel, pvc, or glass fibre reinforced translucent resin.

Cost Amount paid (or to be paid) by a purchaser for a product, a service or completed construction work.

Coupling A device for connecting two lengths of a hose..

Cover Level Horizontal plane of a manhole top lid.

Crane A hoisting machine with a power-operated inclined or horizontal boom and lifting tackle for moving loads vertically and horizontally.

Crawlway Space providing access to services high enough to be crawled through.

Crossfall
1. The difference in vertical height between the highest and lowest points on the cross section of a road surface.
2. The average rate of fall from one side to the other, or from the crown to a side of a road.

Cross vent A ventilating pipe connecting a discharge stack to a vent stack.

Crusher A machine for crushing rock and other bulk materials.

Crushing Failure The compression failure (due to diagonal shear) of many brittle materials which result in the production of crushed material debris.

Crushing Plant A plant that breaks down solid materials into small piecesby pressing or with force.

Crushing Strength Compressive strength of concrete ascertained by crushing a concrete cube; this is expressed as the ultimate load per unit cross-sectional area.

Cubical Extent The space contained within the external surfaces of its walls and roof and the upper surface of the floor of its lowest storey but excluding any space within any enclosure on the roof of the building used exclusively for accommodating a water tank or lift gear or any like apparatus and where a building on one or more of its sides is not enclosed by a wall or walls the building where unenclosed shall be deemed to be extending downwards from the outer edge of the roof.

Cul-de-sac Dead end street with a circular area for turning around.

Culvert
1. A covered channel or a large diameter pipe that takes a watercourse below ground level.
2. Construction for the total enclosure of a drain or watercourse.

Curtain Wall A thin wall of glass, plain or other, to cover the exterior surface of the building, supported by the structural frame of the building.

Cutting An open excavation through a hill, for carrying a highway or railroad at a lower level than the surrounding ground.

Dam Barrier construction to hold back water in order to raise its level, to form a reservoir or to prevent flooding.

Damp-proof Course Layer or sheet of impervious material within a floor or a similar construction or or membrane vertically within a wall or chimney to prevent passage of moisture. Also

Known as damp proofing.

Dangerous Building A building not fit for occupation or which is a danger to thesafety of the occupier, owner or public by reason of its structural instability, unsanitary condition or verminous as stated in these regulations.

Darkroom A light free room illuminated by a safelight for processing light sensitive materials.

Dead load A non-varying load which is permanently applied to a structure and acting at all times as opposed to live load.

Deck Load bearing concrete slab or sub-floor of a bridge.

Decking
1. Prefabricated components forming the covering to a floor or roof.
2. Prefabricated components forming the horizontal structure of a floor or roof.

Deflection The flexural deformation of a structural member.

Deluge System A system requiring a discharge of water over a considerable area in rapid and certain response to a fire.

Demolition Destroy by disintegration of the fabric. To pull or throw down, reduce to ruin.

Detached Building A building not attached to another.

Details Drawings used to show all information necessary for the manufacture and application of components.

Developed Length Of any pipe means the length between two specified points on such pipe measured along the centre line of such pipe, including any bend, junction or similar fitting.

Developer Any person who has obtained the approval of to develop any land pursuant to these regulations and includes his executors, administrators and successors in title or assigns.

Development Any material change on land.

Diagram A drawing, either to scale or not, giving only a simplified representation relating to the functions of the parts of the building to show access, circulation, installations and their mode of operation, etc.

Dimension Distance in a given direction or along a given line.

Discharge Pipe A pipe which conveys the discharge from a sanitary fixture to a drain, and includes a soil pipe, a waste pipe, a discharge stack, a branch discharge pipe or a fixture discharge pipe.

Discharge Stack Any vertical discharge pipe which conveys the discharge from two or more sanitary fixtures and which is connected directly to a drain.

Diversity Factor Ratio of the sum of individual maximum demands to the total maximum demand as applied to a distribution.

Division A portion of a building separated from the remainder of such building by one or more separating elements.

Division Wall An internal wall that separates one division from another in any building and has a fire resistance of not less than that required by these regulations.

Domestic Buildings Buildings used for dwelling purposes includingdwelling houses, flats, student accommodation and residential homes.

Domestic Effluent Sewage consisting of soil water or waste water or a Combination of both.

Door Includes any shutter, cover or other form of protection to an opening in a wall or floor of a building or in the structure surrounding a protected shaft whether the door is constructed of one or more leaves.

Door frame A solid frame in which a door is hung.

Door Furniture Ironmongery for doors.

Double Pitch Sloping in both directions downwards from the centre ridge.

Down Pipe A pipe (usually vertical) for conveying rainwater from the gutter to the drain or to an intermediate gully.

Drain That part of any drainage installation outside a building and which is below ground level, but shall not include the following-
(A) any discharge pipe; or
(B) that portion of a discharge pipe which is below ground level; or
(C) the bend at the foot of a discharge stack.

Drainage Installation Any installation vested in the owner of the site and which is situated on such site and is intended for the reception, conveyance, storage or treatment of sewage, and may include sanitary fixtures, traps, discharge pipes, drains, ventilating pipes, septic tanks, conservancy tanks, sewage treatment works, or mechanical appliances associated therewith.

Drainage System In relation to a building, means a system of pipes and sewers used for the sewerage of a building, including any fitting, appliance or equipment connected therewith.

Drawings Documents in a graphical form, sketches, drafts, and measured, showing the designer's general intentions.

Drencher System An approved system of piping and outlets which, when actuated manually or by the action of fire, releases continuous curtain of water.

Driven Pile Pile driven into the ground.

Dry Dock
1. The bed. (In sand or ooze) in which a ship lies dry at low water, an artificial inlet to admit a boat etc., An artificial basin excavated, build around with masonry, and fitted with flood gates into which ships are received for repair, loading etc.
2. A narrow basin or basins into which a single vessel/ vessels is received, and from which the water is then let out, leaving the vessel dry for repairing etc.

Duct Enclosing construction formed for the passage of air, gases, cables, and pipes..

Dust Detection Systems Equipment designed to give warning of a potentially explosive concentration of Dust.

Dwelling A building or structure used regularly or intermittently for human habitation.

Dwelling House A single dwelling unit and any garage and other domestic outbuildings thereto, situated on its own site.

Dwelling Unit A unit containing one or more habitable rooms and provided with adequate sanitary and cooking facilities.

Dyke Natural or artificial obstacle used to protect land from the inundation of river or sea water.

Dynamic Load A load which is not static for example due to moving machinery or earthquake

Dynamic Smoke Extraction System A mechanical ventilating system capable of removing smoke and products of Combustion from a designated fire compartment, and also supplying fresh air in such a manner as to maintain a specified smoke free zone below the smoke layer.

Earthed In relation to a connection, means effectively connected to the general mass of the earth.

Earthquake Loading The forces exerted on a structure by earthquakes.

Earthwork
1. Any operation involving the excavation or construction of earth embankments.
2. A temporary or permanent fortification for attack or defense made chiefly of earth.

Eaves Lower edges of a pitched roof or the edge of a flat roof overhanging a wall.

Eccentric Load A load which does not act through the centroid.

Eccentricity The distance of the line of action of the load from the centroid.

Effluent Water mixed with waste

Elasticity Characteristics of a material or construction that enables it to regain its original shape after removal of the force which had deformed it.

Electrical Related to or associated with electricity, but not containing it or having its properties or characteristics.

Electrical Sanitary A device which is connected to an electricity supply and to a water supply to

Fixture Perform a function such as the washing of clothes or dishes, or rendering waste matter suitable for disposal into a discharge pipe and includes a food-waste disposer, and a sanitary towel disposer.

Electrical Transformer. An electrical component consisting of two or more multi-turn coils of wire placed in close proximity to cause the magnetic field of one to link the other; used to transfer electric energy from one or more alternating currency circuits to one or more other circuits by magnetic induction

Electricity Point A termination of the fixed wiring intended for the attachment of a lighting fitting or of a device for connecting the supplier to a current using appliance.

Element Of Structure

1. Any member forming part of the structural frame of a building or any other beam or column (not being part of a roof structure only);
2. A floor, including a compartment floor, other than the lowest floor of a Building;
3. An external wall;
4. A compartment wall;
5. A structure enclosing a protected shaft;
6. A load bearing wall or part thereof;
7. A gallery.

Elevation A vertical view of a building, element or of a building component.

Emergency Generator	An independently powered electrical generator of sufficient electrical capacity to Meet the essential services it is required to provide
Emergency Lighting	A system of artificial lighting designed to provide adequate Illumination and indication of exit routes within a building under emergency conditions.
Emergency Route	That part of an escape route which provides fire protection to the occupants of any building and which leads to an escape door.
End bearing Pile	Pile transmitting forces to the ground mainly by compression on its base.
Engineer	A person who is registered under cap.530.
Engineering Timber	Timber possessing specific structural properties used for Construction.
Entrance Hall	Large circulation space immediately within a building at the entrance.
Erection of a Building	1. The construction of a new building; 2. The re-erection of any building or part thereof which has been demolished or burnt down to within 3 metres of the ground; 3. The roofing over any open space between walls or buildings.
Escalator	Mechanically operated moving stair.
Escape Door	That door in an escape route which, at ground level, leads directly to a street or public place or to any approved open space which leads to a street or public place.
Escape Route	The entire path of travel from the furthest point in any room In a building to the nearest escape door and may include an emergency route.
Evapotranspiration	Total water loss from a particular area, being the sum of Evaporation from the soil and transpiration from plants.
Evapotranspirative	An effluent disposal system comprising a shallow sand-bed filled excavation covered with top soil and planted over with suitable vegetation.
Excavation	Digging, lifting and removing earth or fill.

Exempted Building A building which is by written law or not subject to these regulations

Exhaust gas Spent gas leaving an internal combustion engine or gas turbine.

Existing Building Any building in respect of which a certificate of statutory completion or a temporary occupation permit has been issued.

Exit A fire protected route by way of a room or doorway into a passage and thereafter only by way of a passage, including any stairway forming part thereof, by which a person may reach a place of safety, but at no stage b y means of a lift, escalator or doorway containing a revolving door, and, in particular, means from -

(a) any point on a storey of a building, a route from that point;
(b) any room, a route from the doorway of the room;
(c) any flat, a route from the entrance to that flat

Exit door Any door that is a component of an escape route from any room.

Exit Signs Fixed illuminated signs indicating an approved exit route.

Expansion Joints A joint between parts of a structure to avoid distortion when subjected to temperature change.

Experiment The action of trying anything; a test, trial, an action or operation undertaken in order to discover something unknown, to test a hypothesis, or establish or illustrate some known truth.

External Panel Wall Part of an external wall forming an in-filling between structural members.

External Wall An outer wall or vertical enclosure of a building not being a party wall even though it may adjoin a wall of another building.

Extract Fan A fan used to extract foul air, fumes, suspended particles, etc, from a working area.

Factory A building or complex for the manufacturing of products

Fail Safe System A system designed so that failure of power, control units, structural members or other components will not endanger people operating the system or other people in the vicinity.

False Ceiling	Ceiling intended to reduce the height of a space or to provide a hidden space for services.
False Roof	Roof constructed above the main roof for aesthetics..
False Work	A temporary structure supporting forms, access, platforms, runways, access ladders, and the like. Any arrangement of fixed and adjustable supports necessary to keep the forms in their correct positions.
Fanlight	Originally a fan-shaped window with sash bars radiating like ribs of a fan located over a door. The term is now applied to any window located over a door.
Feeder Route	That part of an escape route which allows travel in two different directions to the access doors to at least two emergency routes.
Felt	A fibrous, watertight heavy paper of organic or asbestos fibres impregnated with asphalt and used as an over-lining or underlining for roofs.
Fence	A guard or stop to limit motion.
Fibre Cement	Mixture of cement with fibre.
Fibre Plaster	Gypsum plaster containing hair or wood fibre as a binder.
Fill	Material used for raising the level of the ground.
Fill Final Exit	An enclosed space in the open air at ground level.
Finished Size of Timber Members	The size of timber members after dressing.
Finishings	Final coverings and treatment of surfaces and their intersections.
Fire Alarm System	Any manually operated system designed to give warning of fire.
Fire Compartment	An enclosed space in a building that is separated from all other parts of the building by enclosing construction providing a fire separation that may be required to have a fire-resisting rating.
Fire Control Centre	A compartment (situated at street level with direct access to open air and vehicular approach) containing annunciator boards, controls, terminals, etc. Of the fire protection and life safety systems within that building/complex.

Fire Dampers	Airtight stoppers to prevent the inflow of fresh air and the outflow of foul air, whose assembly complies with the requirements contained in the kenya bureau of standards.
Fire Detection System	Any system designed to detect automatically the presence of smoke, heat, Combustion products or flame and give warning of same.
Fire Door Or Fire Shutter	A door made of fire resisting material, generally metal plated, held open by a Fusible link which melts in a fire permitting the door to close, and thus delays or prevents the spread of fire by confining it to one compartment.
Fire Extinguisher	Any of various portable devices used to extinguish a fire by the ejection of a fire-inhibiting substance, such as water, carbon dioxide, gas or chemical foam.
Fire Hose Reel	A collapsible flameproof hose reeled on a drum attached to a water outlet to supply water to extinguish a fire.
Fire Hydrant	Pipe of water from main with nozzle for hose.
Fire Hydrant or Hose Reel System	An installation of pipes, water tanks, pumps, hydrant outlets and/or hose reels in A building to provide a ready means by which a jet can be delivered in any part of the building for the purpose of fire fighting.
Fire Load	The theoretical amount of heat that may be released during the burning of combustibles in the building under fire conditions and is computed by the formula: $\frac{\text{Calorific value of contents in mj/kg x weight of contents in kg}}{\text{Floor area in square metres}}$
Fire Main	Water main for fire fighting.
Fire Protected Route	A route protected from fire and smoke.
Fire Pump	A pump for fire protection purposes usually driven by an independent, reliable prime mover.
Fire Pump Connection	Link between fire pump and water source.

Fire Resistance	Of an element of structure, means that it shall be capable of resisting the action of fire for a specified period as prescribed by the kenya bureau of standards and "period of fire resistance" shall be construed accordingly.
Fire Resisting	Brickwork, concrete, concrete work, wired glass or any other material approved
Material	As such under these regulations.
Fire Resisting Wall	A wall constructed of fire resisting material carried vertically throughout the building from the lowest level of any basement or sub-basement bound by the wall, and continued 46 cm above any portion or portions of the roof, the distance above the roof being measured at right angles to the surface of the roof covering.
Fire Service Installation Or Equipment	Any equipment or installation manufactured, used or Designed to be used for the purpose of: (a) extinguishing, attacking, preventing or limiting a fire; (b) giving warning of a fire; (c) providing access to any premises or place for the purpose of limiting a fire.
Fire Stop	A non-combustible barrier or seal to full thickness of a wall or floor which would prevent or retard the passage of smoke or flame within a cavity or around a pipe or duct where it passes through a wall or floor or between elements of structure, and "fire stopped" shall be construed accordingly.
Fireman's Lift	A designated lift so designed as to allow fire services personnel safe access to at least all alternate floors of the building.
Fitments	Articles such as sanitary appliances or kitchen units that equip spaces for people's use and are fixed to the building.
Fixed Automatically Operated Approved Appliances	Any fire service equipment which is manufactured, used or Designed to be used as an independent unit for the purpose of extinguishing, Attacking, preventing or limiting a fire, but automatic in operation and fixed in position, e.G. A bcf sprayer unit in a dangerous goods store.
Fixed Foam System	Any combination of generators, pipework, valves, nozzles And pourers designed to deliver finished foam to the seat of a fire which may be automatic in operation.

Fixture Branch A horizontal fixture discharge pipe.

Fixture Discharge Pipe A discharge pipe conveys the discharge from single sanitary fixture.

Fixture Unit An arbitrary unit of measure for expressing the hydraulic loading on a drainage installation.

Fixture Unit Rating The value in fixture units assigned to a sanitary fixture from a consideration of the duration of its discharge, the interval between discharges and its mean discharge rate.

Flammable Having a closed-cup flash point lower than 90°.

Flash Point The lowest temperature at which vapours from a volatile liquid will ignite momentarily upon the application of a small flame under specified conditions. Test conditions can be either open - or closed-cup.

Flashing
1. A strip of sheet metal placed at the junction of exterior building surfaces to render the joint airtight.
2. Burning brick in an intermittent supply of air in order to impart an irregular colour to the bricks.

Flat A horizontal stratum of any building or part thereof, whether such stratum is on one or more levels or is partially or wholly below the surface of the ground, which is used or intended to be used as a complete and separate unit for the purpose of habitation or business or for any other purpose.

Flat roof A roof having no inclination or having an inclination of not more than 7.5°.

Flexure
1. Deformation of a beam subjected to a load.
2. Any deformation of an elastic body in which points originally lying on a straight line are displaced to form a curve.

Flight That part of a stairway which is of consecutive steps.

Floating Floor Construction comprising the upper layers of a floor when these are supported on a resilient layer or mountings to provide insulation against sound or vibration.

Floor
1. A base or structure between the surface of the ground or the surface of any hardware laid upon the ground and the upper surface of the floor;
2. Any part of a floor to be used as a corridor and any balcony used in connection with the floor.

Floor Area In relation to building or a storey thereof, means the total area enclosed within its external walls, exclusive of the area occupied by any lift shaft.

Flooring Upper layer of a floor providing a finished surface.

Flue A passage which conveys the discharge of a heat generating appliance to the external air.

Flue Pipe A pipe forming a flue but does not include a pipe as a lining to a chimney.

Foam Inlet A piece inserted into a fixed foam, c02 and dry powder extinguisher.

Foamed Slug Blast furnace slag aerated while still molten. Used for building blocks and acoustic and thermal insulation.

Footway A footway or pedestrian walkway (whether open or covered) at the side of any street.

Foul Water
1. Water-borne human or animal excrement or industrial solids.
2. Waste water conveyed in underground pipes.

Foundation That part of a construction immediately below the footings of a building which is in direct contact with and through which the weight of a building is transmitted to the ground, and includes piling works,

Foundation Wall That portion of a wall between the foundation and the lowest floor above such foundation.

Frame
1. Structure principally composed of structural members.
2. Surrounding construction of members on to which a door leaf or window casement is hinged

Framed partition Partition consisting of a continuously supported plane frame and facing or infilling.

Framework The supporting skeleton of a structure.

Free standing wall A wall, not being a retaining wall, without lateral support.

French drain A trench filled with suitable material which is used for the disposal of liquid effluent from a septic tank or waste water.

Fresh air Normal outdoor air not unduly affected by odours, smoke, effluents, dust, fumes, discharges from mechanical plants and the like.

Friction Pile Pile transmitting forces to the ground mainly by friction between the sides of the pile and the adjacent ground.

Functional regulation A regulation that sets out what is required of a building, building element or Building component in respect of a particular characteristic without specifying the method of construction, dimensions or materials to be used.

Fungal decay Of or pertaining to a fungus or the nature of a fungus.

Furnishings Curtains, carpets and similar materials that equip spaces for peoples use.

Furniture shop Any premises where furniture is stored or displayed for trade purposes.

Fuse A device for opening a circuit by means of a conductor designed to melt when excessive current flows.

Gable The upper triangular portion of a terminal wall of building under the ridge of a sloped roof.

Gable Wall Wall of which a gable forms a part

Gallery
1. A wide corridor, generally an upper storey, walled on one side only.
2. An upper storey for seats in a church or public building.

Galvanizing The coating of steel or iron with zinc, generally by-immersion in a bath of zinc, covered with a flux at a temperature of 425-500°c. The zinc may alternatively be electrodeposited from cold sulphate solutions. The zinc is capable of protecting the iron from atmospheric corrosion even when the coating is scratched, since the zinc is preferentially attacked by carbonic acid, forming a protective coating of basic zinc carbonates.

Galvanized mild steel Steel of medium carbon content coated with zinc.

Gangway
1. A principle underground haulage road.
2. A passageway into or out of an underground mine

Garage	A frame erected on side supports so as to span an area and support and hoist machinery and heavy materials. Any premises or part thereof- Used for repairing, painting, washing, storing, housing or parking of motor vehicles; or Where a pump is maintained from which petrol or oil is supplied to motor vehicles.
Gas detection System	Equipment designed to give warning of the presence of a noxious, toxic, irritant Or inflammable vapour in potentially dangerous concentration
Gas extraction	An electrically or mechanically operated system capable of removing flammable vapours or gases from the part of the building where such vapours or gases may be generated through normal operation of the plants or work processes.
General conditions of contract	Conditions of contract prepared for general use for certain categories of works That by agreement become legally binding for the individual contract.
General installation	Any water installation which conveys water for any purpose other than firefighting.
General location drawings or general arrangement drawings	Plans used to show the position occupied by the various Spaces in a building, the general construction and location of principal elements, Components and assembly details.
General structural timber	Timber that may be used for load bearing purposes.
Girder	A primary beam which supports secondary beams as opposed to a joist.
Glass fibre	Glass thread less than 25 micro-metres thick, used loosely or in woven form as an acoustic, electrical, or thermal insulating material and as a reinforcing material in laminated plastics.
Glazing	Cutting and fitting panes of glass into frames.
Glazing bead	Bead nailed instead of putty to secure a pane.
Glued and laminated timber.	Layers of wood glued together to form a board or timber member

Going A warehouse or any building used wholly or in part for the storage of goods or raw material of any kind.
The distance (measured in plan) between the nosing of a tread and the nosing of the tread or landing next above it.

Grade of concrete Rating of concrete according to its mix ratio and its compressive strength determined by the crushing test.

Granolithic A rendering of cement and fine granite clippings, used as a covering for concrete floors, on which it is floated in a layer 25 - 50mm in thickness. Used because of its hard wearing properties.

Grating A support made of closely spaced bars within a small opening to hold up solid matter while allowing liquids to pass through.

Gravel Naturally occurring deposits of unconsolidated sediment ranging from about 5-75mm.

Grease trap Curve in drain-pipe to trap grease in waste water.

Grille Open screen for division of space or within a comparatively large wall or ceiling opening or intended for burglar proofing.

Grinder Any device or machine that grinds e.G. A grinding wheel.

Gross floor area The area contained within the outer surface of external walls of a building measured at each floor level. Any portions of this area not floored must be included in the plot ratio calculations.

Ground Small section, usually of timber, to which a skirting, architrave, door lining or similar are fixed and which may also be used as an edging for plastering.

Ground level Horizontal plane on the earth's surface.

Ground storey A storey the floor level of which is not more than 1 metre at any point below the level of the adjacent finished ground level, or, if there are two or more such storeys, the lower or lowest of them.

Grounds The solid land underlying an area of water; the solid surface of earth; floor foundations; a first coat of paint; an area of land attached to or surrounding a building; to cover with a layer of plaster etc. As basis for painting.

Grout	Fluid mixture of binder, fine aggregate and water that hardens after application and that is used for filling fissures and holes.
Gully	A pipe fitting incorporating a trap into which waste water is discharged.
Gully grating	Protective covers to gullies giving access to run-off.
Gypsum	The commonest sulphate mineral; crystals are monolithic, clear, white to grey, yellowish or brownish in colour with well developed cleavages.
Habitable room	A dwelling room which has a minimum superficial area of 7.0M2for a single room occupancy and a minimum internal dimension of 2.1M. The number of persons to be accommodated in such rooms shall be calculated on the basis of 3.5 M2per person.
Hand and guard rail	A narrow rail to be grasped by a person for support, and to shield one from falling over an edge.
Harbour or port	Any body of water of sufficient depth for ships to enter and find shelter from storms or other natural phenomena.
Hard wood	Dense, close grained wood of an angiospermous tree such as oak, walnut, mahogany etc.
Hazardous Material	Any material prescribed as such by any written law and includes explosives, petroleum products and any material involving high risk.
Headroom	Minimum actual or required unobstructed vertical distance from a given reference point.
Heat detectors	Alarm devices for detecting fire by heat.
Heel	Lower end of timber member; as opposed to the head or upper end.
Height	Refers to building height.
High rise building	Any building of which the floor or the uppermost storey exceeds 30m above the point of staircase discharge at ground floor level.
High risk substance	Any substance listed in the planning and building regulations.
Highway	Road for use by the public, maintained at public expense.

Hip Inclined meeting line of two slopes in a pitched roof forming a salient angle.

Hopper A funnel shaped receptacle with an opening at the top for loading and a discharge opening at the bottom.

Horizontal In relation to a discharge pipe or ventilating pipe, means inclined at less than 45° to the horizontal.

Hostel A residence for students or for some group or society of persons

Hotel Any building used wholly or in part primarily for the purposes of accommodation on a commercial basis.

House Includes any part of a building which is occupied or intended to be occupied as a separate dwelling, and includes a flat.

Housing accommodation Includes a building or tenement wholly or partly constructed, adapted, or intended for human habitation and as a business premises.

Hydraulic cement Finely ground inorganic material forming, by addition of the appropriate quantity of water, a binding paste capable of hardening both under water and in air and of binding together granular material.

Hydraulic lift A lift or elevator operated either directly by a long vertical ram working in a cylinder to which a liquid is admitted under pressure, or by a shorter
Ram through ropes.

Luminance The density of the luminous flux on a surface. Also known as illumination or luminous flux density.

Illuminate In relation to any advertisement, signboard, or sky-sign means to illuminate by design or adoption by an internal or external artificial source of light directly or by reflection.

Immaterial changes . In relation to any plan of building works, means an amendment that-

(a) does not affect any key structural element; or
(b) affects the key structural elements but the effects are localised in nature and do not require a re-design of the key structural system

Imposed load, or live load The load assumed to be introduced by the intended occupancy or use, including distributed, concentrated impact and inertia but excluding wind loads.

Incremental house Any dwelling house that, for reasons of affordability, is to be constructed in stages in such a manner that in its intermediate stages the house can be occupied by its owner for the limited specified period of time necessary to complete it and that is intended, in its finally approved form, to have a total plan area of not more than $80m^2$.

Industrial building Any building used wholly or in part in any process for or incidental to any of the following purposes, namely:

(a) the making of any article or of part of any article; or
(b) the altering, repairing, ornamenting, finishing, cleaning or washing or breaking up or demolition of any article; or
(c) the adapting for sale of any article being a building in which work is carried out by way of trade or for purposes of gain

Industrial effluent Any liquid whether or not containing matter in solution or suspension which is given of in the course of or as a result of any industrial, research or agricultural activity, and includes any liquid other than soil water or storm water.

Industrial waste Worthless materials remaining from industrial operations.

Inspection chamber A subterranean chamber not deeper than 750 mm and with a removable cover at ground level, usually located outside a building to provide open access for inspection and maintenance of a drainage or sewerage

Institutional building Any building used wholly or in part for the purposes of the following:

(a) club premises
(b) educational establishments
(c) hostels
(d) hospitals including mental institutions and clinics
(e) prisons and similar corrective institutions
(f) sanatoria

Insulating material Material for preventing or reducing the passage of heat, sound or electricity.

Insulation The prevention of the flow of an electric current, or the retardation of the flow of heat or the passage of sound.

Internal lining Any material of which the wall or ceiling surface is constructed any applied finish.

Invert level Relative level of drainage to manhole.

Ironmongery Small components usually metal, used mainly for the operation or support of doors, windows and joinery fittings.

Jack
1. A portable device for lifting heavy loads through a shorter distance, operated by a lever, a screw or hydraulic press;
2. A connecting device into which a plug can be inserted to make circuit connections.

Jamp
1. Vertical side member of a frame or lining at an opening.
2. Vertical part of wall at an opening.

Jetty A barrier built out from a seashore or riverbank to protect the land from erosion and sand movements, among other functions.

Joinery Assembly of worked timber components and panel products other than structural timber or cladding.

Joinery works Any premises where machinery other than light portable machinery is used to fashion timber into furniture, house fittings and other woodwork.

Joint
1. Position in the construction work where the joint is situated.
2. Construction formed by the adjacent parts of two or more products, components or assemblies when these are put together, fixed or united with or without the use of a jointing product.

Joist One of a series of parallel beams, usually horizontal.

Kerb or Curb
1. The stone, concrete or tile edging which separates a pavement or sidewalk from a road surface
2. Also the moulded member that borders the front of a fireplace.

Laboratory A place for experimental study.

Laminated glass Two sheets of ordinary annealed glass bonded to a shear and impact resistant plastic interlayer,

Laminated toughened glass A laminated glass where one or both sheets of ordinary annealed glass are replaced by a sheet or sheets of toughened glass.

Land drainage Medium used to collect and remove water contained in or on the ground.

Landing	A platform between two consecutive flights of a stairway
Lantern light	A sky light with flat, glazed vertical sides, rising from the roof of a building, as distinct from a skylight lying almost flush with the covering of a sloping roof.
Lateral boundary	A boundary of a site other than a boundary between such site and any street or public place with a width of more than 6 metres measured at right angles to such boundary
Lateral forces	Forces acting on a structure or structural member in a transverse direction e.G. Wind forces.
Lath	1. A narrow piece of wood used in making a level base, as for plaster or tiles, 2. Or in constructing a light framework, as a trellis. 3. A sheet of material used as a base for plaster.
Lavatory	A room or building equipped with one or more toilets
Leaded lights or	A window consisting of relatively small pieces of glass often diamond shaped
lattice window	Held in lead strips of h-section (called cames).
Lean-to roof	Monopitch roof having its upper edge against a wall.
Licence	A licence issued under these regulations and the "licensee" shall be construed to mean accordingly.
Licensee	A person who holds a licence granted under these regulations.
Lift	Permanent lifting equipment serving defined landing levels, comprising a lift car running at least partially between rigid vertical guides or guides whose inclination to the vertical is less than 15°
Lift buffer	A spring loaded pad attached to or placed at the bottom of the lift shaft to minimize the shock of collision.
Lift car	Part of the lift designed to receive the people and/or loads to be transported.
Lift well or lift shaft	Space in which the lift car and counter weight, if any, move. The space is materially enclosed by the bottom of the pit, the approximately vertical walls and the ceiling.
Lining	Dry covering to any internal building surface.

Linked switch A switch, the blades of which are linked mechanically so as to make or break all poles simultaneously or in a definite sequence.

Lintel Beam supporting loads over an opening.

Liquefied petroleum gas A product of petroleum gases principally propane and butane stored under Pressure to keep it in a liquid state, used as fuel for domestic and industrial use

Live In relation to a conductor, means that under working conditions-

(a) a difference of voltage exists between the conductor and earth; or

(b) it is connected to the middle wire, common return wire or neutral wire of a supply system in which, that wire is not permanently and solidly earthed.

Load Any force to which a building is or may be subjected, and includes dead, imposed, wind and seismic loads and forces caused by dimension changes of materials.

Load bearing In relation to a part of a building (including its foundation) means that part of a building which bears a load other than that due to its own weight and wind pressure on its surface.

Loading bay Raised construction works to facilitate the loading and unloading of vehicles at a factory, commercial establishment or ware house

Lobby Small enclosed circulation space giving access to rooms or spaces.

Local Authority An authority established under the local government act cap. 265.

Loft Accessible space not intended for habitation, frequently

Used for storage, within the roof space of building.

Louvres

1. A domed turret-line erection on the hall-roof, etc.
2. An arrangement of overlapping boards, laths or slips of glasses, admitting air and light but excluding rain.

Low rise building	Any building of which the floor of the uppermost storeys does not exceed 10 m above the point of staircase discharge at ground floor level
Lux	A unit of illumination, equal to the illumination on a surface one metre squared in area on which there is a luminous flux of one lumen uniformly distributed , or the illumination on a surface all points of which are at a distance of one metre from a uniform point source of one candela. Symbolized lx,
Macadam	Aggregate or crushed rock compacted for use in road construction
Main beam	Beam that supports other beams and is not itself supported by a beam.
Main drain	The longest run of drain from a building to a common drain, to a means of sewage disposal situated on the site concerned, or to a connecting sewer.
Maisonette	A dwelling of more than one storey attached to other building(s).
Manhole	A chamber of a depth greater than 750mm and of such dimensions that allows entry of a person into such chamber for the purpose of providing access to a drain.
Mansard Roof	Ahipped or gable roof with two slopes on each side of the ridge, the steeper of the two starting at the eaves.
Marine	Pertaining to the sea.
Masonry	A construction of stone or similar materials such as concrete blocks or brick.
Masonry wall or grout.	An assemblage of masonry units joined together with mortar
Mastic asphalt	A mixture of finely powdered rock and asphaltic material used for damp proof courses.
Material changes	In relation to any plan of building works, means an amendment that affects the key structural elements of the structure to such an extent as to require a re-design of the key structural system.
Mechanical	Pertaining to or concerned with machinery or tools.

Mechanical area The areas in a building that include equipment rooms, shafts, stacks, tunnels, and closets used for heating, ventilating, air conditioning, piping, communication, hoisting, conveying and electrical services.

Mechanical plant room Room accommodating mechanical plants such as air handling unit (ahu), fan, Air conditioning (a/c), chiller, compressor, water pump, fire pump and the like.

Mechanical ventilation The process of supplying or removing air to or from a building or part thereof by Mechanical means or devices.

Mezzanine floor An intermediate storey of lower height; it is usually a gallery between the main floor and the floor above, the floor area of which does not exceed 25% of the floor below it.

Mineral wool A natural fibre of mineral origin resembling wool or glass fibre and formed by blowing air or steam through molten rock or slag, used for insulation and fire proofing and as a filter medium.

Mining A technique and business of mineral discovery and exploitation.

Minor building work As contemplated in these regulations-

(a) the erection of any
(i) poultry house not exceeding 10 m2 in area;
(ii) aviary not exceeding 20 m2 in area;
(iii) solid fuel store not exceeding 10 m2 in area and 2 m in height;
(iv) tool shed not exceeding 10 m2 in area;
(v) child's playhouse not exceeding 5 m2 in area;
(vi) cycle shed not exceeding 5 m2 in area;
(vii) greenhouse not exceeding 15 m2 in area;
(viii) open-sided car, caravan or boat shelter or a carport where such shelter or carport does not exceed 40 m2 in area;

(ix) any free standing wall constructed of masonry, concrete or timber or any wire fence where such wall or fence does not exceed 1 .8 m in height;
(x) any pergola;
(xi) change room, not exceeding 10 m2 in area, at a private swimming pool;
(b) the replacement of a roof or part thereof with the same or similar material;
(c) the conversion of a door into a window or a window into a door without increasing the width of the opening;
(d) the making of a hole in a wall which does not affect the structural safety of the building concerned;
(e) the erection of any solar water heater not exceeding 6 m2 in area on any roof or 12 m2 when erected other than on any roof; and
(f) the erection of any other building where the nature of the erection is such that in the opinion of the approving authority it is not necessary for the applicant to submit, with his application, plans prepared in full conformity with these Regulations.

Mono-pitch or single pitch roof — Pitched roof in one plane only.

Mortar — A pasty substance formed normally by mixing of cement, sandand water in varying proportions that hardens after application and is normally used for the binding of brickwork or masonry.

Motor vehicle — Includes a vehicle of every description which may be or is capable of being propelled or drawn by mechanical power and also includes any vehicle which is not in a serviceable condition.

Motorway — Limited access dual carriageway road not crossed on the same level by other traffic lanes, for the exclusive use of certain classes of motor vehicles.

Moulding — A continuous contour surface of rectangular or curved profile, used on a plane surface such as a wall to effect a transition or create a decorative effect by the play of shadow or light.

Mullion — Intermediate vertical member in an opening or frame.

Natural stone — Stone which has been quarried and cut but not crushed into chips and reconstituted.

Natural ventilation	The supply of outside air to a building or removal of inside air from a building by means of windows and other openings.
Natural venting of staircases	As an alternative to pressurization of staircase by provision of venting of smoke From staircase in accordance with section 2 of bs 5588: part 5: 1991 in particular paragraphs 8.4(A), (b) and (h) and the latest version of the standard.
Navigational Lock	System of gates that make navigation possible between two different levels of water.
Nominal size of timber members	The size of timber before it is dressed. Sizes of dressed timber are generally given as nominal sizes and the actual size is 5-13 mm smaller.
Non-combustible	Classified as non-combustible when tested in accordance with the kenya bureau of standards.
Non-domestic	With reference to buildings, means all other buildings, include buildings where people temporarily reside, such as hotels.
Non-load bearing wall	A wall which supports no load other than its own weight.
Non-structural wall	A wall which does not form part of a structure but which may from time to time be subjected to forces other than its own weight.
Nosing	The projection of a tread of a stair beyond the riser below it.
Obstruction	Any building or other object which partially or completely intersects any zone of space serving a window but shall not include any narrow object such as a pole or railing which does not materially obstruct the entry of light and air to the opening concerned.
Occupancy	The particular use or the type of use to which a building or portion thereof is normally put or intended to be put.
Occupant load	Of a public building means the total number of persons who may use or occupy the public building at any one time.
Occupation Certificate	Authorisation for occupation of a building issued by the approving authority on successful completion of construction.

Occupiable room A room in a non-domestic building occupied by people such as an office, workroom, classroom, hotel bedroom, but not a bathroom, sanitary accommodation, utility room(s) or spaces used solely or principally for circulation, building services plant and storage purposes.

Occupier The person in temporary or subordinate possession of a building or any part thereof.

Office building Building used principally for administrative or clerical work.

Oil Any petroleum having a flash point not exceeding 93°.

Oil refinery System of process units used to convert crude petroleum into fuels and other petroleum derived products.

One-pipe system A system of piping between sanitary fixtures and a drain in which both waste and soil water discharge down a common discharge stack and in which any trap venting or other venting that is required may be via a common vent stack.

Opening

1. A window, door or other opening;
2. Any part of an external wall or side of a building which has a fire resistance less than that required by these regulations; or
3. Any part of an external wall which has attached or applied to its external surface combustible material of a thickness more than 1mm whether for cladding or any other purpose.

Operating water Level The level of water reached in any storage tank when the valve controlling the Inlet of water to such tank closes under normal operating conditions.

Operations Includes any act of construction or demolition of a building or work on a plot.

Operative Person carrying out construction work involving manual work or the operation of machinery.

Organic glass An amorphous solid glass-like material made of transparent plastic.

Outside air Air which is drawn into the building from the outside which has not been circulated through such building.

Overflow
1. Any device or structure that conducts excess water or sewage from a conduit or container
2. The excess liquid which overflows

Overflow gully A gully which allows the overflow of sewage but prevents the ingress of foreign matter, including rain water from above.

Overflow level The level at which an overflow is fitted.

Oversite concrete A concrete layer covering a building site within the external walls, serving to keep out ground air and moisture and also providing a foundation for the floor.

Owner
(a) includes the person for the time being receiving the rent of any building, whether on his own account or as agent or trustee or as receiver, or who would receive the same if the building were let to a tenant;
(b) in relation to a "rent-controlled" building, also including the tenant of the building.
(c) in relation to the common property of any building, also includes a person receiving any rental or charge for the maintenance of that common property every person whose name is entered in the valuation list.
(d) in relation to the common property of any building erected on land comprised in a strata subdivision plan approved by the competent authority, also includes the management corporation having control of the building, and every subsidiary proprietor of any subdivided part of the building.

Paint Product, liquid or solid in powder form (powder coating containing pigment(s) that, when applied to a surface forms, an opaque, hardwearing film having protective, decorative, or other specific technical properties (hygienic, sanitary, non-slip, insulating).

Pane A sheet of glass cut to size for use as a window light.

Panic bolt A special form of door bolt which is released by pressure at the middle of the door; often used in fire escape doors.

Parade To assemble or review, to match through a place of public resort; to show off

Parapet A low wall, barrier or balustrade at the edge of a roof, balcony, terrace, bridge or embankment or a junction at which an external wall and a flat roof meet

Partition	An interior wall having a height of one storey or less, which divides a space into sections, and is generally of a light construction and is demountable.
Partition wall	A non-structural internal wall extending to the ceiling and constructed for the purpose of subdividing a space.
Party wall	A wall forming part of a building and used or constructed to be used for the separation of adjoining buildings or land belonging to different owners or intended or constructed or adapted to be occupied by different persons.
Pascal	A unit of pressure equal to the pressure resulting from a force of one newton acting uniformly over an area of one square metre. Symbolised pa.
Passage	Area in a building serving as a transit from one place to another
Passenger terminal or station	Any building and place used wholly or in part for the purposes of embarking or disembarking passengers to or from any mode of transport.
Passive stack	A ventilation system using ducts from the ceilings of rooms to terminals on the
ventilation	Roof, which operate by a combination of the natural stack effect, i.E. The movement of air due to the difference in temperature between inside and outside, and the effect of wind passing over the roof of the dwelling.
Pavement	External construction works providing the surfacing and base mainly for use by vehicles.
Pawl device	Driving link or holding link of a ratchet mechanism permitting motion in one direction only.
Pelmet	A built -in head to a window for hiding the curtain rail.
Performance bond	A guarantee of an insurance company or bank or other approved sureties that are jointly and severally bound with the contractor to the employer for a fixed sum of money and for the due performance of a contract.
Pergola	An elevated balcony, projecting roof, an arbour or covered walk formed of growing plants trained over trellis work.

Perlite A volcanic glass usually with a higher water content than obsidian. It can be expanded by heating. Expanded perlite is used as an insulating material and as lightweight aggregate.

Person Includes a corporation, company or incorporated body.

Physical Planner A person who is registered in accordance with the physical planners registration act, no. 3 Of 1996.

Picture rail A mounding fixed to an interior wall from which pictures may

Be suspended by means of metal hooks which fit over the top of the moulding.

Pier
1. A concrete block that supports the floor of a building.
2. A vertical rectangular or circular support for concentrated loads from an arch or bridge superstructure.
3. A structure with a platform projecting from the shore into navigable waters for mooring vessels.

Pile A columnar foundation element which is-
(a) pre-manufactured and inserted into the ground by driving, jackingor other method; or
(b) cast-in-place in a shaft formed in the ground by boring, excavating or inserting a shell.

Pile cap Connections at the head of one or more piles transmiting forces from the superstructure to one or several piles

Pile foundation Foundation formed with piles.

Piling Pier, or mole of stone, a rectangular mass of cut lengths of paddled iron bars, laid upon each other in rows, for the purpose of being rolled after being raised to a welding temperature, to furnish or strengthen with piles especially of timber

Pipe fitting Component fitted to a pipe for such purposes as connecting, controlling, supporting, or changing its direction or bore.

Pipeline A line of pipe connected to valves and other control devices, for conducting fluids, gases or finely divided solids

Pit latrine A closet placed over or adjacent to an excavation which is of adequate depth. .

Pitch
Pitch line
A notional line which connects the nosings of all the treads in a flight of stairs. -.

Pitch-impregnated
Mixture of fibre with pitchfibre

Pitched roof
Any sloping roof, usually one with a pitch of more than 100

Place
Any area, plot or site on which buildings are located.

Place of public resort
A building or a defined or enclosed place or constructed or adapted to be used either ordinarily occasionally as a church, chapel, mosque, temple, or other place where public worship is or religious ceremonies performed, not being merely a dwelling house so used, or a cinema, theater, public exhibition room, or as a public place of assembly for persons admitted thereto by ticket otherwise or used or constructed or adapted to be used either ordinarily or occasionally for any other public purpose.

Place of safety
An enclosed space
(a) in the open air ground level; or
(b) at ground level having sufficient final exits;

Plain concrete
Concrete in which no reinforcement is included for the structural purposes but in which reinforcement may be provided for the purpose of restraining shrinkage or other movement.

Plan
In relation to any building works, includes drawings, details, diagrams, calculations, structural details, and structural calculations showing or relating to the building works.

Plan area
In relation to a floor, ceiling or roof means the area thereof measured in plan.

Plant
1. Machinery and heavy equipment installed for operation of a service (for example, heating or ventilating service).
2. Implements, machines and other items employed in construction work.
3. The land, buildings and equipment used in an industry.

Plaster
Any pasty material of mortar-like consistency based on lime, hydraulic cement or gypsum (calcium sulphate dihydrate),with or without the addition of aggregates, fibres or other materials, that is usually used for coating internal wall and ceiling surfaces and hardens after application.

Plaster board
A building board made of a core of gypsum plaster and faced with two sheets of heavy paper.

Plate 1. Timber section used as bearing for other members.
2. Rigid flat metal products.

Plenum system An air conditioning system in which the air propelled into the building is maintained at a higher pressure than the atmosphere. The conditioned air is usually admitted to rooms from 2.5 - 3 Metres above floor level, while the ventilated air is extracted at floor level on the same side of the room.

Plinth A weight suspended on a string to indicate the direction of the vertical.

Plot The parcel of land which belongs or will belong exclusively to the building and any ancillary structure.

Plot ratio The ratio of the total area of all floors of a building to the area of the site it occupies.

Plumb bob A weight suspended on a string to indicate the direction of the vertical.

Plumber Any person who in the trade of plumbing has passed a qualifying trade test or has been issued with a certificate of proficiency.

Plumb-line The string on which a plumb bob hangs.

Plywood Material consisting of two or more plies (layers) of wood with the grain of adjacent plies at right angles to one another.

Polyolefin film A resinous material made from the polymerization of olefins such as polythene from ethylene.

Population The population in a building as determined in accordance with these regulations.

Porcelain A high grade ceramic ware characterised by high strength, a white colour, very low absorption, good translucency and a hard glaze.

Portable hand- Any fire service equipment which is manufactured, used or designed to

operated approved appliances	Be used as an independent unit for the purpose of extinguishing, attacking, Preventing or limiting a fire, e.G. Water type, unit for the purpose of extinguishing attacking, preventing or limiting a fire, e.g. water type foam inert gas, any chemical extinguishers, fire blankets and sand buckets.
Portal frame	Plane frame, usually single storey, in which the junction between the vertical and horizontal or raking member is rigid.
Portico	A roofed space, open or partly enclosed, which forms the entrance to a building.
Portable Water	Water which is suitable for human consumption.
Power station	A stationary plant containing apparatus for large scale conversion of some form of energy, (such as hydraulic steam, chemical, or nuclear energy) into electrical energy.
Pre stressed concrete	Concrete in which effective internal stresses are induced artificially, usually by Means of tensioned steel, prior to loading the structure.
Prefabricated Concrete	Concrete members which are cast away from the site
Premises	Any building works or structure which is subject to formal approval or consent of for construction, alteration, change of use or demolition
Prescriptive rule or prescriptive	A rule or regulation which describes in some detail operation to be performed, or
regulation	The dimensions of a building, building element or building component and the materials and method of construction to be used in such building element or building component.
Preservative treatment of timber	Application of chemical substance to the surface of timber to guard against Wear, insect attack and rot.
Pre-stressing	This is the process by which compression stresses are induced in some parts of unloaded structure, so that tensile stresses which are subsequently caused by loading, may be counter balanced and eliminated.

Pre-stressing Tensioned steel wires embedded in concrete beams so as to maintain the beam

Tendon In a state of compression.

Private way A highway or foot path which is not maintainable at the public expense

Product Item manufactured or processed for incorporation in the construction works.

Project cost
1. In relation to any building works for the erection of a building, the sum to be expended in constructing the building including the foundations, structural frame, and finishes and the installation of building services; or
2. In relation to any other building works, the sum to be expended in carrying the building works.

Proscenium The stage frame in a theatre, fitted with curtains and a fire proof safety curtain to cut off the stage from the auditorium.

Protected doorway A doorway-
(a) (A) containing a self-closing fire door-
(i) from a flat or maisonette to an open landing giving
(ii) Access to a stairway forming part of an exit; or
(iii) giving access to a protected shaft.
(b) leading directly to a place of safety in the open at ground level.

Protected means of Escape Protected corridors, protected lobbies (including lobbies protecting fireman's Lifts) and protected staircases as defined in these regulations.

Protected shaft A stairway, escalator, chute, duct, or other shaft which enables persons, things, air to pass between different compartments.

Protecting structure Any wall, floor or structure enclosing a protected shaft other than -
(a) a wall which also forms part of an external or compartment wall;
(b) a floor which is also a compartment floor or a floor laid directly in the ground; or
(c) a roof.

Public building A building used, constructed or adapted to be used as a shop, office, hospital or used for purposes of public entertainment or public assembly.

Public entertainment Has the same meaning as in the Public Entertainment Act.

Public place Any square, park, recreation ground or open space which -
(a) is vested in the local authority; or
(b) the public has right to use; or
(c) is shown on a physical development plan of a town in a deeds registry or a Director of Surveys' office and has been provided for or reserved for the use of the public or the owners of even in such a township.

Public sewer Any sewer provided, constructed or maintained by or vested in an authority.

Pugging Sand or other similar material used above ceiling, between joists, to assist in sound insulation.

Pumice A vesicular glass-formed froth on the surface of gaseous lavas, its highly porous structure makes it suitable as a lightweight aggregate for concrete.

Punching shear The shear caused by the tendency of a column, column head or column base to punch through a foundation slab, a flat slab or a flat plate.

Purlin Beam parallel to the eaves giving support to roof cladding

Purpose group The designation, under these regulations, of a part thereof according to its use or intended use.

Qualified person A registered professional with a minimum of five years post registration experience in the built environment.

Quay A solid embankment or structure parallel to a waterway used for loading and unloading ships.

Radiant heat Heat transmitted by electromagnetic waves as distinct from heat transferred by conduction or convection.

Raft foundation Foundation in the form of a continuous structural slab extending over the whole base of a structure and sometimes beyond

Rafter A sloping timber joist extending from the wall plate to the ridge of the roof, directly or indirectly supporting the roofing

Railing A barrier consisting of a rail and supports

Railway platform Raised construction works providing easy access for passengers and for loading and unloading goods for railways vehicles.

Railway siding A short railroad track connected to the main track at one or more points and used to move railroad cars in order to free traffic on the main line or for temporary storage of cars. Also known as side track.

Rainwater Water resulting from precipitation as collected from buildings or structures

Rainwater pipe Pipe to drain off rainwater.

Ramp Inclined way or floor joining two surfaces at different levels.

Range A number of like sanitary fixtures closely spaced and discharging to a common branch discharge pipe which does not receive the discharge from any other sanitary fixture in the range.

Rational design Any design involving a process of reasoning calculation and may include any such design based on use of these regulations or other relevant technical document.

Reclamation The recovery of land and other natural recourse that has been abandoned because of fire, water or other cause.

Refine To free from impurities

Refinery A place, building, or establishment where refining of metal is carried on.

Reflux valve A non return type of valve used in pipelines at rising gradients to prevent water which is ascending the gradient from flowing back in the event of a burst lower down.

Refuse Chute- A means of transporting solid waste materials by chute from the point of disposal in high rise

Regulation Refers to national building regulations.

Reinforced concrete Concrete which contains reinforcement, normally of steel, to improve its resistance to tension, the materials of which comply with the relevant provisions contained in these regulations.

Reinforced earth Composite material made of earth and cementatious material.

Reinforcement Rods, bars, fabrics, wires or cables embedded in a material for resisting particular stresses.

Remedial works Any repair, strengthening or replacement works to defective or deficient structural elements in order to satisfy these regulations.

Rendering The application of mortar or plasterwork by means of a float or trowel

Repair The making good of a defective part of a building not amounting to a reconstruction thereof.

Repair garage Any premises or part thereof where repairing, painting or washing of motor vehicles, automobile body and fender work or any process connected therewith is carried on.

Resealing trap A trap so designed that some of the water forming its seal is retained during siphonic action to reseal after siphonage has been broken.

Reservoir A pond or lake built for the storage of water, usually by the construction of

1. A dam across a river.
2. A subsurface accumulation of crude oil or natural gas under adequate trap conditions.

Resident engineer Any superintendent, supervisor or inspector of building works who has such qualifications as will entitle him to be registered as a professional engineer under cap 530, but does not include a person employed by the builder.

Residential building A building or part thereof designed or adapted or used for human habitation such as a detached, semi-detached or terraced house or a residential flat, and includes any outbuilding and other covered structure which are intended for the enjoyment of the occupiers of the building or part thereof or are otherwise appurtenant to a residential building as such.

Residential flat A separate dwelling used or constructed or adapted to be used wholly or principally for human habitation for a single family, where the kitchen and lavatory, bathroom or water-closet are contained within the separate and that dwelling is contained in a building comprising two or more such dwellings joint vertically.

Restaurant A building or part thereof to which the public has access and used for the carrying on of any business where the primary purpose is the sale of foodstuffs for consumption in the building or part thereof but excludes a bar, coffee shop, milk bar or any eating establishment with hawker stalls.

Retaining wall Wall providing lateral support to the ground or to resist pressure from a mass of other material e.G. Earth or water but does not include a soil nailed wall, reinforced earth wall crib wall or tied back wall. Basic types are:

(a) Gravity retaining wall - relies for its stability mass of the masonry or concrete.

(b) Cantilever retaining wall - relies for its stability on cantilever strength of steel or timber.

Return wall An interior wall of about the same height as the outside wall of a building, distinct from a partition or a low wall

Ridge Intersection at the top of two slopes in a pitched roof forming its apex

Ring main system A fixed system of piping fitted with delivery outlets at fixed intervals and permanently primed pump(s) set for impacting pressure and flow to the water.

Rising main Water main for supplying various floors.

Rod Solid rigid round section with a cross-section area small in relation to its length.

Rodding eye An access opening in a drainage installation provided for the purposes of gaining full bore access to the interior of a drain for internal cleaning, and which remains permanently accessible after completion of the installation, but does include an inspection chamber manhole.

Road Surface way mainly for vehicles.

Rodding Operation of clearing a stoppage in a pipe by inserting a rod to break down the obstruction and remove it; descaling of encrusted pipe-work with scrappers attached to jointed rods.

Roof assembly A building cover and its supporting structure including any ceiling attached to such a structure.

Roof gutter A trough along the edge of the eaves of a building to carry off rainwater.

Roof truss	A frame intended to act as a beam, to support a roof.
Roofing	Upper layer or layers of a roof providing weatherproof surface.
Roof-light	Construction for closing an opening in a roof intended primarily for lighting and consisting of a frame and glazing.
Room	Enclosed space within a storey other than a circulation space.
Rubber joint rings	Rubber rings placed at joints to ensure the joint remains airtight.
Safe breakage of glass.	The breakage of glass without splintering which would cause injury
Safety distance	The distance provided between any building and the lateral boundary of the site, where there are two buildings on the same site, the distance provided between each such building and the notional boundary line between them, so that spread of fire from one building to another due to effect of radiant heat will be minimized.
Safety glass	Glass containing thin wire reinforcement or laminated with transparent plastic or toughened by heat treatment to prevent splintering if the glass is broken.
Safety glazing	Any material which complies with the requirements for the performance of safety
Material	Glazing materials contained in the kenya bureau of standards.
Sand	A loose material consisting of small mineral particles, distinguishable by the naked eye; varying in diameter from 1/16 to 2 mm; could be angular or rounded.
Sanitary	A space containing one or more closets or urinals. Sanitary accommodation
Accommodation	Containing one or more cubicles counts as a single space if there is free circulation of air throughout the space.
Sanitary appliance	Fixed appliance usually supplied with water and used for drinking, cleaning or
Fixture	Foul-water disposal.

Sanitary group A combination of sanitary fixtures comprising not more than one of each of a wc pan, bath , shower and sink and either two washbasins or one washbasin and one bidet.

Sawtooth Roof An industrial roof type having a number of parallel roof surfaces of a triangular section with a profile similar to the teeth in a saw; the steeper side, usually vertical, is often glazed.

Sawmill Any premises where timber is sawn by mechanically operated band of saws.

Scaffolding A temporary erection of timber or steelwork, used in the construction, alteration, or demolition of a building, to support or to allow for the hoisting, lowering or provide working platform,materials, equipment, etc.

Schedule Documentation in the form of table or detailed lists,

Seal Formed material used in jointing to prevent the passage of dust, moisture, wind, etc.

Sealant Unformed flexible material applied in jointing to prevent the passage of dust, moisture, wind, etc.

Sealer Liquid used on absorbent surfaces that when dried reduces their absorptive capacity.

Section
1. A view of the parts contained in an intersecting surface usually a plane surface.
2. Product usually formed by a continuous process to a definite cross-section that is small in relation to its length

Self-closing In relation to a door, or fire-door shutter means equipped device to ensure immediate closing of such a door, fire-door, shutter or fire-shutter after having been opened.

Separating element A wall or floor, which shall have a specific fire resistance, sued between divisions, occupancies or tenancies in a building.

Septic tank A tank used for the natural treatment of sewage.

Service pipe Any pipe which is part of a water installation and which is connected to any communication pipe.

Services System comprising equipment, pipes, cables, ducts and their support

Sewage	Waste water, soil water, industrial effluent and other liquid waste, either separately or in combination, but does not include stormwater.
Sewer	A pipe or conduit which is the property of or is vested in the local authority and which is used or intended to be used for the conveyance of sewage.
Sewerage system	System for removal of surface water and foul water usually from beyond the cartilage of more than one site.
	Shaft below ground vertical or inclined excavation in the ground providing a passage or enabling a person to work.
Shear stress	A stress in which the material on one side of a surface pushes on the material on the other side with a force which is parallel to the surface.
Shear wall	Load bearing wall intended to make significant contribution towards the resistance of horizontal forces acting in its own plane.
Sheet	Thin metal section,
Shell	A thin curved structural membrane without intermediate or integral support.
Shingle	A thin, flat, rectangular piece of wood laid in the manner of a slate or tile, and arranged in overlapping rows for covering roofs and walls.
Shop	A building or part thereof used for the carrying on of any trade or business where the primary purpose is the sale of goods and services..
Shuttering or Formwork	The general term for temporary works for the support of reinforced concrete while it is setting.

Signboard A display of the name, registered trade mark or nature of the trade, business or profession of any person in form of a notice or sign printed, painted, carved, engraved or otherwise delineated on or affixed to any place or premises and visible from any street or building which exceeds half a square metre in area and in respect of the place or premises to which it is affixed contains only:-

(a) a reference to the' identification or description of the place or premises;
(b) a reference to the identification or description of any person residing or carrying on an occupation at the place or premises;
(c) particulars of any occupation carried on at the place or premises;
(d) such directions or cautions as are usual or necessary relating to the place or premises or any occupation carried on thereat;
(e) particulars or notification required or permitted to be displayed by any written law; or
(f) particulars relating to any service provided at the place or premises.

Sill or cill Horizontal timber, stone, etc. At the footing of an opening as for a door, window, embrasure, etc.

Silo Civil engineering works for the storage of a large volume of loose material.

Single-stack system A particular one-pipe system in which trap vents are not required.

Site Any plot, stand or other piece of land on which a building has been, is being or is to be erected.

Site assembly Putting together components on site.

Site formation Any kind of site formation in connection with construction and includes

Works Bunding and i earthworks for the construction of foundations, basements, substructures, underpinning, ground anchors, trenches or any ground works.

Site investigation Investigation of the physical characteristics of the site and includes documentary studies, site surveys and investigations.

Site plans Plans used to locate the position of buildings in relation to setting out point, means of access, general layout of site. The plans may also contain information on services drainage network, etc.

Size Magnitude of a dimension in terms of a defined unit.

Skirting A finishing board which covers the joint between the wall and the floor of a room.

Skysign Any erection consisting of a frame, hoarding, board, bar, pillar, post, wire or any combination of such things, or any erection of like nature, or any visible object which floats or is kept in position by wire or other flexible attachment, displayed for the purposes of any trade or business carried on for the purposes of gain and in such a position as to be conspicuously visible against the sky and from any street or building.

Slate A fine grained metamorphic rock formed from clay, shale,, or volcanic ash by high pressure

Sleeper A timber, steel, or precast concrete beam placed under rails to hold them at the correct gauge.

Sleeper Wall Low load bearing wall to provide intermediate support suspended floor at ground level.

Slipway The space in a shipyard where a foundation for launching ways and keel blocks exists and which is occupied by ship while under construction.

Slop-sink A sink intended for receiving solid or liquid filth.

Smoke Dispersions of finely divided (0.01- 5.0 Micrometres) or liquid in a gaseous medium.

Smoke detector A photo electric system for an alarm when smoke in a room, chimney or other location exceeds a predetermined density.

Smoke extractor Apparatus to extract smoke.

Socket Pit A pit excavated to receive excess water which can duly seep into the surrounding ground.

Socket outlet	A device with protected current transmitting contacts intended to be mounted in a fixed position and permanently connected to the fixed wiring of the installation to enable the connection to it of a flexible cord or cable by means of a plug.
Soft wood	The collective name for timber from any coniferous tree
Soil branch	A branch discharge pipe which conveys soil water.
Soil drain	A drain which carries sewage or industrial effluent to the sewer, as opposed to storm drain.
Soil fixture	A sanitary fixture which receives and discharges soil water.
Soil pipe	A vertical cast iron or plastic pipe for carrying sewage from a building into the soil drain.
Soil water	Water containing excreted matter, whether human or animal.
Solar water heater	A mechanism used to heat water by converting solar radiation to heat.
Solid floor	Floor comprising a concrete slab without voids or fillers.
Space	Area or volume bounded actually or theoretically.
Space frame	Three-dimensional structure resisting forces that can be applied at any point, inclined at any angle to the surface of the structure and acting in any direction.
Span	A structural dimension measured between certain extremities or supports.
Specification of Works	Written document stating the requirements for construction works to be carried out
Spigot	The plain end of a length of pipe which is fitted into an enlarged socket or ball at the beginning of the next pipe.
Spine wall	Internal load bearing wall parallel to the main axis of a building.
Spiral stairway	Any succession of tapered treads forming a curved stairway which extends as a single flight from one floor to another and which has a minimum radius of curvature of less than 100mm.

Splice A joining of two structural pieces. The joint is generally designed to be as strong or stronger than the pieces to be joined.

Spot levels Points on the ground surface of known height above a given datum.

Spread of flame rating That surface capable of withstanding for a specified period the test approved by the kenya bureau of standards

Springing Plane at the end of an arch forming the end bearing.

Sprinkler system A fire protection system of pipes and outlets in a mine or other enclosure by delivering a fire extinguishing liquid or gas and sounding an alarm, usually automatically by the action of heat on the sprinkler head.

Stability The property of a body to maintain its attitude or to resist displacement, and, if displaced, to develop forces moments tending to restore the original condition.

Stack vent A ventilating pipe connecting to a discharge stack above the highest connected discharge pipe.

Stadium A sports field surrounded by terraces and stands, often roofed, for spectators.

Stage A ledge or working platform associated with scaffolding

Stair A means of vertical circulation consisting of a number of steps from one level to another .

Stairway Any part of a building which provides a route of travel between different levels in such building and is formed by a single flight or by a combination of two or more flights and one or more intervening landings.

Stairway enclosure In relation to an exit, means any part of an exit (not being a part within room) which includes stairway landings approaches thereto and extends to a place of safety.

Stairwell Space reserved for accommodating a stair where the faces of the walls limit the volume.

Stall A bench, table, board or the like especially one in front shop upon which goods are exposed for sale, a booth or covered stand for the sale of wares at a market, a fair or in the open street, a stand at a fancy fair, a booth or shed to shelter a cobbler at his work etc.

Stanchion Metal column.

Static smoke extraction system A smoke extraction system utilising smoke reservoirs localised ducting; and Permanent openings and/or automatic opening of windows, panels or external louvers actuated ' by smoke detectors; to remove, on the principles of natural ventilation, smoke and products of combustion from a designated fire compartment.

Storage garage Any premises or part thereof on or above ground level used for the purpose of storing, washing, housing or parking of motor vehicles.

Storage tank Any tank, other than any tank used for storage of hot water or cistern serving a wc pan or a urinal, which forms part of a water installation and is used for the storage of water.

Store Building or space within a building devoted to the storage or distribution of supplies.

Storey That part of a building which is situated between the top of any floor and the top of the floor next above it, or if there is no floor above it that portion between such floor and the ceiling above it (mezzanine floor, open work floor, catwalk or gallery being taken to be part of the storey in which it is situated), and in relation to a building-

(a) the ground storey shall be taken as the storey in which there is situated an entrance to the building from the level of the adjoining ground or, if there is more than one such storey the lower or lowest of these;
(b) a basement storey shall be taken to be any storey of the building which is below the level of the ground storey;
(c) an upper storey shall be taken to be any storey of a building which is above the level of the ground storey;
(d) the height expressed in storeys shall be taken to be that number of storeys other than a basement.

Stormwater Water resulting from natural precipitation or accumulation and includes rainwater, surface water, subsoil water or stormwater.

Stormwater drain A pipe, conduit or channel, owned by or vested in the local authority, which is used for the conveyance of stormwater.

Stormwater pipe Pipe for conveying storm-water.

Stratum	Any part of land consisting of a space of any shape below, on or above the surface of the land or partly below and partly above the surface of the land, the dimensions of which are delineated.
Street	A road lined with buildings including avenues, crescents, cul-de-sacs, alleys, closes, courts, places, lanes and drives.
Street boundary	In relation to a site, means the boundary of such site which abuts any street.
Stress-graded Timber	Timber that has been tested and certified as fit for structural purposes.
Stressed skin	Structure clad with thin elements designed to contribute to the strength of the whole structure
Strip foundation	Long narrow foundation, usually horizontal.
Structural	Relating to or forming part of any structural system.
Structural drawings	The design and working drawings for structures such as buildings, bridges, dams, tanks and highways.
Structural elements	Those parts or elements of a building which resist forces and moments and include foundations, beams, shear cores slabs, roof trusses, stairwells, load bearing walls and all other elements designed to resist forces and exclude doors, windows, and non-load bearing
Structural engineer	A person who is registered under cap. 530)
Structural Steelwork	Steel members having a structural function.
Structural system	In relation to a building, means the system of constructional elements and components of any building which is provided to resist the loads acting upon it and to transfer such loads to the ground upon which the foundation of the building rests.
Structural wall	A wall forming part of any structural system
Structural work	Any work in relation to the structural elements of the building works.
Structure	The action, practice, or process of building or construction. Manner of building or construction. A fabric or framework of material parts put together-

Strut	Structural member intended to resist compression.
Stub stack	A straight 100 mm diameter discharge stack not more than -one storey high with a rodding eye at its top.
Stud	One of the vertical members in the walls of a framed building to which wallboards, lathing, or paneling is nailed or fastened. Rivet, boss, or nail with a large ornamental head. Short rod or bolt threaded on both ends with no head
Subsoil	The stratum of earth next beneath the surface soil.
Subsoil water	The ground water naturally contained in the subsoil
Substratum	Substructure part of a structure wholly or mainly below the level of the adjoining ground or a given level.
Superstructure	Part of a structure above the substructure.
Supply tank	A water tank containing a specified quantity of water reserved solely for fire fighting.
Surcharge	The load supported above the level of the top of a retaining wall.
Surface fire index	A classification awarded to a combustible surfacing material (in excess of 1 mm in thickness) when tested in accordance with the kenya bureau of standards.
Surface of the wall	Shall be construed as excluding the surface of any door, window, window frame, fire-place, mantle shelf, fitted furniture or trim.
Surface railway	Railway situated or operating above the surface of the ground.
Surface water	The run off after rain, as opposed to soil or waste water
Suspended ceiling	Ceiling hung at a distance from the floor or roof above
Suspended floor	Floor that spans .Between supports.
Suspended working	A scaffold or a working platform suspended from a building or structure by

Platform	Means of a lifting gear and capable of being raised or lowered by lifting appliances, lifting gear, counter weights, ballast, outriggers, other supports and the whole of the mechanical and electrical apparatus required in connection with the operation and safety of such a scaffold or working platform.
Switch	A mechanical device for non-automatically making and breaking a circuit-carrying current not greatly in excess of the rated normal current.
Symbolic safety signs	Symbols displayed to caution against hazards.
Tank	A pool or lake, an artificial reservoir or cistern, storage place for drinking water, a natural pool or pond.
Tanking	Waterproof material included in an underground structure to prevent the infiltration of subsoil water
Tapered tread	A tread which has a greater width at one side than at the other and a going which changes at a constant rate throughout its length.
Taxiway	A specially prepared or designated path on an airport for taxiing aircraft.
Temporary building	Any building that is so declared by the owner in that is being used or is to be used for a specified purpose for a specified limited period of time but does not include a contractor's shed.
Tenement House	Any building in the domestic part of which any living room is intended or adapted for the use of more than one tenant or sub-tenant. In this regulation "living room'1 means room intended or adapted as a place for cooking and or sleeping.
Terrace	An enclosed level platform often fitted with a balustrade, in front of a house; a gallery or a balcony attached to a house.
Test hole	A drill hole to obtain soil samples to determine their structural and physical characteristics.
Thatch	Form of roof cover composed of courses of reeds, straw, grass or heather laced together.
Threshold	A piece of stone, wood or metal that lies under an outside door.
Tie	Structural member intended to resist tension.

Timber Both sawn and unsawn logs and all other forms of and wood deposited for purposes of trade or manufacture, other than timber intended for use as firewood, and include wooden furniture.

Timber store Any premises not exceeded 65 m2 in area where timber is stored or deposited for purposes of trade, manufacture or otherwise including the storage of builder's timber work " excluding a contractor's store on a building site where timber is prepared and fabricated for use in the erection of building on that site

Timber yard Any premises exceeding 65 m2 in area where timber is stored or deposited for purposes of trade, manufacture otherwise including the storage of builder's timber work but excluding a contractor's store on a building site where timber is prepared and fabricated for use in the erection.

Toe wall A reinforced concrete retaining wall with part of the base projecting in front of the face of the stalk.

Toilet A room in which a water, earthen chemical closet and/ or urinals and wash basins are installed.

Tongue and groove A projecting edge or tenon of a board for insertion into corresponding groove of (t&g) joint another board.

Tool Implement for working upon something, usually held in hand.

Toughened glass A glass produced by subjecting annealed glass to process of heating and rapid cooling which, produces high compression on the surface and compensating tension in the interior.

Tractional force The force exerted on particles under flowing water by the current: it is proportional to the square of the velocity.

Trade effluent Liquid, either with or without particles of matter in suspension, which is wholly or in part produced in the course of any trade, industry or research, but does not include soil water or waste water.

Transmission line A system of conductors, such as wires, wave guides, or coaxial cables suitable for conducting electrical power or signals efficiently between two or more terminals.

Transmission tower A concrete metal or timber structure used to carry a transmission line.

Transom	Horizontal member across an opening or frame of a window or door.
Transparent medium	A medium which has the property of transmitting rays of light in a way that the human eye may see distinctly through it.
Trap	A bend or dip in a soil drain, so arranged that it is always full of water that provides a water seal which prevents odours from entering a building.
Trap vent	A ventilating pipe connecting an individual trap to the open air or to another ventilating pipe.
Travel distance	In relation to any point, means the distance to be covered between that point and the nearest protected doorway measured, where the floor is-divided by fixed seating or any other obstruction, by way of the shortest route along an open gangway; or (b) not so divided, by way of the shortest route.
Tread	The upper surface of a step.
Trim	The edging of an opening in a colour or material different from that of the wall surface. A generic term for architraves, skirtings, etc. Which cover open joints.
Trunk sewer	A sewer receiving sewage from many tributaries serving a large territory.
Truss	A frame generally of steel, built from members in tension and compression.
Tunnel	A long narrow horizontal or near horizontal underground passage that is open to the atmosphere at both ends, used for aqueducts and sewers, carrying railroad and vehicular traffic, various underground installations, and mining.
Turbulence	Motion of fluids in which local velocities and pressures fluctuate irregularly, in a random manner.
Two pipe system	A system of piping between sanitary fixtures and a drain in which waste water and soil water discharge through separate discharge pipes and in which any trap venting or other venting that is required is via separate ventilating pipes for the waste and soil water systems
Underpinning	Introduction of support under an existing structure,

Unit fire load	The fire load of a compartment or a division divided by the floor area of such compartment or division, and is expressed either as timber equivalent (kg/m2) or heat energy value (mj/m2). (Mega joules per square metre)
Unplasticized polyvinyl chloride (UPVC)	Plastic material for making pipes, etc.
Unprotected steel	Structural steel which is not protected with fire resistant material against the effect of fire.
Upstand beam	Beam part of which is projecting above an adjoining slab often concrete
Utility room	A room designed to or likely to be used to contain clothes washing and similar equipment such as sink, washing machine , tumble drier or other feature or equipment which may reasonably be expected to produce water vapour in significant quantities.
Valley	Meeting line of two slopes in a pitched roof forming a re-entrant angle
Valve	Device to control flow of fluid
Vapour barrier	Layer of material intended to restrict the transmission of water vapour
Vent	A ventilating pipe
vent horn, Vent stack	A main vertical ventilating pipe of any part of a drainage installation
Vent valve	A one-way air valve specifically designed and constructed to be fitted near the crown of the trap serving a waste fixture to protect the water seal of such trap against excessive negative air pressure arising in the fixture discharge
Ventilating pipe	A pipe which leads to the open air at its highest point and which provides ventilation for the purpose of preventing the destruction of water seals, but does not include a discharge pipe
Ventilation	Provision for the movement, circulation and quality control of air in an enclosed space

Ventilator A device with an adjustable aperture for regulating the flow of fresh orstagnant air
A mechanical apparatus for producing a current of air as a blowing or exhaust fan.

Verandah An open portico or roofed gallery extending along the front(and occasionally, other sides) of a dwelling or other building, erected chiefly as a protection or shelter from the sun or rain

Verge Projecting sloping edge of a pitched roof that portion of the surface of finished pavement earthworks not covered by the carriage way or footpath

Vermiculite A generic name for hydrous silicates of aluminium, magnesium and iron, which occur as minerals in a plate form, and show marked exfoliation on heating. The term often implies exfoliated vermiculite, which is used for thermal insulation and fire protection, often as an aggregate in plaster or concrete

vertical In relation to a discharge pipe or ventilating pipe, means inclined at 45 degrees or more to the horizontal, and in relation to a glass pane, means installed at any angle between 60 degrees and 90 degrees to the horizontal, both figures being inclusive

Vesicle A cavity in lava formed by entrapment of a gas bubble during solidification; also known as an air sac.

Vestibule A hall or chamber between the outer door and the interior, or rooms, of a building.

View A representation on a plane of how an observer, situated at infinity and looking in a direction perpendicular to the plan, sees a building element or a building component.

Vitrified clay Clay which has been made glassy by heating

Volatile Readily passing off by evaporation.

Vulcanisation The treatment of rubber or plastic with sulphur to crosslink the polymer chains: it increases the strength and resilience of the polymer.

Wall A rampart of earth, stone or other materials constructed for defensive purposes. An enclosing structure composed of bricks, stones , or similar materials laid in courses, each of the sides and vertical divisions of a building, an enclosing structure round a garden, yard, other' property, also each of the portions between the angles of such a structure

Wall plate Structural members along the top of a wall or built into its length, that distributes the forces from joists, rafters or roof trusses.

Warehouse A building where storage is the principal use and where no business is transacted other than incidental to such storage.

Wash-trough A shallow trough for assisted wash in hospitals

Waste appliance A sanitary appliance for the collection and discharge of water used for ablutionary, culinary or other domestic purposes

Waste branch A branch discharge pipe which conveys waste water only.

Waste pipe A pipe which receives the waste from appliances such as baths, sinks (not being slop-sinks), bidets, or lavatory basins.

Waste stack A waste pipe which receives the waste from two or more appliances such as baths, sinks (not being slop-sinks), bidets, or lavatory basins fixed in more than one storey of a building.

Water closet suite Sanitary appliance consisting of a water closet pan, seat,flushing apparatus and any necessary flush pipe.

Water distillation The process of producing vapour from liquid water by heating the water and collecting the condensing vapours into liquids

Water fitting Any component, other than a pipe of any water installation, through which water passes or in which it is stored.

Water installation An installation used or intended to be used for the conveyance or storage of water in any building or on any site on which such building is situated and includes any pipe or any water fitting other than any water meter vested in the local authority.

Water seal The water in a trap which acts as a barrier against the flow of any foul air or gas,

Water spray system	A system designed for extinguishing or controlling fires involving flammable liquids by emulsification, cooling and smothering.
Water supply system	Any system of structures, aqueducts, pipes, valves, pumps, meters or other appurtenances relating thereto which are vested in the local authority and are used or intended to be used by it in connection with the supply of water.
Water tower	Civil engineering works comprising a large water tank raised above ground level.
Water tightness	Quality of a construction that does not allow the passage of water.
Water works	The whole system of supply and treatment utilized in acquisition and distribution of water to consumers.
Wearing course	The topmost layer of material laid down in the construction of a road that deteriorates due to material removal caused by relative motion between it and another part.
Weathering	The physical disintegration and chemical decomposition of earthy and rocky materials on exposure to atmospheric agents.
Web	The vertical strip connecting the upper and lower flanges of a rail or girder;the central members of a truss structure that transfer loads.
Weep hole	A hole in a wood sill, retaining wall or other structure to allow accumulated water to escape.
Weld	A union made between two metals by welding
Welding	Uniting two pieces of metal by raising the temperature of the metal surfaces to a molten condition with or without the addition of additional welding metal and with or without the addition of pressure.
Wharf	A structure of open construction built parallel to the shoreline; used by vessels to receive and discharge passengers or cargo.
Wind brace	Structural member used in resisting wind forces.
Wind loads	All loads due to the effect of wind pressure or suction.

Winder	Any tapered tread that has a minimum going of less than 50 mm and which is used in conjunction with non- tapered treads in a single flight.
Window	Construction for closing a vertical or near-vertical opening in a wall or roof that will admit light and may admit air
Window shutter	A wood or metal covering for a window, used externally or internally.
Wired glass	Annealed glass containing a wire mesh which is completely embedded in the body of the glass during manufacture.
Wood wool slabs	Slabs made from long wood shavings with a cementing material.
Workshop	Building or a space within a building that serves as a work place for a particular manual activity.
Zone	A space or group of spaces within a building with cooling requirement sufficiently similar so that comfort conditions can be maintained throughout by a single controlling device
Zone of space	Volume of open air outside an opening relating to an external wall or a portion of such an opening.

A - 3.2 Where in the Regulations reference is made to a Kenya Standards number, such reference shall relate to a document bearing the number and title given in the following table.

Description	**Standard Reference No.**
Metal ties for cavity walls	BS EN 845=1:2003+A1:2008
Fire-dampers	SABS 193 :1972
Water for domestic supplies	BS EN 8060 + 1,2: 1987
Bituminous damp-proof courses	BS 6398 : 1983
Mastic asphalt for damp-proof courses and tanking	BS6925 : 1988
Glazed ceramic sanitary ware	KS 02-1738
Fire hose reels (with hose)	KS 1960 PT 1-9 :
Stress-graded softwood general structural timber	KS 02-771 : 1988
Softwood brandering and battens	KS150 PT214
Portable rechargeable dry powder fire extinguishers	BS EN 615 :1995
Glued laminated timber structural members	BS4169 : 1988
Portable fire extinguishers (water types)	SABS 889 : 1992
Polyolefin film for damp-proofing and waterproofing in buildings	SABS 952 0 : 1985
Rubber joint rings (non-cellular)	SABS 974 : Part1 : 1986
SA pine stock glued laminated timber (stocklam)	SABS 1460 : 1988
Room air conditioners	SABS 1125 : 1996
Fire fighting equipment	Part1SABS 1128 : Part 1: Part II SABS 1128 : Part 2
Portable fire extinguishers of the halogenated hydrocarbon type	SABS 1151 : 1992
Symbolic safety signs	SABS 1186 : 1993
Stress-graded softwood engineering timber	SABS 1245 : 1978 or KBS KS
Fire door assemblies	BS 8214 : 1990 or KBS KS 02- 568:1985
Safety and security glazing materials,for buildings	Part I SABS 1263: Part 1:1986
Prefabricated concrete components for fences	SABS 1372 : 1983
Steel fencing for private swimming pools	SABS 1390 : 1983
Preservative treatment of timber	KS 02-94:1985
Timber buildings	SABS 082 : 1972
Handling, storage, and distribution of liquefied petroleum gas in domestic, commercial, and industrial installations	KBS KS-06-09 Part III:1990 Part IIISABS 087: 1975 PartVII SABS 087: 1972
Act for the petroleum industry	Part III SABS 089 : 1991
Structural use of concrete	KBS KS -02-101 : 1983 or BS810:1985 Part I SABS0100 : 1992 Part II SABS 0100:1992
Hand and guard rails (safety aspects)	SABS 0104 : 1992
The classification, use, and routine maintenance of portable fire extinguishers	SABS 0105 ; 1988
Solar water heaters	SABS 0106: 1972
Interior lighting	Part I SABS0104:1996

Application of certain soil insecticides for the protection of buildings	Part II: SABS 0131 : 1979
The storage and handling of liquid fuel	Part Ill : SABS 0131 :1982
The safeness of private swimming pools	SABS 0134 : I977
The installation of glazing materials	SABS 0137 : 1984
The prevention, automatic detection and extinguishing of fire in buildings	SABS0139 : 1981
Identification colour marking	Part III : SABS 0140 : 1992
Concrete masonry construction	SABS 0145 : 1978
General procedure and loadings to be adopted for the design of buildings	SABS 0160 : 1989 or, KBS KS 02-755 :1988
The design of foundations for buildings	SABS 0161 -1930
The structural use of steel	KS02-572 : 1986 or, BS5950: Part 2:198
The design of timber structures	Part I : SABS 0183:1994
The structural use of masonry	Part I : BS 5628 : 1992
Fire testing of materials, components, and elements used in buildings	PartII SABS0177 : 1981 or Part III SABS 0177: 1981 or KBS KS-02-561:1984 or Part IV : SABS 0177 : 1981 or Part V : SABS 0177: 19S1

A - 4 EXPLANATION NOTE

In certain cases in these Regulations, the Regulations have been followed by a commentary. It is important to note that this commentary does not form part of the Regulations and has been included only for the purpose of clarifying the interpretation of the Regulations or to add useful background information.

Note
In order to distinguish clearly between the Regulations and the commentary, the Regulations have been printed in smaller type while the commentary is in italics and preceded in each case by the word "commentary".

A - 5 DEVELOPMENT PERMISSIONS

A - 5.1 No person shall develop or cause to be developed any building on land where development permissions applicable to the area have not been granted.

A - 5.2 Any person who contravenes the provisions of these Regulations shall be guilty of an offence.

A - 6 APPLICATION FOR APPROVAL OF BUILDING PLANS

A - 6.1 The designing, planning and the supervision of the erection of any building or structure or the performance of any function in connection therewith in terms of these Regulations is subject to the provisions of any law in terms of which the person undertaking such work or performing such function is required to be registered, or to have a specified qualification, certificate, status or other attribute or to have had experience or training of

a specified nature or for a specified period which is acceptable.

Specify the professionals who will supervise the design, planning of the structure… engineers, architects etc. and people without registered qualifications.

A - 6.2 An application shall be made to an approving authority to erect any building defined as minor building work or to carry out any work falling within the ambit of such definition, and any such erection or work shall not be commenced before such authorization has been granted. Provided that such application and such authorization shall not be required for minor building work where defined in terms of these Regulations no plans are required

A - 6.3 Minor building work shall comply with these Regulations.

A - 6.4 No plans, particulars or approval shall be required for any repair which has become necessary as a result of ordinary wear and tear or which is undertaken in the normal course of maintenance or upkeep of any building;
provided that where such repair will affect the structural loading or is a repair of any part of the structural system drawings or specifications shall be submitted for approval.

A - 6.5 No person shall erect any building which is to be supported by an existing building or extend an existing building unless certified by a civil / structural engineer and with the necessary approval.

A - 6.6

(a) Where in any application the owner of any building has declared such building to be temporary, the approving authority shall before granting permission, assess such building in relation to:-
  (i) the intended use and life of the building;
  (ii) the area in which it is to be erected; and
  (iii) the suitability of materials from which it may be constructed.

(b) Where any building contemplated in sub-regulation AA6.6 (a) is intended to be used for experimental, demonstration, testing or assessment purposes, the Authority:-
  (i) shall grant authorization for a period of time sufficient for the erection of such building and for the performance of any experiment, or for the demonstration, testing or assessment of such building; and
  (ii) shall grant authorization for the erection of such building where testing or assessment of the completed building is the only way to ascertain whether such building complies with the requirements of these Regulations.

Any incremental house shall in the application of these Regulations in any intermediate stage of erection be deemed to be a temporary building.

Any incremental house shall in the application of these Regulations require resubmission of the overall plans if such increments are to be done after a period of five years has lapsed. Such increments shall not exceed 80m^2 and should not deviate from the original approved overall plans. This clause applies to social housing that need to be built in phases.

A - 6.7 Where an application is made to make an alteration or addition to a building, approval for the erection of which was granted before the date of commencement of these regulations:-

(a) such alteration shall comply with the requirements of these Regulations, but consequent changes to any other part of the building which would be necessary in order to make such other part comply with the requirements of these Regulations shall not be required unless in the opinion of the approving authority such consequent changes are necessary to ensure the health or safety of persons using the building in the altered form;
   (i) There is in existence an approval under old the regulations
   (ii) The building does not meet the requirements under these regulations
   (iii) Before one gets approval from the approval authority, the authority will require a person to make the building compliant prior to granting approval for an application presented to it under this regulation.

(b) Such addition shall comply with the requirements of these Regulations but no changes to the original building shall be required unless the addition:-
   (i) will affect the structural strength or stability of the original building;
   (ii) will render any existing escape route from the original building less effective; or will affect the health of persons using the original building.

No approval shall be granted unless it complies with the physical development plan of the area

A - 6.8 Where in terms of these Regulations an obligation is imposed or may be imposed on the owner of any building or land to do or refrain from doing any particular act or thing, and:-

(a) such owner and some other person have lawfully agreed, in writing, that such other person shall accept such obligation on behalf of such owner; and
(b) such owner has, where required by the approving authority, furnished with written proof of the fact contemplated in sub regulation AA6.8(a) and with the name and address of such other person, any reference in any such regulation to such owner shall be construed as a reference to such other person;

Provided that such owner shall not be relieved of such obligation where such other person does not adhere to the agreement contemplated in sub regulation AA6.8(a).

A - 7 PLANS AND PARTICULARS TO BE FURNISHED FOR BUILDING APPROVAL

A - 7.1 Any person intending to erect any building shall submit to the approving authority the following plans and particulars, together with one application:-

(a) A location plan;
(b) A site plan;„
(c) drainage installation drawing;
(d) a fire fighting installation drawing;
(e) particulars of any existing building which is to be demolished and details of the method of demolition to be used;
(f) such plans and particulars as may be required by the approving authority in respect

of:-

(i) general structural arrangements, subject to any requirement contained in these Regulations with regard to design of the structural system;
(ii) general arrangement of artificial ventilation;
(iii) a fire protection plan;
(iv) any certificate contemplated in these Regulations; and
(v) any other particulars;

Provided that:-

(a) such plans and particulars shall not be submitted where:-
  (i) as a result of any buildings in the exemption schedule, it is not necessary to do so or; -
  (ii) any minor building work or;
(b) in the case of any temporary building, only such plans and particulars as are listed in these Regulations shall be submitted.

To be harmonized with section 4 and 5 and the first schedule of the LG Building Code.

A - 7.2 A certified copy of any approved plans and particulars contemplated in sub-regulation ……shall be available at the site where any building is being erected until a certificate of occupancy has been issued by the approving authority.

A - 8 PRELIMINARY PLANS AND ENQUIRIES

A - 8.1 Any person who intends to erect a building may, before submitting an application in accordance with these Regulations, request the approving authority:-

(a) to examine any preliminary sketch plans of the building proposed to be erected and to, in writing, furnish its comments on such plans or on any particular feature thereof specified by such person; or
(b) to furnish, in writing, its opinion as to whether any material or method or form of construction intended to be used in the erection of such building will comply with these Regulations.

A - 8.2 Where the approving authority is unable to comply with any request contemplated in sub-regulation AA8.1 it shall furnish, in writing, its reasons for its inability to do so.

A - 9 ADDITIONAL DOCUMENTS AND INFORMATION

A - 9.1 Where it is required of the applicant in terms of sub-regulation AA7.1 (f) to submit structural details and building services details such applicant shall, to the extent required by the approving authority :-

(a) furnish the approving authority with a structural arrangement drawing which shall show the position, level and size of every structural member.
(b) furnish the approving authority with such structural drawings and building services details as required in terms of sub-regulation AA7.1 (f) : Provided that where the structural system or building services systems, as the case may be, is designed by a such details shall thereafter form part of the relevant application forapproval;
(c) show on structural drawings the imposed floor loads which such building has been

designed to withstand;

(d) furnish for inspection the calculations used in the design of the building proposed to be erected;

(e) furnish adequate information regarding the sub-soil of the site on which the buildin is proposed to be erected;

(f) show the fire resistance ratings of the various structural members of the building and, where special protection for such members is necessary, details relating to such protection;

(g) furnish information regarding structural materials to be used in the construction of the proposed building, including the grade, strength, classification, temper or treatment;

(h) if the design or part thereof has been carried out in accordance with any Act contemplated in these Regulations, furnish the name and number of such an Act;

(i) if the design or part thereof has been carried out in accordance with a document other than a Act contemplated in these Regulations, furnish identification of such document together with the reasons for utilization such document in preference to such Act.

(j) if the design or part thereof has not been carried out in accordance with any Act or document contemplated in sub-regulation AA9.1(h) or (i), furnish the basis and method on which such design was prepared and any further evidence of the adequacy of such basis and method; and

(k) if the structural design or part thereof has been carried out in accordance with an Act, document or other method contemplated in sub-regulation AA9.1(h), (i) or (j), furnish, in addition to the loads contemplated in sub-regulation AA9.1(c), details of other loads which such building has been designed to withstand.

A - 9.2 The documentation for the structural concrete used in a building shall, to the extent required by the approving authority, show:-

(a) (a) the reinforcement in each member;
(b) (b) the various grades of concrete to be used;
(c) (c) the type of reinforcement or pre-stressing tendon;
(d) (d) the amount of concrete cover to be provided to the reinforcement;
(e) (e) the details of all joints between members;
(f) (f) the details of anchorage of pre-stressing steel; and
(g) (g) any other detail that the approving authority may require.

A - 9.3 The documentation for structural steelwork shall, to the extent required by approving Authority, show:-

(a) (a) the grades of steel of all members;
(b) (b) details of connections between members; and
(c) (c) details of the corrosion protection to be provided to the steel structure.

A - 9.4 The documentation for structural timber shall, to the extent required by, approving authority show:-

(a) (a) the grade and type of timber to be used in such construction;
(b) (b) whether the sizes of timber members are nominal or finished sizes;
(c) (c) the method of connection of all timber members and the connection of any timber members to a foundation or other parts of the building not constructed of timber;

(d) (d) in the case of any roof construction, the details of the method of bracing to resist wind forces and other lateral forces, members spacing and sizes and details of connections;
(e) (e) details of treatment applied or to be applied in terms of these Regulations, to the structural timber members; and
(f) (f) details of drainage for condensation or wind driven water from any cavity and the details of any ventilation openings provided to such cavity.

A - 9.5 The documentation for structural masonry shall, to the extent required by approving authority show:-

(a) the grade of mortar to be used, together with the strength of the masonry units;
(b) the details of all joints in masonry and between masonry and other members, including dimensions and materials from which bearing pads and load spreading devices are made; and
(c) details of all reinforcement, wall ties and anchors.

A - 9.6 The documentation for foundations shall, to the extent required by approving authority, show:-

(a) the type and condition of the soil; and
(b) the design loads to be applied to the foundations, except where such foundation is constructed in accordance with any relevant empirical formula.

A - 9.7 The documentation for other structural material shall, to the extent required by approving authority, show:-

(a) the overall size of every structural member together with its location;
(b) the grade of material of all members;
(c) the details of all connections between members;
(d) the details of the corrosion protection to be provided; and
(e) the details of reinforcement provided, including its strength and composition.

A - 9.8

(f) Where the approving authority requires any particulars with regard to the building services of any building, the following information shall, to the extent required by approving authority and subject to the requirements of sub-regulation AA9.8 (b), be submitted
  (i) The location and size of plant space or plant rooms;
  (ii) The location and size of principal equipment;
  (iii) The proposed rates of input and output;
  (iv) Details of any other aspects of the installation that are relevant,

(g) Any documentation contemplated in sub-regulation AA9.8(a) shall be accompanied by a certificate signed by a qualified person in which he shall certify that any apparatus to be installed has been designed to provide a standard of service which complies with these Regulations.

A - 9.9

(a) Where the approving authority is not satisfied as to the adequacy or safety in use of any construction system, method, material, article or product which is proposed to be used in the erection of any building the approving authority may require a

test report issued by the Kenya Bureau of Standards and in the absence of the test report, any other standard approved by the Kenya Bureau of Standards .

(b) On submission to the approving authority of:-

(i) Any current certificate issued by the Kenya Bureau of Standards, the adequacy or safety of such system, method, material, article or product covered by such report or certificate shall be deemed to satisfy any relevant requirement for adequacy or safety prescribed in these Regulations, to the extent and under the conditions set out in such report or certificate.

(c) A report or certificate contemplated in sub-regulation AA9.9(a), issued on or after the date of coming into operation of these Regulations, shall contain the

A - 10 APPLICATION FORMS, DRAWING MATERIALS, SCALES AND SIZES OF PLANS

AA10.1 Any application form shall be dated and signed by both the owner and the submitting agent.

AA10.2 Any application shall be accompanied by at least one set of plans, drawings and diagrams which shall:-

(a) be clear and legible;

(b) be printed on white linen, white plastic or other suitable materials;

(c) contain the name of the owner of the site concerned; and

(d) be dated and signed in black ink by the owner or his representative, and every subsequent alteration shall be likewise dated and signed.

(e) An application may be submitted in electronic form.

A - 10.1 Any application shall be accompanied by such number of additional copies of every plan, drawing or diagram as may be required by the approving authority.

A - 10.2 Such plans, drawings, diagrams, and any copies thereof, shall be on sheets of the A series of sizes or multiples of A_4.

A - 10.3

(a) Plans, drawings and diagrams shall be drawn to a suitable scale selected from one of

(b) the following scales:-

(i) Location plans:
1:5000,1:1000,1:500,1:250

(ii) Site plans:
1:1000, 1:500,1:200 or 1:100

(iii) Building Services drawings:
1:200, 1:100 or 1:50

(iv) Layout drawings: 1:100, 1:50 or 1:20:
Provided that in the case of elevations 1:200 may be used,

(v) General structural arrangement drawings and structural details: 1:100, 1:50,1:20,1:10,1:5,1:2 or 1:1

(vi) Fire protection plans: 1:200, 1:100,1:50 or 1:20.

(c) The approving authority may in circumstances it deems exceptional, accept a scale not provided for in this sub-regulation.

A - 10.4

(a) One copy of the plans and drawings contemplated in sub-regulation AA10.2 shall, for the convenience of the approving authority, be coloured as indicated below:

Where the application is for alteration or extension of a building, the plans and drawings shall be coloured as follows-

Material		**Colour (in plan or section)**
(i)	New masonry	Red
(ii)	New concrete	Green
(iii)	New iron or steel	blue
(iv)	New wood	yellow
(v)	New glass	black
(vi)	Existing materials (all materials)	grey
(vii) (viii)	All other new materials other than the above.	To be clearly indicated in colours

(i) All plans shall be coloured as follows:

(i)	Proposed work	Red
(ii)	Existing work	Not coloured
(iii)	Work to be demolished	Yellow
(iv)	Surrenders	Blue

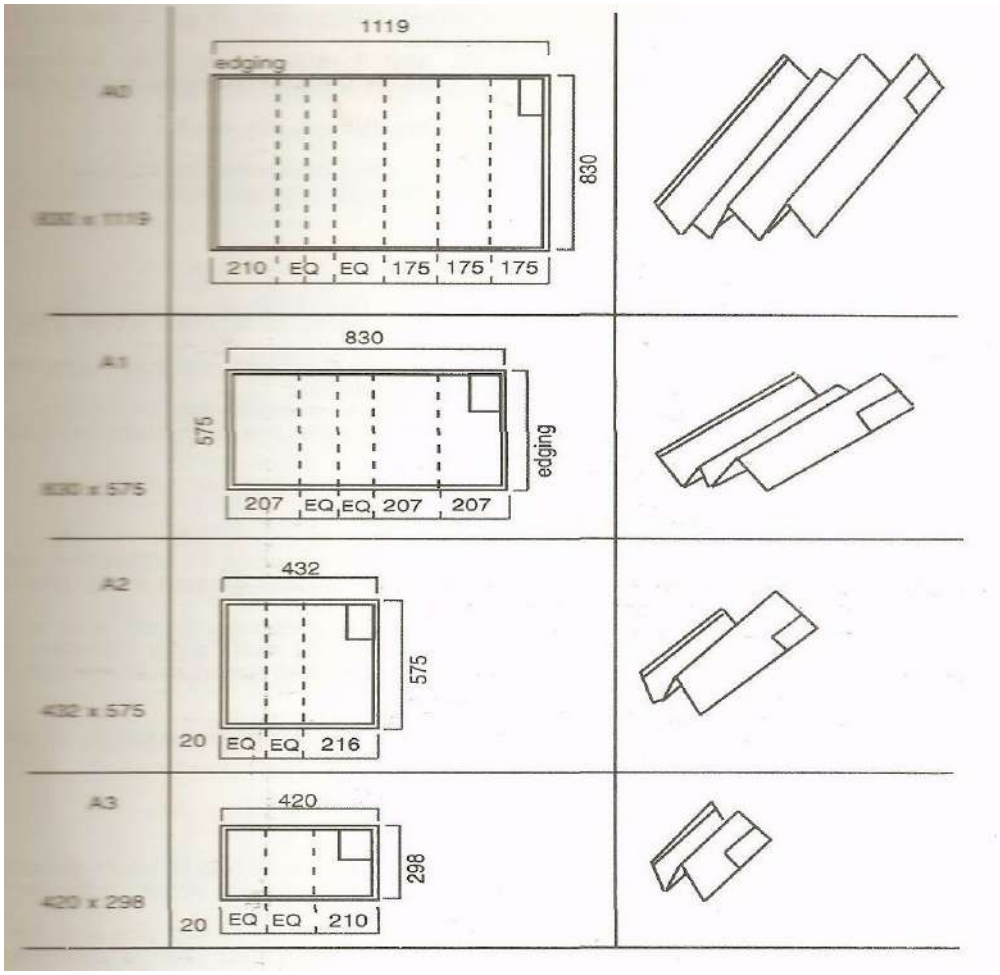
Provided that this requirement shall not apply in the case of any layout, structural or detail drawing of a new building where materials are identified in another suitable manner.

A - 10.5 The escape route drawn on any fire protection plan shall be coloured green and the direction of travel to a safe area shall be indicated by arrows drawn at short intervals along the plan route.

A - 10.6 AA10.9 In all cases the scales used shall be stated on the plans and drawings, and the letters and symbols used on such plans and drawings shall be legible

A - 10.7 Paper Sizes and Folding of Plans:
All plans prepared and submitted under these Regulations shall be produced on any one of the standard metric size sheets and shall be folded as shown hereunder:-

Figure F - 1:



A - 11 SITE AND LOCATION PLANS

Any site plan shall fully and clearly contain the following information, where applicable:-

(a)
- (i) The dimensions of the site on which the building is to beerected;
- (ii) the boundaries of such site;
- (iii) the dimensioned position of any building line; and
- (iv) the position and width of any servitude or right of way to which such site is subject;

(b) the registered number or other designation of such site and of the immediate neighbouring sites;

(c) the direction of true north, and if required by the approving authority, the natural ground contours at suitable vertical intervals or spot levels at each corner of such site;

(d) the name of the street upon which such site abuts;

(e) the location of:
- (i) any municipal service and any connection point thereto; and
- (ii) any drain, storm water drain, or surface channel existing-upon such site;

(f) the location of:
- (i) the proposed building;

(ii) any existing building; and
(iii) any building proposed to be demolished;

(g)
(i) any existing and intended point of access from any public street; and
(ii) the location of any street tree, street furniture, apparatus or
(iii) equipment relative to such access.

(h) The location of any well, bore hole or watercourse on the site.

(i) Sufficient information to clearly identify the geographical location of the site.

A - 12 LAYOUT DRAWING

Any layout drawing shall indicate the occupancy classification and shall consist of as many plans, sections and elevations and such other details as may be necessary to show:-

(a) foundations, floors, walls, beams, columns, fixed and openable windows, fanlights, louvres and other ventilating devices, artificial ventilation systems including any cooling tower or plant room, doors, stairs, roofs and chimneys;

(b) sanitary fixtures;

(c) the intended use and horizontal and vertical dimensions of rooms or other spaces;

(d) where fixed seating is provided:-
(i) the layout of all rows, seats and aisles;
(ii) the position of all exit doors; and
(iii) the total number of seats;

(e) details of the position, dimensions and materials of damp-proofing;

(f) the location, levels and size of any paved areas adjacent to the building;

(g) where required by the approving authority, contours of the site and the levels of any adjoining verge of any roadway, together with a selection along the length of any vehicle driveway, which shall show the relative levels and gradients;

(h) where required by the approving authority, the levels of the floors relative to one another and to:-
(i) the existing ground surface;
(ii) the proposed finished ground surface;
(iii) the surface of any public place or public street at the boundary of the site; and
(iv) all street levels;

(i) (i) storm water drainage on the site, where such drainage is required; and

(j) details of any special provisions, required in terms of these Regulations, for disabled persons.

A - 13 BUILDING SERVICES DRAWINGS AND PARTICULARS

A - 13.1 Where details on more than one floor of any building are identical they may be indicated on the drawings of one such floor only.
Provided that where such details are so indicated the drawings of other floors concerned shall be suitably annotated to indicate where such details may be found

A - 13.2 Any drawing of building services shall contain the location and size of installation and comprise of as many plans, sections, elevations, and axonometrics or isometrics to show where relevant the following-

(a) reticulation systems serving or intended to serve any building or site;

(b) equipment, installations or storage tanks;
(c) any overflow;
(d) any pump;
(e) pressure for which installation is designed;
(f) gradient of any drain and any connecting point to such drain, in relation to a datum established on the site and the level of the ground relative thereto;
(g) any gully trap;
(h) any septic tank, conservancy tank, private sewage treatment plant or sewage pump;
(i) any percolation test hole excavated on the site and of any French drain;
(j) arrangement of any sanitary fixtures served by the drainage installation;
(k) any soil pipe, rain water pipe, waste pipe and ventilating pipe or device;
(l) all openings in the building such as chimneys, skylights, doors, windows, ventilating openings and air intakes which could permit the entry of foul air or gas into such buildings from any ventilating pipe or : device;
(m) any well, bore hole, dam or watercourse on the site;
(n) cabling or wiring diagram showing all safety features;
(o) lighting system diagrams;
(p) special equipment connections;
(q) loading details and information;
(r) outside lighting system;
(s) lightning arresting devices;
(t) circuit reference of any fixture served from sub-distribution or main distribution boards;
(u) Class and capacity of protection to circuits.
(v) refuse chutes.

A - 13.3 Where symbols are used to signify details on drainage installation drawings, they shall be as indicated in the following list: Provided that where there may be a possibility of misunderstanding, the description shall be written in full:-

Access opening ..... AO
Air valve..... AV
Air release valve..... ARV
Bath..... B
Bidet ..... BT
Cast iron CI
Check valve CV
Cleaning eye ..... CE
Cold water down service ..... CWDS
Cold water storage tank ..... CWST
Concrete ..... CONC
Copper ..... COP
Cover level CL
Fibre cement..... FC
Flexible joint ..... FJ
Float valve ..... FV
Flow meter ..... FM
Floor drain ..... FD
Floor trap _..... FT
Galvanized mild steel ..... GMS

Gate valve ..... GV
Ground level ..... GL
Grease trap ..... GRT
Gully ..... G
Gully trap ..... GT
Hot water cylinder ..... HWC
Hot water service ..... HWS
Inspection chamber IC
Inspection eye ..... IE
Invert level IL
Kitchen sink ..... KS
Manhole ..... MH
Non-return valve ..... NRV
Pitch-impregnated fibre ..... PF
Rainwater pipe ..... RWP
Reinforced concrete ..... RC
Rodding eye ..... RE
Shower ..... SHR
Sink ..... S
Slop hopper ..... SH
Sluice valve ..... SV
Soil pipe ..... SP
Soil vent pipe ..... SVP
Solar heating panel ..... SHP
Stainless steel ..... SS
Stainless steel sink ..... SSS
Stormwater channel ..... SC
Stormwater pipe ..... SWP
Unplasticized polyvinyl chloride ..... -uPVC
Urinal ..... U
Vent or ventilating pipe ..... VP
Vitrified clay VC
Washbasin ..... WB
Wash hand basin ..... WHB
Wash-trough (dhobi sink) ..... WT
Waste pipe ..... WP
Water Closet pan ..... WC

A - 14 FIRE PROTECTION PLAN

A - 14.1 Where so required by the approving authority, any application in respect of the erection of any building not being a single dwelling house, shall be accompanied by a fire fighting installations plan which shall clearly show any fire protection measures provided in terms of these Regulations.

A - 14.2 Such fire fighting installations plan shall be approved by the approving authority.

A - 14.3 The provisions of sub-regulation AA14.1 shall not be construed as preventing

A - 14.4 details of such fire protection measures being clearly indicated on a layout drawing required in terms of Regulation AA12.

A - 15 SYMBOLS OF FIRE PROTECTION PLAN

Where symbols are used to signify details on fire protection plans they shall be as indicated in the following list:
Provided that where the possibility of a misunderstanding exists, the description shall be written in full.

Assembly point..... - AP
Bridging inlet..... - BI
Dry riser..... - DR
Fire alarm ..... - FA
Fire blanket ..... - FBI
Fire bucket ..... - FB
Fire extinguisher ..... - FE
Fire detection panel ..... - FDP
Fire hydrant ..... - FH
Foam inlet..... - FI
Fire main ..... - FM
Fire pump connection..... - FPC
Fire stopping ..... - FS
Heat detectors ..... - HD
Hose reel ..... - HR
Rising main ..... - RM
Reflux valve ..... - RV
Smoke detectors ..... - SD
Sprinkler head ..... - SH
Sprinkler systems..... - SS
Smoke extractor..... - SX
Valve ..... - V
Air Handling Systems ..... - AHS
Emergency lifts..... - EL
Fire Detector/alarm..... -FDA
Fire Door ..... -FD
Fire Shutter..... -FSH
Smoke and Heat Venting System..... -SHVS
Smoke extractor System ..... -SXS
Special Automatic Suppression System ..... -SAPS
Stairwell Pressurization Systems..... -SPS
Wet riser ..... -WR

A - 16 BOUNDARY BEACONS

Where, in the opinion of the approving authority , the location of any boundary of a site has not been accurately determined the approving authority shall, before granting approval in respect of any application, require the owner, at his own cost, to engage a land surveyor and to submit to the approving authority a certificate, in an approved form and signed by such land surveyor -

(a) identifying the boundary pegs or beacons of such site; and
(b) stating the name of the nearest landmark and the approximate distance of the nearest boundary of the site from such landmark.

A - 17 STREET LEVELS

A - 17.1 Where any building is to be erected on a site abutting a constructed street the owner of such building shall, erect such building in accordance with the levels of such street.

A - 17.2

(a) Where any portion of any street abutting the site on which any building is to be erected has not been constructed the owner of such building shall request, in writing, from the approving authority the levels at which such portion of the street is intended to be constructed.
(b) The approving authority shall, where in its opinion it is practicable for it to do so and within 21 days after receipt of a request contemplated in sub-regulation AA17.2(a), supply the required levels.
(c) If the approving authority is unable to comply with the provisions of sub-regulation AA17.2(b) it shall notify such owner, in writing, to that effect.

A - 17.3 Where any street has been constructed, but in the opinion of the approving authority is likely to be reconstructed at levels different from its existing levels, the approving authority shall give notice of such fact to such owner, and in such notice it shall, if possible, supply the levels at which such portion of such street will be reconstructed.

A - 18 PERMISSION TO COMMENCE BUILDING WORKS

A - 18.1 Except as otherwise provided in these regulations, no person shall commence or carry out, or permit or authorize the commencement or carrying out of, any building works unless all the plans have been approved.

A - 18.2 Any person who contravenes or fails to comply with subsection (1) shall be guilty of an offence and shall be liable on conviction to a fine of not less than five hundred thousand shillings or to imprisonment for a term of not less than 6 months or to both such fine and imprisonment

A - 18.3 Subject to sub-section (l), neither the approval of any plans nor the consent to the commencement of any building works or street works shall be deemed—

(a) to confer any title to land;
(b) to act as a waiver of any term in any lease or
(c) licence; or
(d) to grant any exemption from or to permit any
(e) contravention of any of the provisions of these regulations,
(f) or any other written law.

A - 18.4 Subject to the provisions of these regulations, the person for whom any proposed

building works are to be commenced or carried out may apply to the approving authority in the prescribed form for approval of the plans of the building works and such application shall be accompanied by—

(a) The prescribed fee;
(b) the plans of the building works prepared in accordance with the Regulations;
(c) a prescribed form by a structural engineer where applicable in respect of the plans relating to the structural elements of the building works;
(d) such other documents as may be prescribed in the Regulations; and
(e) a brief description of the nature and purpose of the development and its possible effects on the environment in line with Environmental Management and Co-ordination Act.

A - 18.5 The approving authority shall cause all plans which meet the requirements of sub-section (1) to be published in a conspicuous place within the authority's local offices indicating the following—

(a) Reference number of the applicant;
(b) the street name;
(c) name of the area;
(d) the land reference number;
(e) gross area and height of the building;
(f) the nature of the development.

A - 18.6 The approving authority may within a period of thirty working days from the date of receipt of an application-

(a) Approve, subject to terms and conditions it may impose, anyone or more of the plans submitted to it under Section 54; or
(b) in writing direct the applicant to comply, within such period as may be specified in the direction, with such requirements as the Authority may specify for the purpose of ensuring compliance with provisions of these Regulations.

A - 18.7 Subject to the provisions of sub-section (1) (a), any person, for whom building works are to be commenced shall at least fourteen days, prior to the commencement of those works, notify the Authority in writing, the date of commencement.

A - 18.8 If the person to whom any written direction is given under sub-section (1) fails to comply with the requirements specified in the direction within the time specified therein, the approving Authority may reject the plans.

A - 18.9 Where the plans of any proposed building works have been approved by the approving Authority and the person for whom the building works are or are to be carried out intends to depart or deviate from the approved plans, that person shall apply to the approving Authority for its approval of the plans showing the proposed departure or deviation and such application shall be accompanied by the amended plans and, unless otherwise prescribed, by a form by an structural engineer where applicable in respect of such of the latter plans relating to the proposed building works stating that, to the best of the knowledge and belief of the structural engineer those plans do not show any inadequacy in the key structural elements of the building to be erected or affected by the building works carried out in accordance with those plans.

A - 18.10 Notwithstanding anything contained in these regulations, the approving authority may grant permission in writing to any person to proceed with any alteration or addition to a building or the erection of any boundary wall, screen wall, fence or of a hoarding, or the formation of any access, which complies generally with the intent and purpose of these regulations:

A - 18.11 Any approval granted in respect of building works under this Section shall automatically lapse in any of the following cases-

(a) If the building works are not commenced within a period of two years from the date of the said approval;
(b) if the building works are suspended for a continuous period of more than 6 months:
(c) if the approval lapses pursuant to these regulations.

A - 19 APPROVAL FOR OTHER BUILDINGS

A - 19.1 A person who erects a building or develops land or changes the use of a building or land, or who owns or occupies a building or land shall comply with the requirements of these.

For the purpose of these regulations any of the following operations shall be deemed to be the erection of a building—

(a) the re-erection of any building or part of a building when an outer wall of that building or, as the case may be, that part of such building has been pulled down, burnt or damaged;
(b) the roofing over of any open space;
(c) the alteration or extension of a building;
(d) the erection, alteration or extension of a chimney shaft;
(e) the changing of the use or uses to which land or a building is put;
(f) increasing or reducing the number of dwellings in a building;
(g) the carrying out of any drainage work;
(h) the installation of any fittings to which by-laws 143 to 149 (water supply) or by-laws 166 to 179 (drainage) of these regulations refer;
or the formation or laying out of an access to a plot.

A - 19.2 The approving authority may in writing and upon such conditions as it deems fit, grant permission for the temporary erection and use of 'buildings which would otherwise not comply with the provisions of these regulations, to accommodate occasional labour such as crop pickers or quarry labour.

A - 19.3 The approving authority may in writing and upon such conditions as it deems fit, grant permission to an employer to erect temporary living accommodation for construction workers and watchmen in connection with a specific building operation.

An application for such permission shall be made in writing to the approving authority signed by or on behalf of the employer and shall state—

(a) the number of the approved plan relating to the operation;
(b) the location of the site;
(c) the estimated duration of the building operation; and
(d) the number of workmen or watchmen to be accommodated.

A - 19.4 In the case of watchmen, compliance must be made with the provisions of the (number) Schedule.

A - 19.5 The approving authority may refuse to give its approval of any plans of building works in any of the following cases—

(a) if the plans are not such as are prescribed by these Regulations or are not such as it may have required under this Section:
(b) if any such application does not contain the particulars required therein;
(c) if it has not received such other documents as are prescribed by Regulations;
(d) if such fees as are prescribed by the Regulations have not been paid;
(e) if the building works consist of or any part thereof involves, the construction, formation or laying out of any means of access or other opening, not being a street or access road, to or from any street, and the place at or manner in which such means of access or other opening opens on the street is, in its opinion, such as to be dangerous or likely to be dangerous or prejudicial to the safety or convenience of traffic using the street, or which may be expected to use the same;
(f) if in its opinion, it is necessary for it to have further particulars of such plans or of the building works shown thereon or, where all the plans prescribed by the Regulations have not been submitted, to have one or more of the other plans prescribed by the Regulations, to enable it fully consider such plans;
(g) if any further particulars or other plans delivered to it, upon its refusal, under sub-section (l) (h), to give its approval to any plans, are not to its satisfaction;
(h) if it appears to it that the demolition of a building that requires to be demolished before the building works shown on such plans can be carried out—
    (i) will cause, or is likely to cause, a total or partial collapse of any adjoining or other building, or
    (ii) will render, or is likely to render, any adjoining or other building so dangerous that it will collapse, or is likely to collapse, either totally or partially, and it is not satisfied that the collapse or the likelihood of the collapse, or such danger or the likelihood of such danger to the building, can be avoided;
    (iii) will render, or is likely to render, an adjoining or other building, street or natural, formed or man-made land so dangerous that it will collapse, or be likely to collapse, either totally or partially, and it is not satisfied that the collapse or the likelihood of the collapse, or such danger or the likelihood of such danger to the building, street or land, can be avoided;
(i) in the case of plans showing site formation works, piling works, excavation works or foundation works, it appears to it that the carrying out of such works—
    (i) will cause, or is likely to cause, a total or partial collapse of any adjoining or other building, street or natural, formed or manmade land, or
    (ii) will render, or is likely to render, an adjoining or other building, street or natural, formed or man-made land so dangerous that it will collapse, or be likely to collapse, either totally or partially, and it is not satisfied that the collapse or the likelihood of the collapse, or such danger or the likelihood of such danger to the building, street or land, can be avoided;
(j) it appears to it that the proposed user of the building to which the plans relate would contravene the Regulations;
(k) in the case of building works to be carried out on a site which in its opinion ought to be provided with streets having adequate connection to a public street, it is not

satisfied those streets are or will be provided;

(l) in the case of building works to be carried out in an area of sloping ground the building is one which in its opinion must be capable of resisting landslip debris and it is not satisfied that the plans provide adequately for that capability.

A - 19.6 The approving Authority may refuse to give its approval of any plans of street works in any of the following cases—

(a) If the plans are not such as are prescribed by these Regulations;
(b) if it has not received an application for their approval or any such application does not contain the particulars required therein;
(c) if the carrying out of the street works shown thereon would contravene the provisions of these Regulations or any other enactment;
(d) if in the case of an access road, the place at or manner in which the access road opens on to a street is, in its opinion, such as to be dangerous or likely to be dangerous or prejudicial to the safety or convenience of traffic using the street or access road, or which may be expected to use the same;
(e) if such fees as are prescribed by these Regulations have not been paid;
(f) if in the opinion of the approving Authority, it is necessary for it to have further particulars of such plans to enable it fully to consider such plans;
(g) if any further particulars delivered to it, upon its refusal under Section 57 (f) to give its approval to any plans, are not to its satisfaction.

A - 19.7 The approving Authority may refuse to give its consent to the commencement of any building works or street works in any of the following cases—

(a) If it has not received and given its approval to all the plans thereof prescribed by these Regulations;
(b) if it has not received such other documents as may be prescribed by the Regulations;
(c) if any condition or requirement imposed by it under Section 57 in respect of the building works or street works has not been complied with to its satisfaction;
(d) if such fees as are prescribed by the Regulations have not been paid;
(e) if a period exceeding 2 years has elapsed since the approval of any of the prescribed plans in respect of the building works or street works;
(f) if the carrying out of the works will cause, or is likely to cause, a total or partial collapse of any adjoining or other building, street or natural, formed or man-made land,
(g) if the carrying out of the works will render, or is likely to render, any adjoining or other building, street or natural, formed or man-made land so dangerous that it will collapse, or be likely to collapse, either totally or partially, and it is not satisfied that the collapse or likelihood of the collapse, or such danger or likelihood of such danger to the buildings, street or land, can be avoided;
(h) if in its opinion the approval in the particular circumstances is in consistent with the objectives of these Regulations or any other enactment.

A - 20 FEES

(i) When a person submits an application pursuant a fee shall be paid to the approving authority in accordance with the fees prescribed in the (Number) Schedule.
(ii) Where structural drawings are required as referred to in Part E (structural

engineers work) of the (Number) Schedule at the time of submission, a fee shall be paid to the approving authority in accordance with the (number) schedule.

A - 21 EXTENT OF APPROVAL

A - 21.1 The approval by the approving authority of any plans for the erection of any buildings shall be subject to conformity with these regulations and shall be null and void if there is non-compliance with any conditions imposed at the time of such approval.

A - 21.2 Any person who causes any building to be erected, in whole or in part, after the approved plans thereof have become invalidated by virtue of sub-regulation (1) of this regulation commits an offence.

A - 21.3 Unless the Council otherwise agrees, the approval of plans under these by-laws shall not be deemed to authorize any building work or change of existing use of the premises to which such plans relate at the date of approval.?

A - 22 APPLICATION TO ERECT AND OCCUPY A TEMPORARY BUILDING

A - 22.1 This Regulation shall apply to the following temporary buildings:-

(a) a shed for or in connection with the holding of any wedding, entertainment, funeral or religious ceremony or any other purpose;
(b) a site office, store, builder's shed or other shed required in connection with any building works relating to permanent buildings and situated outside the boundaries of the site of the building works;
(c) a hoarding or frame for the display of advertisements or signboards;
(d) a protective hoarding, catch platform or sidewalks shed on a street or footway required for or in connection with any building works;
(e) a stall or shed situated in any open space and required for or in connection with a trade fair, funfair or other exhibition;
(f) A tented structure or tent constructed in canvas or PVC or other similar material;
(g) any other building required for a period not exceeding 90 calendar days.

A - 22.2 No person shall:-

(a) erect, or cause or permit to be erected, any temporary building to which these Regulations apply without a permit granted under Regulation AA28; or
(b) occupy any such temporary building which he knows or ought reasonably to know is erected in contravention of sub-regulation AA28.2(a).

A - 22.3 Any person who contravenes or fails to comply with Regulation AA28 above shall be guilty of an offence.

A - 22.4 The approving authority may in writing and upon such conditions as it deems fit, grant permission for the temporary erection and use of buildings which would otherwise not comply with the provisions of these Regulations to accommodate occasional labour such as crop pickers or quarry labour.

A - 22.5 The approving authority may in writing and upon such conditions as it deems fit, grant permission to a developer to erect temporary living accommodation for building labourers and watchmen in connection with a specific building operation.

A - 22.6 An application for such permission shall be made in writing to the approving authority signed by or on behalf of the developer and shall state:-

(a) the Approved Plan Number relating to the operation;
(b) the location of the site;
(c) the estimated duration of the building operation; and
(d) the number of workmen or watchmen to be accommodated.

A - 22.7 Every person employing labour in the erection or demolition of a building shall make provision on the site for and thereafter maintain for such time as the labour is engaged on the site, good and sufficient temporary latrine accommodation for the use of such labour.

A - 22.8 A person who contravenes or fails to comply with the provisions of sub-regulation AA28.7 under this regulation shall be guilty of an offence.

A - 22.9 Any person who erects a building, to which these Regulations apply shall give to the approving authority in writing on a "Notice of Inspection" card, obtainable from the said authority, not less than seven days notice (such period to count from the hour and date of receipt by the said authority) of the date and time at which:-

(a) the erection of the building will begin;
(b) the work of plumbing and drain-laying will begin; and
(c) the following shall be ready for inspection or testing either in part or in whole:-
    (i) the foundation bed;
    (ii) the foundation concrete;
    (iii) the damp proof course;
    (iv) the filling;
    (v) the concrete after shuttering is removed;
    (vi) the concrete after shuttering is removed;
    (vii) the drainage;
    (viii) the plumbing installations;
    (ix) (ix) the sewer connection.

A - 22.10 A notice is required to be served upon under sub-regulation AA28.1 of this Regulation shall be delivered at the office of approving authority on any working day, before 3.30pm. Saturdays, Sundays and public holidays shall not be included in any calculation of time in respect of the required period of notice:

Provided that, for the construction of buildings in isolated areas the approving authority may dispense with the inspections referred to in sub-regulation AA28.1(b) or this Regulation in which event the person who erects a building shall:-

(i) ascertain that the work is carried out or supervised by persons competent in respect of work involved;
(ii) (ii) upon application as required in sub-regulation AA28.12 of this Regulation, send a notice to the approving authority confirming that the work is in accordance with

the approved plan and these Regulations;

(iii) permit upon completion, and at any time during construction, reasonable tests of the structure to be carried out or exposure of the work to an extent which will enable an authorised officer of the approving authority to satisfy himself that the building has been constructed in accordance with these Regulations;

(iv) at all reasonable times afford to an authorised officer of the approving authority free access for the purpose of inspections;

(v) if he neglects or refuses to give any required notice, comply with any notice in writing service by requiring him within a reasonable time to cut into, lay open or pull down so much of the building, works or .fittings as prevents the approving authority from ascertaining whether any of these Regulations have been contravened;

(vi) if he has received a notice in writing from the approving authority pointing out the reasons in which a building or works or fittings contravene these Regulations, alter or amend the building so as to comply with these Regulations, and within a reasonable time after the completion of such work give notice to in writing of its completion;

(vii) if he is so required by notice from the approving authority , forthwith stop the construction of any building or other work which contravenes these Regulations or is not in accordance with the building plans or particulars approved by .

A - 22.11 A person who has erected shall forthwith give to the approving authority notice in writing of its completion to enable a final inspection to be made and a certificate of completion to be issued.

A - 22.12 No person shall occupy, use or permit the occupation or use of any building before a certificate of completion has been issued by the approving authority in respect thereof.

A - 22.13 On the completion of the building and before the final inspection is made the person erecting the same shall:-

(a) clear the site and any adjacent land of all surplus building material, excavated material and all other rubbish and temporary structures and leave such site or land clean and tidy; and

(b) restore and leave in proper condition all pipes, drains, roadways, kerbs, water channels, footways, pavements and other things which may have been damaged by or through building operations or transport used in connection therewith.

A - 22.14 Any person who contravenes or fails to comply with the provisions of sub-regulations AA28.13(a) and AA28.13(b) of this regulation shall be guilty of an offence.

A person who intends to erect a building shall submit a written application to do so in such form as the Council may require, completing all details required therein in so far as they apply to the proposals. The application form shall be completed in ink, signed by the developer and by his duly qualified and registered consultants, in which event it shall state the name of the person on whose behalf it has been submitted. The form shall be attached to any plans or documents submitted in accordance with by-law 5 of these by-laws.

A - 23 TEMPORARY BUILDING PERMIT

A - 23.1 On receipt of any application to erect a building which the applicant has declared to be a temporary building, the approving authority may, subject to the provisions of these Regulations grant provisional authorization to the applicant to proceed with the erection of such building in accordance with any conditions or directions specified in such authorization.

A - 23.2 Before granting such authorization the approving authority may require the submission in triplicate of:-

(a) a statement of the period for which authorization is required;
(b) a site plan;
(c) layout drawings in sufficient detail to enable the approving authority to determine the general size, form, materials of construction and use of the proposed building; and
(d) any structural detail required by the approving authority to determine the structural safety of the proposed building.

A - 23.3 The approving authority shall grant the authorization contemplated in these Regulations for a limited period, to be determined with regard to the period specified by the applicant.

A - 23.4 The approving authority may at the request of the owner grant approval for one or more extensions of the period contemplated in these Regulations: Provided that where it is intended that the public should have access to such building each such request shall be accompanied by a certificate signed by a registered professional, indicating that the condition of the structural system is satisfactory.

A - 23.5 The owner of such building may, not later than the last day of the period contemplated in these Regulations, submit to the approving authority such additional plans and details as required by in order to consider an application in terms of these Regulations.

A - 23.6 AA29.6 Where the approving authority has granted approval in respect of an application contemplated in these Regulations the owner shall submit to the approving authority an affidavit stating that any part of such building erected in terms of the provisional authorization has been erected in accordance with the plans and details contemplated in these Regulations.

A - 23.7 Where plans and details contemplated in these Regulations have not been submitted to the approving authority or if the said authority has refused to grant approval in respect thereof, the owner shall forthwith remove or demolish such building.

A - 23.8 Any person who erects or causes to be erected a temporary building without reference to these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than Kshs. 500,000.00 (Kenya Shillings five hundred thousand only) or to imprisonment for a term not less than 6 months or to both.

A - 24 LAPSING OF TEMPORARY BUILDING PERMIT

A permit granted under Regulation AA29 in respect of any temporary building shall

automatically lapse where any written permission granted by the competent authority under the approving authority in respect of the temporary building lapses.

A - 25 REVOCATION OF PERMIT

The approving authority may by notice in writing revoke any permit granted under Regulation AA30 in respect of any temporary building if the person to whom the permit is granted:-

(a) contravenes Regulation AA30;
(b) erects, or causes or permits the erection of, the temporary building other than in accordance with the plans in respect thereof approved by the approving authority;
(c) contravenes any of the conditions of the permit; or
(d) fails to maintain the temporary building in a satisfactory manner.

A - 26 DEMOLITION OF TEMPORARY BUILDING

A - 26.1 Where a permit granted under Regulation AA30 in respect of any temporary building has lapsed or expired, or has been revoked under Regulation AA31, the person to whom the permit was granted shall forthwith demolish the temporary building.

A - 26.2 Any person who contravenes or fails to comply with sub-regulation AA32.1 shall be guilty of an offence and shall be liable on conviction to a fine not less than Kshs. 50,000.00 (Kenya Shillings fifty thousand only) or to imprisonment for a term not less than 3 months or to both.

A - 27 CONSTRUCTION

A - 27.1 All workmanship in the erection of any building shall be in accordance with sound planning and building practice.

A - 27.2 Any building, including any structural element or component thereof, shall be constructed so as to comply with the design requirements of these Regulations.

A - 27.3 Where any Act or document has been used as a basis for the design of any building, any construction procedure described in such Act or document shall be observed in the erection of such building.

A - 27.4 Precautions shall be taken during all stages of construction or any building to

A - 27.5 ensure that the structural system is not damaged or distorted during the course or erection of such building.

A - 28 INSTALLATIONS, MAINTENANCE AND OPERATION

A - 28.1 The owner of any building shall ensure that any mechanical equipment or any service installation provided in or in connection with such building, pursuant to these Regulations or pursuant to any building by-law which was in operation prior to the coming into operation of these Regulations, shall be maintained in a safe condition.

A - 28.2 Such owner or any person appointed by such owner to be in control of such building shall ensure that where such equipment or installation is designed to be kept operating during the times of normal occupancy of the building it is kept operating in a safe and satisfactory manner.

A - 28.3 The approving authority may serve a notice on such owner or person requiring him to comply with sub regulation AA20.1 within the time specified in such notice.

A - 28.4 The approving authority may, by notice, in writing to the owner, order the evacuation .of such building where the state of such equipment or installation will cause conditions which in the opinion of the approving authority may be detrimental to the.-safety or health of the occupiers or users of such building.

A - 28.5 Any owner or person who contravenes the requirements of this Regulation, or who fails to comply with any notice served in terms of sub-regulation AA20.3 shall be guilty of an offence.

A - 28.6 Qualifications of a Building Control Officer

The minimum qualification of any building control officer appointed under these regulations shall be an ordinary diploma plus four further years in the construction industry, as evaluated in one of the following building disciplines:

(a) Civil/Structural engineering;
(b) Physical Planning
(c) architecture;
(d) building services engineer; or
(e) building surveying;
(f) Quantity surveying

A - 29 CERTIFICATE OF IDENTITY OF A BUILDING CONTROL OFFICER

A - 29.1 Any building control officer or any officer contemplated under these Regulations shall, when so requested, produce his certificate of identity, which shall contain the following information:

(a) The name of the officer;
(b) the signature of the officer;
(c) the signature of the Authorising Officer of the approving authority concerned;
(d) the date of issue; and
(e) a photograph of the officer.

A - 29.2 The certificate contemplated in sub-regulation AA22.1 shall be valid only during the

period that the officer so identified occupied the post of building control officer or during the period for which any power of a building control officer is delegated to him as the case may be, and it may at any time be withdrawn by the approving authority in writing

A - 29.3 Any person who produces a certificate of identity which has not been lawfully issued to him or which has been lawfully withdrawn, shall be guilty of an offence.

A - 30 CLASSIFICATION AND DESIGNATION OF OCCUPANCIES

A - 30.1 The occupancy of any building shall be classified and designated according to the appropriate occupancy class given in Table A1 and such classification shall reflect the primary function of such building: Provided that, in any building divided into two or more areas not having the same primary function, the occupancy of each such area shall be separately classified.

A - 30.2 Notwithstanding the requirements of sub-regulation AA23.1, any area in any building which is used for any purpose ancillary to that of any occupancy classification contemplated, subject to adequate facilities and safety measures being provided, not be classified as a separate occupancy.

A - 30.3 Any room or space used for the storage or processing of flammable liquids shall not be deemed to be a J1 occupancy as herein defined if:-

(a) such liquid is stored in the fuel tank of any engine, motor vehicle, boat or lawnmower;
(b) the quantity of liquid to be stored or handled in such room does not exceed 40 litres; or
(c) the quantity contemplated in sub-regulation AA23.3(b) exceeds 40 litres but does not exceed 200 litres and the closed cup flash point of such liquid is above 40°C.

Table A - 1: Occupancy or Building Classification

Class of or Occupancy building	Occupancy
A1	Entertainment and public assembly
A2	Occupancy where persons gather to eat, drink, dance or participation other recreation.
	Theatrical and indoor sport
A3	Occupancy where persons gather for the viewing of theatrical, operatic, orchestral, choral, cinematographical or sport performance.
	Places of instruction
A4	Occupancy where school children, students or other persons assemble for the purpose of tuition or learning.
	Worship
A5	Occupancy where persons assemble for the purpose of worshipping.
	Outdoor sport
	Occupancy where persons view outdoor sports events.

Class of or Occupancy building	Occupancy
B1	**High risk commercial service** Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.
B2	**Moderate risk commercial service** Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.
B3	**Low risk commercial service** Occupancy where a non-industrial process is carried out and where neither the material handled nor the process carried out fails into the high or moderate risk category.
C1	**Exhibition hall** Occupancy where goods are displayed primarily for viewing by the public.
C2	**Museum** Occupancy comprising a museum, art gallery or library,
D1	**High risk industrial** Occupancy where an industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.
D2	**Moderate risk industrial** Occupancy where an industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.
D3	**Low risk industrial** Occupancy where an industrial process is carried out and where neither the material handled nor the process carried out falls into the high or moderate risk category.
D4	**Plant room** Occupancy comprising usually unattended mechanical or electrical services necessary for the running of a building.
E1	**Place of detention** Occupancy where people are detained for punitive or corrective reasons or because of their mental condition.
E2	**Hospital** Occupancy where people are cared for or treated because of physical or mental disabilities and where they are generally bed-ridden.
E3	**Other institutional (residential)** Occupancy where groups of people \who either are not fully fit, or who are restricted in their movements or their ability to make decisions, reside and are cared for.
F1	**Large shop** Occupancy where merchandise is displayed and offered for **sale** to **the** public and the floor area exceeds 250m^2.
F2	**Small shop** Occupancy where merchandise is displayed and offered for sale to the public and the floor area does not exceed 250m^2.
F3	**Wholesalers store** Occupancy where goods are displayed and stored and where only a limited selected group of persons is present at any one time.

Class of or Occupancy building	Occupancy
G1	**Offices** Occupancy comprising offices, **banks, consulting rooms and other similar** usage.
H1	**Hotel** Occupancy where persons rent furnished rooms, not being dwelling unit.
H2	**Dormitory** Occupancy where groups of people are accommodated in one **room.**
H3	**Domestic residence** Occupancy consisting of two or more **dwelling** units on a single **site**
H4	**Dwelling house** Occupancy consisting of a dwelling unit on its own site, **including a garage** and other domestic outbuildings, if any
J1	**High risk storage** Occupancy where material is stored and where the stored material is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.
J2	**Moderate risk storage** Occupancy where material is stored and where the stored material is liable, in the event of fire, to cause combustion **with** moderate rapidity but is not likely to give rise
J3	to poisonous fumes, or cause explosions. **Low risk storage** Occupancy where the material does not fall **into the** high or moderate risk category.
J4	**Parking garage** Occupancy used for storing or parking of more than 10 motor vehicles.

A - 31 OCCUPANCY

A - 31.1 The occupancy of any room or storey or portion thereof shall be taken as the actual occupancy of such room, storey or portion thereof where such occupancy is known or, where such occupancy is not known, the occupancy shall be calculated from the criteria given in Table A2,

A - 31.2 In the case of any occupancy classified as F1, where the total floor area is more than 500m^2, that portion of the floor area that is in excess of 500m^2 shall, for the purposes of calculation of the population, be reduced by an amount of 20%.

Table A - 2: Design Occupancy

1	2
Class of Occupancy of room or storey or portion thereof	Occupancy

1	2
A1, A2, A4, A5	Number of fixed seats or 1 person m^2 if there are no fixed seats.
E1, E3, H1, H3	2 persons per bedroom.
G1	1 person per $15m^2$
.J1, J2, J3, J4	1 person per $50m^2$
C1.E2, F1, F2	1 person per $10m^2$
B1.B2, B3, D1, D2, D3,	1 person per $15m^2$
C2, F3	1 person per $20m^2$
A3, H2	1 person per $5m^2$

A - 32 NOTICE OF INTENTION TO ERECT, DEMOLISH, INSPECT A BUILDING

A - 32.1

(a) No work in connection with the erection or demolition of any building
(b) shall be commenced on the site unless notice, in the form required by the approving authority , has been given to the approving authority by the owner of such building, stating the date on which such erection or demolition will commence.
(c) Such notice shall in the case of the erection of a building be given at least 4 days, exclusive of a Saturday, Sunday or public holiday, and in the case of the demolition of a building, at least 10 days, exclusive of a Saturday, Sunday or public holiday, before such work commences.

A - 32.2 Notice in the form required by the approving authority shall be given by the owner to the approving authority of a date which shall be at least two (2) working days from the date of receipt by it of such notice on which, as the case may be:-

(a) Any fire installation will be connected to any communication pipe
(b) Trenches or excavations will be ready for inspection prior to the placing of concrete for any foundation; or
(c) Any drainage installation will be ready for inspection and testing

A - 32.3 No owner shall construct any foundation until the trenches or excavations have been inspected and approved by the approving authority, and such owner shall not backfill or enclose a drainage installation until such installation has been inspected, tested and approved by the approving authority : Provided that this requirement shall not apply if such inspection and testing has not been carried out by the end of the working day which has the first date mentioned in these Regulations.

A - 32.4 Any owner who fails to comply with the requirements of these Regulation shall be guilty of an offence.

A - 33 CERTIFICATES OF OCCUPATION

A - 33.1 On completion of any building works, the person for whom the building works were carried out shall apply to the approving authority for:-

(a) a full Occupation Certificate; or
(b) a Sectional Completion Certificate
(c) a Temporary Occupation permit.

A - 33.2 The approving authority may issue a certificate of statutory completion in respect of a building or part thereof in respect of which any building works have been carried out where:-

(a) the building works have been completed in accordance with the provisions of these Regulations;
(b) every report and certificate referred to in these Regulations has been submitted by the appropriate registered professional to ;
(c) the certificate of completion from the contractor referred to in the Regulations has been submitted to the approving authority and duly signed by the registered professional;
(d) all the written directions given by the approving authority to the appropriate registered professional who prepared the plans of the building works or who supervised the carrying out of the building works or part thereof under these Regulations have been complied with;
(e) all the requirements either shown, implied or endorsed on the approved plans have been complied with;
(f) the full set of as-built detailed structural plans and design calculations incorporating all the departures or deviations from the approved structural plans and design calculations has been approved by the approving authority ; and
(g) such other certificate or documents as may be required by the approving authority has been submitted.

A - 34 TEMPORARY OCCUPATION PERMIT

A - 34.1 A Full or Sectional Completion Certificate shall not be issued in respect of any building where:-

(a) there are minor requirements still to be complied with under these Regulations;
(b) any of the written directions or requirements shown or endorsed on the plans have not been fully complied with;
(c) there are minor deviations or departures from any approved- plan of building works; or
(d) the building works have not been fully completed, except that the approving authority may, if they are satisfied that the non-compliance, deviation or non-completion of building works is neither of a serious nature nor in any way detrimental to the well-being and safety of the persons who may occupy the building or part thereof, grant a temporary occupation permit for the occupation or use of the

building.

A - 34.2 A temporary occupation permit may be granted where:-

(a) every report and certificate referred to in these Regulations by the appropriate registered professional has been submitted to.
(b) permit granted under Regulation AA27 in respect of a temporary Occupation Permit shall automatically lapse where any written permission granted by the approving authority in respect of the temporary permission lapses.
(c) permit granted under this Regulation shall be valid for the period specified therein for which the temporary permit may exist.

A - 34.3 An application for a Temporary Occupation Permit to which these Regulations apply shall:-

(a) be in the form set put in the Regulation; and
(b) (a copy of any written permission issued by the approving authority under these Regulations;

The approving authority may grant a permit subject to such conditions as it may consider necessary.

A - 34.4 The approving authority may by notice in writing revoke any permit granted under Regulation AA27 in respect of a temporary Occupation Permit if the person to whom the permit is granted does not comply with conditions there in.

A - 34.5 Protection of Persons and Property

Throughout the progress of any work to which these Regulations apply, every person responsible for the erection of a building, shall ensure by suitable means the safety and protection of all persons and property liable to be affected by the work.

A - 35 PROTECTIVE HOARDING, SCAFFOLDING.

All protective hoardings, catch platforms, fences and other temporary structures erected for the safety and convenience of persons in any public place or on any public road shall:-

(a) be painted in white or other light colour;
(b) be provided with proper and illuminated paths or footways for the use of such persons; and
(c) between 6pm and 6am be illuminated with such warning signs and warning lights as may be approved by the approving authority. .

A - 36 TREES AND TREE FELLING

A - 36.1 Where new construction or extension to existing buildings or alteration to streets or roads necessitates the potential need for felling of trees, approval in writing by way of a permit must be obtained by the owner or contractor prior to the felling of any trees over 3m high and any conditions must be met. The application should be made either to the Ministry responsible for Forestry.

A - 36.2 Tree felling must be carried out by a competent person with sufficient and adequate experience utilising the correct equipment and adequate protection to the public and

adjacent properties must be provided.

A - 37 QUALITY OF WORKMANSHIP

A - 37.1 On completion of any work referred to in these Regulations, the registered professional, will underwrite to, through the Application for a Full Occupation Permit that the work has been carried out in accordance with the design, and complies with these Regulations.

A - 37.2 The registered professional will provide a Certificate of Stability of Structure.

A - 38 OFFICIAL INSPECTION

A - 38.1 Authorised Officers shall have the right to inspect and visit any plot or building, between the hours of 08^{00hrs} and 17^{00hrs}, Monday to Friday, in order to ascertain that the requirements of these Regulations are being observed.

A - 39 GENERAL ENFORCEMENT

A - 39.1 No person shall use a building or cause or permit any building to be used for a purpose other than the purposes shown on the approved plans of such building, or for a purpose which causes a change in the class of occupancy as contemplated in these Regulations, whether such plans were approved in terms of the Act or in terms of any law in force at any time before the date of commencement of the Act, unless such building is suitable, having regard to the requirements of these Regulations, for such first-mentioned purpose or for such changed class of occupancy.

A - 39.2 Any person who contravenes a provision of Regulation AA36 shall be guilty of an offence.

A - 39.3 Where the erection of any building was completed before the date of commencement of these Regulations and such erection was in contravention of the provisions of any law in force before such date, the approving authority may take any action it may have been competent to take in terms of such law.

A - 39.4 Where any building was being erected before the date of commencement of these Regulations in contravention of the provisions of any law in force before such date and the erection of such building is continued on or after such date in contravention of such provisions or of the provisions of these Regulations, the person who continues so to erect such building shall be guilty of an offence.

A - 39.5 Any person, who having obtained approval in terms of these Regulations for the erection of any building, deviates to any material degree from any plan, drawing or particulars approved by the approving authority shall, except where such deviation has been approved, be guilty of an offence.

A - 39.6 The approving authority may serve a notice on any person contemplated in the

Regulations ordering such person forthwith to stop the erection of the building concerned or to comply with such approval, as the case may be: Provided that where any deviation is found to be necessary during the course of construction of such building, the approving authority may authorize the work to continue but shall require that an amended plan, drawing or particulars to cover such deviation is submitted and approved before a Full Occupation Certificate is issued.

A - 39.7 Whether or not a notice contemplated in these Regulations has been served, the approving authority may serve a notice on the owner of any building contemplated in these Regulations ordering such owner to rectify or demolish the building in question by a date specified in such notice.

A - 39.8 If, before the date specified for the rectification or demolition contemplated in these Regulations the owner satisfies the approving authority that he has complied with the requirements contained in these Regulations the notice contemplated in these Regulations shall be withdrawn.

A - 39.9 Any person who fails to comply with any notice contemplated in these Regulations shall be guilty of an offence.

A - 39.10 Any person, who shall erect or permit the erection of a building, without first obtaining the approval of the approving authority to plans submitted in accordance with these Regulations, shall be guilty of an offence.

A - 39.11 Any person who shall, except with the permission of the approving authority , use any building or part of a building otherwise than for the purpose specified in the approved plan thereof, shall be guilty of an offence.

A - 39.12 Any person who shall, except with the permission of , the approving authority permit such building or any part thereof to be used otherwise than for the purpose specified in the approved plan, shall be guilty of an offence.

A - 39.13 In these Regulations "purpose" means the particular purpose for which each part of a building was erected and the approved plan shall be prima facie evidence of such purpose.

A - 39.14 To secure conformity with the requirements of these Regulations, a notice may be served, in the manner described in these Regulations, on a person who in any way contravenes these Regulations.

A - 40 NOTICES AND ORDERS

A - 40.1 A notice, order or other document issued or made by the approving authority in pursuance of these Regulations, shall be sufficiently authenticated if signed by an authorised officer.

A - 40.2 No defect in the forms of any notice or other document issued or made under these

Regulations shall invalidate or render unlawful any administrative action, or be grounds for exception to any legal proceedings which may be taken in the matter to which such notice or document relates, provided that the requirements thereof are substantially correct and intelligibly set forth.

A - 41 SERVICE OF NOTICES AND ORDERS

A - 41.1 Notices, orders and any other documents required or authorised to be served under these Regulations, maybe served by delivering the same to or at the residence or place of business of the person to whom they are addressed, or if addressed to the owner or occupier of the premises, by delivering the same, or a true copy thereof to some person on the premises, or, if there be no person on the premises who can be so served, by fixing them on some conspicuous part of the premises. Such notices, orders, or other documents may also be served by post by a prepaid registered letter.

A - 41.2 For the purpose of this Regulation "properly addressed" shall mean addressed to the last known postal address of the place of residence or business of the person to whom it is addressed.

A - 41.3 Any notice required to be given to the owner or occupier of any premises may be addressed to him by the description of "owner" or "occupier" of the premises (naming them) in respect of which the notice is given without further name or description.

A - 42 EXECUTION OF WORK REQUIRED BY A NOTICE

If a person shall fail to comply with any or all of the requirements of a notice served under these Regulations the approving authority may:-

(a) do or cause the work or thing required by such notice to be done and may recover the cost incurred from the person in default as a civil debt; or

(b) cause a complaint relating to such failure to be made before a magistrate and such magistrate may thereupon issue a summons requiring the person upon whom the notice was served to appear before the court and if the court is satisfied that a contravention of these Regulations exists, the court may make an order on such person requiring him to comply with all or any of the requirements of the notice within a time specified in the order.

A - 43 RECOVERY OF COSTS

In all cases where, in accordance with the requirements of these Regulations, any work is carried out by the approving authority in respect of which the said authority is entitled to recover the cost from any person under these Regulations, there may be included in the cost so claimed and recoverable, a sum not exceeding 10 per cent of the expenses incurred to cover incidental administrative and overhead costs.

A - 44 FEES IN CONSIDERATION OF SCRUTINY OF PLANS AND PERMITS AND INSPECTION OF BUILDINGS

A - 44.1 The fees and charges in consideration of the above will be published from time to time in a Gazette notice.

A - 44.2 New Buildings

Fees for the consideration of plans submitted for approval in respect of new buildings shall be calculated on the basis of the gross area of the proposed development using a per square meter rate.

A - 44.3 Temporary Buildings

In respect of plans of a building submitted for approval on a temporary year to year basis and tentative sketch plans submitted for approval In principle, fifty percent (50%) of the rate applicable In sub-regulation AA43.3 shall be payable.

A - 44.4 Sheds with open sides

For plans submitted for approval of a shed type of building having all its sides open, fifty percent (50%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 44.5 Open basements

For plans submitted for approval of a basement exceeding 2.5 metres in height which are open on all sides (except where retaining walls occur) fifty percent (50%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 44.6 Buildings of Warehouse Class

For every building of the warehouse or godown class of which no part is intended for habitation (other than provision for a watchman) and which is not constructed in reinforced concrete or structural steel, fifty percent (50%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 44.7 Alterations to Existing Buildings

(c) For plans submitted for approval of alterations to existing buildings, one
(d) hundred and twenty five percent (125%) of the rate applicable in sub-regulation AA43.3 shall be payable.
(e) If the alterations to an existing building are generally spread over the whole area of the building, then the fee payable shall be computed on the whole area of the building, but if a clear subdivision of the building is not affected by the alteration scheme, such unaffected subdivision shall be excluded from the area on which the fee shall be computed.
(f) If a storey of any existing building is not affected by alteration to the building, such storey shall be excluded from the areas on which the fee payable for the alterations

shall be computed.

(g) If alterations to an existing building involve an alteration to the frontage line or elevation to a street (where such elevation abuts a street) one hundred and fifty percent (150%) of the rate applicable in sub-regulation AA43.3 shall be payable.

(h) Where the alterations to an existing building involve only subdivision - ' of rooms into smaller rooms, the fees payable on submission of plans for such alterations shall be twenty five percent (25%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 44.8 Wharves, Bridges etc.

For plans submitted for approval of wharves, bridges, or other special buildings, four hundred percent (400%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 44.9 Retaining Walls

For plans submitted for approval of a retaining wall, the fee payable shall be twenty five percent (25%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 44.10 Series or Rows of Buildings

For a series or rows of buildings of the same plan and materials when plans are submitted for approval at the same time, fees shall be calculated as follows:

First building ..... full fees as in sub-regulation AA43.3
2nd to 5th building (inclusive).....90% of fees
6th to 10th building ..... 85% of fees
11th to 25th building ..... 75% of fees
26th and above building ..... 60% of fees

A - 44.11 Amendment Plan to an Approved Plan

(a) When an amendment plan to an approved plan is submitted for approval, a composite fee shall be determined by the approving authority and shall be payable.

(b) If an amendment to an approved plan involves additional area, then such additional area shall be charged on the basis set out in sub-regulation AA43. shall be payable.

(c) If the amendments to an approved plan are in the opinion of the approving authority substantial, a fee equal to fifty percent (50%) of the fee chargeable under sub-regulation AA43.3 in respect of the approved plan shall be payable in addition to any fees payable under sub-regulation AA43.12 (a) and (b) of this Regulation.

A - 44.12 Inspection of Plans

(a) An approved plan may be inspected in the office of the approving authority subject to the payment of a prescribed fee.

(b) An approved plan may be copied in the office of the approving authority subject to the applicant submitting with his application to copy such plan the written consent of the owner of the building.

(c) The fees shall be payable for the following:-
  (i) for inspecting an approved plan
  (ii) for copying an approved plan

(d) These fees shall be prescribed by the approving authority from time to time in a Gazzette Notice.

(e) (e) There shall be a prescribed fee for an endorsement by the approving authority to certify any copy as a true copy.

A - 45 PERMITS FOR MINOR WORKS IN LIEU OF PLANS

Fees will be due for minor erections, alterations and additions as under sub-reglation AA43.3.

A - 45.1 Temporary Permits

There shall be a prescribed fee payable for the temporary permits issued under these Regulations for the following:-

(a) shed for shows;
(b) place for worship;
(c) depositing building materials on streets with the consent of the approving authority ;
(d) builder's working shed store or other shed in connection with new buildings;
(e) scaffolding erected on a street;
(f) staging, framework, platform or temporary structure of any kind erected on a roof abutting a street;
(g) hoarding on streets or footways in connection with building works;
(h) any building for which a temporary permit has been issued under sub-regulation AA29

A - 45.2 Temporary Occupation Permits

Fee for issue of a temporary certificate of fitness for occupation under these Regulations shall be charged at the rate of 10% of the fee prescribed in sub-regulation AA43.3.

A - 45.3 Refund of Plan Fees

Fifty percent (50%) of the fees paid on submission of plans shall be refunded on application when:-

(a)a plan is withdrawn before approval by the approving authority within six (6) months of the submission date.

A - 45.4 Additional Copy of Notice or Permit

A fee will be charged for each additional copy of any notice, certificate or permit.

A - 45.5 Work Commenced Before Approval of Plans

In all cases where work has been commenced before plans have been approved or a permit obtained a fee equal to ten times that specified in Regulation AA43.1 may be charged. The payment of this enhanced fee will not exempt any person from being prosecuted by the approving authority should it decide to do so.

A - 45.6 Structural Plans

For plans submitted for approval of structural plans, twenty five percent (25%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 45.7 Building Services Plans

For plans submitted for approval of building services plans, twenty five percent (25%) of

the rate applicable in sub-regulation AA43.3 shall be payable.

A - 45.8 Landscape Plans

For plans submitted for approval of landscape plans, ten percent (10%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 45.9 Renewal of Plans

For plans submitted for approval of renewal of plans, twenty five percent (25%) of the rate applicable in sub-regulation AA43.3 shall be payable.

A - 45.10 Policy

A prescribed fee will be charged by the approving authority for
(i) Change of User;
(ii) Lease extension;
(iii) Extension of user.

A - 46 CERTIFICATE OF ADEQUACY OF KEY STRUCTURAL ELEMENTS

The authorizing person shall, without delay after performing his duty in relation to any plans of building works, prepare and submit to the person for whom the building works are to be or are being carried out:-
(a) a certificate in Form 2 set out in the Schedule;
(b) an evaluation report including the analysis and calculations performed by the authorizing person; and
(c) a declaration that he has no professional or financial interest in the building works.

A - 47 OFFENCES AND PENALTIES

A - 47.1 Any developer who contravenes the provisions of these regulations shall be guilty of an offence and will on conviction the liable to a fine not less than Kshs. 3 million or twelve months imprisonment or both)

A - 47.2 Any professional or consultant who contravenes the provisions of these regulations shall be guilty of an offence and will on conviction be liable to a fine not less than Kshs. Five hundred thousand or 6 months imprisonment or both for repetitive use without modifications.

PART I

(1) Airport Runways, Taxiways and Aprons
(2) Bridges
(3) Bulk Handling Complexes
(4) Cable Car Systems
(5) Car Parking Areas (open)
(6) Causeways
(7) Chimneys
(8) Claddings or Curtain Walls
(9) Cofferdams
(10) Crane Gantries
(11) Crushing Plants
(12) Drainage Schemes
(13) Drains
(14) Dry Docks
(15) Earthworks
(16) Electrical Installations
(17) Environmental Pollution Control Plants
(18) Foundations
(19) Grinding Plants
(20) Harbours
(21) Jetties
(22) Liquid Waste Disposal Plants
(23) Marine Structures
(24) Mass Rapid Transit Systems
(25) Mechanical Installations
(26) Mining Operations
(27) Oil Refinery Plants
(28) Oil Tanks
(29) Parade Grounds
(30) Piling Works
(31) Pipelines
(32) Power Stations
(33) Quays
(34) Reclamations
(35) Reservoirs
(36) Retaining Walls
(37) Roads and Kerbs
(38) Sewerage Works
(39) Slipways
(40) Stabilizing Earth Structures
(41) Surface Railways
(42) Transmission Towers
(43) Tunnels
(44) Underground Railways
(45) Water Distillation Plants
(46) Water Works
(47) Wharves

PART II

(1) Abattoirs
(2) Aircraft Assembly Plants
(3) Aircraft Hangars
(4) Aircraft Maintenance Workshops
(5) Aircraft Manufacturing Plants
(6) Alterations and additions to detached, semi-detached and terraced houses.
(7) Alterations and additions within existing buildings without affecting the building envelope
(8) Boat Houses (shed)
(9) Boiler Houses
(10) Brickworks (factories)
(11) Bus Depots and Workshops
(12) Cable cars (stations and other structures and equipment
(13) connected to the cable cars)
(14) Cement Plants
(15) Compressor Houses
(16) Electrical Substations (single-storey)
(17) Engineering Laboratories
(18) Factories
(19) Flour Mills and Silos
(20) Glass works (factories)
(21) Grandstands (uncovered)
(22) Helicopter Ports
(23) Marinas
(24) Motor Vehicle Service Stations and Garages (single-storey)
(25) Pumping Stations
(26) Rubber Processing (Mills and Smoke Houses)
(27) Satellite Tracking Stations
(28) Shipyards
(29) Steel Mills
(30) Steel Rolling Mills
(31) Swimming Pools
(32) Tanneries
(33) Timber Works (sawmills)
(34) Food Processing Plants
(35) Warehouses and Godowns (single-storey).

APPLICATION NO

APPLICATION FOR APPROVAL OF BUILDING PLANS

To:
In accordance with the National Building Regulations 2010, we hereby submit the building plans mentioned below for approval.

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ Province_____
Building Classification:
Building Name: ___
Owner/Developer & Address:
Estimated Value of Construction in KShs _____ (in words)_____ _____
Approval fee submitted in KShs _____ in words)_____
(calculated as per attached calculation sheet)

Land Tenure:
Freehold/Leasehold by Commissioner of Lands
Leasehold by Kenya Railways Corporation

Number of Dwellings with separate occupancies
Water Supply by
Method of Sewerage disposal

Name and Address of Architect:
Name and Address of Structural Engineer:
Name and Address of Building Services Engineer:
Name and Address of Quantity Surveyor:
Name and Address (where applicable) of Land Surveyor:

Is the plot affected by any reservation or road lines? If so, are these correctly and clearly marked on the block plan?
What is the actual area available on site
If there is any deduction in the original area of the plot on account of road lines or reservation?
Please state the total area of such deductions.
If so, what is the net area?.

Please state Approval number and date of sub-division/layout (where applicable).
In what zone does the plot fall?.
If the work is in connection with an industry;-

(i)Please briefly describe the main and ancillary processes:
(ii) Under what industrial classification does it fall?
Nature and quantum of industrial waste/effluents and methods of disposal be stated, if industrial or commercial.

If the plot abuts two or more streets, information for all streets should be given.

What is the height of the building:-
(a) above the centre of the street?
(b) above the average ground level of the plot?
If there are existing structures on the plot:-
(a) Are they correctly marked and numbered on the site plan?
(b) What is the plinth area and total floor area of all existing structures to be retained?

What is the plinth area and total floor area of the proposed work or building?

If the height of the building is greater than 16m above the average ground level, is provision for lift(s) made?
If so, give the following details of the lifts):-
(a) Details of lift: Type Passenger Capacity No. of Lifts Types of Doors

How many parking spaces are proposed?
Are parking spaces for transport vehicles provided?

Is the proposal in an airport zone?

Does any natural water course pass through the land under development?

Is the plinth level proposed to be above the level of the surrounding ground level? Give details of the source of water to be used in the construction

How much public land, if any, will be used for stacking building material?

Area Statement **Square Metres**

(1) Area of plot
(2) Deduction for:-
  (a) Road set-back area..... .....
  (b) Proposed road ....
  (c) Any reservation ....
  Total (a+b+c)
(3) Balance area of plot (1 minus 2) ....
(4) Deduction for recreational ground (if deductible) ....
(5) Net area of plot (3 minus 4) ....
(6) Existing floor area ....
(7) Proposed area ....
(8) Type of soil …….
(9) Materials used for construction…….

NOTES:

(a) Plan for factories to be cleared by the Chief Inspector of Factories.
(b) Plan for development in Public Land to be cleared by respective authorized officer.
(c) Builders and others undertaking any type of construction work are cautionedagainst the danger of interfering with all types of underground or overhead cables and services without obtaining clearance the relevant authorities in the first instance.

Name:.....

REGISTRATION NO:.....

Date:.....

Signed by The Architect:

NAME: .....

REGISTRATION NO:.....

Date: .....

Signed by Receiving Officer:

FORM A12 (TWELVE)

NOTICE OF COMMENTS ON BUILDING PLANS

To: The Applicant
c/o The Architect
_____
_____
_____

Building Plan Registered No._____ have been commented upon and await your collection from the Enquiry Office of approving authority in the afternoon from 8.00a.m. to 4.30p.m.

This Notice is to be produced and signed at the time of collection and will be retained in this office as a receipt for the plan collection.

Date:.....
Signature of Issuing Officer

Received on Behalf of Applicant: .....

Signature

Date: _____

APPLICATION NO.

BUILDING PLANS FOR APPROVAL COMMENT SHEET

To: The Authorised Person

_____

_____

_____

In accordance with the Planning and Building Regulations 2010, we confirm the building plans mentioned below have been commented on.

Plot No._____
LR. No _____
Street/Road_____
Location _____
Province _____
Building Classification:

Building Name:
Owner/ Developer & Address:

Estimated Value of Construction in KShs
Approval fee paid in KShs
Approval fee paid in Kshs

COMMENTS: ACTION:
NOTE:
Comments requiring alterations to a plan must be fulfilled; a written response only will not be acceptable.
This comment sheet and the plans to which it refers must be returned attached to any subsequent submission.

Date & Stamp : _____

Name of Approving officer

NOTICE A13 (THIRTEEN)

NOTICE OF REFUSAL OF DEVELOPMENT PERMISSION, BUILDING PERMISSION AND COMMENCEMENT CERTIFICATE

To: The Authorised Person

_____

_____

_____

Sir,

With reference to your Application No. _____ dated _____ for the grant of sanction of the development works; the erection of a building/execution of work for Building on _____ Plot No._____ L.R, No. _____ _____situated at _____ Road/Street, I regret to inform you that the sanction is refused on the following grounds:

1.
2.
3.
4.
5.
6.

Date:.....

Signature of Approving Officer

NOTICE OF APPROVAL OF BUILDING PLANS

To: The Authorised Person

_____

_____

_____

In accordance with the Planning and Building Regulations 2009, we confirm the building plans mentioned below have been approved subject to:

Plot No. _____ L.R. No. _____ Street/Road _____

Location _____ Province _____ Approval No __

Building Classification: .....

Building Name: .....

Owner/Developer & Address: .....

Estimated Value of Construction in Kshs .....

Approval fee paid in Kshs .....

NOTE:

The passing of this plan operates as an approval thereof for the purposes of the requirements of the Planning and Building Regulations and the Planning and Building Act and any rules made there under.

If the proposal shown thereon have not been commenced within twelve (12) months of the date of this approval or are not completed within three (3) years of such date, this approval will be null and void and the carrying out of any work there under after such lapse will constitute a contravention of the Planning and Building Act.

four (4) Stamped copies of your plans are returned therewith and four(4) sets of these plans have been forwarded to the Commissioner of Lands for approval and you are therefore advised to clear with him before commencement of work and obtain one (1) further copy duly approved by the Commissioner of Lands

Yours faithfully

_____

MANAGING DIRECTOR: PLANNING & BUILDING AUTHORITY

DATE:

NOTICE A1 (ONE)

COMMENCEMENT OF DEMOLITION WORK

To:

In accordance with these Regulations, I/we hereby give Notice of the commencement of demolition at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No.

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Actual date of commencement and estimated date of completion.
From D____/M____/Y__ Until D____/M____/Y

Date:_____

_____
Name of Authorised Person

——————————————— **Tear here** ———————————————

NOTICE A1 (ONE)

COMMENCEMENT OF DEMOLITION WORK

To:

In accordance with these Regulations , I/we hereby give Notice of the commencement of demolition at:-

Plot No..... L.R. No.....Street/Road.....
Location.....County.....
in accordance with Approved Plans No.

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Actual date of commencement and estimated date of completion.

From D____/M____/Y__ Until D____/M____/Y

Date:_____

_____
Name of Authorised Person

Date & Stamp: _____

_____
Name of Approving Officer

NOTICE A2 (TWO)

COMMENCEMENT OF ERECTION OF BUILDING

To:

In accordance with these Regulations, I/we hereby give Notice of the commencement of the erection, extension or a building or, part thereof at:-

Plot No. ..... L.R. No.....Street/Road .....
..Location.....County.....
in accordance with Approved Plans No.

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Actual date of commencement and estimated date of completion.

From D____/M_____/Y__ Until D_____/M_____/Y

Date:_____

_____
Name of Authorised Person

..... **Tear here.....**

NOTICE A2 (TWO)

COMMENCEMENT OF ERECTION OF BUILDING

To:

In accordance with these Regulations, I/we hereby give Notice of the commencement of *THE* erection, extension or a building or, part thereof at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No.

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Actual date of commencement and estimated date of completion.

From D____/M____/Y__ Until D____/M____/Y

Date:_____

_____
Name of Authorised Person
Date & Stamp:_____

_____
Name of Approving Officer

NOTICE A3 (THREE)

NOTICE OF COMPLETION OF SETTING OUT

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-
Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.

Between D____/M_____/Y__ And D____/M____/Y

Date:_____

_____
Name of contractor

.....Tear here.....

NOTICE A3 (THREE)

NOTICE OF COMPLETION OF SETTING OUT

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

Name and address of applicant..
Name and address of Contractor.
Date inspection required
between D____/M____/Y__ And D____/M____/Y

I/we certify that the setting out of the building/s has been carried out in accordance with the above mentioned approved plans

Date:_____

_____
Name of contractor

Date & Stamp:_____

_____
Name of Receiving Officer

NOTICE A4 (FOUR)

NOTICE OF COMPLETION OF FOUNDATION EXCAVATION

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county_____

in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.

Between D____/M____/Y__ And D____/M____/Y

Date:_____

_____

Name of contractor

.....Tear here.....

NOTICE A4 (FOUR)

NOTICE OF COMPLETION OF FOUNDATION EXCAVATION

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations , I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant
(b) Name and address of Contractor.
(c) Date inspection required
Between D /M _/Y__ And D /M /Y
(d) I/we certify that the setting out of the building/s has been carried out in accordance with the above mentioned approved plans

Date:_____ _____
Name of contractor

Date & Stamp:_____ _____
Name of Receiving Officer

NOTICE AS (FIVE)

NOTICE OF COMPLETION OF FOUNDATION CONCRETE

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county_____

in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.

Between D____/M____/Y__ And D____/M____/Y

Date_____

_____

Name of contractor

..... **Tear here**.....

NOTICE A5 (FIVE)

NOTICE OF COMPLETION OF FOUNDATION CONCRETE

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant.
(b) Name and address of Contractor.
(c) Date inspection required

Between D____/M_____/Y__ And D_____/M_____/Y

(d) I/we certify that the setting out of the building/s has been carried out in accordance with the above mentioned approved plans

Date:_____

_____
Name of contractor

Date & Stamp:_____

_____
Name of Receiving Officer

..... **Tear here**.....

NOTICE A6 (SIX)

NOTICE OF COMPLETION OF OVER SITE CONSOLIDATION AND CONCRETE

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.
Between D /M _/Y__ And D /M /Y

Date:_____ _____
Name of contractor

NOTICE A6 (SIX)

NOTICE OF COMPLETION OF OVER SITE CONSOLIDATION AND CONCRETE

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required

Between D____/M_____/Y__ And D_____/M_____/Y

(d) I/we certify that the setting out of the building/s has been carried out in accordance with the above mentioned approved plans

Date:_____

_____
Name of contractor

Date & Stamp:_____

_____
Name of Receiving Officer

NOTICE A7 (SEVEN)

NOTICE OF COMPLETION OF DAMP PROOF COURSE

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.
Between D____/M_____/Y__ And D____/M____/Y

Date:_____ _____
Name of contractor

..... **Tear here**.....

NOTICE A7 (SEVEN)

NOTICE OF COMPLETION OF DAMP PROOF COURSE

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required
Between D____/M____/Y__ and D____/M____/Y
(d) I/we certify that the setting out of the building/s has been carried out in accordance with the above mentioned approved plans

Date:_____

_____
Name of contractor

Date & Stamp:_____

_____
Name of Receiving Officer

NOTICE A8 (EIGHT)

NOTICE OF COMPLETION OF REINFORCEMENT

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
In accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.
Between D /M /Y And D /M /Y

Date:_____ _____
Name of contractor

NOTICE A8 (EIGHT)

NOTICE OF COMPLETION OF REINFORCEMENT

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations , I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required

Between D___/M___/Y__ And D___/M___/Y

(d) I/we certify that the setting out of the building/s has been carried out in accordance with the above mentioned approved plans

Date:_____

_____
Name of contractor

Date & Stamp_____

_____
Name of Receiving Officer

NOTICE A9 (NINE)

NOTICE OF COMPLETION OF REMOVAL OF SHUTTERING

REQUIREMENT FOR A BUILDING INSPECTION

To:
In accordance with these Regulations I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant.. _____
(b) Name and address of Contractor. _____
(c) Date inspection required.
Between D____/M____/Y__ And D____/M____/Y

Date:_____ _____
Name of contractor

..... **Tear here**.....

NOTICE A9 (NINE)

NOTICE OF COMPLETION OF REMOVAL OF SHUTTERING

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations , I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county_____

in accordance with Approved Plans No. _____

(a) Name and address of applicant..

(b) Name and address of Contractor.

(c) Date inspection required.

Between D____/M_____/Y__ And D____/M____/Y

Date:_____ _____

Name of contractor

Date & Stamp_____ _____

Name of Receiving Officer

NOTICE A10 (TEN)

NOTICE OF COMPLETION OF SURFACE AND SOIL DRAINS

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations , I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county_____

in accordance with Approved Plans No. _____

(a) Name and address of applicant.. _____

(b) Name and address of Contractor. _____

(c) Date inspection required.

Between D____/M____/Y__ And D____/M____/Y

Date:_____ _____

Name of contractor

..... **Tear here**.....

NOTICE A10 (TEN)

NOTICE OF COMPLETION OF SURFACE AND SOIL DRAINS

REQUIREMENT FOR A BUILDING INSPECTION

To**:**

In accordance with these Regulations , I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.
Between D____/M____/Y__ And D____/M____/Y

Date:_____ _____
Name of contractor

Date & Stamp_____ _____
Name of Receiving Officer

APPLICATION FOR FOUL AND STORM WATER CONNECTION TO SEWERAGE

To:

In accordance with these Regulations, I/we hereby give apply for foul and storm connection to Town/City Sewerage.

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county_____

in accordance with Approved Plans No. _____

(a) Name and address of applicant.. _____

(b) Name and address of Contractor. _____

(c) Drain Layer Name: _____

(d) Connection Details a) Method of connection Y-BRANCH/SADDLE M/H _____

(b) Pipe material and diameter _____

e) Details of Building/s to be connected to the sewerage system..

NO. OF SEPARATE OCCUPANCIES	WATER A/C NAME	WATER A/C NO.

f). Indicate whether or not plot is being sub-divided. Yes __ _____ No _____

g). Connection location (Nearest street/road intersection) _ _____

h). Date connection required: _____

i). Plot at present serve by CONSERVANCY TANK/SEPTIC TANK

j). Signature of Applicant _____ Date _____

RECEIPT NO. _____ DATE _____ FEE SHS._____

"Delete Inapplicable Items

FOR OFFICIAL USEONLY	TYPE OF CONNECTION TEMPORARY/ PERMANENT
CONNECTION APPROVED BY BUILDING/ HEALTH SEWERAGE SECTION DATE DATE	SEWERAGE SECTION (OPERATIONS DATE OF CONNECT ..... SIGNED T.O.W.

For notes see overleaf

MEMO

From: Chief Asst. Engineer (s) Principal Asst. Engineer (s)

To: Deputy General Manager (C) Revenue Officer

RE. SEWER CONNECTION

Approval Plan No._____ Serial No_____ The following plot/s was/were connected to the sewerage system on _____ previously served by CONSERVANCY TANK/SEPTIC TANK/BUCKET/LATRINE

PLOT NO.		
NO. OF SEPARATE OCCUPANCIES	WATER A/C NAME(S)	WATER A/C NO.(S)

Signed_____

NOTICE A11 (ELEVEN)

NOTICE OF COMPLETION OF BUILDING

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations I/we hereby give Notice of the requirement for a building inspection at:- '
Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.
Between D____/M____/Y__ And D____/M____/Y

Date:_____ _____
Name of contractor

..... **Tear here**.....

NOTICE A11 (ELEVEN)

NOTICE OF COMPLETION OF BUILDING

REQUIREMENT FOR A BUILDING INSPECTION

To:

In accordance with these Regulations, I/we hereby give Notice of the requirement for a building inspection at:-

Plot No. _____ L.R. No._____ Street/Road _____
Location_____ county_____
in accordance with Approved Plans No. _____

(a) Name and address of applicant..
(b) Name and address of Contractor.
(c) Date inspection required.

Between D____/M_____/Y__ And D____/M____/Y

Date:_____ _____
Name of contractor

Date & Stamp_____ _____
Name of Receiving Officer

CERTIFICATE A3 (THREE)

CERTIFICATE OF STABILITY OF STRUCTURE (ORIGINAL)

To:

In accordance with these Regulations I hereby certify that the structural work of the building mentioned below has been carried out as per my structural design and details and that the said structure is safe and stable for the purpose for which it is intended.

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county

Approved Plans No _____

Building Classification: _____

Building Name: _____

Date & Stamp_____ _____

Name of qualified Structural Engineer

..... **Tear here**.....

CERTIFICATE NO. 3 (THREE)

CERTIFICATE OF STABILITY OF STRUCTURE (DUPLICATE)

To:

In accordance with these Regulations, I hereby certify that the structural work of the building mentioned below has been carried out as per my structural design and details and that the said structure is safe and stable for the purpose for which it is intended.

Plot No. _____ L.R. No._____ Street/Road _____

Location_____ county

Approved Plans No _____

Building Classification: _____

Building Name: _____

Date& Stamp_____ _____

Name of qualified Structural Engineer

PERMIT A1 (ONE)

APPLICATION FOR TEMPORARY OCCUPATION PERMIT (ORIGINAL)

To:

In accordance with these Regulations I/we hereby apply for a Temporary Occupation Permit for the building mentioned below for the purposes or, purpose endorsed on the plan mentioned below:

Plot No. _____ LR. No. _____ Street/Road _____

Location _____ Province _____ .Approved Plans No. _____

Building Classification: _____ Building Name: _____

Reasons for Temporary Occupation Permit _____

We attach:-

(a) Electrician's Certificate

(b) Plumbers Certificate

(c) Fee for the Supply of Temporary Occupation Permit

Kindly process the application and indicate when the building inspectors will inspect on site.

Date & Stamp: _____ Name of Authorised Person

..... **Tear here**.....

PERMIT A1 (ONE

APPLICATION FOR TEMPORARY OCCUPATION PERMIT (DUPLICATE)

To:

In accordance with these Regulations, I/we hereby apply for a Temporary Occupation Permit for the building mentioned below for the purposes or, purpose endorsed on the plan mentioned below:
Plot No. _____ LR. No. _____ Street/Road _____

Location _____county _____ .Approved Plans No. _____

Building Classification: _____ Building Name: ____ _____

Reasons for Temporary Occupation Permit _____

We attach:-

(a) Electrician's Certificate

(b) Plumbers Certificate

(c) Fee for the Supply of Temporary Occupation Permit

Kindly process the application and indicate when the building inspectors will inspect on site. Date & Stamp:

_____ ____ _____

Name of Authorised Person

PERMIT A1 (ONE)

TEMPORARY OCCUPATION CERTIFICATE (ORIGINAL)

To: The Authorised Person

_____

_____

_____

In accordance with these Regulations, I/we confirm the building mentioned below may be occupied temporarily for the purpose indicated below and for the time period indicated below:
Plot No. _____ LR. No. _____ Street/Road _____'
Location _____ county_____ .
Approved Plans No _____
Building Classification: _____
Building Name: _____

Purpose of Temporary Occupation Certificate:
Duration of Temporary Occupation Certificate:-
From D____/M____/Y__ To D____/M____/Y

Date:& Stamp_____ _____
Name of approving officer

..... **Tear here**.....

PERMIT A1 (ONE

TEMPORARY OCCUPATION CERTIFICATE (DUPLICATE)

To: The Authorised Person

_____

_____

_____

In accordance with theseRegulations, I/we confirm the building mentioned below may be occupied temporarily for the purpose indicated below and for the time period indicated below:

Plot No. _____ L.R. No. _____ Street/Road _____
Location _____ county_____ Approved Plans No. _____
Building Classification: _____
Building Name: _____
Purpose of Temporary Occupation Certificate:
Duration of Temporary Occupation Certificate:-
From D____/M____/Y__ To D____/M____/Y

Date:& Stamp_____ _____
Name of approving officer

CERTIFICATE A2 (TWO)

APPLICATION FOR SECTIONAL OCCUPATION CERTIFICATE (ORIGINAL)

To:

In accordance with these Regulations, I/we hereby apply for a Sectional Occupation Certificate for the building mentioned below for the purposes or, purpose endorsed on the plan mentioned below: I certify that I have supervised the erection and completion of the building/s and that to the best of my knowledge and belief such work/s is/are in accordance with the Building and Structural Plans and that I accept full responsibility accordingly for those portions for which I am respectively concerned.

Plot No. _____ L.R. No. _____ Street/Road _____

Location _____ county_____

Approved Plans No. _____

Building Classification: _____

Building Name: _____

Details of Particular Section: _____

We attach:-

(a) Electrician's Certificate

(b) Plumbers Certificate

(c) Fee for the Issue of Sectional Occupation Certificate

Kindly process the application and indicate when the building inspectors will inspect on site.

Date & Stamp: Name of Authorised Person.————————

..... **Tear here**.....

CERTIFICATE A2 (TWO)

APPLICATION FOR SECTIONAL OCCUPATION CERTIFICATE (DUPLICATE)

To:

In accordance with these Regulations I/we hereby apply for a Sectional Occupation Certificate for the building mentioned below for the purposes or, purpose endorsed on the plan mentioned below: I certify that I have supervised the erection and completion of the building/s and that to the best of my knowledge and belief such work/s is/are in accordance with the Building and Structural Plans and that I accept full responsibly accordingly for those portions for which I am respectively concerned.

Plot No. _____ L.R. No. _____ Street/Road _____ Location _____county _____

Approved Plans No. _____

Building Classification: _____

Building Name: _____

Details of Particular Section: _____

We attach:-

(a) Electrician's Certificate

(b) Plumbers Certificate _ .

(c) Fee for the Issue of Sectional Occupation Certificate

Kindly process the application and indicate when the building inspectors will inspect on site.

Date & Stamp: Name of Authorised Person.————————

CERTIFICATE A2 (TWO)

SECTIONAL OCCUPATION CERTIFICATE (ORIGINAL)

To: The Authorised Person

_____

_____

_____

In accordance with these regulations, we confirm the section of the building mentioned below may be occupied/made use of for the purposes or, purpose endorsed on the plan mentioned below:

Plot No. _____ L.R. No. _____ Street/Road _____

Location _____ county_____ Approved Plans No. _____

Building Classification: _____

Building Name: _____

Section of Building

Actual date of issue of Final Occupation Certificate:-

_____D ___/M ___/Y__

Date:& Stamp_____ _____

Name of approving officer

..... **Tear here**.....

CERTIFICATE A2 (TWO)

SECTIONAL OCCUPATION CERTIFICATE (DUPLICATE)

To: The Authorised Person

_____

_____

_____

In accordance with these Regulations, we confirm the section of the building mentioned below may be occupied/made use of for the purposes or, purpose endorsed on the plan mentioned below:

Plot No. _____ L.R. No. _____ Street/Road _____

Location _____county _____ Approved Plans No. _____

Building Classification: _____

Building Name: _____

Section of Building

Actual date of issue of Final Occupation Certificate:-

_____D___/M___/Y__

Date& Stamp_____ _____

Name of approving officer

CERTIFICATE A1 (ONE)

APPLICATION FOR FULL OCCUPATION CERTIFICATE (ORIGINAL)

To:

In accordance with these Regulations, I/we hereby apply for a Full Occupation Certificate for the building mentioned below for the purposes or, purpose endorsed on the plan mentioned below. I certify that I have supervised the erection and completion of the building/s and that to the best of my knowledge and belief such work/s is/are in accordance with the Building and Structural Plans and that I accept full responsibly accordingly for those portions for which I am respectively concerned.

Plot No. _____ L.R. No. _____ Street/Road _____

Location _____ county _____

Approved Plans No. _____

Building Classification: _____

Building Name: _____

We attach:-

(a) Electrician's Certificate

(b) Plumbers Certificate

(c) Qualified Structural Engineer's Certificate of Stability of structure

(d) Copy of receipt

(e) Fee for the Supply of Final Occupation Certificate

(f) Application form for Building Registration

Kindly process the application and indicate when the building inspectors will inspect on site.

Date & Stamp: Name of Authorised Person.————————

..... **Tear here**.....

CERTIFICATE A1 (ONE)

APPLICATION FOR FULL OCCUPATION CERTIFICATE (DUPLICATE)

To:

In accordance with theseRegulations I/we hereby apply for a Full Occupation Certificate for the building mentioned below for the purposes or, purpose endorsed on the plan mentioned below. I certify that I have supervised the erection and completion of the building/s and that to the best of my knowledge and belief such work/s is/are in accordance with the Building and Structural Plans and that I accept full responsibly accordingly for those portions for which I am respectively concerned.

Plot No. _____ L.R. No. _____ Street/Road _____

Location _____ounty _____

Approved Plans No. _____

Building Classification: _____

Building Name: _____

We attach:-

(a) Electrician's Certificate

(b) Plumbers Certificate

(c) Qualified Structural Engineer's Certificate of Stability of structure

(d) Copy of receipt

(e) Fee for the Supply of Final Occupation Certificate

(f) Application form for Building Registration

Kindly process the application and indicate when the building inspectors will inspect on site.

Date & Stamp: Name of Authorised Person.————————

CERTIFICATE A1 (ONE)

FULL OCCUPATION CERTIFICATE (ORIGINAL)

To: The Authorised Person

_____

_____

_____

In accordance with these Regulations, we confirm the building mentioned below may be occupied/ made use of for the purposes or, purpose endorsed on the plan mentioned below:

Plot No._____ L.R. No. _____Street/Road_____
Location_____ county_____

Approved Plans No, _____
Building Classification: _____
Building Name: _____
Actual date of issue of Final Occupation Certificate:- D_ /M /Y
Date & Stamp: _____ _____
Name of Approving Officer
..... **Tear here**.....

CERTIFICATE A1 (ONE)

FULL OCCUPATION CERTIFICATE (DUPLICATE)

To Authorised Person

_____

_____

_____

In accordance with these Regulations we confirm the building mentioned below may be occupied/ made use of for the purposes or, purpose endorsed on the plan mentioned below:

Plot No._____ L.R. No. _____Street/Road_____
Location_____ ounty_____
Approved Plans No, _____
Building Classification: _____
Building Name: _____
Actual date of issue of Final Occupation Certificate:- D_ /M /Y
Date & Stamp: _____ _____
Name of Approving Officer

FORM NO. A1 (ONE)

APPLICATION FOR PERMISSION TO CONSTRUCT AN ACCESS IN A PUBLIC STREET

Name of Applicant:_____
Address of Applicant: _____
Plot to which access is required:-
LR. No. _____ Section _____ Plot No. _____
Name of Street: ___ ___._._____
Is the access to be culverted: Yes/No _____
Date and time of proposed commencement of work:-
Date: _____ Time: _____

_____

(At least two clear days notice should be given)
Will any existing street works or Public Services be affected? Yes/No
If so, to what extent? _____
I/We hereby undertake to observe and comply in all respects with the Regulations annexed hereto and on any failure so to do to repay to the cost of any works carried out by them in pursuance of these Regulations and to indemnity the said against all claims, costs and expenses which may be made against or incurred by them by reason of the carrying out of re work involved in the construction of the access.

Date: _____ Signature of Applicant: _____

_____

To: Road Department of
I have inspected the construction works for the vehicular Access referred to on this form and have found them to be:-
Satisfactory.
Unsatisfactory.

BUILDING CONTROL OFFICER

1. A DETAILED PLAN SHOWING LOCATION OF THE PROPOSED VEHICULAR ACCESS TO BE DRAWN HERE.

CERTIFIED NOTED ..... K.P. & L.CO. LTD.
CERTIFIED NOTED ..... CCK. NO……
CERTIFIED NOTED ..... WATER UNDERTAKER (For Official use only)
CERTIFIED NOTED .....TRAFFIC POLICE

APPLICATION FOR PERMISSION TO BREAK OPEN PUBLIC HIGHWAYS, FOOTPATHS, PUBLIC OPEN SPACES AND OTHER WAYLEAVES

1. Name of Applicant..... .....
2. Address of Applicant..... .....
3. Purpose for which opening is required. ....
4. Date and Time of commencement of works ....
   Completion date ....
   (Permit shall be valid up to specified completion date . and in any case not for a period of more than 1 month)
5. Precise location of opening ....
   (plot No. if applicable and a scaled and marked location plan must be attached)
6. Extent of opening ....
   Carnage way:- .....
   Length .....m width .....m Depth .....m
   Footpath:-
   Length .....m width .....m Depth .....m
   Verge:-
   Length .....m width .....m Depth .....m
   Other-
   Length ....m width .....m Depth .....m

Will any permanent surface works, such as manholes, inspection chambers, etc., be installed or demolished? If so, state number and description (Attach extra Sheet if necessary) .....

I/We ..... hereby undertake and agree to observe and comply in all respects with the Regulation annexed hereto, and on any failure on my/our part to observe and comply with Regulations to repay to , the cost of any, works carried out by them in pursuance of the Regulations, and I/We further undertake and agree to pay to the cost of the permanent reinstatement of the road surface in accordance with the conditions set out in the Regulations and indemnify against all claims which may be made against them by reason of the carrying out of the opening and reinstatement of the road surface.

Signed .....
for.....
DATE..... 20.
Stamp.....

For the Opening of Surfaces of Road, Footpaths, Public Open Spaces and other Wayleaves

RULES

APPLICATIONS

1. Applications must be made to on this application form in hex plate (6 copies) which must be duly completed and signed by the applicant or by an authorised person on his behalf and received by before the work is carried out. At least seven days clear notice must be given before such opening is made.

II. OPENING AND REINSTATEMENT

2. The Applicant must to the satisfaction of , carry out the permanent reinstatement of the road surface and must to the like satisfaction make good all works, and any settlement, in such permanent reinstatement which may occur, until the trench is taken over by and in default any such works will be carried out by at the expense of the applicant, but in carrying out such works shall not be deemed to have taken over the trench.
3. In all cases where considered necessary by , the opening and filling-in shall be done under the supervision of his representative and all reasonable requirements given by such representative shall be complied with by the Applicant.
4. All materials removed shall be carted away to a tip approved by and murram shall be provided to backfill trenches under Roads and footpaths and Red Coffee soil for trenches across open spaces as specified under Rule 7 hereunder.
5. All fillings shall be carried out in layers not more than 75mm thickness such layers being thoroughly rammed, the labour employed being in the proportion of three to one of that employed in filling. Alternatively, effective mechanical ramming shall be carried out to the satisfaction of . No stone or other material which could damage the work is to be placed within 300mm of such work.
6. To ensure proper consolidation, all dry materials shall be properly wetted to optimum moisture content during filling-in of the opening and mud and puddle shall be thrown aside and not re-used.
7. The permanent reinstatement of tarmac surfaces shall be carried out by consolidating to a thickness of 300mm approved hardcore on top of consolidated murram. 300mm lean concrete (1 ;4:8) shall then be poured such that the level of the lean concrete is 25mm below existing surface which shall be stopped with good selected rnurram to 25mm proud of existing tarmac surface,
8. In the event of any water mains, drains, sewers, street lighting and traffic lights, cables being damaged or disturbed the fact must be reported at once to or his representative, who may direct that any necessary repairs shall be carried out at the expense of the Applicant and such repairs shall be carried out accordingly.
9. In the event of any electric or post office cables, mains or other underground or overhead service being damaged or disturbed the fact must be reported at once to the statutory authority concerned, who may direct that any necessary repairs shall be earned out at the expense of the Applicant.
10. During the whole time the work of opening or reinstating is in progress, prominent warning notices must be exhibited on each approach to the works and where the latter are extensive in character proper provision must be made for the direction in control of traffic. Traffic using the road must be disturbed as little as possible and in all cases not less than half the width of the carriageway must be kept available for traffic. On all main traffic routes the road must NOT be opened during the following hours

) **06.00 to 09.00hrs**

Monday to Friday) **12.00 to 14.00hrs**

) **16.00 to 18.00hrs**

If it is impossible to conform to the above times, steel plates must be used to bridge the excavation. In all cases and traffic police must be notified of the time the road will be open. A schedule of main traffic roads may be inspected at the office of . The Applicant must fence the openings in a satisfactory manner and all openings not filled in on the same day must be properly lighted during the hours of darkness, and if over 50 metres in length must be watched by a responsible person at night time, that is. between sunset and sunrise.

11. reserves the right to repeat the reinstatement of the road surface and the charges made shall relate to the actual materials used in such reinstatement work. These materials will conform where possible with the existing type prior to opening. Notwithstanding permanent reinstatement by , the Applicant shall continue to be liable for a period of six months from the date of receipt by of the completion notice for !he cost of further permanent reinstatement if this is due to the subsidence of filling in the road opening.
12. The charges made by for the repeat of reinstatement work shall be those which may be determined and communicated by .
13. Where it is proposed to open public footways, which are paved with premix or concrete paving slabs, it is essential that the surface of the paving should be inspected by or his representative together with the Applicant, prior to the opening being commenced in order that the condition of the paving may be noted. The Applicant shall without delay reinstate public footways to their original condition to the satisfaction of .

III GENERAL

14. The Applicant must indemnify from and against all claims for injury, damages or accidents arising from the opening or temporary reinstatement of the road surface until the opening (or section thereof) is taken over by . The Applicant must further indemnify from and against all claim for injury, or damages or accidents arising from the subsidence of the filling in the road opening for a period of six months from the date of receipt of the completion notice. In these Regulations shall be deemed to have taken over the road opening 183 days from receipt by of the completion notice.
15. No road may be closed temporarily to traffic by the Applicant and where it is necessary for the road to be closed, application must be made to at least one month before the date when it is desired to undertake the work which will necessitate the closing of the road and the Applicant shall repay to any costs incurred on advertising and posting of statutory notices in connection with the closing of the road.
16. Any breach of these Regulations if not remedied within a reasonable period, shall be at a liberty to carry out such works as they consider necessary at the expense of the Applicant.
17. Manhole(s) and other inspection cover(s) to be set in carriageway surface by the Applicant shall conform to specification. The covers shall be bedded so as to conform with the cambered surface of the road and no protuberance or depression in the surface will be allowed.
18. Before submitting this form to it must be certified by the KP&LC, CCK, Water Undertaker and Traffic Police to the effect that the extent of the opening has been noted by them.
19. The Applicant must comply with the relevant requirements of the Traffic Act and these Regulations,
20. A copy of this form must be kept at the site of the works and produced on demand.

APPLICATION FOR PERMIT TO ERECT A TEMPORARY BUILDING

To:

In accordance with these, I/we hereby make application for permission to erect a temporary building at

Plot No. _____
LR. No. _____
Street _____
Location _____
county_____
in the position indicated on the accompanying plans,

(a) Name and address of applicant.

_____ _____
_____ _____
_____ _____

(b) Description of intended use.

_____
_____
_____

(c) Estimated time for which temporary building will be required:-

From; D /M /Y Until D /M /Y

I/we hereby submit:-

(i) A fee of Kshs (Kenya Shillings)
(ii) 3 sets of plans of the proposed temporary building; and
(iii) a true copy of the written permission from the owner or his agent allowing me/ we to make the submission.

Date: _____ _____
Name and signature of applicant

TEMPORARY BUILDING PERMIT

To: The Applicant

In accordance with the these Regulations, you are hereby authorised to erect a Temporary Building at:-

Plot No._____
LR. No. _____
Street _____
Location. _____
county _____
in the position indicated on the accompanying plans,

(a) Name and address of applicant.

_____ _____
_____ _____
_____ _____

(b) Description of intended use.

_____ _____
_____ _____
_____ _____

(c) Actual time for which permit is valid:-
From; D /M /Y Unit D /M /Y

(d) The applicant hereby undertakes to demolish the building upon expiry of the notice.

(e) If the applicant fails to demolish the building upon expiry of the notice may demolish it at the owner's cost.

Conditions
(i)_____
(ii) _____
(iii)_____

Date: _____ _____
Name of Approving Officer

CERTIFICATE NO. 4 (FOUR)

BUILDING REGISTRATION CERTIFICATE

REG. NO.	123456
PHYSICAL LOCATION	BOFA ROAD KILIFI, KILIFI DISTRICT
ACREAGE	0.005
LIMITATION OF USE	RESIDENTIAL HOUSE MAX. 10 PEOPLE
LAST INSPECTION DATE	11.04.1998
NEXT INSPECTION DATE	11.04.2003
PLAN NO.	A451 237/1
OWNER	J. NJOROGE
SO. METRES	269
HEIGHT	3 STOREYS
PLOT NO.	LR/14762

DATE&STAMP:-……..
SIGNATURE OF APPROVING OFFICER:-…….

APPLICATION FOR REGISTRATION AS AUTHORISING PERSON

I hereby apply to be registered as an authorising person under these Regulations . My particulars are as follows:

A Personal Particulars:

Full Name (in block letters):

Prof/Dr/Mr/Mrs/Miss/ _____

*(*underline surname*)*

Identity Card No. _____

Home Address _____

Telephone No.:._____ (Home) (Mobile)

Date and place of Birth _____

Nationality _____

Date of registration as a qualified Structural Engineer with The Engineer's Registration Board_____

Registration No. _____

Qualifications (enter details Appendix)

Membership of Professional Bodies; (see Appendix)

Current Employment /Practice

Name of Firm/Corporation _____

Address:

Name of Firm/Practice

Telephone No.

No. of Years in Practice:

Name of Partner /Associates:

i.

ii.

iii.

iv.

Detail of Past Employment (see Appendix)

Details of Offence

Have you ever been convicted of a criminal offence in a court of law and /or knowingly be investigated in connection with a criminal offence in any country? If so, please give details:

Have you ever been reprimanded/suspended from practice/de-registered or ever faced any disciplinary inquiry by the Engineers Registration Board any other professional bodies? If so, give details:

Declaration:
I hereby declare that all the particulars and information given in this application form and the appendices attached are to the best of my knowledge true and accurate.
I further declare that I am ordinarily resident in Kenya.

Date _____ _____

(Signature of Structural Engineer)

Academic Qualifications

* Degree/Diploma/ Others	Name of University/College/ Education/institution	Country	Year of Award

Membership of Professional Bodies

* Name of Professional Body	Country	Grade of Membership (including designatory letters)	Membership Obtained By Examination/ Exemption/ Honorary Award	Year of Election

* Name of Professional Body	Country	Grade of Membership (including designatory letters)	Membership Obtained By Examination/ Exemption/ Honorary Award	Year of Election

(To attach photocopy of degree/diploma/certificates)

Employment/Practice (After registration as Structural Engineer)

Name of Firm/Practice	Year		Position Held	Name of Business/Practice
	From	To		

Practical Experience

Name of Project	Month/Year		Position held and Degree of responsibly (to include some indication on the magnitude and complexity of work)	Duration of Applicant's Involvement (Year/Month)		Construction Cost	Height	Total Built up area
	From	To		Checking of Design/ Research	Supervision/ Structural/ investigation			

APPLICATION FOR REGISTRATION AS A QUALIFIED PERSON

I hereby apply to be registered as a qualified person under these Regulations My particulars are as follows:

A Personal Particulars:

Full Name (in block letters):

Prof/Dr/Mr/Mrs/Miss/ _____

(underline surname)

Identity Card No. _____

Home Address _____

Telephone No.:._____ (Home)

Date and place of Birth _____

Nationality _____

7 Date of registration with the respective professional Board(s) in the relevant discipline Registration No._____

B Qualifications (enter details in the Appendix)

C Membership of Professional Bodies; (see Appendix)

D Current Employment /Practice

1 Name of Firm/Corporation _____

2Address:

3 Name of Firm/Practice

4Telephone No.

5 No. of Years Employed in Private Practice:

6 Name of Partner /Associates:

i.

ii.

iii.

iv.

E Detail of Past Employment (enter details in the Appendix)

F Details of Offence

Have you ever been convicted of a criminal offence in a court of law and /or knowingly be investigated in connection with a criminal offence in any country? If so, please give details:

Have you ever been reprimanded/suspended from practice/de-registered or ever faced any disciplinary inquiry by the Engineers Registration Board any other professional bodies? If so, give details:

Declaration:

I hereby declare that all the particulars and information given in this application form and the appendices attached are to the best of my knowledge true and accurate.

I further declare that I am ordinarily resident in Kenya.

Date _____

_____

(Signature of Registered professional)

Academic Qualifications

* degree/Diploma/Others	Name of University/College/ Education/I institution	Country	Year of Award

Membership of Professional Bodies

* Name of Professional Body	Country	Grade of Membership (including designatory letters)	Membership Obtained By Examination/Exemption/ Honorary Award	Year of Election

(To attach photocopy of degree/diploma/certificates)

Details of Past Employment/Practice
(After registration as a professional in the relevant discipline)

Name of Firm/Practice	Year		Position Held	Name of Business/Practice
	From	To		

Practical Experience

Name of Project	Month/Year		Position held and Degree of responsibly (to include some indication on the magnitude and complexity of work)	Duration of Applicant's Involvement (Year/Month)		Construction Cost	Height	Total Built up area
	From	To		Design/ Checking of Design/ Research	Supervision/ Structural/ investigation			

APPLICATION FOR REGISTRATION AS AN AUTHORISED PERSON

I hereby apply to be registered as an Authorised person under these these Regulations. My particulars are as follows

A Personal Particulars:

1 Full Name (in block letters):
Prof/Dr/Mr/Mrs/Miss/ _____
(underline surname)

2 Identity Card No. _____

3 Home Address _____

4 Telephone No.:._____ (Home) Mobile No.

5 Email address

6 Date and place of Birth _____

7 Nationality _____

8 Date of registration as a professional in the relevant discipline
Registration No. _____

B Qualifications (enter details in the Appendix)

C Membership of Professional Bodies; (enter details in the Appendix)

D Current Employment /Practice

(i) Name of Firm/Corporation _____

(ii) Address:_____

(iii) Name of Firm/Practice_____

(iv) Telephone No. _____

(v) No. of Years Employed in Private Practice:_____

(vi) Name of Partner /Associates:

E Detail of Past Employment (see Appendix)

F Details of Offence

1 Have you ever been convicted of a criminal offence in a court of law and /or knowingly be investigated in connection with a criminal offence in any country? If so, please give details:

_____

_____

2 Have you ever been reprimanded/suspended from practice/de-registered or ever faced any disciplinary inquiry by the relevant professional board? If so, give details:

_____

_____

G Declaration:

1 I hereby declare that all the particulars and information given in this application form and the appendices attached are to the best of my knowledge true and accurate.

2 I further declare that I am ordinarily resident in Kenya.

Date _____ _____

(Signature of Registered professional)

Academic Qualifications

Degree/Diploma/Others	Name of University/College/ Education/institution	Country	Year of Award

Membership of Professional Bodies

* Name of Professional Body	Country	Grade of Membership (including designatory letters)	Membership Obtained By Examination/Exemption/ Honorary Award	Year of Election

(To attach photocopy of degree/diploma/certificates)

Details of past Employment /Practice (After registration as Qualified Structural Engineer)

Name of Firm/Practice	Year		Position Held	Name of Business/Practice
	From	To		

Practical Experience

Name of Project	Month/ Year		Position held and Degree of responsibly (to include some indication on the magnitude and complexity of work)	Duration of Applicant's Involvement (Year/Month)		Construction Cost	Height	Total Built up area
	From	To		Design/ Checking of Design/ Research	Supervision/ Structural/ investigation			

SECTION B:

PLANNING, SITING AND SPACE WITHIN AND AROUND BUILDINGS, SPECIAL REQUIREMENTS FOR PEOPLE WITH DISABILITIES

CONTENTS

SECTION B:

PLANNING, SITING AND SPACE WITHIN AND AROUND BUILDINGS, SPECIAL REQUIREMENTS FOR PEOPLE WITH DISABILITIES

BB - 1 COMPLIANCE TO BASIC PHYSICAL PLANNING REQUIREMENTS

BB - 1.1 Any person intending to erect a new building or re-erect an existing building shall comply with the physical planning requirement provisions of the Physical Planning Act and these Regulations and such conditions as may be imposed by the Approving Authority regarding the siting, size, height, shape and appearance of such building in order to safeguard, maintain or impose the dignity or preserve the amenity and general appearance of street, square, public place or have effect on the complemented appearance of such street, square or public place.

BB - 1.2 All new buildings and all additions to existing buildings, particularly out-buildings, latrines and all drains and sanitary apparatus of any kind pertaining thereto shall be situated on such plot, sub-plot or other piece of land on which they may be built, as to ensure the best practicable hygienic and sanitary conditions and avoid as much as possible any nuisance or annoyance from the position and appearance of such latrines or buildings or from noise caused by the occupants of such out-buildings or from any other cause whatsoever.

BB - 1.3 A person owning a plot upon which a building may be so sited as to form a terminal feature to a street or which may otherwise be prominently displayed shall site such building in such position as the Approving Authority may decide and that person shall comply with such stipulations as may be imposed with regard to siting, size, height, shape and appearance of such building.

BB - 2 SITING OF BUILDINGS

BB - 2.1 All new buildings shall be so sited on a plot as to ensure hygienic and sanitary conditions and to avoid as far as possible any nuisance or annoyance to the owners or occupiers of neighbouring plots.

BB - 2.2 No building shall be erected on any site which has been made up or filled up by offensive or unsanitary materials or which has been used for the deposit of the refuse, excrementious materials or carcasses of dead animals or other filthy or offensive matter until such site has been dealt with to the satisfaction of the Approving Authority.

BB - 3 ACCESS OF PLOTS

BB - 3.1 Every plot shall be provided with at least one access from a road.

(i) Where access to a plot requires the crossing of an open space, an approved culvert, if so required by the Approving Authority, shall be provided for to the full width of the entrance or for a length of 4m, whichever is the greater,

and completed before the building or buildings on the plot are occupied: Provided that, for the period of the construction of any building, the use of a temporary culvert which is constructed so as not to impede the flow of the drain may be made.

(ii) No access will be created to a necessary road or primary road without allowing for accelerating/decelerating lane at the junction of the two.

BB - 4 FRONTAGE

BB - 4.1 Unless otherwise agreed by the Approving Authority, no building shall be so sited as to have a principal frontage abutting on to a street of a less width than 10m.

BB - 4.2 No building shall be erected on any plot or sub-plot which has no proper and sufficient frontage to street, such street not being a sanitary lane or passage,

BB - 4.3 No building shall, except with the prior written permission of the Approving Authority, be so erected as to have its principal access to or its principal frontage abutting on a service lane, alley or passage.

BB - 4.4 No means of access from a service lane for use by the public shall be permitted in any premises used for retail trade coverage.

BB - 5 SERVICE AREAS

Unless the Approving Authority otherwise agrees, an approved open area shall be left on each plot for the purpose of servicing any building thereon and the means of access to such area shall be of approved dimensions: Provided that the Approving Authority shall not require a service area greater in extent than the area of the plot required to be left uncovered under the provisions of any other written law.

BB - 6 BOUNDARY WALLS

Unless the Approving Authority otherwise agrees, the development of any plot shall include the provision of boundary walls, screen walls, fences or other means of enclosure of approved materials, construction and design.

BB - 7 HEIGHT OF BOUNDARY WALLS

BB - 7.1 Boundary walls, screen walls, fences or other means of enclosure of residential plots shall not be erected to a greater height than 1.35m where abutting on to a street or in front of the building line of the main building, or in any other case

BB - 7.2 All other external boundary walls, screen walls, fences, etc. shall be of such a height as the Approving Authority may require.

BB - 7.3 Razor wire is not permitted in any residential area.

BB - 7.4 Razor wire, where permitted, may only be fixed at a minimum of 2m above ground level.

BB - 7.5 Broken glass and similar materials is not permitted on any building.

BB - 7.6 Electric fencing must comply with KS - 04 - 646 Part 2 of 1987.

BB - 8 OBSTRUCTION TO VIEW

BB - 8.1 Nothing in these Regulations shall be deemed to authorize the formation, laying out, or material widening of any means of access or any erection which creates an obstruction to the view of persons using any street used by vehicular traffic, at or near any bend, corner, junction or intersection so as to be likely to cause danger to such persons.

BB - 9 WAIVER AS TO THE HEIGHT

BB - 9.1 Where the ground on the line of a boundary wall or fence has such a slope or, in the opinion of the Approving Authority, on the grounds of privacy, amenity, safety or control, it is necessary or advisable to deviate from the heights prescribed in these Regulations,the Approving Authority may permit such other height as it considers adequate in the circumstances.

BB - 10 PERMITTED SITE COVERAGE, PLOT RATIO AND CAR PARKING

REQUIREMENTS IN BUILDINGS

BB - 10.1 The Approving Authority shall determine the plot coverage and plot ratios depending on the zoning of the urban area and the level of urban services available

BB - 10.2 Permitted site coverage and plot ratio shall be generated from the Development Index and Infrastructure Development Level.

BB - 10.3 For the purpose of these Regulations, the site coverage is defined as the percentage of the gross area of the plot of land which may be covered by the building or buildings.

BB - 10.4 For the purpose of these Regulations, the plot ratio is defined as the ratio of gross permittable constructed area to the gross area of the plot of land.

Whereas Infrastructure Development Level is the level number given to a plot of land from which the plot ratio, or plot coverage may be calculated. The Infrastructure Development Level is based on a scale of 0-10 (zero to ten; zero having the poorest infrastructural features and to (ten) having the highest infrastructural features.

BB - 10.5 The Approving Authority will assess all areas of land within Kenya and allocate area by area as Infrastructure Development Level A plot falling within these areas will then be allocated an Infrastructure Development Level which will be derived from consideration being given to the following although not limited to; availability of water, availability of sewers, proximity and capacity of surface water drainage infrastructure, availability of mains electricity, availability of telephone connection, proximity and extensiveness of fire fighting services, proximity of schools, shops, police stations hospitals and medical care facilities, size and capacity of roads, bridges, and public transport, sensitivity of the environment, ground conditions, existing neighbouring structures, planning zoning etc.

Commentary

The previous system of plot ratios and plot coverage has been abolished and the method of calculation is shown in the following example:-
Example 1 Related to Plot Coverage:-
LR .No. 14790 Area 200m2
Infrastructure Development Level (I.D.L.) = 6
Plot coverage: Multiply I.D.L. x 10
and convert to percentage i.e. 6x10 = 60%
60% of say a plot area of 200 m2 = 120m2
120 m2 is the maximum area of the plot that can be covered by buildings.
Example 2 Related to Plot Ratio:-
LR. No. 14790 Area of plot 200 m2.
Infrastructure Development Level = 6
Plot ratio: Multiply the Infrastructure
Development Level by 1.2
(The Development Index) I.e. 6x1.2 = 7.2
7.2 x 200 m2 (plot area) =1440 m2
1440 m^2 is the maximum gross area of construction exclusive only of car parking except when the building is designed as a car parking silo in which case it applies.

BB - 10.6 The current Development Index (D.I.) is 1.2, however, from time to time the Approving Authority may review this.

BB - 10.7 The current scale of Infrastructure Development Level runs from 0 - 10 inclusive.

BB - 10.8 The minimum car parking requirements for a building are scheduled below based on the Table B1 of Part B of these Regulations "Occupancy or Building Classification

Table B - 1: Car parking in Buildings

Car parking spaces per 100 m2 of gross built area	Building classification
1 (one)	A3, B1.B2, B3, C1, C2, D1,D2,D3, E1,E3, F3, H3, H4
2(two)	A2, A5,E2,F1,F2,H1
2.5 (two and a half)	A1, A4,G1

BB - 10.9 Notwithstanding the above, the Approving Authority may insist in special cases on a minimum development in plot ratio, plot coverage and height.

BB - 11 SPACE AROUND DOMESTIC BUILDINGS

BB - 11.1

(a) Every domestic building on a class A or B site or on a class C site shall have within the site an open space at the rear, or partly at the rear and partly at the side, at a level of not less than 150mm below the floor of the lowermost storey in accordance with the Second Schedule: Provided that where the Approving Authority considers it necessary for proper and equitable development or re-development of an adjacent site, he may require the provision of more open space than that specified in the Second Schedule,

(b) The open space provided pursuant to sub regulation (a) above, shall be such that no part of the building which bounds on such open space at any level shall be within 1.5m, measured horizontally, of a line drawn vertically from a point in the boundary of the open space immediately opposite thereto.

BB - 11.2 No part of any domestic building shall be erected within 1.5m of the rear boundary of the site. The open space so provided shall be counted as part of the open space required under this Regulation.

BB - 11.3 No existing domestic building which has an open space of equal or less area than that required by this Regulation shall be altered in such manner as to reduce the existing amount of open space.

BB - 11.4 No existing domestic building which has a greater area of open space than that required by these regulations shall be altered in such a manner as to reduce the area of open space to less than that required by the Regulation.

BB - 11.5 Where any open space or area is at a level more than 600mm below an adjoining open space, safe parapet walls, railings or fences shall be provided by the person creating the difference in levels.

BB - 11.6 Access shall be provided to every open space.

BB - 12 WIDTH OF ROAD OR STREET

Where for the purposes of these Regulations, it is necessary to determine the width of any road or street, the same shall be determined by the Approving Authority

BB - 13 NEW BUILDINGS ON EXISTING STREET LESS THAN 6.0M WIDE TO BE SET BACK FROM CENTRE LINE OF STREET

Where the width of an existing street in front of any new building is less than 6.0m, no part of such building shall be nearer to the center line of the street than 3m.

BB - 14 SERVICE LANES

BB - 14.1 In addition to any open space required under Regulation BB11 every domestic building shall be provided with a service lane at the rear or side of such building: Provided that a service lane shall not be required:-

(a) Where a public lane not less than 3m wide or a street already exists
(b) For detached and semi-detached buildings;
(c) Where exempted by the Approving Authority.

BB - 14.2 Every such service lane shall be accessible from an existing street but where such access is not immediately possible, this regulation shall be deemed to have been complied with if access would be obtained in the event of future development or redevelopment of other lots within the block.

BB - 14.3 The alignment, width and levels of every such lane shall be decided by the Approving Authority who may grant a modification under Regulation BB27 when a lane exceeding 1.5m in width is required.

BB - 15 NEW STREETS AND SIMILAR WORKS TO BE ACCESSIBLE FROM EXISTING STREET

BB - 15.1 Every private street and cul-de-sac shall be accessible from an existing street or another new street.

BB - 15.2 An access or alteration to an existing access to a plot shall be sited and constructed to the satisfaction of the Approving Authority.

BB - 16 FOOTPATHS

BB - 16.1 Every private street and cul-de-sac shall have a foot path on each side there of.

BB - 16.2 Every access road shall have a footpath on at least one side thereof.

BB - 16.3 All roads to include safe cyclist lanes and designated parking spaces.

BB - 17 WIDTH OF PRIVATE STREETS AND CUL-DE-SACS

BB - 17.1

(a) In every residential area:-
  (i) the width of the carriageway of and of each footpath in any private street shall be not less than the width specified in Table B2; and
  (ii) the width of the carriageway of any cul-de-sac shall be not less than 5m and the width of each footpath therein shall be not less than 2.0m

Table B - 2: Private Street

Type of Street	Width of the Carriageway	Width of Footpath
Major	7.0m	2.75m
Minor	5.5m	2.0m

(b) In every industrial area and in every area of mixed usage:-
  (i) the width of the carriage-way of and of each footpath in any private street shall be not less than the width specified in Table B3; and
  (ii) the width of the carriageway of any cul-de-sac shall be not less than 7.0m and the width of each footpath therein shall be not less than 2.75m.

Table B - 3: Industrial and Mixed Use Areas

Type of street	Width of the carriageway	Width of footpath
Major	7.5m	3.00m
Minor	7.0m	2.75m

BB - 17.2 For the purposes of this Regulation:-

(a) The Approving Authority shall determine:-
  (i) whether any area is a residential area, an industrial area or an area of mixed usage; and
  (ii) whether a street is a major or a minor street; and
(b) any cul-de-sac which is more than 120m in length measured along the centre line of the carriageway thereof from the junction of the cul-de-sac with a street which is a thoroughfare, shall be deemed to be a private street.

BB - 18 WIDTH OF ACCESS ROADS

BB - 18.1 Save as provided in sub-regulation BB18.2, the width of the carriageway of every access road shall be not less than 5m and the width of the footpath therein shall be not less than 2.0m.

BB - 18.2 Where:-

(a) an access road provides or will provide access to not more than 12 separate buildings or not more than 24 flats, whether such flats are in the same building or not; and
(b) the aggregate of the areas of the floors in all the buildings or flats does not exceed 3500m2; and
(c) spaces, to enable vehicles to pass, are provided at distances along the access road not exceeding 60m in length, the width of the carriageway of the access road may be not less than 5.0m and the width of the footpath not less than 2.0m.

BB - 19 PEDESTRIAN WAYS

Every pedestrian way shall be:-
(a) not less than 1.5m wide; and
(b) so protected as to prevent vehicles entering thereon.

BB - 20 KERB RADIUS

At every junction of a private street, cul-de-sac or access road with any street, the radius of the kerb line shall:-

(a) where the footpaths in the streets or in the cul-de-sac or access road and the street, as the case may be, are of the same width, be not less than the width of such footpaths; or

(b) where such footpaths are of different widths, be not less than the width of the wider footpath.

BB - 21 JUNCTIONS TO BE AT RIGHT ANGLES,

The junction of any private street, cul-de-sac or access road with any street shall be made at right angles, and

(a) where the junction is of a new private street or cul-de-sac with an existing street, the line of the carriageway of the new private street or cul-de-sac shall continue at such angle for a distance of not less than 30m from the place at which such street or cul-de-sac enters the junction;

(b) where the junction is of 2 or more new private streets, the line of the carriageway or each such street shall continue at such angle for a distance of not less than 30m from the place at which each street enters the junction; and

(c) where the junction is of an access road with a street, the line of the carriageway of the access road shall continue at such angle for a distance of not less than 7.5m from the place at which such access road enters the junction.

BB - 22 NO UNDULATION ON MAJOR STREET

The carriageway of any minor street shall, at the junction of such carriageway with the carriageway of a major street, be graded into the carriageway of such major street in such a manner as to avoid undulation on the major street.

BB - 23 GRADIENTS

BB - 23.1 Subject to the provisions of sub-regulations BB23.2 and BB23.3, no private street cul-de-sac or access road shall have a gradient greater than 1 in 6.

BB - 23.2 In every private street and cul-de-sac, the gradient shall, for a distance of 30m from the junction of the private street or cul-de-sac with any street, not exceed 1 in 30.

BB - 23.3 In every access road, the gradient shall, for a distance of 7.5m from the junction of the access road with any street, not exceed 1 in 30.

BB - 23.4 HORIZONTAL CURVES

BB - 23.5 The radius of any horizontal curve in any private street or cul-de-sac shall be not less than 30m measured to the centre line of the carriageway of the street or cul-de-sac.

BB - 23.6 The radius of any horizontal curve in an access road shall be not less than 9m, measured to the centre line of the carriageway of the access road.

BB - 24 VERTICAL CURVES

Any vertical curve in a private street, cul-de-sac or access road shall be such that from a point 1m above any part of the carriageway thereof a clear view can be obtained of the top of an object 1m height at all distances along the carriageway up to 40m from such point.

BB - 25 WIDENING OF PRIVATE STREETS AND CUL-DE-SACS ON CURVE IN CERTAIN CASES

Where, under Regulation BB24, the Approving Authority permits the radius of a horizontal curve in any private street or cul-de-sac to be less than 30m, the carriageway thereof shall be gradually widened, on the outer edge of the curve, from the tangent points to the middle point of the curve so that, at the middle point of the curve, the widening is not less than that as specified in Table B4.

Table B - 4: Widening of Carriageway

Width of Carriageway	Permitted radius of curve at centre line	Minimum widening
6.0m or less	Less than 18.0m	1.2m
	18.0 m to 24m inclusive	1.0m
	Over 24.0m	0.6m
More than 6.0m	Less than 18.0m	1.0m
	18.0 m to 24.0m inclusive	0.6m
	Over 24.0m	0.3m

BB - 26 TURNING SPACE FOR VEHICLES IN CUL-DE-SACS AND ACCESS ROADS

BB - 26.1 There shall be provided, at the closed end of every cul-de-sac, adequate space to enable vehicles to turn.

BB - 26.2 Where any access road is not a thoroughfare there shall be provided at that end of the access road further from its junction with a street, adequate space to enable vehicles to turn.

BB - 27 SURFACING OF PRIVATE STREETS, CUL-DE-SACS AND ACCESS ROADS

The carriageway of every private street, cul-de-sac and access road shall have the following pavement structures:-

(a) Sub-base course shall be at least 150mm thick having any of the following materials:-,
  (i) natural material (gravel or coral) of CBR not less than 30;
  (ii) crushed stone material with a particle size not exceeding 50mm.

(b) base course shall be at least 150mm thick made of any of the following materials:
  (i) cement or bitumen stabilized crushed stone material;
  (ii) graded crushed stone material;
  (iii) hand packed stone (hard core).

(c) Surface course (wearing course) shall be a layer of fine bitumen macadam (asphaltic wearing course) not less than 25mm thick or other approved material such as precast concrete paving blocks not less than 50mm on sand bed of at least 30mm thick.

(d) where cement concrete is used as base course, the thickness shall not be less than

150mm on cement stabilised sub-base material (gravel or crushed stone) of at least 100mm thick.

(e) any other approved material

BB - 28 SURFACING OF PEDESTRIAN WAYS AND SERVICE LANES

Every pedestrian way and service lane shall be surfaced with:-

(a) concrete not less than 75mm thick laid on crushed stone not less than 100mm thick; or

(b) gravel not less than 100mm thick, laid on rolled hard-core not less than 100mm thick, and covered with a layer of fine bitumen macadam not less than 25mm thick; or

(c) other approved material.

BB - 29 SURFACING OF FOOTPATHS

Every footpath shall be surfaced with concrete not less than 50mm thick, and covered with granolithic paving not less than 12.5mm thick or other approved material.

BB - 30 KERBSTONES

BB - 30.1 Every kerbstone shall be 125mm in width, 250mm in height and not less than 600mm in length.

BB - 30.2 Every kerbstone in a private street or cul-de-sac may be constructed of granite and every kerbstone in an access road may be constructed of granite or concrete or any other approved material

BB - 31 HEIGHT OF KERBS

The top of every kerb shall be not less than 100mm or more than 150 mm above the level of the channel adjacent thereto.

BB - 32 CAMBER AT CROSSFALL

BB - 32.1 Save where a bend in any private street, cul-de-sac or access road is super-elevated, the carriageway therein shall have a camber of 1 in 40

BB - 32.2 Every footpath shall have a crossfall towards the kerb of 1 in 50.

BB - 33 GRADE OF MANHOLE COVERS AND GRATINGS

BB - 33.1 Any manhole cover or grating situated in the carriageway of any private street, cul-de- sac or access road shall be of a grade equal to Grade A as specified in the BS EN 126 or relevant Kenya Standard.

BB - 33.2 Any manhole cover or grating in any footpath, pedestrian way or service lane shall be of a grade equal to Grade B as specified in the BS EN 126 or relevant Kenya Standard.

BB - 34 SHAPE OF MANHOLE COVERS

BB - 34.1 The cover of every manhole, in a private street, cul-de-sac or access road, pedestrian way or service lane, provided for a drain or sewer provided for the carriage of foul water shall be rectangular on plan.

BB - 34.2 The cover of every such manhole provided for a drain or sewer provided for the carriage of surface water shall be rounded on plan.

BB - 35 DRAINAGE OF PRIVATE STREETS

BB - 35.1 Every private street, cul-de-sac, access road, pedestrian way and service lane shall be provided with channels, drains and sewers for the carriage of rain-water and surface water.

BB - 35.2 The size and gradient of every such channeled rain or sewer shall be adequate to carry off all rain-water falling on and surface water drainage to the private street, cul-de-sac, access road, pedestrian way or service lane.

BB - 35.3 For the purposes of this Regulation, the intensity of rainfall shall be calculated:-

(a) the measurement of headroom on stairways a) where the Time of Concentration is less than 30 minutes, at the rate of not less than 150mm/h; and
(b) where the Time of Concentration is 30 minutes or more at the rate of not less than 100mm/h.

BB - 36 CHANNELS

BB - 36.1 Every channel in any private street, cul-de-sac, access road and pedestrian way shall be constructed of-

(i) concrete not less than 150mm in thickness and not less than 300mm in width; or any other approved material.
(ii) laid to a fall of not less than 1 in 30 towards the kerb in cross-section; and
(iii) save as provided in sub-regulation BB37.2, laid to a fall of not less than 1 in 100 in longitudinal section.

BB - 36.2 Where the Approving Authority is satisfied that it is impracticable to lay any channel to a fall of not less than 1 in 100 in longitudinal section, it may permit the channel to be laid to a fall of not less than 1 in 250.

BB - 37 ANY WORK IN PUBLIC STREET TO BE CARRIED OUT BY THE APPROVING AUTHORITY

Where:-

(a) the forming or laying out of any private street, cul-de-sac, access road or pedestrian way; or
(b) the provision of any means of access to a building fronting or abutting on a public street, necessitates the carrying out of any work in or the alteration of any public

street, such work or alteration shall be carried out by the Approving Authority who may recover the cost thereof from the owner of the private street, cul-de-sac, access road, pedestrian way or building, as the case may be.

BB - 38 PROTECTION EDGES ABOVE GROUND FLOOR

BB - 38.1 The protection of the edge of any balcony, bridge, flat roof or similar place shall be designed to prevent any person from falling from such balcony, bridge, flat roof or a similar place. The edge of any balcony, bridge, flat roof or similar place more than 1m above the adjacent ground or floor level shall be provided with a balustrade or parapet wall not less than 1m in height, unless unauthorized access of persons thereto has been excluded by a physical barrier properly erected and maintained.

BB - 38.2 In the case of any interior balcony or any mezzanine floor such balcony or floor shall be provided with a balustrade or wall not less than 1m in height: Provided that where such balcony or floor is used for public seating in rows such height may be reduced to not less than 800mm opposite the seating in the front row.

BB - 38.3 Any balustrade or wall provided as protection at any change in level in any occupancy classified E2, E3, H1, H2 or H3 shall not have any opening that permits the passage of a 100mm diameter ball: Provided that such protection in any occupancy not being an occupancy classified E2, E3, H1, H2 or H4, shall consist of at least a handrail and one other rail midway between such handrail and the floor.

BB - 39 SPACE IN FRONT OF BUILDINGS

BB - 39.1 A domestic building shall be so sited as to leave an open space immediately in front thereof which extends along the whole width of the front of the building and is not less than 6.0m wide measured at right angles there from: Provided that if the building fronts on a street of a less width than 6m the width of such open space may be not less than the width of the street plus one half of the difference between that width and 6.0m.

BB - 39.2 Any part of the open space referred to in sub-regulation BB40.1, which lies within the plot, shall be free from any building thereon above the level of the ground, except a fence, wall or gate not exceeding 1.5m in height, or a portico, porch, step or other like projection from the building.

BB - 40 SIDE SPACES

BB - 40.1 A building which is designed either wholly or in part for residential purposes shall be provided on at least one side with an open space 1.5m or more in width measured from the boundary of the nearest plot facing that side at right angles to the nearest point of the building thereto.

BB - 40.2 The open space required by sub-regulation BB41.1, shall extend along the entire length of the building for 1.5m in width and 2.4m in height.

BB - 41 MINIMUM MEASUREMENT OF COURTYARD

Where any building contains more than one dwelling and is designed to have an internal courtyard or open space, there shall be provided within such courtyard or open space an area free from obstruction and of not less than 35m2 and having no dimension less than 4.5m.

BB - 42 MEANS OF ACCESS

BB - 42.1 Unless the Approving Authority otherwise agrees, a building shall be provided with a secondary means of access.

BB - 42.2 Every domestic building, every dwelling, and every separate tenancy or occupancy shall have independent access to a street; such street not being a sanitary lane or passage: Provided that dwelling, contained in a block of flats or separate offices and occupancies within a building above street level, may have a common access to such street

BB - 42.3 Every building shall be provided with means of obtaining access thereto from a street.

BB - 42.4 The Approving Authority may require the provision of an access lane or access road within the site of any new building.

BB - 42.5 A person erecting a building shall provide to the satisfaction of the Approving Authority in consultation with the Approving Authority, a service area for the security serving that building, loading and unloading of vehicles, dustbins, and such other purposes as the Approving Authority may require, and the means of the access thereto shall be of a width not less than 3m.

BB - 43 EXTERNAL PASSAGE

Any passage between buildings erected on the same plot or between a building and the boundaries of the plot on which such building is situated, shall have minimum dimensions of 1.2m in width and 2.4m in height.

BB - 44 EAVES, CORNICES AND MOLDINGS

BB - 44.1 No eaves, cornices, moldings or other architectural projections shall project over a street more than 500mm or at a height of less than 2.4m above the level of the ground.

BB - 44.2 No pipes (including water-pipes and drain-pipes) or gutters, or the appurtenances of such pipes or gutters shall project over a street more than 300mm or at a height of less than 2.4m above the level of the ground.

BB - 45 BALCONIES AND CANOPIES OVER STREETS

BB - 45.1 Every canopy erected within 600mm of the outer edge of a footpath, or projecting over a road, shall have a clear space of not less than 5.5m beneath every part thereof.

BB - 45.2 Every canopy erected over a footpath shall have a clear space of not less than 3.3m beneath every part thereof.

BB - 45.3 Every canopy shall be provided with adequate surface water drainage.

BB - 45.4 The maximum projection of any canopy (including cornices, moldings or other features) erected over any street shall be:-

(a) one-tenth of the width of the street; or
(b) 3m, whichever is less: provided that no portion of any such canopy shall be within 4.5m measured horizontally, of a line drawn vertically from a point in the center line of the street nearest to such portion of the canopy.

BB - 45.5 Where it is considered desirable that canopies should be erected in front of new buildings, the Approving Authority may require the owner to provide in the design of such buildings for canopies and such structures that shall conform to the conditions or design and materials as the structural engineer may prescribe.

BB - 45.6 On being so required, the owner shall at his own cost, when he erects the new building construct such canopy and execute the requisite canopy agreement.

BB - 45.7 The activities below the canopy should be in no way perceived to interfere with pedestrian movement.

BB - 46 NO DOORWAYS ON TO CANOPY

No doorway giving direct access to the top of any canopy shall be made in the external wall of any building.

BB - 47 USE OF VERANDAHS OR BALCONIES

Where any verandah or balcony has been built over or upon any street no such verandah or balcony shall be used or adapted to be used as a factory, workshop, storeroom, kitchen, lavatory, bathroom, water-closet, urinal or latrine, restaurants or any other activity that interferes with pedestrian movement.

PENALTY

BB - 48 DOORS, WINDOWS AND GATE NOT TO OPEN OVER STREETS

BB - 48.1 Subject to sub-regulation BB50.2 no door, gate, window or shutter opening on or over any street shall be so hung or placed as to project over such street at a height of less than 2.4m above the ground.

BB - 48.2 Doors to Emergency exits, electrical transformer rooms, plant rooms, refuse storage chambers and doors leading to similar types of utility rooms or chambers may open outwards over such a street if such doors when fully opened do not cause an obstruction to any person or vehicle using the street.

BB - 48.3 Where revolving doors or turnstiles are used an alternative means of exit shall be provided in close proximity. In any place of public assembly turnstiles, if used, shall be kept clear of the line of exit.

BB - 49 TENEMENT HOUSE

BB - 49.1 No tenement house shall be erected with a depth from the front main wall or, if any balcony is projected from the front main wall, from the front of every such balcony to the nearest rear main wall exceeding 10m.

BB - 49.2

(a) Every storey of every tenement house shall be provided with a window in the rear main wall of such storey.
(b) Such window shall be so constructed that:-

(i) the aggregate superficial area of the glass in the window is at 1.5m2;
(ii) the window can, to an extent of at least 1.5m2, be opened into the open air in such a manner that the top of the opening is at least 2m above the level of the floor.

BB - 49.3 No windows required under these Regulations in any tenement house shall be obstructed by the erection of any structure either inside or outside the building.

BB - 49.4 The internal area of every kitchen in a tenement house shall be:-

(i) not less than 3.75m2 where the total area of the domestic premises of which such kitchen forms part, does not exceed 45m2;
(ii) not less than 4.5m2 where the total area of the domestic premises of which such kitchen forms part, exceeds 45m2 but does not exceed 70m2;
(iii) not less than 5.5m2 where the total area of the domestic premises of which such kitchen forms part, exceeds 70m2. In no case shall the smaller dimension of such kitchen be less than 1.5m.

BB - 50 BUILDINGS ABUTTING ON RETAINING WALLS

BB - 50.1 No domestic building shall be erected against a retaining wall which exceeds 4.5m in height.

BB - 50.2 A space not less than 1.5m in width shall be left between any domestic building and the bottom of any retaining wall exceeding 4.5m in height.

BB - 51 RETAINING WALL FORMING PART OF A BUILDING

BB - 51.1 Any retaining wall, which forms part of any domestic building shall, subject to the provisions of Regulation BB52:-

(a) be properly waterproofed to prevent dampness in the building;
(b) be properly insulated to prevent condensation on the internal face of any room intended for habitation within the building.

BB - 52 PREMISES USED FOR DANGEROUSTRADES OR PURPOSES & DISPOSAL OF HAZARDOUS WASTE

BB - 52.1 No premises shall, except in accordance with a permit from the Approving Authority, be used by any person for any of the following trades or purposes:

(a) for the manufacture of any dangerous goods within the meaning of the Dangerous Goods Act; or
(b) for the storage of any such dangerous goods to the Act applies or;
(c) as a motor repair shop; or
(d) as a vulcanizing shop; or
(e) as a paint shop where paint or varnish is manufactured or mixed; or
(f) dry-cleaning,
(g) tallow-melting and candle making;
(h) making or storing matches, fireworks, carbide or any industrial gas;
(i) making or storing charcoal;
(j) a sawmill or place for depositing or storing coal, wood, timber, or other combustible materials otherwise than for domestic use in that place;
(k) a foundry or forge;
(l) the manufacture, storage, treatment, smoking or preparation of rubber in any form;
(m) the manufacture, storage or treatment of cinematography or other films;
(n) a garage or place kept or used for repairing, painting, washing, storing, housing. or parking motor vehicles or a place where a pump is maintained from which petrol or oil is supplied to motor vehicles, except a garage or place used in connection with a private dwelling-house and kept for private use only; and
(o) such other trades or purposes as the Approving Authority may, by notification in the Authority Gazette, specify.

BB - 52.2 The Approving Authority may at any time suspend or revoke any permit under sub-section BB54 .1 without assigning any reason.

BB - 52.3 Any person who uses or permits to be used any premises without a permit for any of the trades or purposes specified in sub-sectionBB54.1 shall be guilty of an offence and shall be liable on conviction to a fine of not less than five hundred thousand shillings or to imprisonment for a term of not less than 6 months or to both such fine and imprisonment.

BB - 52.4 Where The Approving Authority is satisfied that any premises have been or are being used in contravention of this Section, it may enter the premises and seize any movable property by means of or in respect of which an offence under this Section has been or is being committed or which contains evidence of such offence and which is found therein.

BB - 52.5 Any person who produces dangerous or toxic waste on his premises, shall—

(a) notify the Approving Authority in writing of the nature of such waste; and
(b) If he intends to dispose off the dangerous or toxic waste, apply to the Approving Authority for approval of the means of disposal.

BB - 52.6 Any person who contravenes the provisions of BB 54.5, or who fails to dispose off the dangerous or toxic waste in the manner permitted by the Authority under BB 54.5 shall be guilty of an offence and shall be liable on conviction to a fine of not less than five hundred thousand or to imprisonment for a term of not less than 6 months or to both such fine and imprisonment.

BB - 52.7 Notwithstanding the provisions of sub-regulation BB54.1, where a building is used for any of the purposes specified in sub-regulations BB54.1. and BB54.5 thereof, any part of such building, not exceeding 50m2 in area, may be used as a residence for a caretaker or other person employed in connection with the maintenance of or provision of services for such building

BB - 53 CONTRACTOR'S SHEDS

BB - 53.1 Every contractor shall:-

(a) submit an application, in the specified form, to The Approving Authority for permission to erect contractor's sheds (other than sheds in contractor's yards) during the execution of building works;
(b) supply information regarding the situation, dimensions, construction, the length of time for which such contractor's sheds are required and their intended use; and if intended for habitation, the number of persons to be accommodated shall be stated.

BB - 53.2 A permit issued by the Approving Authority upon application made under sub-regulation BB55.1 may specify the period for which such contractor's sheds may exist, and such other conditions as The Approving Authority may deem necessary.

BB - 53.3 The floor of every contractor's shed which is intended for habitation shall be properly concreted leveled and finished to standards acceptable to the approving authority or raised at least 1m above ground level in the case of timber flooring.

BB - 53.4 Every contractor carrying out building works shall provide:-

(a) adequate kitchens and latrines for the use of the workmen employed on such works; and
(b) for the disposal of drainage, which shall be into a public drain or sewer where the same exists on or near a site.

BB - 53.5 Where any contractor's shed is erected near any live wire or cable, the contractor shall arrange with the owners of such wire or cable, to take the necessary precaution to render safe such wire or cable.

BB - 54 LIVE WIRE OR CABLE TO BE MADE SAFE

Where any contractor's shed is erected near to any live wire or cable, the contractor shall arrange with the owner of such wire or cable, to take the necessary precautions to render safe such wire or cable.

BB - 55 FENCES OR WALLS TO ENCLOSE COMBUSTIBLE MATERIAL

BB - 55.1 Every place used or adapted to be used as storage for combustible construction materials which within 15m of any building, shall be enclosed on all sides for a height of at least 2m by:-

(a) fences constructed of incombustible materials; or
(b) Bricks walls or building blocks built in cement mortar
    (i) not less than 100mm in thickness;
    (ii) provided with buttresses or piers not 215mm square in horizontal section

at all ends and angles of such walls and not more than 3m apart centre to centre; or

(c) Concrete walls not less than 150mm in thickness; or

(d) any other approved material

BB - 55.2 No storage of combustible construction materials shall be built nearer than 2m to the boundaries of other premises.

BB - 55.3 Such space of 2m shall not be used for storage or obstructed by erection of any structure.

BB - 56 STORAGE OF COMBUSTIBLE CONSTRUCTION MATERIALS

No pile, stack or store of combustible construction material shall:-

(a) exceed 5m in height;

(b) be formed so as to provide any room or other space to be used for habitation or any other purpose except access and ventilation.

BB - 57 ENCLOSING TIMBER YARDS

Every place used or adapted to be used as a timber yard which is within 15m of any building, shall be enclosed on all sides for a height of at least 2m by:-

(a) fences constructed of incombustible materials; or

(b) walls of bricks or building blocks built in cement mortar.

(i) not less than 100mm in thickness;

(ii) provided with buttresses or piers not less than 215mm square in horizontal section at all ends and angles of such walls and not more than 3m apart, centre to centre; or

(c) walls of concrete not less than 150mm in thickness.

BB - 58 STORAGE OF TIMBER AND CHARCOAL

No pile, stack or store of timber or charcoal shall:-

(a) exceed 9m in height;

(b) be formed so as to provide any room or other space to be used for habitation or any other purpose except access or ventilation.

BB - 59 TEMPORARY BUILDINGS

BB - 59.1 Short lived materials mean any building materials which are, in the absence of special care, liable to rapid deterioration or are otherwise unsuitable for use in the construction of permanent buildings:-

(c) so are as they are used wholly or principally for the construction of the weather–resisting part of a roof or external wall of a building:-

(i) tongued and grooved boarding fixed horizontally, and any boarding less than 16mm in thickness or in the case of feather edge boarding less than 16mm in thickness at the thicker edge of the board;

(ii) sheets of fibre building board (except super hard-board as defined in BS 1142: 1953), wood chipboard or compressed straw;

(iii) wood-wool building slabs;

(iv) plywood, except plywood suitable for external use;

(v) plaster board;

(vi) fibre plaster;

(vii) lime or gypsum plaster on wood or metal lath;

(viii) cement plaster not exceeding 40mm in thickness on wood or metal lath;
(ix) sheet iron or steel which is not galvanized, painted or otherwise protected by a bituminous or other not less suitable coating;
(x) organic-based felt;
(xi) canvas or cloth;
(xii) palm leaves thatch or matting;

(d) unprotected softwood boarding, so far as it is used wholly or principally for the construction of the weather-resisting part of the roof of a building; any other combustible material.

BB - 60 APPLICATION TO BE MADE FOR ERECTION OF TEMPORARY BUILDING

On receipt of an application, in the specified form, from a building owner together with such plans as The Approving Authority may grant a permit in writing for the erection of a temporary building.

A permit issued under this Regulation may specify the period for which such temporary building may exist, and such other conditions as The Approving Authority may deem necessary.

BB - 61 SITING OF TEMPORARY BUILDING

BB - 61.1 No temporary building constructed of readily combustible materials shall be erected within 3m of:-

(a) any other building; or
(b) the boundary of the site within which it is located.

BB - 61.2 Such space of 3m shall be kept clear.

BB - 62 PLANS OF HOARDINGS, COVERED WALKWAYS AND GANTRIES TO BE SUBMITTED

BB - 62.1 Every building owner who intends to:-

(a) erect, alter, or demolish any building; or
(b) carry out any excavations,

shall submit to the Approving Authority plans of such hoardings, covered walkways and gantries as may be necessary for the safety and convenience of passers-by in the street, occupiers of adjoining premises, or any workmen employed on the work.

BB - 62.2 Such plans shall be accompanied by an application (in the specified form AA74, for a permit to erect such hoardings, covered walkways and gantries. Such permit shall be issued by the approving authority in a specified form AA75

BB - 63 FORM OF PERMIT FOR HOARDINGS AND POWER OF THE APPROVING AUTHORITY TO MAKE REQUIREMENTS

BB - 63.1 The Approving Authority may upon application issue a permit to erect hoardings, covered walkways or gantries and may specify in the permit the period for which such hoardings, covered walkways or gantries may exist, and such other conditions as it may deem necessary.

BB - 63.2 If the Permittee of such a permit fails to comply with any of these Regulations or any of the conditions specified in the permit, the permit may be cancelled.

BB - 64 MAINTENANCE OF HOARDINGS, COVERED WALKWAYS AND GANTRIES

BB - 64.1 Every building owner shall erect hoardings, covered walkways and gantries in accordance with the permit issued under Regulation BB66 prior to the commencement of the building works specified in Regulation BB65, and shall maintain such hoardings, covered walkways and gantries in good repair during the continuance of the permit.

BB - 64.2 Except on isolated sites, all hoardings, unless exempted by the Approving Authority, shall be close boarded.

BB - 64.3 No hoarding, covered walkway, gantry or building materials shall obstruct any drainage channel.

BB - 64.4 No advertisement other than a description of the building and the names of any persons concerned in its construction shall be displayed on any such hoarding or covered walkway.

BB - 65 LIABILITY OF PERMITTEE

BB - 65.1 Where any building owner fails to comply with any requirement made, pursuant to the provisions of Regulation BB66 by The Approving Authority or with the provisions of Regulation BB67 or causes any damage to property in the erection or maintenance of such hoardings, covered walkways and gantries, The Approving Authority may cause to be erected and maintained such hoardings, covered walkways and gantries as the approving authority may deem necessary and may carry out any work necessary to secure compliance with any requirement made pursuant to Regulation BB66, and may make good any such damage.

BB - 65.2 The Approving Authority may recover the cost of such work from the building owner.

BB - 65.3 The permitee shall indemnify and keep indemnified the approving authority against any expense, loss, claim or suits arising out of or in connection with the hoarding or scaffolding.

BB - 66 LIVE WIRE OR CABLE TO BE MADE SAFE

Where any hoarding, covered walkway or gantry is erected near any live wire or cable, the Permittee shall arrange with the owners of such wire or cable, to take the necessary precautions to render safe such wire or cable.

BB - 67 DEPOSIT OF SECURITY

BB - 67.1 The Approving Authority may require any person, to whom a permit is issued to erect any hoarding, covered walkway or gantry in, over or upon the Approving Authority's land, to make a deposit of a sum as shall be fixed by The Approving Authority who shall consider the circumstances of each particular case.

BB - 67.2 A permittee who complies with regulation BB 70.1 will recover his deposit from the Approving Authority upon completion of the project.

BB - 68 CANCELLATION OF PERMIT

The Approving Authority may in the public interest cancel any permit to erect and require the removal of any hoarding, covered walkways or gantry even if the Permittee has fulfilled all his obligations.

BB - 69 POWER OF THE APPROVING AUTHORITY TO PERMIT WINDOWS AND VENTS TO FACE OR VENTILATE INTO UN-ENCLOSED VERANDAH

BB - 69.1 Where, by any of these Regulations, any window or vent or any other part of any building is required to face or to ventilate, directly or otherwise, into the external air or into the open air or any aperture or airshaft is required to communicate with the open air, The Approving Authority may, subject to the provisions of sub-regulation BB72.2, where it thinks fit, permit such window, vent or other part of any building, as the case may be, to face or to ventilate into, or such aperture or airshaft to communicate with, an unenclosed verandah or balcony or any other un-enclosed place.

BB - 69.2 The Approving Authority shall not give its permission under this Regulation unless it is satisfied that to do so will not be to the prejudice of the standards of lighting or ventilation laid down by the Regulations or the health of the occupiers of the building.

BB - 69.3 Where it gives its permission under this Regulation, The Approving Authority may, upon giving its approval, of the plans of the building works, impose such conditions as the authority considers necessary.

BB - 70 BUILDINGS TO BE PLANNED FOR USE BY PERSONS WITH DISABILITY

BB - 70.1 All buildings shall be designed to the satisfaction of the Approving Authority in such a manner as will facilitate the access to, and use of, that building and its facilities by persons with disability.

BB - 71 INITIAL ACCESS FOR PERSONS WITH DISABILITY

BB - 71.1 Access shall be provided from a point or points on the plot boundary to at least one entrance and to a lift complying with Regulation BB77.

BB - 71.2 Such access shall be free from steps, kerbs other than dropped kerbs, steep ramps, doors or doorways which would impede the passage of a wheel chair or other form of barrier which would prevent access by the persons with disability.

BB - 71.3 Where car parking is provided, at least one car parking space or one percentage, whichever is the higher and as determined by The Approving Authority, of car parking space shall be accessible from the said entrance and lift. An additional space of 1.2 meters shall be provided and marked 'Access Zone'. Adjacent disabled parking spaces can share an access zone.

BB - 72 RAMPS FOR PERSONS WITH DISABILITY

At changes in level other than when served by a lift or at kerbs there shall be a ramp. Ramps shall be designed as follows:-

(a) ramps shall be not less than 1.5m wide;
(b) a space not less than 1.5m square shall be provided at the head and foot of every ramp;
(c) where a ramp is at a gradient of 1 in 20 or steeper, a landing 1.5m long shall be provided for each 10m length of horizontal run or part thereof;
(d) any ramp with a rise greater than 200mm, leading down towards an area where vehicular traffic is possible, shall have a railing across the full width of its lower end, not less than 1.5m from the foot of the ramp;
(e) no ramp shall be at a gradient exceeding 1 in 12;
(f) all ramps shall be provided with handrails on both sides. Supports shall not cause an obstruction to a height of 700mm above ramp level.

BB - 73 DROPPED KERBS FOR PERSONS WITH DISABILITY

Changes in level at kerbs shall be by a dropped kerb. Dropped kerbs shall be provided at pedestrian crossing and at each end of the footpath of a private street or access road. Kerbs separating footpaths or ramps from vehicular areas shall be dropped kerbs. Dropped kerbs shall be constructed as follows:-

(a) the length of dropped kerbs shall be not less than 1.2m;
(b) the pavement at dropped kerbs shall be ramped at a gradient of less than 1 in 6 and there shall be a space of not less than 800mm wide at the back of the ramp;
(c) kerbs adjoining dropped kerbs shall be ramped at a gradient of less than 1 in 6

BB - 74 LIFTS FOR PERSONS WITH DISABILITY

Access shall be provided to every floor of the building by at least one lift having:-

(a) minimum internal car dimensions of 1.2m by 1.1m wide; with a clear door width when opened of not less than 900mm;
(b) essential lift control buttons or switches not less than 900mm and not more than 1.2m above the floor of the car; and
(c) handrails extending to within 150mm of the corners at the rear and sides of the car which are suitable for use by the persons with disability.

BB - 75 CORRIDORS AND LOBBIES FOR PERSONS WITH DISABILITY

Space shall be allowed for maneuvering wheel chairs in lobbies, paths and similar areas as follows:-

(a) areas shall have a clear width of not less than 1.2m;
(b) a space not less than 1.5m square shall be provided at or within 3.5m of very dead end;
(c) any lobby in a corridor shall be not less than 1.2m long excluding space for door swings;
(d) a level area, extending not less than 1.2m beyond the swings of the doors and not less than 1.5m wide shall be provided on both sides of every entrance which requires compliance:

Provided that this regulation shall not apply to lobbies which lead only to staircases.

BB - 76 DOORS FOR PERSONS WITH DISABILITY

Doors for use by the persons with disability shall comply with the following specifications:-

(a) doors, including where applicable one leaf of a pair of double doors, shall have a clear width of not less than 750mm between the open door and opposite jamb or other leaf;
(b) the unobstructed area adjacent to the door handle on the leading face of a single door shall not be less than 380mm wide;
(c) doors, if less than 380mm from the corner of a room, shall swing from the side nearer that corner;
(d) double-action self-closing doors shall have a check mechanism to prevent the doors swinging beyond the closed position and transparent panel with the bottom edge not more than 1m and the top edge not less than 1.5m above floor level;
(e) door handles shall be not less than 900mm and not more than 1.05m above floor level, measured from the top surface of the grip;
(f) Door thresholds shall not exceed 25mm in height.

BB - 77 WATER CLOSET CUBICLES FOR PERSONS WITH DISABILITY

BB - 77.1 The minimum number of water closet cubicles for use by the persons with disability on each floor level, or on that part of a floor level which is designed for access by the persons with disability, shall be one where the total number of water closets provided on that level is 20 or less and 2 where the number of water closets exceeds 20.

BB - 77.2 When water closet cubicles for use by the persons with disability are accessible from a corridor, the number of such cubicles shall be based on the number of water closets on the floor level or that part of a floor level which is designed for access by the persons with disability.

BB - 77.3 When water closet cubicles for use by the persons with disability are accessible through a room with multiple cubicles, the number of such cubicles for each sex shall be based on the number of water closets for each sex on the floor level or that part of a floor level which is designed for access by the persons with disability.

BB - 78 LOCATION OF WATER CLOSET CUBICLES FOR PERSONS WITH DISABILITY

BB - 78.1 Water closet cubicles which comply with Regulation BB73 shall be situated in those parts of a building which also comply.

BB - 78.2 Such cubicles shall be accessible:-

(a) directly from a public corridor which complies with Regulation BB80; and
(b) when situated within a room containing cubicles, through a clear space not less than 1.5m square immediately in front of the cubicle to allow maneuverability or by direct approach where no turning of the wheel chair is necessary.

BB - 79 HANDRAILS FOR PERSONS WITH DISABILITY

BB - 79.1 Handrails to ramps and steps shall be fixed not less than 30mm and not more than 50mm clear of walls and additionally or alternatively other obstructions and with a clear height of 70mm from the top of the bracket to the top of the handrail.

BB - 79.2 The tops of handrails shall be of a height of not less than 850mm or more than 1 m above nosing, floor or landing level.

BB - 79.3 Handrails shall extend horizontally not less than 300mm beyond the first and last nosing of every flight of steps or beyond the ends of a ramp.

BB - 80 WHEEL CHAIR SPACES

BB - 80.1 There shall be provided in the auditorium of every building which is a place of public function such as entertainment, at spectator level with one wheel chair space for every 400 or part of 400 seats in the auditorium.

BB - 80.2 For the purposes of this regulation a wheel chair space is a rectangle of 760mm by 1.37m with a side of 760mm being toward the stage, podium or screen.

BB - 81 ROOMS FOR THE PERSONS WITH DISABILITY

BB - 81.1 A hotel with 100 guest rooms or more shall provide not less than 2 guest rooms with full facilities for the persons with disability and a further room for every complete 100 guest rooms in excess of 200.

BB - 82 ROOMS, KITCHEN AND BUILDINGS

BB - 82.1 Any room or space shall have dimensions that will ensure that such room or space is fit for the purpose for which it is intended.

BB - 82.2 Habitable room is a dwelling room which has a minimum superficial area of 7.0sq.m for single room occupancy and a minimum internal dimension of 2.1 m. The number of persons to be accommodated in such rooms shall be calculated on the basis of 3.5sq.m per person.

BB - 82.3 Every domestic building and any part of a domestic building which is intended to be separately let for dwelling purposes shall be provided with kitchen accommodation except in cases when the intention is to provide low cost housing.

BB - 82.4 The internal surface of every kitchen to a height of at least 1.2m from floor level shall be faced with tiles or rendered in cement mortar, not less than 12.5mm in thickness, or other approved non-absorbent material.

BB - 82.5 Every kitchen shall be provided with a:-

(a) properly constructed fireplace or cooking slab with a extraction flue unless the cooking is to be done by gas, oil or electricity;
(b) sink and fittings for the supply of water.

BB - 83 PLAN DIMENSIONS

BB - 83.1 The plan dimensions of any room or space shall be the horizontal dimensions between un-plastered wall surfaces.

BB - 83.2 Any floor area shall be based upon the plan dimensions but shall not include any area occupied by any built-in cabinet or cupboard or any dividing wall or partition erected in terms of sub-regulation BB86.4.

BB - 83.3 The floor area of any room contemplated in column 2 of Table B5 shall be not less than that prescribed for such room in column 3 of Table B5.

Table B - 5: Room Area

1	2	3
Type of Occupancy	Room	Minimum plan area
All occupancies	Any habitable room other than a kitchen, scullery or laundry	7.0m^2 with no linear dimension of less than 2.1 linear meters
B, D or J	Change rooms and dining rooms	Occupancy 1 - 15:0.8m^2 per person but not less than 7.0m^2 Occupancy 16-100:0.6m^2 per person but not less than 12m^2 Occupancy more than 100: 0.5m^2 per person but not less than 60m^2

BB - 83.4 Two or more spaces shall be deemed to be one room if any dividing wall or partition, including any door, erected between such spaces occupies less than 60% of the area of the separating plane.

BB - 84 ROOM HEIGHT

The height of any room or space contemplated in column 1 of Table B6 shall not be less than that prescribed for such room or space in column 2 of Table B6and shall be the vertical dimension from the top of the finished floor to:-

(a) the underside of the ceiling;
(b) the underside of the roof covering where there is no ceiling; or
(c) the underside of any structural members where such structural members project below such a ceiling or a roof covering and the plan area of such projections exceed 30% of the plan area of the room.

Notwithstanding the requirements contained in Table B6, where any structural member projects below the level of the ceiling or, where there is no ceiling, below the level of the roof covering, the height to such projection shall not be less than 2.4m.

Table B - 6: Rooms and their Dimensions

Room or Space	Minimum Height
Bedroom	2. 4m .over a floor area of at least 7m^2 with a clear height of at least 1 .8m at any point more than 0.75m from the edge of the floor space.
Any other habitable rooms other than dwelling house or dwelling unit	2.4m over a minimum of 70% of the floor area, not less than 2.1 m over the remaining floor area.
All habitable rooms other than those listed above	2.4m
Passage or entrance hall	2.4m
Bathroom, shower-room, laundry or room containing a water closet	2. 1 m over any area where a person would normally be in a standing position.
Open mezzanine floor which has an area not exceeding 25% of the area of the floor immediately below it	2.1m above and below the mezzanine floor.

BB - 85 FLOOR AREA

The overall plan area of any multipurpose room shall be not less than 10.5m^2 (see figures B1, B2 and B3)

Figure B - 1: Measurement of Floor Plan Area

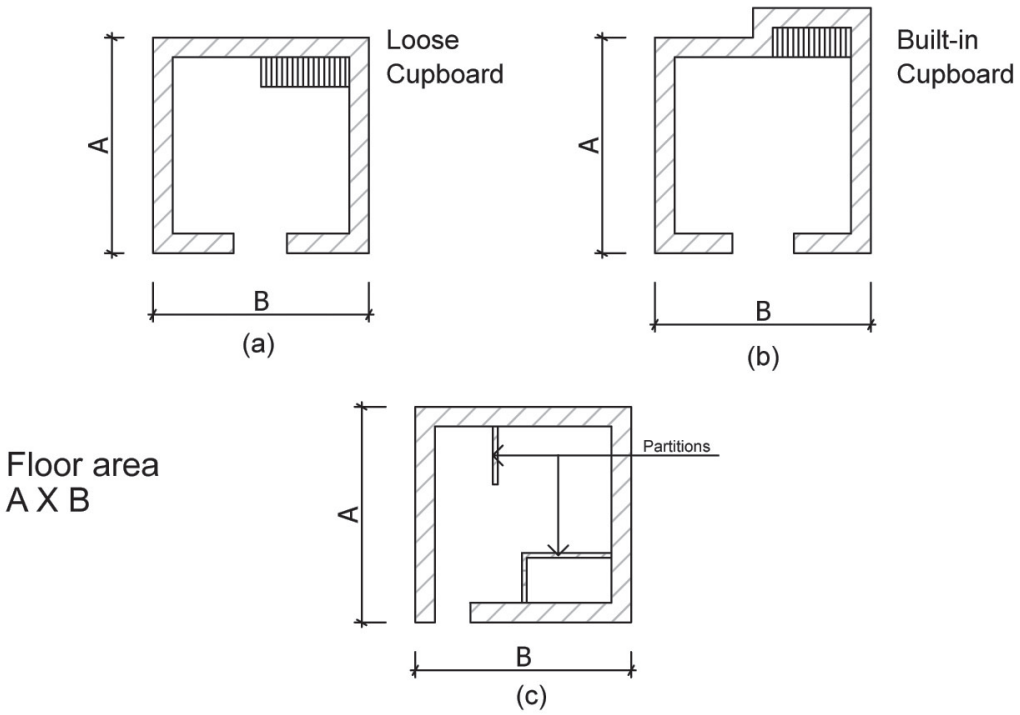


Figure B - 2: Plan and section

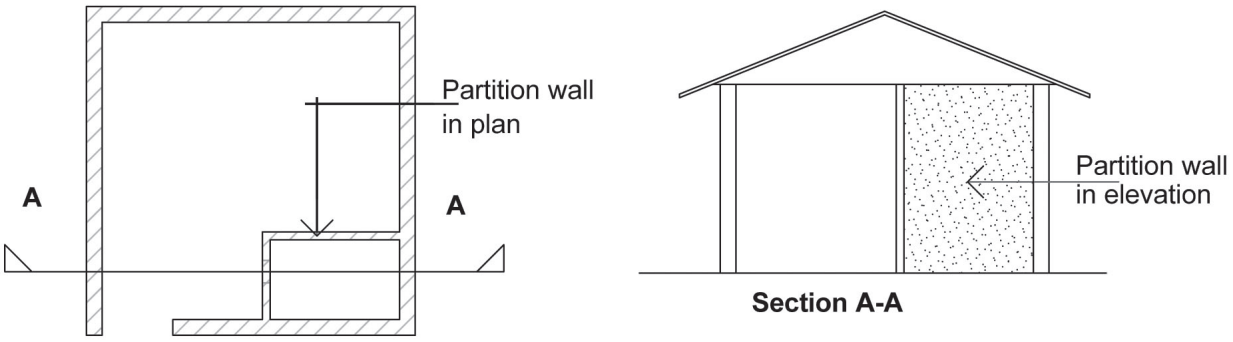
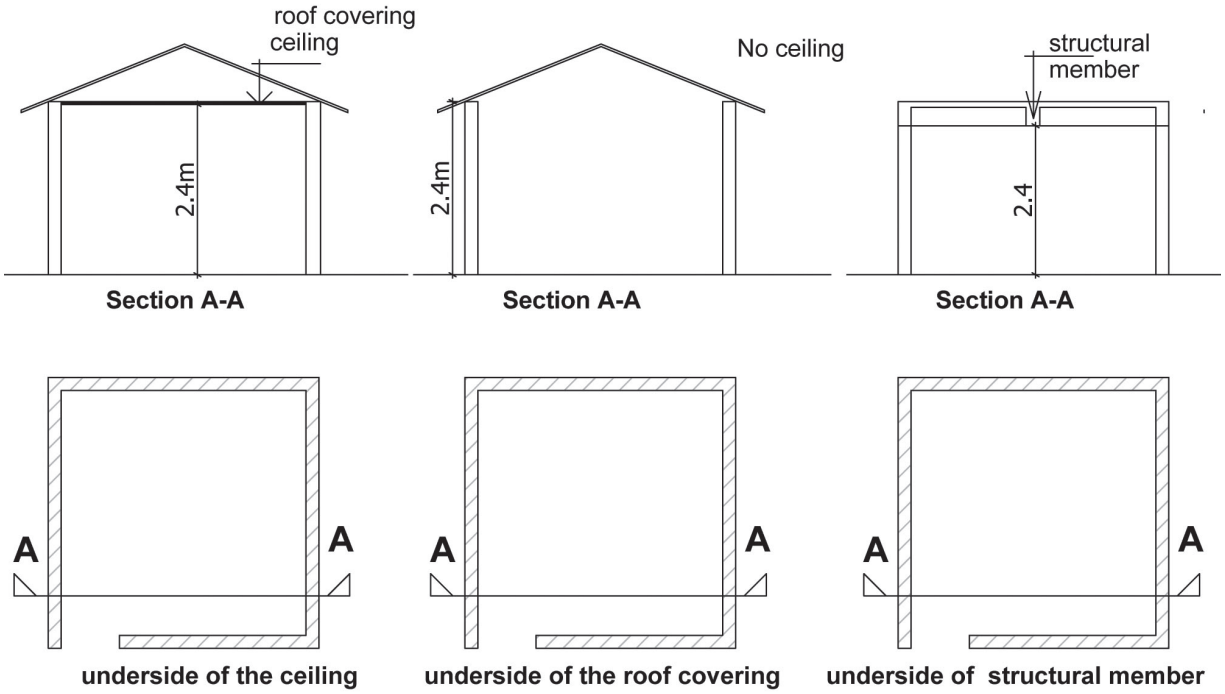


Figure B - 3: Minimum floor to ceiling height



BB - 86 PROTECTION OF BALCONIES AND VERANDAHS

Every balcony projected from an upper storey of a building shall have a clear height, upwards from the floor of such balcony, of not less than the clear height of the storey from which it projects.

BB - 87 PROTECTION OF OPENINGS

BB - 87.1 Every opening placed on an external wall above the ground floor of any building shall be protected by a barrier which shall not be less than 1.1m high. The lowermost 150mm of such barrier shall be built solid.

BB - 87.2 A barrier provided under sub-regulation BB90.1 shall be so designed as to minimize the risk of persons or objects falling, rolling, sliding or slipping through gaps in the barrier, or persons climbing over the barrier.

BB - 88 BUILDINGS NOT TO OBSTRUCT, ENDANGER OR CAUSE NUISANCES

No building or fixture thereon shall be so constructed that it:

(a) obstructs; or

(b) endangers the users of any adjacent footpath or street; or

(c) creates any nuisance; or

(d) permits the escape into or over any adjacent footpath or street at a height of less than 2.4m of any noxious gases or exhaust from any ventilating system.

BB - 89 HEIGHT OF STOREYS

BB - 89.1 Every room used or intended to be used for the purpose of an office or for habitation in any building shall have a height of not less than 2.4m measured from floor to ceiling provided that there shall be not less than 2.4m measured from the floor to the underside of any beam.

BB - 89.2 In any such room having a sloping ceiling, the height shall be measured to the mean height of such ceiling above floor level: Provided that no portion of any room shall have a height of less than 2.1m.

BB - 90 LIGHTING AND VENTILATION

BB - 90.1 Every storey of every building used or intended to be used for the purpose of an office or for habitation shall be provided with effectual means of lighting and ventilation.

BB - 90.2 No person shall erect a building in such manner as to provide any back-to-back dwelling unless he can provide adequate ventilation. The expression "back-to-back" dwelling shall include any dwelling of the whole of the habitable portion of which is not adequately and efficiently -ventilated by means of ventilating aperture and communicating directly with the external walls.

BB - 91 LIGHTING AND VENTILATION OF ROOMS USED OR INTENDED TO BE USED FOR HABITATION OR AN OFFICE OR KITCHEN

BB - 91.1 Every room used for habitation or for purposes of an office or as a kitchen shall be provided with natural lighting and ventilation.

BB - 91.2 Such natural lighting and ventilation shall be provided by means of one or more windows which shall be:

(a) so constructed that:-

  (i) the aggregate superficial area of glass in the window or windows is not less than one-tenth of the area of the floor of the room; and

  (ii) the windows can, to an extent at least equal in the aggregate to one sixteenth of the area of the floor of the room, be opened in such manner

  (iii) that the top of the opening of each window is at least 2.1m above the level of the floor; and

(b) such that not less than the area required by sub-regulation (a) (i) faces directly into the external air.

BB - 92 MINIMUM REQUIREMENTS OF WINDOWS

BB - 92.1 No prescribed window shall, for the purposes of Regulation BB94, be deemed to face into the external air unless:-

(a) it faces into a street which is not less than 6.0m wide; or
(b) it faces into a space uncovered and unobstructed above the area delineated by the rectangular horizontal plane; and
(c) it is so placed that, if another rectangular plane, the base whereof if equal to and common with the base of the rectangular horizontal plane, is inclined, above the rectangular horizontal plane, at an angle of 71.5° from the horizontal where the window is in a room used for habitation or 76° from the horizontal where the window is in a room used for the purposes of an office or as a kitchen, no part of the building, or of any other building within the site on which such building is erected, protrudes above such plane;
(d) where such window opens on to an area bounded on the side opposite the window by a boundary of the site on which the building is erected, such window is so placed that, if the rectangular horizontal plane is projected to such boundary and, from the position at which it first intersects the boundary, another rectangular plane, the base whereof is parallel and level with the sill of the window and has a length equal to the length of the base of the rectangular horizontal plane, is projected, towards the site and above the rectangular horizontal plane, at an angle of 80.5° from the horizontal where the window is in a room used for habitation or 83° where the window is in a room used for the purposes of an office or as a kitchen, no part of the building, or of any other building within such site, protrudes above such inclined plane: Provided that, where there is a service lane or street less than 4.5m wide adjacent to and parallel with such boundary, the boundary shall, for the purposes of this sub-regulation be deemed to be at a position 1.5m beyond such boundary.

BB - 92.2 The rectangular horizontal plane shall be such that:-

(a) it has an area of not less than 21m^2; and
(b) the minimum length of the base is not less than 2.3m; and
(c) the minimum length of the sides, at right angles to the base, between the wall in which the window is sited and any other wall or building opposite thereto within the boundary of the site on which the building is erected, is not less than 4.5m; or
(d) where the window opens on to an area bounded on the side opposite to the window by a boundary of the site on which the building is erected, the minimum length of the sides at right angles to the base between the wall in which the window is sited and such boundary, is not less than 2.3m; or
(e) where the window opens on to an area bounded on the side opposite to the window by a boundary or the site on which the building is erected and there is a service lane or street less than 4.5m wide adjacent to and parallel with such boundary, the minimum length of the sides at right angles to the base, between the wall in which the window is sited and a line 1.5m beyond such boundary or, where such service lane or street is less than 3m wide, between the wall in which the window is sited and a line drawn along the center line of the service lane or street, is not less than 2.3m.

BB - 92.3 For the purposes of this Regulation:-

(a) "**base**", when used in relation to the rectangular horizontal plane, means that side of the rectangular horizontal plane common with the line of the sill of the window; "**rectangular horizontal plane"** means a rectangular plane at the level of the sill

of the window having the minimum area and minimum dimensions prescribed by sub-regulation BB95.2; "window" includes French window; and;

(b) the sill of a prescribed window shall be deemed to be at a level 1m above the level of the floor of the room for which the window is provided, whether or not the sill is at such level.

BB - 93 RESTRICTION ON DISTANCE ANY PART OF ROOM MAY BE FROM PRESCRIBED WINDOW

No part of any room used for habitation shall be more than 9m, measured within the room, from a prescribed window which faces directly into the external air or, where, under and in accordance with Regulation BB97, a window opens on to an enclosed verandah or balcony or on to a conservatory or on to any similar enclosed place
or is, under Regulation BB72, permitted to open on to an un-enclosed verandah or balcony or any other un-enclosed place, from the outer edge of the verandah, balcony conservatory or enclosed or un-enclosed place, as the case may be.

BB - 94 WINDOWS OPENING ON TO ENCLOSED VERANDAH

Where any room used or intended to be used for habitation or for the purposes of an office has a window which opens on to an enclosed verandah or balcony or on to a conservatory or on to any similar enclosed place, within, in each case, the boundary of the site on which the building is erected, such window shall be deemed to comply with the requirements of Regulations BB94 and BB95 if:-

(a) such verandah, balcony, conservatory or similar enclosed place is provided with a window which would comply with the requirements of Regulations BB94 and BB95 if it were the window of a room having a floor area equivalent to the aggregate of the areas of the floors of such room and such verandah, balcony, conservatory or similar enclosed place, as the case may be; and

(b) the area of glass and the opening in the window of such room is such that, to that extent, such window would comply with the requirements of sub-regulation BB95.2 (a) if it were likewise the window of a room having a floor area equivalentto the aggregate of the areas of the floors of such room and such verandah, balcony, conservatory or similar enclosed place

BB - 95 MECHANICAL VENTILATION AND ARTIFICIAL LIGHTING OF OFFICES

All rooms should be naturally lit and well ventilated unless where, owing to the position, level or unsuitable surroundings of any room used or intended to be used for the purposes of an office, the provisions of Regulation BB95 cannot be complied with, in respect of such room, to the satisfaction of The Approving Authority, there shall be provided:-

(a) a mechanical means of ventilation which shall be capable of supplying fresh air to all parts of such room at a rate of not less than 5 changes of air per hour; and

(b) such artificial lighting and ventilation as The Approving Authority may approve.

BB - 96 ADDITIONAL VENTILATION

BB - 96.1 Where in the opinion of The Approving Authority compliance with the provisions of these Regulations will not secure adequate ventilation for any room used for such purposes by reason of its intended use, unsuitable surroundings or other cause that may require that room to be provided with additional ventilation by means of:-

(a) an aperture or airshaft communicating direct with the open air, having an unobstructed sectional area of not less than 0.015m2; or
(b) a fanlight which opens to a ventilated lobby or corridor; or
(c) such other means of ventilation as shall be approved by the authority.

BB - 96.2 For the purpose of Regulations BB93 to BB99 a laundry being part of or used in connection with any building shall be deemed to be used for the purpose of habitation.

BB - 97 ROOMS CONTAINING SOIL WATER AND WASTE FITMENTS

BB - 97.1 Every room containing a soil water fitment or waste fitment shall be provided with a window or lantern light.

BB - 97.2 Every such window or lantern light shall be such that:-

(a) the aggregate superficial area of glass therein is not less than the equivalent of one-tenth of the area of the floor of the room; and
(b) a part thereof, not less in area than the equivalent of one-tenth of the area of the floor of the room, can be opened directly into the open air.

BB - 97.3 The top of that part of any such window which, in accordance with Sub-regulation BB100.2, is designed to open shall be not less than 2.1m above the level of the floor of the room.

BB - 97.4 No room containing a soil fitment shall open directly into a room used or intended to be used for the manufacture, preparation or storage of food for human consumption.

BB - 97.5 For the purposes of this Regulation, the expression, "soil fitment" means a water-closet fitment, a trough water-closet or a urinal and "waste water fitment" means sinks, wash hand basins and shower.

BB - 98 LIGHT AND AIR NOT TO BE DIMINISHED

No building shall be erected in such a manner as to reduce the quantity of light and air available to any other building, which has been erected in accordance with these Regulations.

BB - 99 FIRE FIGHTING LIFTS

BB - 99.1 Subject to sub-regulation BB102.4, every commercial building exceeding 6 storeys in height shall be provided with at least one lift designed and installed to be used by firemen in the event of a fire (a "fireman's lift").

BB - 99.2 Subject to sub-regulation BB102.4, every building:-

(a) In which an industrial undertaking is being, or is intended to be carried on; or
(b) which is used or intended to be used for bulk storage or as a warehouse, and which exceeds a height of 30m or a cubical extent of 7000m^2 shall be provided with at least such number of fireman's lifts as will ensure that no part of the floors that they serve are more than 60m from such a lift.

BB - 99.3 Fireman's lifts provided in accordance with this Regulation shall:-

(a) Be so designed and installed that at least every alternate floor to the building is served by at least one fireman's lift;
(b) be of an adequate size, and have adequately sized doors, for use by firemen with their equipment;
(c) be enclosed by a lift-well that encloses no more than 3 fireman's lifts and no other lifts;
(d) be so designed and installed that, in the event of a fire, firemen using the lifts are adequately protected from fire and smoke, particularly when leaving the lifts; and
(e) be so designed and installed that in the event of a fire, firemen can gain exclusive control and operation of the lifts so that firemen with their equipment can easily, conveniently, safely and speedily reach the fire.

BB - 99.4 This Regulation does not apply to:-

(a) A building:-
  (i) provided with only 1 staircase;
  (ii) not exceeding 6 storeys in height; and
  (iii) in which the level of the floor of the uppermost storey is not more than 17m above the level of the ground at the point of discharge of the staircase; or
(b) A building:-
  (i) not exceeding a height of 30m or a cubical extent of 7000m^2; and
  (ii) in which no industrial undertaking is being, or is intended to be carried on and which is not used or intended to be used for bulk storage or as a warehouse, place of public entertainment, hotel or hospital.

BB - 99.5 For the purposes of sub-regulation BB102.4 (b), the height of a building shall be measured in accordance with sub-regulation BB10.2.

BB - 99.6 In this Regulation:-"cubicle extent", in relation to a building, means the space contained within the external surfaces of its walls and roof and the upper surface of the floor of its lowest storey, excluding any space within any enclosure on the roof used exclusively for accommodating a water tank or lift gear or any other services, and, if any side of the building is not enclosed by a wall, that side shall be deemed to be enclosed by a wall extending downwards from the outer edge of the roof; "hotel" has the same meaning as in the Hotel and Guest house Accommodation Act;(CAP 301) "industrial undertaking" has the same meaning as in the Factories Act; "place of public entertainment" has the same meaning as in the Places of Public Entertainment Act.

BB - 100 FIREFIGHTING AND RESCUE STAIRWAY

BB - 100.1 This Regulation applies to:-

(a) every building exceeding:-
  (i) a height of 30m; or
  (ii) a cubical extent of 7000m^2 and a height of 1 storey, in which an industrial undertaking is being, or is intended to be carried on or which is used, or is intended to be used for bulk storage or as a warehouse, and
(b) every basement exceeding a cubical extent of 7000m^2 and a height of 2 storeys.

BB - 100.2 Every building or basement to which this Regulation applies shall be provided with at least such number of firefighting and rescue stairways as will ensure that no part of the

building (including any basement in the building) or basement is more than 60m from such a stairway.

BB - 100.3 Every firefighting and rescue stairway shall be so designed and constructed that, in the event of a fire:-

(a) firemen may have safe and unobstructed access:-
  (i) to all floors; and
  (ii) if the roof is accessible by a staircase, to the roof; and
(b) firemen using the stairway are adequately protected from fire and smoke.

BB - 100.4 For the purposes of sub-regulation BB103.1 (a), the height of a building shall be measured in accordance with sub-regulation BB10.2.

BB - 100.5 In this regulation:-

(i) "**access staircase**" has the same meaning as in regulation MM5;
(ii) "**basement**" means any storey of a building below the ground storey and room which any exit route required by or under these regulations is in an upward direction;
(iii) "**cubical extent**" has the same meaning as in Regulation BB102.6;
(iv) "**firefighting and rescue stairway**" means a stairway accommodating
(v) an access staircase and a fireman's lift;
(vi) "**fireman's lift"** has the same meaning as in Regulation MM5;
(vii) "**ground storey"** means the storey in which is situated an entrance from a street to the building and, where a building fronts or abuts on more than one street and due to a difference in street levels there are 2 or more entrances serving different streets and situated in different storeys, means each such storey.

BB - 101 LANDINGS, LOBBIES AND PASSAGES

The minimum dimension of every landing, lobby or passage shall not be less than the width of the staircase to which it leads.

BB - 102 DISTANCE FROM STAIRCASE

Every part of any building intended for habitation or of any school or of any building used as a place of public assembly shall be not more than 30m from a stair case, passage or other normal means of exit.

BB - 103 SWIMMING POOLS AND SWIMMING BATHS

BB - 103.1 The owner of any site which contains a swimming pool or swimming bath shall ensure by means of a wall or fence that no person can have access to such pool or bath from any street or public place or any adjoining site other than through a self-closing and self-latching gate with provision for locking in such wall or fence: Provided that where any building forms part of such wall or fence, access may be through such building.

BB - 103.2 Such wall or fence and any such gate therein shall be not less than 1.2m high measured from the ground level, and shall not contain any opening which will permit the passage of a 100mm diameter ball.

BB - 103.3 Provided that in the case of a commercial hotel, this requirement may be waived provided 24 hours day qualified human surveillance is provided to the swimming pool

BB - 104 OFFENCE AND PENALTIES.

BB - 104.1 Any person who contravenes the provisions of these Regulations shall be guilty of an offence and will on conviction be liable to a fine not exceeding Kshs. 3,000,000 (Kenya Shillings three million only) or twelve (12) months imprisonment or both. …… (Year)

SECTION C

CONSENT TO DISPLAY AN ADVERTISEMENT

CONTENTS

SECTION C

CONSENT TO DISPLAY AN ADVERTISEMENT

CC - 1 APPLICATION FOR CONSENT

Application for consent to display an advertisement, where required, shall be made to the Approving Authority.

CC - 2 CONSENT REQUIRED

CC - 2.1 Except, as provided in these Regulations, a person who shall display or permit to be displayed, any advertisement except with the written consent of The Approving Authority subject to such terms and conditions as the condition may require, shall be guilty of an offence.

CC - 3 DEFINITIONS

CC - 3.1 In these Regulations, unless the context otherwise requires:-

"advertisement" means any visual form of advertising exhibited or displayed on any hoarding, structure, apparatus or device erected on, in or over any premises or land and visible from any street or building and includes any advertisement that is projected on to any external surface of a building or structure by light or any other means;

"building line" means the regular line of a street and includes a line prescribed by The Approving Authority on either side of a street beyond which no building abutting such side shall traverse;

"Illuminate", in relation to any advertisement, signboard or sky sign, means illuminate by design or adoption by an internal or external artificial source of light directly or by reflection;

"License" means a license issued under these Regulations and "licensee" shall be construed accordingly;

"signboard" means a display of the name, registered trade mark or nature of the trade, business or profession of any person in the form of a notice or sign printed, painted, carved, engraved or otherwise delineated on or affixed to any place or premises and visible from any street or building which exceeds half a square metre in area and in respect of the place or premises to which it is affixed contains only:-

(a) a reference to the identification or description of the place or premises;
(b) a reference to the identification or description of any person residing or carrying on an occupation at the place or premises;
(c) particulars of any occupation carried on at the place or premises;
(d) such directions or cautions as are usual or necessary relating to the place or premises or any occupation carried on thereat;
(e) particulars or notification required or permitted to be displayed by any written law; or
(f) particulars relating to any service provided at the place or premises;

"skysign" means any erection consisting of a frame, hoarding, board, bar, pillar, post, wire or any combination of such things, or any erection of a like nature, or any visible object which floats or is kept in position by wire or other flexible attachment, displayed for the purposes of any trade or business carried on for the purposes of gain and in such a position as to be conspicuously visible against the sky and from any street or building.

CC - 3.2 Any reference in these Regulations to a person who exhibits an advertisement, signboard or sky sign shall be construed as a reference to the person who himself or by his employee or agent exhibits or causes to be exhibited the advertisement, signboard or skysign, and shall include:-

(a) the owner and occupier of the land or building on which the advertisement, signboard or sky sign is exhibited; and
(b) any person to whose goods, trade, business or other concern publicity is given by the advertisement, signboard or skysign.

CC - 3.3 A person to whose goods, trade, business or other concern, publicity is given by any advertisement, signboard or skysign shall be taken to have exhibited or caused to be exhibited the advertisement, signboard or skysign if the person who himself or by his employee or agent exhibited or caused to be exhibited the advertisement, signboard or skysign is not known or cannot be found in Kenya.

CC - 4 APPLICATIONS FOR LICENCES

CC - 4.1 Subject to regulation CC - 10, no person shall exhibit or cause to be exhibited any advertisement, signboard or skysign without a licence issued by The Approving Authority.

CC - 4.2 Any application for a licence shall be submitted to The Approving Authority and shall be Accompanied by:-

(a) sketch or photograph showing full details of the proposed subject matter of the advertisement, signboard or skysign in respect of which the application for a licence is made;
(b) a site plan showing the location of the advertisement, signboard or skysign; and
(c) Structural and other plans and specifications in accordance with these regulations if the skysign is exhibited on any hoarding or frame which has an area of more than 5 square metres.

CC - 4.3 If all advertisements, signboards or sky signs are exhibited on a hoarding or frame which has an area of more than 10 square metres, the application for a licence shall be accompanied by detailed structural and other plans and specifications in accordance with these Regulations

CC - 5 CATEGORIES OF LICENCE

There shall be two types of licenses namely, Category A and Category B.

CC - 6 CATEGORIES A LICENCE

CC - 6.1 A Category A license may, on payment of the appropriate annual license fee specified in regulation CC - 11, be issued for licence such period as The Approving Authority may determine but shall not exceed 3 years from the date of the issue or from such date as The Approving Authority may determine.

CC - 6.2 A fresh application for a licence shall not be required for the renewal of any Category A license if there is no change in the subject-matter, size, location or other material particulars of the original advertisement, signboard or skysign.

CC - 6.3 A Category A license may be renewed for any further period commencing from the date of expiry of the licence.

CC - 6.4 Every advertisement, signboard or skysign for which a Category A license has been issued shall be painted thereon the licence number granted in respect of such advertisement; signboard or skysign.

CC - 7 CATEGORY B LICENCE

CC - 7.1 A Category B license may be issued for a period not exceeding 12 months on payment of the pro-rata rate of the appropriate annual license fee specified in Regulation CC - 11.

CC - 7.2 A fresh application in writing shall be made for any renewal of a Category B License.

CC - 8 INCREASE IN AREA OF ADVERTISEMENT

CC - 8.1 The area of any advertisement, signboard or skysign may, on application, be increased during the period of validity of the license on payment of the appropriate annual fee for the increase in area.

CC - 8.2 An application under subregulation CC - 8.1 shall be accompanied by the license for endorsement by The Approving Authority.

CC - 9 POWERS OF THE APPROVING AUTHORITY

CC - 9.1 Upon receiving an application for or the renewal of a license The Approving Authority may grant or renew a licence, with or without conditions, or refuse to grant or renew a licence, as the case may be.

CC - 9.2 In considering any application for the renewal of a license, The Approving Authority shall in particular take into consideration:-

(i) the amenities of any place;
(ii) the natural beauty of a landscape; and
(iii) the amenities of any historic or public building or monument or of any place frequented by the public solely or mainly on account of its beauty or historic interest or any other special consideration.

CC - 10 EXEMPTION FROM FEE

CC - 10.1 A license is required but no fee is payable for the following provided they do not exceed 2m2 in area:

(a) any sign of any religious body or government building;
(b) any sign of any hospital or clinic run by any charity.
(c) one directive sign in respect of each business or profession carried on in any premises;
(d) the exhibition of election posters in accordance with the National Assembly and Presidential Elections Act (CAP 7)
(e) any advertisement inside any shop unit or showroom at a line behind the rear line of the footway, corridor, passageway, lobby or concourse of the building provided that such advertisement is 30 centimetres behind the front or rear of the shop unit.

CC - 11 FEES

CC - 11.1 There shall be payable to The Approving Authority the following annual licence fees In respect of any advertisement signboard or skysign as determined and described in the schedules:

CC - 11.2 Where more than one face of any advertisement, signboard or skysign is displayed, an annual licence fee shall be payable at the appropriate rate specified in subregulation CC - 11.1 for every face of the advertisement, signboard or skysign which is displayed. The Approving Authority reserves the right to determine the number of faces in order to determine the charges.

CC - 11.3 A penalty of 10% of the appropriate annual license fee shall be payable for any advertisement, signboard or skysign exhibited for any period of less than one month.

CC - 11.4 10% of the annual licence fee shall be payable where the annual licence fee payable is not paid within the period stipulated in the notice of payment.

CC - 12 LOCATION REQUIREMENTS

CC - 12.1 No advertisement, signboard or skysign which is displayed more than 3.75 metres above any street shall project over the street beyond the building line by more than 1.5 metres except on balconies or canopies.

CC - 12.2 Any advertisement or signboard fixed in a verandah-way or over a footpath shall be not less than 2.5 metres above the level of the verandah-way or footpath.

CC - 12.3 No advertisement, signboard or skysign shall project over any street by more than 0.6 m beyond the building line up to a height of 3.75 metres measured vertically from the roadway.

CC - 12.4 Where a roadside drain is covered, no advertisement or signboard projecting over any street shall be erected less than 2 metres above the cover of the drain, measured vertically from the top of the cover to the underside of the advertisement or signboard.

CC - 12.5 No person shall illuminate any advertisement, signboard or skysign that is visible from the street by means of flickering, flashing or running lights.

CC - 13 ALTERATION AND MAINTENANCE OF ADVERTISEMENTS

CC - 13.1 A license shall not be transferable.

CC - 13.2 The subject-matter of any advertisement, signboard or skysign shall not be changed without the prior written permission of The Approving Authority.

CC - 13.3 Every advertisement, signboard or skysign licensed under these Regulations shall be maintained to the satisfaction of The Approving Authority.

CC - 14 AMENDMENT, SUSPENSION OR CANCELLATION OF LICENCES

CC - 14.1 The Approving Authority may by notice in writing amend, suspend or cancel any licence issued under these Regulations.

Circumstances for cancellation of a licence:

1. Public concern ,Security/safety
2. Misrepresentation
3. Failure to comply with the regulations

CC - 14.2 A licensee whose license has been cancelled under subregulation CC - 14.1may Apply in writing for a refund of the fee paid for the license and The Approving Authority shall refund the appropriate pro rata sum for the unexpired period of the license except that no refund shall be made where the license is cancelled by reason of any contravention of or failure to comply with these Regulations.

CC - 15 ORDER FOR REMOVAL AND REPLACEMENT OF ADVERTISEMENTS

CC - 15.1 The Approving Authority may, in writing, order the removal, obliteration, replacement, alteration or maintenance of any advertisement, signboard or skysign.

CC - 15.2 Any order under sub-regulation CC - 15.1shall be served on the person who in the opinion of The Approving Authority is responsible for displaying the advertisement, signboard or skysign or the owner or occupier of the premises in or on which the same is exhibited and such person, owner or occupier shall comply with the order within the period specified in the order.

CC - 15.3 Where any order under subregulation CC - 15.1 is not complied with, The Approving Authority may enter the premises and remove or obliterate the advertisement, signboard or skysign or take such other steps as may be reasonably necessary for preventing its exhibition.

CC - 15.4 All costs and expenses incurred by The Approving Authority in removing, obliterating or taking other necessary action under this regulation shall be recoverable from the person on whom the order was served as a debt due to The Approving Authority.

CC - 16 DANGEROUS ADVERTISEMENTS

No person shall erect any hoarding or display an advertisement in such manner as to obscure or hinder the interpretation of any road traffic sign, railway signal, or signal for the control or safety of navigation by air, or so as otherwise to render hazardous the use of any highway or non- motorized travel ways, railway or airfield.

CC - 17 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes any of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than Kshs, 100,000.00 (Kenya Shillings one hundred thousand only) or not less than six (6) months imprisonment or both.

SCHEDULE

(a)		
	(i) illuminated advertisement	Kshs 4,000.00 per m^2 or part thereof
	(ii) Unilluminated advertisement	Kshs 2000.00 per m^2 or part thereof
(b)	Illuminated or unilluminated signboard	Kshs1000.00 per m^2 or part thereof
(c)	Skysign	Kshs 5000.00 per m^2 if signboard is more than $10m^2$

SECTION D

DEMOLITION OF BUILDINGS

CONTENTS

SECTION D

DEMOLITION OF BUILDINGS

DD - 1 DEMOLITION OF BUILDINGS

DD - 1.1 No owner of any site shall demolish or cause or permit to be demolished any building or any part thereof without the prior written permission of The Approving Authority.

DD - 1.2 The Approving Authority shall within 14 days of receipt of such application, grant such permission, impose any condition or requirement contemplated in sub- regulation EE1.4 for the safety, health and convenience of the public and for the safety of any other building or installation which in its opinion may be affected by such demolition.

Provided that The Approving Authority may within the said fourteen days (14 days) extend the period in case of any particular application for a further 30 days.

DD - 1.3 No person shall at any time during the course of or after the demolition of a building leave it in a condition dangerous to the public or any adjoining property.

DD - 1.4 Where a condition contemplated in these Regulations arises, The Approving Authority may serve a notice on such person requiring him to make the site safe within such a time as shall be prescribed in the said notice, and if he fails so to do, The Approving Authority may itself carry out the necessary work and recover the costs thereof from such person.

DD - 2 SAFEGUARDING OF BASEMENTS

Where any building is demolished to ground level and such building contained a basement, the owner of such building shall provide or cause to be provided safe lateral support to the sides of such basement.

DD - 3 PROHIBITION OF DANGEROUS METHODS

The Approving Authority may prohibit the use of any method to be applied in the demolition of any building where in its opinion such method will create or cause to be created any danger to any person or other building or property, and where it so prohibits it shall, on the request of the owner of such building, give its reasons, in writing, for such prohibition.

DD - 4 DAMAGE TO STREETS

If because of the erection, alteration or demolition of a building or of a hoarding or scaffolding in connection with such work, a street is damaged, The Approving Authority may either:

(a) make good the damage to such street and recover from the owner or developer of the plot concerned any expenses reasonably incurred in so doing, or

(b) serve a notice in writing upon the owner or developer of the plot concerned, requiring him to make good to the satisfaction of The Approving Authority, the damage to such street within such period as may be specified in the notice.

DD - 5 DISREGARD OF APPROVED PLANS

DD - 5.1 Pursuant to these regulations, any person, who shall erect a building other than in accordance with the approved plans relating to such building, shall be guilty of an offence.

The Approving Authority may serve upon the owner of a building, referred to in sub regulation DD - 5.1 hereof, a notice requiring him within the period specified in such notice:-

(a) to execute such work as may be prescribed therein to make the building conform to the requirements of The Approving Authority; or
(b) to demolish and remove the building.

DD - 6 RUINOUS OR DANGEROUS STRUCTURES

DD - 6.1 The owner of a building shall not permit the building or any part thereof, to become or remain in a ruinous, dangerous or dilapidated condition.

DD - 6.2 Where any building appears to The Approving Authority to be in a ruinous, dangerous or dilapidated condition The Approving Authority may:-

(a) serve upon the owner of such building a notice in writing, requiring him within the time specified therein, to shore up, secure, repair, renew or otherwise make safe, to the satisfaction of The Approving Authority, such building, or to remove the same; or
(b) take such steps by way of shoring up or securing or otherwise making safe such building, as in its absolute discretion, it deems necessary;

and for that purpose may enter upon the premises and upon any adjoining premises, which it may be necessary to enter for the said purpose; and the owner of such building shall be liable for, and shall pay to The Approving Authority on demand all costs reasonably incurred, including any damages which it may have paid arising from its entry thereon and work incidental to the removal of or making safe such building.

DD - 6.3 In the event of the owner failing to commence the work specified in the notice referred to in sub-regulation DD - 6.2 of this regulation, within three days after the expiration of the time specified therein, or failing to complete the said work with the time specified in such notice, The Approving Authority may forthwith proceed under sub-regulation DD - 6.2 (b) of this regulation.

DD - 7 SALE OF MATERIALS

DD - 7.1 If a building is demolished by The Approving Authority under any of the powers conferred by these regulations, The Approving Authority may remove and sell the materials thereof or any portion of them, and apply the proceeds of the sale in or towards payment of the cost and expenses incurred by it in relation to such work and shall pay the balance, if any, to the owner.

DD - 7.2 If the proceeds of such sale are insufficient to cover the expenses which The Approving Authority has incurred, the balance shall be recoverable as a civil debt from the owner.

DD - 8 CLOSING OF STREETS

DD - 8.1 In connection with the carrying out of any operations under these regulations, The Approving Authority may, temporarily close any street or public place and may erect such hoarding, barricades or other structures as it may consider necessary for that purpose, and in the event of such closure having been occasioned by the condition of a building, the owner of such building shall pay to The Approving Authority on demand, all costs and expenses incurred by it in connection with the erection and subsequent removal of such hoardings, barricades or other structures.

DD - 8.2 Any person who shall, except with the consent of The Approving Authority, remove or interfere with any such hoardings, barricades or structure erected under the provisions of this Regulation or climb, pass or attempt to climb or pass such hoarding or barricade or structure, shall be guilty of an offence.

DD - 9 DUTIES OF A CONTRACTOR PRIOR TO COMMENCEMENT OF DEMOLITION

DD - 9.1 Before the demolition is commenced, the registered contractor in respect of demolition works shall:-

(a) ensure that no persons are left within the building or the environs around the building;
(b) cause to be disconnected and remove meters for the supply of gas, electricity, water and other services, save in so far as the same may be used in the demolition works, cause the supply of gas and electricity to the building to be disconnected; and
(c) cause any fitting attached to the building in connection with any system of street lighting, supply of electricity or other service to be removed.

DD - 9.2 Before commencing the demolition, the registered contractor appointed in respect of the demolition works shall:-

(a) where a wall of the building abuts or fronts upon a street, service lane or other open area accessible to the public:-
  (i) erect along that wall, at the level of the first floor of the building above the level of the street, fans or catch platforms;
  (ii) erect fans or catch platforms at the level of such other floors of the building as may be necessary to prevent any nuisance from dust or danger from debris or materials so that such fans or catch platforms are sited at vertical intervals of

not more than 10 m with the uppermost fan or catch platform not more than 10m below the working level; and

(iii) erect dust screens to cover the whole of the wall so as to prevent any nuisance from dust;

(b) seal all sewer and drainage connections; and

(c) remove all glazed sashes and doors from the building.

DD - 10 PROVISIONS AS TO SHORING

DD - 10.1 Save as provided in sub-regulation DD - 10.2, before commencing the demolition and at such times during the carrying out of the demolition works as may be necessary, such precautions as shall be taken, by the provision of adequate shoring or otherwise, to prevent, so far as is practicable, the accidental collapse of any part of the building, or of any adjoining services or other building, the collapse of which may endanger any person.

DD - 10.2 Sub-regulation DD - 10.1 shall not apply in relation to a person actually engaged in placing shoring or other safeguards for the purpose of compliance with sub-regulation DD - 10.1, if such precautions as are practicable are taken to ensure the safety of that person.

DD - 10.3 Electric cables, etc. not to remain charged.

No electric cable or other apparatus, other than such a cable or apparatus used in the demolition works, that is liable to be a source of danger, shall, at any time during the carrying out of such works, remain electrically charged.

DD - 11 PRECAUTIONS TO BE TAKEN TO PREVENT DANGER FROM FIRE OR EXPLOSION

DD - 11.1 At all times during the carrying out of any demolition works,

(a) the registered contractor appointed in respect thereof shall take all practicable steps to prevent danger to persons and property

(i) from risk of fire or explosion through the leakage or accumulation of gas or vapour; and

(ii) from risk of flooding from water mains, sewers or culverts; and

(b) all external openings to or from the building shall be so protected as to prevent danger to persons and property

DD - 12 PROVISIONS IN RELATION TO CHUTES FOR REMOVAL OF MATERIALS

DD - 12.1 Where chutes are provided for the removal of materials or debris, they shall be so situated and constructed as to avoid, so far as practicable, any danger to persons and property.

DD - 13 DEMOLITION WORKS TO BE CARRIED OUT UNDER SUPERVISION OF EXPERIENCED PERSON

DD - 13.1 The demolition and all works incidental thereto shall be specifically placed under the supervision of a person experienced in the carrying out of demolition works and appointed for the purpose.

DD - 13.2 Where two or more registered contractors take part in the demolition works, each such contractor shall appoint a person in accordance with sub-regulation DD - 14.1 and either the same person shall be jointly appointed by all the contractors taking part or each such contractor shall make arrangements to ensure that no operation in the course of the demolition works is undertaken by his workmen save after consultation between all the persons appointed in accordance with sub-regulation DD - 14.1 as to the method by which, and the time at which, the operation is to be carried out.

DD - 13.3 A notice in the specified form specifying the name of the person or persons appointed in accordance with sub-regulation DD - 14.1 shall be posted up in a conspicuous place on the site of the demolition works.

DD - 14 CERTAIN OPERATION TO BE CARRIED OUT ONLY UNDER COMPETENT SUPERVISION

DD - 14.1 The operations specified in sub-regulation DD - 13.2 shall be carried out only:-

(a) under the immediate supervision of a registered structural Engineer or a similarly competent person with adequate experience of the particular kind of works; or
(b) by workmen experienced in the kind of work and under the direction of a registered structural Engineer or a similarly competent person

DD - 14.2 The following operations are specified for the purpose of sub-regulations DD - 13.1

(a) the actual demolition of the framework of a building or of any floor, wall, roof or staircase, save where there is no risk of a collapse of any part of a building in the course of, or as a result of, the demolition works, so as to endanger any person employed in the demolition works, other than a risk which could not reasonably have been foreseen;
(b) the actual demolition of any part of a building where there is a special risk of collapse, whether of that part of the building or of any part of a building, in the course of, or as a result of, the demolition works, so as to endanger any person employed in the demolition works;
(c) the cutting or breaking up or dismantling of reinforced concrete, steelwork or ironwork forming part of the structure of a building;
(d) the use of any powered mechanical plant or equipment in actual demolition work.

DD - 14.3 Where powered mechanical plant or equipment is used in demolition work, the operator of that plant or equipment shall be:-

(a) experienced in the operation of the particular plant or equipment; and
(b) under the immediate supervision of a competent foreman with adequate experience in demolition work.

DD - 15 NO FLOORS OR ANY OTHER COMPONENT TO BE OVERLOADED

DD - 15.1 No floor, roof or other part of a building that is being demolished shall be so overloaded with debris or materials as to render it unsafe or liable to become unsafe.

DD - 15.2 No debris or materials from demolition shall be permitted to accumulate against any fence, hoarding or wall so as to render it unsafe or liable to become unsafe.

DD - 16 PRECAUTIONS TO BE TAKEN IN RELATION TO CUTTING OF STEELWORK

Where, during the carrying out of any demolition works, steelwork or ironwork is being cut or released or dismantled, precautions shall be taken, so far as is practicable, to prevent any danger from a sudden twist, spring or collapse.

DD - 17 PRECAUTIONS TO BE TAKEN IN REMOVING FRAMING

Where, during the carrying out of any demolition works, any part of framing is being removed from a framed or partially framed building, all practicable precautions shall be taken to prevent danger from collapse of the structure.

DD - 18 OFFENCES AND PENALTIES

DD - 18.1 A registered professional who contravenes sub-regulation DD10.1 shall be guilty of an offence and shall be liable to a fine not less than Kshs. 50,000 (Kenya Shillings fifty thousand only)

DD - 18.2 A contractor who contravenes sub-regulation DD - 9.2 shall be guilty of an offence and shall be liable to a fine not less than Kshs. 50,000.00 (Kenya Shillings fifty thousand only).

DD - 18.3 A registered contractor who contravenes sub-regulations DD - 10.1; Regulation DD - 11; sub-regulation DD - 12 (a); Regulation DD - 13; sub-regulation DD - 14.1, DD - 14.2 & DD - 14.3; Regulation DD - 15, sub-regulation DD - 15.2; Regulation DD - 16, DD - 17 or DD - 18 shall be guilty of an offence and shall be liable to a fine not less than KShs. 200,000.00 (Kenya Shillings two hundred thousand only) and to imprisonment for a period not less six months or both.

DD - 19 GENERAL PENALTY

Any person who contravenes any requirement of the regulations of this Part or fails to comply with any notice, condition or order issued thereunder, shall be guilty of an offence.

SECTION E

PROTECTION OF BUILDINGS

CONTENTS

SECTION E

PROTECTION OF BUILDINGS

EE - 1 PROTECTION OF BUILDINGS

EE - 1.1 Before any erection, alteration, scaffolding or demolition of any works, The Approving Authority may require that the owner of such site, before such work is commenced, to erect a fence, hoarding or barricade to prevent the public from entering such site and to protect them from the activities on such site.

EE - 1.2 Such fence, hoarding-or barricade shall for as long as is necessary be retained and maintained by such owner in a safe condition and any access to such site and the means thereof, shall be subject to approval.

EE - 1.3 No part of such fence, hoarding or barricade shall be removed without the permission, in writing, of The Approving Authority until the work has been completed.

EE - 1.4 Any person undertaking any work of erection or demolition on any site shall confine all operations in connection with such work within the boundaries of such site and shall not encroach upon or over any street or public place abutting such site, except with the prior written approval of The Approving Authority, and subject to the conditions contained in such approval with regard to the safety and convenience of persons using such street or public place.

EE - 1.5 The Approving Authority may, before or during the erection or demolition of any building, Impose any reasonable conditions in addition to the conditions and requirements contemplated in this regulation, for the purpose of safeguarding the interests of the general public, and every condition so imposed shall be observed by the owner.

EE - 1.6 Any owner who contravenes or causes or permits any other person to Contravene a requirement of this regulation or fails to comply with any notice served on him by The Approving Authority ordering compliance with this regulation, or Contravenes any condition contained in any approval, shall be guilty of an Offence.

EE - 1.7 The owner of such a site shall indemnify and keep indemnified The Approving Authority against any expenses, loss, claims or suits arising out of or in connection with the hoarding, barricading or scaffolding.

EE - 2 DAMAGE TO PUBLIC FACILITIES AND UTILITIES

EE - 2.1 Where any work connected with the demolition or erection of any building may, in the opinion of The Approving Authority, cause or have any detrimental effect on the strength, standard, safety, quality or position of any public facilities or utilities, The Approving Authority may require the owner of such building to pay to The Approving Authority such deposit or give such security, as it may require to cover the costs of the repair of any damage which may be caused by such work.

EE - 2.2 In the event of damage to public facilities or utilities being so caused, The Approving Authority may appropriate the amount of the deposit or security contemplated in sub regulation EE2.1 towards the costs of repairing such damage; Provided that if the amount of the deposit or security exceeds such costs the balance shall be refunded to the owner: Provided further that if such costs exceed the amount of the deposit or security, such owner shall be liable to The Approving Authority for the deficit.

EE - 2.3 Where any deposit contemplated in sub regulation EE2.1 has not been lodged with The Approving Authority the owner of such building shall pay the cost of such repair to The Approving Authority on demand, failing which The Approving Authority may recover such cost from the owner in a court of competent jurisdiction.

EE - 3 UNSTABLE SOIL CONDITIONS

EE - 3.1 Where The Approving Authority has reason to believe that there may be unstable soils or unstable slopes in the area in which a site, upon which a building is to be erected, is situated, it shall so inform the applicant.

EE - 3.2 Whether or not The Approving Authority has informed such applicant in terms of Sub-regulation EE3.1.the applicant shall, if any unstable soil or unstable slope is evident within the boundaries of such site, submit to The Approving Authority particulars specifying the measures he considers necessary to make provision for any differential movements or other effects which could be detrimental to such building and The Approving Authority may require such particulars to be prepared by an engineer.

EE - 3.3 The measures contemplated in sub regulation EE3.1 shall be applied in the erection of such building.

EE - 4 PREPARATION OF SITE

EE - 4.1 Before any foundation is laid the area to be covered by any building shall be properly cleared of vegetable matter, tree stumps, timber and other cellulose material, debris or refuse and any material contaminated with feacal matter.

EE - 4.2 Where any site upon which any building is to be erected is waterlogged or saturated, or where any building is to be so situated that water will drain naturally towards it, drainage shall be provided to direct such water away from such site or building to a storm water drain or to dispose of it in some other safe approved manner.

EE - 5 SOIL POISONING

Where so required by The Approving Authority, the soil in all areas within the site as defined in Kenyan Standards, BS 7755 Part 1 - Part 4 Section 4.3 up to 1994 shall be treated in accordance with the recommendations of BS 1377 Part 1 - Part 9 -1990, or any other standards approved by Kenya Bureau of Standards.

EE - 6 CONTROL OF DUST AND NOISE

EE - 6.1 The owner of any land on which excavation work is in progress or on which any building is being erected or demolished shall take precautions in the working area and on surrounding roads and footways to limit to a reasonable level the amount of dust arising from the work or surroundings thereof.

EE - 6.2

(a) No person shall, during the periods specified in sub-regulation EE6.2 (b) carry on any activity or use or permit to be used in the course of any building, demolition or excavation work any machine, machinery, engine, apparatus, tool or contrivance, in whatever manner it may be propelled, which in the opinion of The Approving Authority may unreasonably disturb or interfere with the amenity of the neighbourhood.

(b) The periods referred to in sub-regulation EE6.2 (a) shall be as follows:
- (i) National Public Holidays and Sundays,
- (ii) before 06:00 hrs and after 17:00hrs on any Saturday, and
- (iii) before 06:00hrs and after 18:00hrs on any day other than those days contemplated in sub-paragraphs (i) and (ii).

(c) The prohibition in sub-regulation EE6.2 (a) shall not apply in any circumstances in which the use of such machine, machinery, engine, apparatus, tool or contrivance:-
- (i) is urgently necessary in order to preserve the life, safety or health of any person;
- (ii) is urgently necessary to preserve property;
- (iii) has been authorised by The Approving Authority; or
- (iv) is necessary for the execution of work being carried out on behalf of The Approving Authority.

EE - 6.3 Any owner or person who contravenes a provision of this regulation shall be guilty of an offence.

EE - 7 CUTTING INTO, LAYING OPEN AND DEMOLISHING CERTAIN WORK

EE - 7.1 Where The Approving Authority, on reasonable grounds, believes that any work carried out in connection with the erection of any building is not in accordance with the provisions of these regulations or any approval or Approving Authority granted there-under, The Approving Authority may, in order to establish whether such work is in accordance with such provision, approval or Approving Authority, by notice in writing, order the owner of such building:-

(a) to supply satisfactory proof that such work Is in accordance with such provision, approval or Approving Authority, or

(b) to cause such work to be cut into, laid open or demolished to the extent required by The Approving Authority; or

(c) to cause a test of such work to be carried out within such time and to such extent and by such person as it specified in such notice.

EE - 7.2

(a) Where The Approving Authority orders the owner to cause a test to be carried out as contemplated in sub-regulation EE7.1(a), a written report in regard to such test shall be submitted by the owner to The Approving Authority, which report shall be signed by the person who carried out the test and which shall contain details in regard to the testing apparatus, methods and materials used in the test, the conditions under which such test was carried out and the results obtained during the test and at the conclusion thereof.

(b) Where as a result of a report contemplated in sub-regulation EE7.2(a) The Approving Authority is not satisfied that the work concerned is in compliance with the requirements referred to in sub-regulation EE7.1, The Approving Authority may, by notice served on the owner, order the owner to take such steps as it deems necessary and within such period as is stated in such notice, to ensure that there is such compliance, or The Approving Authority may in such notice order the owner to cause such work to be cut into, laid open or demolished as contemplated in sub-regulation EE7.1.

EE - 7.3

(a) Any owner having been ordered to cause any work to be cut into, laid open, demolished or tested in terms of this regulation shall not continue with such work or with any other work affected thereby unless The Approving Authority has authorised him, in writing, to continue.

(b) Where The Approving Authority is satisfied that work on the affected part of the building may proceed, it shall forthwith give authorization to so proceed.

EE - 7.4 Where such cutting into laying open, demolishing or testing reveals that a contravention of the requirements of these regulations, or of any approval or Approving Authority granted by The Approving Authority, has taken place, or if the necessity for such cutting into, laying open, demolishing or testing is attributable wholly or partly to any contravention of the provisos the requirements of this Regulation, the cost of such work and any making good subsequent thereto shall be borne by the owner, and in any other case by The Approving Authority.

EE - 7.5 Any owner who contravenes any provision to this regulation or who fails to comply with any notice served on him in terms thereof, shall be guilty of an offence.

EE - 8 WASTE MATERIAL ON SITE

EE - 8.1 Where in the opinion of The Approving Authority excessive rubble, rubbish, other debris or combustible waste material is allowed to accumulate on a site before or during building operations, it may, by written notice, order the owner of such site to have such rubble, rubbish, other debris or combustible waste material removed within the period specified in such notice.

EE - 8.2 Any owner who fails to comply with such notice shall be guilty of an offence and The Approving Authority may remove the said rubble, rubbish, other debris or combustible waste material from such site and shall recover the costs of such removal from the owner.

EE - 9 CLEANING OF SITE

EE - 9.1 Any owner or person erecting or demolishing any building shall remove any surplus material and matter arising from such erection or demolition from the site and from any other land or public street or public place affected by such material or matter during or after the completion of such erection or demolition, failing which The Approving Authority may, by written notice, order the owner of such building to have such surplus material and matter removed within a period specified in such notice.

EE - 9.2 Any owner or person, who fails to comply with a provision of this Regulation or a notice served on him in terms thereof, shall be guilty of an offence.

EE - 10 CONTRACTOR'S SHEDS

EE - 10.1 Any owner or person carrying out or performing work in connection with the erection or the demolition of any building, may erect on the site of such work such temporary contractor's sheds as may be necessary.

EE - 10.2 The location and construction of contractor's sheds shall be to the satisfaction of The Approving Authority and such sheds shall be maintained in good order.

EE - 10.3 Subject to the provisions of this Regulation such sheds shall only be used for a purpose connected with the carrying out or the performance of the work referred to in sub-regulation EE10.1.

EE - 10.4 Where such sheds are not constructed, located or maintained in terms of this regulation, The Approving Authority may serve a notice on such owner or person to move, reconstruct or repair or improve the condition of such sheds within a time specified in such notice, or if use thereof is being made other than that permitted in terms of this regulation, to cease such unpermitted use.

EE - 10.5 On completion or cessation of the work referred to in sub-regulation EE10.1 or where such sheds are no longer necessary for the purpose for which they were erected, they shall be removed from the site by the owner.

EE - 10.6 Security personnel employed in connection with a building which is being or which is to be erected or demolished may be accommodated in builder's sheds, subject to such requirements and conditions as may be necessary for the safeguarding of public health and the health of such personnel and for avoiding nuisance or inconvenience to persons in the vicinity of such building.

EE - 10.7 Any owner or person, who fails to comply with any provision of this regulation or any notice served on him in terms thereof, shall be guilty of an offence.

EE - 11 SANITARY FACILITIES

EE - 11.1 No owner or person shall commence or continue the erection or demolition of any building unless approved sanitary facilities for all personnel employed on or in connection with such work have been provided or are available on the site or, with the permission of The Approving Authority, at some other place: Provided that where such facilities have not been so provided The Approving Authority may order the cessation of such work until the

required facilities have been provided, and, should such order not be complied with, The Approving Authority may install such facilities and recover the costs of such installation from the owner of the site,

EE - 11.2 Sanitary facilities shall be so sited as not to be offensive and shall at all times be maintained in a clean and hygienic condition, and shall, unless they are of a permanent nature, be removed by such owner or person immediately such building work has been completed.

EE - 11.3 Sanitary facilities shall be provided at the rate of not less than one sanitary facility for ever thirty (or part of that number) of the personnel concerned.

EE - 11.4 Any owner or person who contravenes any provision of this regulation, or fails to comply with an order served on him in terms thereof, shall be guilty of an offence.

EE - 12 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence, and shall be liable to a fine not less than KShs 1,000,000 (Kenya Shillings one million only) or imprisonment for a period of six (6) months or both.

SECTION F

STRUCTURAL DESIGN

CONTENTS

SECTION F
STRUCTURAL DESIGN

FF - 1 DESIGN REQUIREMENT

FF - 1.1 Any building and any structural element or component thereof shall be designed to provide strength stability serviceability and durability in accordance with accepted principles of structural design, and so that it will not impair the integrity of any other building or property.

FF - 1.2 Any such building shall be so designed that in the event of accidental over-loading the structural system will not suffer disastrous or progressive collapse which is disproportionate to the original cause.

FF - 2 STRUCTURAL DESIGN

FF - 2.1 The design of the structural system of any building shall be carried out in accordance with BS 6399 Parts 1-3-1996 (P.D. 6529 1990 for Loads) and in accordance with one or more of the following standards relating to the materials used in such building or in any element or component thereof:

(1)	BS 8110	Structural use of Concrete.
(2)	BS 5950	Structural use of Steelwork.
(3)	BS 5628	Structural use of Masonry Work.
(4)	BS 5390	Structural use of Stone Masonry.
(5)	BS 5268	Structural use of Timber.
(6)	BS 8118	Structural use of Aluminium.
(7)	BS 4483	Steel fabric for Reinforcement of Concrete.
(8)	BS 8215	Size of Sawn and Processed Softwood.
(9)	BS 8215	Code for Design and Installation of Damp Proof Course in Masonry Construction
(10)	BS 5400	Composite Construction in Structural Steel and Concrete.
(11)	BS5337	Reinforced and Pre-stressed Concrete Structure for Storage of Water and Other Aqueous Liquid.
(12)	BS 5494	Protection of Iron and Steel Structures from Corrosion.
(13)	BS 4550	Cement, Aggregate and Sand for Concrete Works.
(14)	BS 3797	Specification for Lightweight Aggregate for Masonry Units and Structural Concrete.
(15)	BS1881	Testing of Concrete.
(16)	BS 8007	Design of Concrete Structure for Retaining Aqueous Liquid.

FF - 3 STRUCTURAL MATERIALS

The material used in the construction of any structural element or component thereof shall be that specified or contemplated in:-

(a) the relevant BS Code of Practice where such code has been used as a basis for the design;

(b) any document, other than a BS Code of Practice contemplated in regulation FF2,

which has been used as a basis for the design:

Provided that where the materials specified in such document are not available, other materials of equal or better performance may be used if they have been shown to be suitable in relation to such document.

Where any structural material other than one covered by any code of practice contemplated in regulation FF2 is used in any building, the design of such building and the structural elements and components thereof shall be in accordance with a safe method applicable to the structural use of such other material.

FF - 4 RESPONSIBILITY FOR DESIGN AND CONSTRUCTION

FF - 4.1 Any rational design of a structural system shall be done or checked by a qualified engineer or other approved competent person, and such person shall certify that such design complies with the requirements contained in Regulation F1:

FF - 4.2 Provided that nothing shall be construed as precluding the use of the regulation, as the case may be, where the use of such rule is appropriate. Such person shall, by means of inspections carried out at such intervals as may be necessary in accordance with accepted professional practice, satisfy himself that the structure has been erected in accordance with the approved design and shall furnish to The Approving Authority a certificate to this effect.

FF - 5 GENERAL REQUIREMENT FOR FOUNDATIONS

FF - 5.1 The foundation of any building shall be designed to safely transmit all the loads from such building to the ground.

FF - 5.2 The requirement of sub-regulation FF5.1 shall be deemed to be satisfied where the design and construction of such foundation complies with BS 8004 - 1986.

FF - 6 EMPIRICAL RULES FOR FOUNDATIONS

FF - 6.1 Any foundation constructed in accordance with these Regulations shall not be used to support any wall forming part of the structural system of any building except where:-

(a) such wall is placed centrally on such foundation;
(b) the soil supporting such foundation is not a heaving soil or
(c) shrinkable clay or a soil with a collapsible fabric.

FF - 6.2 Any such foundation shall be constructed with a material having a compressive strength of not less than 10 N/mm^2 at 28 days, or be mixed in proportions by volume of 1 part of cement, 4 parts of sand and 5 parts of coarse aggregate.

FF - 6.3 The width of any continuous strip foundation shall be not less than:-

(a) (600 mm in the case of a foundation to a load-bearing or free standing masonry wall or to a timber framed wall supporting a roof with Class B covering contemplated in these Regulations or;
(b) 400 mm in the case of a foundation to a non-load-bearing internal masonry

wall or to a timber framed wall supporting a roof with Class A or Class C covering contemplated in these Regulations.

FF - 6.4

(a) Where any strip foundation is laid at more than one level the higher portion of the foundation shall extend over the lower portion for a distance at least equal to the thickness of the foundation.

(b) Any void between the top of the lower portion of such foundation and the underside of the higher portion shall be completely filled with concrete of the same strength as that required for such foundation.

FF - 6.5 Where any concrete floor slab is thickened to form a foundation:-

(a) the thickness, including that of such floor slab, shall be not less than that required for a continuous strip foundation; and

(b) the width of the thickened portion below such floor slab shall be not less than that required for a continuous strip foundation: Provided that such thickening shall not be required under non-load-bearing timber-framed walls.

FF - 6.6

(a) Where any pier is built into or forms part of any wall the thickness of the foundation to such pier shall be the same as that required for such wall,

(b) The length and width of the foundation to such pier shall be such as to project by 200 mm at any point on the perimeter of such pier.

FF - 6.7

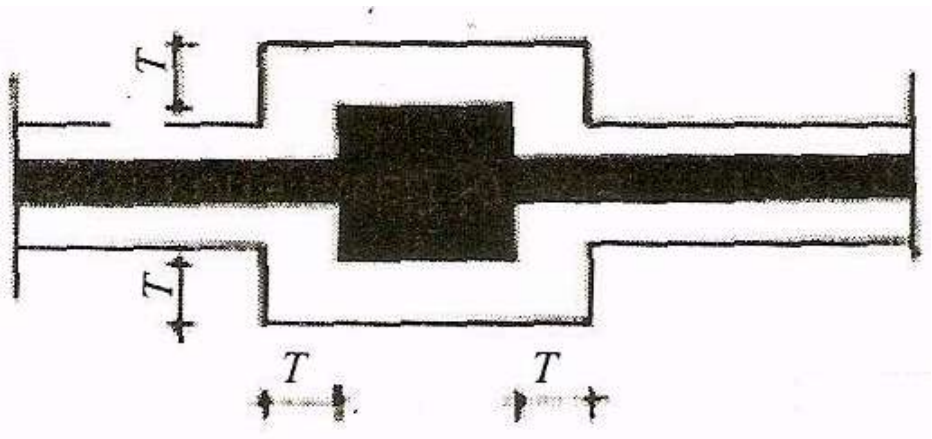
(a) The thickness of the foundation to any sleeper pier or sleeper wall shall be not less than 150 mm .

(b) The length or width of the foundation to such sleeper pier shall be not less than 450 mm .

(c) The width of the foundation to such sleeper wall shall be not less than 300 mm.

Figure F1 illustrates the requirements of FF6.7

Figure F - 1: Pier Foundation



T = Thickness of foundations

The foundation to any pier must project by a minimum distance of 200mm around perimeter of such pier.

FF - 7 GENERAL STABILITY REQUIREMENT OF EXCAVATION

FF - 7.1 Where any excavation related to a building is carried out or is to be carried out on any site and such excavation may impair the safety or stability of any property or service, the owner of such site shall take adequate precautionary measures to ensure that the safety and stability of such property or service is maintained.

FF - 7.2 While any such excavation remains open, and during the placing of any foundation within it, such excavation shall be maintained in a safe condition by the owner or person carrying out such excavation.

FF - 7.3 Where the safety or stability of any property or service is likely to be impaired by such excavation, or where the depth, at any point, of such excavation is likely to be more than 3 m, the owner of the site shall;-

(a) obtain the prior written authorization of The Approving Authority for such excavations, and

(b) take the precautionary measures specified by The Approving Authority in such authorization.

FF - 7.4 The owner of any site shall, at least seven days prior to the commencement of any excavation contemplated in sub-regulation FF7.1, notify The Approving Authority in writing of his intention to excavate.

FF - 7.5 Any owner or person, who fails to comply with any requirement of this regulation, shall be guilty of an offense.

FF - 8 EXCAVATIONS FOR FOUNDATIONS

FF - 8.1 Any excavation more than 3 m deep shall be designed by an engineer or other registered professional.

FF - 8.2 Any excavation for any foundation shall be taken down to firm natural ground: Provided that it shall be permissible to cast any foundation in filled ground if approved measures are taken to ensure the stability and the serviceability of the building.

FF - 8.3 The bottom of any excavation in ground other than rock shall be horizontal: Provided that where such a bottom is in the form of steps, such steps shall have horizontal and vertical surfaces.

FF - 8.4 Where any foundation is placed on solid rock, the bearing area shall be cleaned and, where necessary, so stepped or dowelled as to prevent lateral movement of such foundation.

FF - 8.5 Except where the foundation for any external masonry wall is placed on solid rock, the bottom of the excavation for such a foundation shall not be less than 300mm below the level of the adjoining finished ground.

FF - 9 HIGH STRESS REINFORCED CONCRETE SUPERVISION

FF - 9.1 Reinforced concrete design for strengths in excess of 30 N/mm^2, shall not be approved by The Approving Authority, unless it is satisfied that a supervisor qualified in the opinion

of The Approving Authority will be retained for supervision of such reinforced concrete work.

FF - 10 WELDING

The use of welding in the fabrication of structural steel work shall only be permitted with the express consent of The Approving Authority and only if allowed for in the design.

FF - 11 CANOPIES

FF - 11.1 No person shall erect a canopy without first obtaining a licence from The Approving Authority so to do.

FF - 11.2 A canopy shall:-

(a) be of an approved design and construction;
(b) be not less than 3.2m above the level of the footway;
(c) not extend outwards from the building so as to be nearer thevertical plane of the kerb line of such footway than 0.7m

FF - 11.3 The upper surface of every canopy, shall be impervious to moisture and drained in an approved manner, and designed to prevent the discharge of water directly onto a street.

FF - 11.4 Unless The Approving Authority otherwise approves, no load shall be placed upon a canopy.

FF - 11.5 If it is considered desirable by The Approving Authority that a canopy should be erected in front of a new building, The Approving Authority may require the owner thereof to provide for it in the design of such building.

FF - 12 DEAD LOADS

FF - 12.1 For the purpose of calculating the dead load of a building or any part of

(a) dead loads shall be calculated from the unit weights given in BS 648 or from the actual known weights of the materials used.
(b) Where permanent partitions are shown in the plans, their actual weights shall be included in the dead load.
(c) When partitions are indicated on the plans their weight should be included in the dead load acting as concentrated loads in their actual positions;
(d) The weights of tanks and other receptacles, and of their contents, shall be considered as dead loads. These loads shall be calculated for the cases when a tank or receptacle is full and when it is empty.

FF - 13 IMPOSED FLOOR AND CEILING LOADS

FF - 13.1 The loads appropriate to the different uses to which the parts of a building or structure may be put are given in Tables F5 to F12. A key to the groups in these tables is given in Table F1. The distributed loads are the uniformly distributed static loads per square metre of plan area and provide for the effects of normal use. Where, in Tables F5 to F12, no values are given for concentrated load, it may be assumed that the tabulated distributed load is adequate for design purposes.

FF - 13.2 All floors shall be designed to carry the appropriate distributed or concentrated imposed loads given in Tables F5 to F12. Where recommendations are not given, the appropriate load will be whichever produces the greater stresses in the part of the floor under consideration. In the design of floors, concentrated loads are considered to be applied in the positions which produce the maximum stresses and, where deflection is the design criterion, in the positions which produce maximum deflections. The concentrated load may not be considered where the floors are capable of effective lateral distribution of this load.

FF - 13.3 Concentrated loads when used for the calculation of bending and shear are assumed to act at a point. When used for the calculation of local effects, such as crushing or punching, they are assumed to act over the actual area of application.

FF - 13.4 The imposed loads for beams are the distributed loads appropriate to the uses to which they are to be put, as given in Tables F5 to F12.

FF - 13.5 The general recommendations are not applicable to certain unusual uses particularly where mechanical stacking, plant or machinery are to be installed and in these cases the designer should determine the loads from a knowledge of the equipment and processes likely to be employed.

FF - 13.6 When the partitions are not determined on the plans and additional on beams and floors (where these are capable of effective lateral distribution of the load) may be taken as a uniformly distributed load per square metre of not less than one-third of the weight per metre run of the finished partitions. For floors of offices the uniformly distributed load shall not be less than 1.0 kN/m^2.

FF - 13.7 The following loads shall be adopted in the design of frames coverings of access hatches (other than glazing), the supports of ceilings and similar structures:

(a) without access - no imposed load; or
(b) with access - 0.25 kN/m^2 uniformly distributed over the whole area or the area supported and a concentrated load of 0.9 kN so placed as to produce maximum stresses in the affected members.

Table F - 1: Occupancy class index

Class	Typical Buildings in Class	No of Table containing Usage's and loads
Residential:		
Type 1	Self-contained dwelling units	5
Type 2	Apartment houses, boarding houses, guest houses, hostels, lodging houses, Residential clubs and communal areas in blocks of flats	5
Type 3	Hotels and Motels	5
Institutional and Educational	Prisons, hospitals, schools, colleges	6
Public Assembly	Halls, auditoria, restaurants, museums, libraries, non-residential clubs, theatres, broadcasting studios, grandstands	7
Office	Offices, banks	8
Retail	Shops, departmental stores, Supermarkets	9
Industrial	Workshops, factories	10
Storage	Warehouses	11
Vehicular	Garages, car parks, vehicle access ramps	12

FF - 14 REDUCTION IN TOTAL IMPOSED FLOOR LOADS

FF - 14.1 No reduction shall be made for any plant or machinery which is specifically allowed for, or in buildings designed for storage purposes.

FF - 14.2 Except as provided in 14.1 and 14.3, the reductions given in Table F2 and Table F3 may be applied to the total imposed floor load (including the additional partition loading allowance given in FF13.6 in designing columns, piers, walls, beams and their supports and foundations. Where the floor load given in Tables F5 to F12 exceeds 5 kN/m^2 the reductions given in Table F2 may be taken provided that the loading assumed is not less than it would have been if all floors had been designed for 5 kN/m^2 with no reductions. The reductions given in Table F3 do not apply to roofs.

Table F - 2: Reduction in total distributed imposed floor loads with number of storeys

Number of storeys, including the roof, carried by member under consideration	Reduction in total distributed load on all floors carried by the under consideration (%)	imposed member
1	0	
2	10	
3	20	
4	30	
5 to 10	40	
Over 10	50	

FF - 14.3 In the design of a beam or girder, the imposed floor load may be reduced in accordance with Table F3, subject to a maximum reduction of 25%. This reduction, or that given in Table F2, whichever is the greater, may be taken into account in the design of columns or other types of members supporting such a beam.

Table F - 3: Reduction in total distributed imposed floor loads on a supporting beam or girder with floor area

Area Supported (m^2)	Reduction in total distributed imposed load (%)
0	**0**
50	**5**
100	**10**
150	**15**
200	**20**
Above 250	**25**

FF - 14.4 In Table F3, reductions for intermediate areas may be calculated by linear interpolation.

FF - 15 IMPOSED ROOF LOADS

FF - 15.1 In this Regulation, all roof slopes are measured from the horizontal and all loads are applied vertically.

FF - 15.2 The imposed load on flat roofs and sloping roofs up to and including 10 deg. , where access (in addition to that necessary for cleaning and repair) is provided to the roof, is 1.5kN/m^2 measured on plan or a 1.8kN concentrated load, whichever produces the greater stress. Where deflection is the design criterion, the concentrated load is assumed to act in the position which produces maximum deflection.

FF - 15.3 The imposed load on flat roofs and sloping roofs up to and including 10 deg. where no access is provided to the roof (other than that necessary for cleaning and repair), is 0.75 kN/m^2 measured on plan or a 0.9 kN concentrated load, whichever produces the greater stress. Where deflection is the design criterion, the concentrated load is assumed to act in the position which produces maximum deflection.

FF - 15.4 The imposed loads on roofs with a slope greater than 10 deg.where no access is provided to the roof (other than that necessary for cleaning and repair), are as follows:-

(a) For a roof-slope of 30 deg. or less: 0.75 kN/ m^2 measured on
(b) plan or a 0.9 kN concentrated load, whichever produces the greater stress. Where deflection is the design criterion, the concentrated load is assumed to act in the position which produces maximum deflection.
(c) For a roof-slope of 75 deg. or more: zero load.

FF - 15.5 For roof slopes between 30 deg. and 75 deg., the imposed load may be obtained by linear interpolation between 0.75 kN/ m^2 for a 30 deg. roof slope and zero for a 75 deg. roof slope.

FF - 15.6 The imposed load on a curved roof is calculated by dividing the roof into not less than 5 equal segments and then by calculating the load on each, appropriate to its mean slope, in accordance with FF15.3, FF15.4 and FF15.5.

FF - 15.7 A loading of 0.9 kN on any square with a 125mm side provides for loads incidental to maintenance on all self-supporting roof coverings at a slope of less than 45 deg. i.e. those not requiring structural support over their whole area. No loads incidental to maintenance are appropriate to glazing.

FF - 16 CRANE GANTRY GIRDERS

FF - 16.1 This clause applies only to single-crane operation and simple crane gantry construction. Loads for heavy cranes, operation or multiple cranes on a single-gantry have to be calculated.

FF - 16.2 For crane gantry girders, the following allowances can be used to cover all forces set up by vibration, shock from slipping of slings, kinetic action of acceleration and retardation and impact of wheel loads:

(a) for loads acting vertically, the maximum static wheel loads increased by 25% for an electric overhead crane or 10% for a hand operated crane;
(b) for the horizontal force acting transverse to the rails, the following percentage of the combined weight for the crab and the load lifted:
  (i) 10% for an electric overhead crane; or
  (ii) 5% for a hand-operated crane;
(c) for the horizontal forces acting along the rails, 5% of the static wheel loads which can occur on the rails, for overhead cranes which are either electric or hand-operated.

FF - 16.3 The forces specified in either FF16.2 (b) or (c) above may be considered as acting at the rail level and being appropriately transmitted to the supporting systems.

FF - 16.4 Either of the horizontal forces in FF16.2 (b) or (c) above may act at the same time as the vertical load on gantry girders and their vertical supports.

FF - 17 DYNAMIC LOADING (EXCLUDING WIND)

FF - 17.1 The values for imposed load given in Tables F5 to F12 allow for small dynamic effects, such as those due to the usual movement of people and items of furniture. The loads do not necessarily allow for the dynamic effect of machinery (e.g. rotating and/or vibrating machines, braking and acceleration of forklift trucks) nor do they allow for dynamic loads due to crowds

FF - 17.2 In the latter cases, the magnitude of the load effect depends on the response of the structural system (e.g. the floor) and can be considerably higher than the static load-effect. The response of the system depends on several inter-related parameters, such as its mass, damping, natural frequency and mode shape, and therefore the use of a factored imposed static load to represent significant dynamic effects may prove inadequate.

FF - 18 VEHICULAR BRIDGE LIVE LOADS

FF - 18.1 Live loads for vehicular bridge design shall comply with BS5400 except that:-

(a) for HA Uniformly Distributed Load (UDL) a factor of 1.4 shall be applied to the uniformly distributed load specified in BS5400 ;

(b) for HA Wheel Load a separate load case of an axle consisting of two numbers of 120 kN wheel loads spaced at 2m apart transversely shall be considered. This is in addition to the 100 kN HA wheel load case specified in BS5400;

(c) for HB Load the structure shall be designed for 45 units of type HB loading. One HB vehicle shall be considered on the bridge with no other traffic load concurrently present and the HB vehicle may be considered to be confined within a 5m strip along the centre of carriageway;

(d) for Longitudinal Braking and Traction Load for HA Load, the nominal longitudinal load resulting from traction or braking of vehicles under HA loading shall be 10 kN/m of loaded length plus 20 kN subject to a maximum of 800 kN applied to an area one notional lane wide multiplied by the loaded strength.

FF - 19 PARAPETS AND BALUSTRADES

FF - 19.1 The loads appropriate to the design of parapets and balustrades are given in Table F4. Parapets and balustrades should be designed to resist the loads given in Table F4 when separately applied. The loads are expressed as minimum horizontal forces acting at a height of 1.1m above datum level irrespective of the actual height of the barrier. For this purpose the datum level should be taken as the finalised level of the access platform, or the pitch line drawn through the nosings of the stair treads.

FF - 19.2 In Table F4:-

(a) fixed seating is where its removal and the use of the space for; other purposes is improbable

(b) the dimension of 530mm is taken to be the minimum distance measured from any part of the fixed seating to the barrier; and

(c) tip-up seats shall be considered in the up position.

Table F - 4: Horizontal Loads on Parapets and Balustrades

	Use	Horizontal UDL (kN/m run)	UDL applied to the infill of (kN/m2)	Point load applied to part of the infill (kN)
	(a) Light access stairs, gangways and like not more than 600mm wide.	0.22	N/A	N/A
	(b) Staircases, balconies, ramps, landings or floors within, or serving exclusively, one dwelling.	0.36	0.5	0.25
All occupancy classes except public assembly	(c) Staircases in residential buildings not covered by (a) or (b)	0.36	1.0	0.50
	(d) Staircases, landings, floors, balconies, flat roofs with access, walkways and edges of sunken areas not covered by (a) to (c) or(f) to (h)	0.74	1.0	0.50
	(e) Balconies or parts of balconies, stands, etc. having fixed seating within 530mm of the barrier.	1.5	1.5	1.5
	(f) Staircases, ramps, landings or floors in theatres, cinemas, concert halls, assembly halls, stadia, etc.	3.0	1.5	1.5
Public Assembly Classes	(g) Footways or pavements, within building cartilage, adjacent to access roads, basement or sunken areas	1.0	1.0	1.0
	(h) Pavements or areas not less than 3m wide adjacent to sunken areas, e.g. light wells, basement areas	3.0	1.5	1.5

FF - 20 VEHICLE BARRIERS FOR CAR PARKS

FF - 20.1 Horizontal force F (in kN), normal to and uniformly distributed over any length of 1.5m of a barrier for a car park, required to withstand the impact of a vehicle is given by:-

$$F = \frac{0.5Mv^2}{c+b}$$

where

m is the gross mass of the vehicle (in kg);
v is the velocity of the vehicle (in m/s) normal to the barrier;
c is the deformation of the vehicle (in mm);
b is the deflection of the barrier (in mm)

FF - 20.2 Where the car park has been designed on the basis that the mass of the vehicles using it will not exceed 2,500 kg, the following values are used to determine the force F:

m = 1,500 kg (The mass of 1,500 kg is taken as more representative of the vehicle population than the extreme value of 2,500 kg);
v = 4.5 m/s;
c = 100mm unless better evidence is available.

b=For a rigid barrier, for 'which b may be taken as zero, the force F appropriate to vehicles up to 2,500 kg gross mass is taken as 150 kN.

FF - 20.3 Where the car park has been designed for vehicles whose gross mass exceeds 2,500 kg the following values are used to determine the force F.

m = is the actual mass of the vehicle for which the car park is designed (in kg);
v = 4.5 m/s;
c = 100mm unless better evidence is available.

FF - 20.4 The force determined as in FF20.2 or FF20.3 may be considered to act at bumper height. In the case of car parks intended for motor cars whose gross mass does not exceed 2,500 kg this height may be taken as 375mm above the floor level.

FF - 20.5 Barriers to access ramps of car parks have to withstand one half of the force determined in FF20.2 or FF20.3 acting at a height of 600mm above the ramp.

FF - 20.6 Opposite the ends of straight ramps intended for downward travel which exceed 20m in length the barrier has to withstand twice the force determined in FF20.2 and FF20.3 acting at a height of 600mm above the ramp.

FF - 21 WIND LOAD

FF - 21.1 Wind load shall be taken into account when designing buildings, structures and components thereof.

FF - 21.2 The manner of calculating such wind loads, including the adopting of suitable wind pressures at varying heights or for different structural shapes and other factors that may be involved, shall be in accordance with the provisions of BS, CP 3, Chapter V; Part 2.

FF - 22 EARTHQUAKE LOADING

FF - 22.1 Earthquake loading on a building shall be calculated on the basis of the recommendations of the "Design and construction of Buildings and other structures in relation to Earth Quakes" obtained from Kenya Building and Research Centre.

Table F - 5: Residential Occupancy Class

Floor Area Usage	Intensity of distributed load kN/m2	Concentrated Load kN
Type 1: Self-contained dwellings units All	1.5	1.4
Type 2: Apartment houses, boarding houses, lodging houses, guest houses, hostels, residential clubs and communal areas in blocks of flats		4.5
Boiler rooms, motor rooms, fan rooms and the like including the weight of machinery	7.5	4.5
Communal kitchens, laundries	3.0	4.5
Dining room, lounges, billiard rooms	2,0	2.7
Toilet rooms	1.5	1.8
Bedrooms, dormitories	3.0	4.5
Corridors, hallways, stairs, landings, footbridges, etc.	Same as rooms to which they give access but with a minimum of 4.0	1 .5 per metre run concentrated at the outer edge
Catwalks	3.0	1 .0 at 1 m centres
Type 3: Hotels and Motels Boiler rooms, motor rooms, .fan rooms and the like, including the weight of machinery	7.5	4.5
Assembly area without fixed seating dance halls	5.0	3.6
Bars	5.0	
Assembly areas with fixed seating	4.0	
Corridors, hallways, stairs, landings, footbridges, etc.	4.0	4.5
Kitchens, Laundries	3.0	4.5
Dining rooms, lounges, billiard rooms		2.7
Bedrooms	2.0	1.8
Toilet Rooms	2.0	
Balconies	Same as rooms to which they give access but with a minimum of 4.0	1.5 per metre run concentrated at the outer edge

Table F - 6: Institutional and Educations Occupancy Class (Prisons, Hospitals, Schools, Colleges)

Floor Area Usage	Intensity of distributed load kN/m²	Concentrated Load kN
Dense mobile stacking (books) on mobile trolleys	4.8 for each metre of stack heigth but with a minimum of 9.6	7.0
Stack rooms (books)	2.4 for each metre of stack height but with a minimum of 6.5	7,0
Stationery stores	4.0 for each metre of storage height	9.0 .
Boiler rooms, motor rooms, fan rooms and the like, including the weight of machinery	7.5	4.5
Corridors, hallways, etc. subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like	5.0	4.5
Drill rooms and drill halls	5.0	9.0
Assembly areas without fixed seating, stages, gymnasia	5.0	3.6
Bars	5.0	
Project rooms	5.0	
Corridors, hallways, aisles, . stairs, landings, footbridges,	4.0	4.5
Reading rooms with book storage, e.g. libraries	4.0	4.5
Assembly areas with fixed seating	4.0	
Laboratories (including equipment), kitchens, laundries	3.0	4.5
Classrooms, chapels	3.0	2.7
Reading rooms without book storage e.g. libraries	2.5	4.5
Areas for equipment	2.0	1.S
X-ray rooms, operating rooms utility rooms	2.0	4.5
Dining rooms, lounges, billiard rooms	2.0	2.7
Dressing rooms, hospital bedrooms and wards	2,0	1.8
Toilet rooms	2.0	
Bedrooms, dormitories	1.5	1.8
Balconies	Same as rooms to which they give access but with a minimum of 4.0	1.5 per metre run concentrated at the outer edge
Fly galleries	4.5 kN per metre run distributed uniformly over the width	
Catwalks		1 .0 at 1 m centres

Table F - 7: Public Assembly Occupancy Class (Halls, Auditoria, Restaurants, Non-Residential Clubs, Theatres, Broadcasting Studios, Museums, Libraries, Grandstands)

Floor Area Usage	Intensity of distributed load kN/M²	Concentrated Load kN
"Dense mobile stacking (books) on mobile trolley	4.8 for each metre of stack height but with a minimum of 9.6	7.0
Stack rooms (books)	2.4 for each metre of stack height but with a minimum of 6.5	7.0
Boiler rooms, motor rooms, fan rooms and like, including the weight of machinery	7.5	4.5
Stages	7.5	4.5
Corridors, hallways, etc., subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like. Corridors, stairs, and passage ways in grandstands	5.0	9.0
Drill rooms and drill halls	5.0	9.0
Assembly areas without fixed seating: dance halls, gymnasia, grandstands	5.0	3.6
Projection rooms, bars	5.0	
Museum floors and art galleries for exhibition purposes	4.0	4.5
Corridors, hallways, stairs, landing, footbridges, etc.	4.0	4.5
Reading Rooms with book storage, e.g. libraries	4.0	4.5
Assembly areas with fixed seating	4.0	
Kitchens, laundries -----	3.0	4.5
Chapels, Churches	3.0	2.7
Reading rooms without book storage	2.5	4.5
Grids	2.5	
Areas for equipment	2.0	1.8
Dining rooms, lounges, billiard rooms	2,0	2.7
Toilet Rooms	2:0	
Dressing rooms	2,0	1.8
Balconies	Same as rooms to which they give access but with a minimum of 4.0	1 .5 metre run concentrated at the outer edge
Fly galleries	4.5 kN per metre run distributed uniformly over the width	I
Catwalks		1 .0 at 1 m centres

Table F - 8: Office Occupancy Class (Offices, Banks)

Floor Area Usage	Intensity of distributed load kN/M²	Concentrated Load kN
Stationary stores	4.8 for each metre of storage height	9.0
Boiler rooms, motor rooms, fan rooms and including the weight of machinery	7.5	4.5
corridors, hallways, etc. subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like	5.0	4.5
ile rooms, filing and storage space	5.0	4.5
Corridors, hallways, stairs, landings, footbridges, etc.	4.0	4.5
Offices with fixed computers or similar equipment	3.5	4.5
Laboratories (including equipment), kitchens, laundries	3.0	4.5
Banking halls	3.0	
Offices for general use	2.5	2.7
Toilet rooms	2.0	
Balconies	Same as rooms to which they give access but with a minimum of 4:0	1 .5 per metre run concentrated at the outer edge
Catwalks		1 .0 at 1 m centres

Table F - 9: Retain Occupancy Class (Shops, Departmental Stores, Supermarkets)

Floor Area Usage	Intensity of distributed load kN/m²	Concentrated Load kN
Cold storage	5.0 for each metre of storage height with a minimum of 15.0	9.0
Stationery stores	4.0 for each metre of storage height	9.0
Storage, other than types listed separately	2.4 for each metre of storage height	7.0.
Boiler rooms, motor rooms, fan rooms and		
the like, including the weight of machinery	7.5	4.5
Corridors, hallways, etc., subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like	5.0	4.5
Corridors, hallways, stairs, landings, footbridges, etc.	4.0	3.6
Shop floors for the display and sale of merchandise	4.0	3.6
Kitchens, Laundries	3.0	4.5
Toilet rooms	2.0	4.5
Balconies	Same as rooms to which they give access but with a minimum of 4.0	1 .5 per metre run concentrated at the outer edge
Catwalks		1.0 at 1m centres

Table F - 10: Industrial Occupancy Class (Workshops, Factories)

Floor Area	Intensity of distributed load (kN/m$^{2)}$	Concentrated load (kN)
Foundries	20.0	-
Cold storage	5.0 for each metre of storage height with a minimum of 15.0	9.0
Paper storage, for printing plants	4.0 for each metre of storage height	9.0
Storage, other types listed separately	2.4 for each metre of storage height	7.0
Type storage and other areas in printing plants	12.5	9.0
Boiler rooms, motor rooms, fan rooms and the like, including weight of machinery	7.5	4.5
Factories, workshops and similar buildings	5.0	4.5
Corridors, hallways, etc., subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like	5.0	4.5
Corridors, hallways, stairs, landings, footbridges etc.	4.0	4.5
Machinery halls, circulation spaces therein.	4,0	4.5
Laboratories (including equipment), kitchens, laundries	3.0	4.5
Workrooms, light without storage	2.5	1.8
Toilet room	2.0	
Catwalks		1.0 at 1 m centres

Table F - 11: Storage Occupancy Class (Warehouse)

Floor storage	intensity or distributed load kN/m^2	Concentrated Load (kN)
Cold storage	5.0 for each metre of storage height with a minimum of 15.0	9.0
Dense mobile stacking (books) on mobile trucks	4.8 for each metre of storage height with a minimum of 15.0	7.0
Paper storage, for printing plants	4.0 for each metre of storage height	9.0
Stationery stores	4.0 for each metre of storage height	9.0
Motor rooms, fan rooms and the like, including the weight of machinery	2.4 for each metre of storage height	7.0
Motor rooms, fan rooms and the like, including the weight of machinery	7.5	4.5
Corridors, hallways, etc., subject to loads greater than from crowds, such as wheeled vehicles, trolleys and the like	5.0	4.5
Catwalks		1.0 at 1m centres

Table F - 12: Vehicle Occupancy Class (Garages, Car Parks, Vehicle Access Ramps)

Floor Area Usage	Intensity of distributed load kN/M²	Concentrated Load kN
Motor rooms, fan rooms, and the reading the like, Including the weight of machinery	7.5	4.5
Driveways and vehicle ramps, other than r garages for the parking only of passenger vehicles and light vans not exceeding 2,500 kg gross mass	5.0	9.0
Repair workshop for all types of vehicles, marking for vehicles exceeding 2,500 kg mass including driveways and ramps	5.0	9.0
Footpaths, terraces and plazas leading from ground level with no obstruction to . vehicular traffic, pavement lights	5.0	9.0
Corridors, hallways, stairs, landings, Footbridges, etc. subject to crowd loading	4.0	4.5
Footpaths, terraces and plazas leading from ground level but restricted to Pedestrian traffic only	4.0	4.5
Car parking only, for passenger vehicles and light vans not exceeding 2,500 kg gross mass including -garages, driveways and ramps	2.5	9.0
Catwalks		1.0 at 1 m centres

INTERPRETATION

In Tables F5, F6 and F7 "fixed seating" shall be taken as seating where its removal and the use of the space for other purposes is improbable.

FF - 23 ECCENTRIC LOADING OF THE FOUNDATION

FF - 23.1 Where eccentric loading of foundations to walls occurs the wall shall be so designed that the resulting force shall pass through the middle third of the foundations.

FF - 23.2 The theoretical line of the force in a wall should not normally incline more than 1 in 6 from the vertical. If this line of force inclines at more than 1 in 6 special provisions will be required to stabilize the loading on to the foundations.

FF - 24 CANTILEVERS - RESISTANCE TO OVERTURNING

FF - 24.1 Where a cantilever or the like projects from a wall of a building due provision must be made for stability. The resistance to overturning must be at least 50 percent greater than the force tending to overturn.

FF - 25 FOUNDATIONS GENERALLY

FF - 25.1 The foundations of every building shall be:-

(a) so designed and constructed as to sustain the combined dead load of the building and imposed vertical and lateral loads and to transmit these loads to the ground in such a manner that the pressure on the ground shall not cause such

settlement as may impair the stability of the building, or of adjoining works or structures; and

(b) taken down to such a depth or be so designed and constructed as to safeguard the building against damage by swelling, shrinking or erosion of the subsoil.

FF - 25.2 In the case of a building with heavily loaded foundations, The Approving Authority may require the substrata formation to be proved.

FF - 25.3 The dead load and imposed loads, including wind and earthquake loads, shall be calculated in accordance with these regulations .

FF - 26 STRIP FOUNDATIONS FOR SINGLE STOREY BUILDINGS

FF - 26.1 The foundations for the load bearing structure of a single storey building where constructed as strip foundations of plain concrete situated centrally under the walls or piers, shall be constructed such that:-

(a) there is no wide variation in the type of subsoil over the loaded area and no weaker type of soil exists below- that on which the foundations rest within such a depth as may impair the stability of the structure;

(b) constructed for pressures according to the type and condition of the soil specified in Table F13 of these regulations;

(c) the concrete is composed of cement and well-graded aggregate in the proportion of 50 Kilogrammes of cement to not more than 0.35 cubic meters of well-graded aggregate;

(d) the thickness of the concrete is not less than its projection from the base of the wall or footings, as the case may be, and in no case less than150mm, except that where the foundation bed is of hard rock only sufficient concrete need be used to level the foundation in masonry courses: Provided that in the case of a single storey domestic building constructed with external walls of 150mm thickness in accordance with these regulations, the thickness of the Concrete may be reduced to not less than 150mm if the bearing capacity of the subsoil is not less than 75kN per square metre.

(e) where the foundations are laid at more than one level, at each change of level the higher foundations extend over and unite with the lower foundations for a distance not less than the thickness of the foundations and in no case less than 300mm; and

(f) where there is a pier or buttress forming part of a wall, the foundations project beyond the pier or buttress on all sides at least to the same extent as they project beyond the wall.

FF - 26.2 In determining the conditions of the subsoil for the purposes of Table F13 of these regulations, The Approving Authority may require the results of a soil test certified by an approved person or Approving Authority.

FF - 26.3 In all cases, the width of foundation shall not be less than the width of the wall.

Table F - 13: General Classification and Bearing Capacity of Subsoils

Type of Soil	Condition	Max. permissible bearing capacity in kN per square meter
Alluvial Made up ground:) Clay;) Red Soil)	Firm Loose or wet	30
Sand	Wet or badly drained	50
Red Soil	Normal	75
Red Soil	Firm or hard, dry and well drained	100
Coral	Soft vesicular	100
Sand	Dry, well drained or protected	100 to 150
Murrarn mixture Brown shale	Firm and well drained Weathered	150
Gravel) Turf, soft) Magadi, soft) Brown shale) Coral)	Compact in layers Un -weathered Medium hard	200
Murram	Uniform, firm and compact minimum 1.2m thick in layers	300
Murram black) Turf) Magadi)	Firm minimum 1.2m thick	400
Magadi, hard;) Nairobi soft stone) Rock, soft)	Monolithic test-bores required	600
Hard Nairobi) stone or) black-trap)	Monolithic test-bores required	600-1000

NOTE:

(i) For all purposes the permissible loads upon various sub-soils contained in Table F1 of this regulation are given only as guide to their bearing capacity in general.

(ii) For the purpose of this regulation, black cotton soil shall be deemed to have no load bearing capacity.

(iii) In the use of Table F1 of this regulation due regard shall be paid to the direction of depth of laminations of rock formations.

FF - 27 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes any of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than Kshs. 2,000,000 (Kenya Shillings two million only) or six (6) months imprisonment or both.

SECTION G

BUILDING MATERIALS

CONTENTS

SECTION G

BUILDING MATERIALS

GG - 1 BUILDING MATERIALS

GG - 1.1 No person shall use or permit or cause to be used in the erection of a building and related external works any material or component which is not:-

(i) of a suitable nature and quality for the purpose for which it is used;
(ii) adequately mixed or prepared for the functions for which it is designed.
(iii) applied, used or fixed in a proper manner so as adequately to perform the functions for which it was designed.

GG - 1.2 Any person who contravenes or fails to comply with the provisions of Sub-regulation GG - 1.1 shall be guilty of an offence

GG - 1.3 Without prejudice to any legal proceedings which may be instituted by virtue of sub-regulation GG - 1.2, The Approving Authority may, by written notice served upon the owner of any building in which material is used in contravention of the provisions of sub-regulation GG - 1.1, require the removal of any such material.

GG - 1.4 The use of any type of material or any method of mixing or preparing materials or of applying, using or fixing materials, which conforms to any standards and codes of practice approved by Kenya Bureau of Standards prescribing the quality of material or standards of workmanship shall, except where otherwise required in these Regulations, be deemed to be sufficient compliance with the requirements of this Regulation if:-

(a) in the event of more than one such Standard or Code having been issued, the type of material or method used conforms with the latest edition of the standard or code and any published amendments thereto; and
(b) the use of that type of material or method is appropriate to the purpose and conditions for and in which it is used.

The Approving Authority may test or cause to be tested any material or component used or to be used in the erection of any building in order to determine whether such material or component complies with the requirements of these Regulations, and any officer of The Approving Authority duly authorised for that purpose may, at any time after consultation with the person erecting such building, remove from the building site concerned so much of such material or component as is reasonably necessary to serve as a sample for the purpose of such test:

Provided that the authorised officer may not exercise his powers in such a way that work of such erection is stopped when such material or component is being so removed and tested.

GG - 2 SECOND-HAND MATERIAL

Subject to the provision of sub-regulation GG - 1.4 no second-hand material shall be used on work to which these Regulations refer unless it is approved by the approving authority.

GG - 3 TESTING OF MATERIALS

GG - 3.1 If any material or component tested in terms of sub-regulation AA19.2 does not comply with these Regulations The Approving Authority may serve a notice on such person, stating the respects in which such materials or component does not comply and prohibiting such person from making further use of such material or component for the purpose for which it was or is to be used in the erection of such building.

GG - 3.2 Except in the case where in such notice The Approving Authority permits the use of such material or component in the erection of such building for some different purpose permitted in terms of these Regulations, such personnel shall forthwith on receipt of such notice remove such material or component from such building or building site or from both, as the case may be.

GG - 3.3 If any material or component contemplated in sub-regulation AA19.2 is tested and has failed to comply with this Regulation, The Approving Authority may recover the cost of such test from the owner of the building concerned.

GG - 3.4 The Approving Authority may, for the purpose of securing the due observance of the provisions of this Regulation, serve a notice by affixing it on a conspicuous part of the building or by delivery to the person causing or directing the work, requiring him within two clear days from the service thereof, to furnish The Approving Authority with proof by means of samples of the materials, adequate tests, or otherwise as specified in the notice, that the materials used or to be used conform with the provisions of this Regulation.

GG - 4 OTHER STANDARDS

The decision of the Approving Authority shall be final regardless of any intended use of any proposed method of construction which is not specifically covered by a Kenyan Standard or any other standard or Code of Practice approved by Kenya Bureau of Standards.

GG - 5 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes any of these Regulations shall be guilty of an offence and shall be liable upon conviction of a fine not less than KShs 2,000,000 (Kenya Shillings two million only) or six (6) months imprisonment or both.

SECTION H

GENERAL REQUIREMENTS FOR FLOORS

CONTENTS

SECTION H

GENERAL REQUIREMENTS FOR FLOORS

HH - 1 GENERAL REQUIREMENTS FOR FLOORS

HH - 1.1 Any floor of any building shall:-

(a) be strong enough to safely support its own weight and any loads to which it is likely to be subjected; and
(b) have a fire resistance appropriate to its use and where required, be non-combustible.

HH - 1.2 The floor of any laundry, kitchen, shower-room, bathroom or room containing a WC pan or urinal shall be water-resistant.

HH - 1.3 Any suspended timber floor in a building shall be provided with adequate under-floor ventilation.

HH - 1.4 Where any concrete floor slab is supported on ground or filling, such floor shall be so constructed that any moisture present in such ground or filling is prevented from penetrating such concrete floor slab.

HH - 1.5 Any floor suspended on ground or on filling shall be constructed of:-

(a) impervious floor units not less than 40mm thick and consisting of slate, bricks, natural stone or other approved material; or
(b) a concrete slab which shall have a compressive strength of not less than 15N/mm2 at 28 days, or be mixed in the proportions by volume of 1 part cement, 3 parts sand and 6 parts coarse aggregate, and the thickness of such slab shall not be less than 75mm.

HH - 2 FLOOR CONSTRUCTION

HH - 2.1 Any floor on any building shall comply with the fire requirements contained in the Regulations under Part S.

HH - 2.2

(a) Any under-floor membrane shall be not less than 500 gauge minimum and shall be laid on a surface which shall not contain any sharp object which may perforate such membrane.
(b) Such membrane shall be turned up around the perimeter and at least for the full thickness of any slab.
(c) Any joint in such membrane shall be double-lapped by not less than 150mmand shall be effectively sealed

HH - 2.3 Such filling materials shall:-

(a) consist of suitable material; and
(b) be applied in well compacted layers not more than 150mm in thickness.

HH - 2.4 In any building,

(a) all structural parts, which are of timber, shall be properly protected against termites in accordance with the Kenyan Standards or any other Standard or Code of Practice approved by the Kenya Bureau of Standards

(b) Termite protection by chemicals shall be of adequate dosage as shall b e prescribed.

(c) Chemicals for anti-termite protection shall be applied to all timber forming part of the structural works. The application shall be evenly spread to all surfaces of the timber.

HH - 3 EMPIRICAL TIMBER FLOOR REGULATION

HH - 3.1 Where timber contemplated in sub-regulation KK3.1 and the species is cypress of at least general grade and such timber is used for the construction of joists to residential floors, the sizes given in Table H1 may be used.

Table H - 1: Floor Joists to Residential Floors

Section in millimetres		**Maximum clear spans**	**with joists**	**at following centres**	
	Mm 300	mm 350	mm 400	mm 500	mm 600
	m	m	m	m	m
75x50	1.5	1.2	1.2	1.2	1.2
1 00 x 50	1.8	1.8	1.8	1.5	1.5
1 25 x 50	2.5	2.0	2.0	2.0	1.8
150x50	3.0	2.-7	2.7	2.4	2.4
175x50	3.3	3.3	3.0	2.7	2.7
200 x 50	3.9	3,6	3.6	3.3	3.0
225 x 50	4.5	4.2	3.9	3.6	3.6
275 x 50	5.4	5.1	4.8	4.5	4.2
Section in millimetres	mm 400	mm 450	mm 500	mm 600	
	m	m	m.	m	
150x75	3.0	3.0	3.0	2.5	
175x75	3.5	3.5	3.5	3.0	
200 x 75	4.0	4.0	4.0	3.5	
225 x 75	5.0	4,5	4.5	4.0	
275 x 75	6.0	6.0	5.5	5.0	

NOTES:

(a) To secure due stability of the floor, trimming and trimmer joists should be of such additional thickness as may be necessary.

(b) Flooring - where joists are placed not further apart than 400mm centre to centre,

(c) the flooring boards shall be not less than 25mm thickness, where the spacing is not greater than 450mm the thickness shall be not less than 30mm and a spacing not exceeding 600mm the flooring boards shall be not less than 40mm in thickness.

HH - 4 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes any of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than KShs 2,000,000 (Kenya Shillings two million only) or six (6) months imprisonment or both.

SECTION J

GENERAL REQUIREMENTS FOR WALLS

CONTENTS

SECTION J

GENERAL REQUIREMENTS FOR WALLS

JJ - 1 STRUCTURAL STRENGTH AND STABILITY

Any wall shall be capable of safely sustaining any loads to which it is likely to be subjected and in the case of any structural wall such wall shall be capable of safely transferring such loads to the foundations supporting such wall.

JJ - 2 WATER PENETRATION

Any wall shall be so constructed that it will adequately resist the penetration of water into any part of the building where it would be detrimental to the health of occupants or to the durability of such building.

JJ - 3 ROOF FIXING

Where any roof truss, rafter or beam is supported by any wall, provision shall be made to fix such truss, rafter or beam to such wall in a secure manner that will ensure that any forces to which the roof may normally be subjected will be transmitted to such wall.

Consequently, the fixing of the roof shall be such that rain water from the roof is directed away from the walls.

JJ - 4 BEHAVIOUR IN FIRE

Any wall shall have combustibility and fire resistance characteristic appropriate to the location and use of such wall.

JJ - 5 BUILDING LIMITATIONS FOR EMPIRICAL DESIGN

JJ - 5.1 Where any structural wall is to be erected in terms of Regulation JJ3 to - JJ15 inclusive, and without detailed structural design calculations, the building of which such wall forms a part shall be subject to the limitations contained in sub-regulation JJ5.2.

JJ - 5.2 The building referred to in sub-regulation JJ5.1 shall be not more than two storeys in height and shall be subject to the following limitations:-

(a) The building plan-form and the layout of the intersecting mutually stabilizing walls that form part of such building shall be such as to provide a structure which is stable against the action of horizontal forces from any direction and shall consist of a rectangular, polygonal or circular cell or series of continuous or intersecting cells.

(b) The span between supporting walls of a timber or metal roof truss, roof rafter or roof beam shall be not more than 10m and the span between supporting walls of any first floor or roof slab shall be not more than 6m.

(i) The dead load of the roof covering material shall be not more than 800N/m2 of slope area for roofs other than concrete slabs

(ii) Concrete roof slabs shall not be more than 175mm in thickness if of

(iii) solid construction or the equivalent mass if of voided construction

(c) Concrete first-floor slabs shall be not more than 175mm in thickness if of solid construction or the equivalent mass if of voided construction.

(d) In order to limit floor loading on first-floor space or on suspended ground floor slabs the use of such floors shall be restricted to:

(i) detached dwelling houses and dwelling units;
(ii) bedrooms, wards, dormitories, bathrooms, rooms containing soil
(iii) fixtures, kitchens, dining-rooms, lounges and corridors in educational
(iv) buildings, hospitals, hotels and other institutional occupancies;
(v) classrooms;
(vi) offices; and
(vii) cafe's and restaurants.

JJ - 6 EMPIRICAL REGULATION FOR WALLS.

JJ - 6.1 Any wall used as a structural external or internal wall, non-structural internal wall, non-structural external wall panel, parapet wall, balustrade wall, free-standing wall or retaining wall (where such retaining wall is not part of a basement) shall comply with Regulations JJ6 to JJ17, as the case may be.

JJ - 6.2 Where such wall is a structural wall and;-

(a) is a masonry wall forming part of any building contemplated in Regulation JJ4, such wall shall be constructed in accordance with the relevant regulation in this Part and the materials, height and unsupported length of such wall shall conform to the relevant limits contained in Regulations JJ2, JJ5 and JJ7 and, in the case of any cavity wall, such wall shall comply with the additional requirements applicable thereto contained in Regulation JJ8 and the given Table J1; or

(b) is a timber framed wall, such wall shall be constructed in accordance with Kenyan Standards, BS 5268, or any other international Standard that is approved by Kenya Bureau of Standards. The height and unsupported length of such wall shall not exceed the limits given in Table J2.

JJ - 6.3 Where such wall is a non-structural wall and:-

(a) is an internal wall in any building, such wall shall comply with the relevant limits contained in Regulations JJ2, JJ5 and JJ7;

(b)

(i) is a masonry external cladding or external infilling panel in any building not more than 2.5m in height, the materials, height and unsupported length of such wall shall conform to the relevant limits contained in Regulations JJ2, JJ5, JJ6 and JJ7 and; in the case of any cavity wall, such wall shall comply with the additional requirements applicable thereto contained in Regulation JJ8 and the given Table J1;

(ii) (ii) is a masonry parapet wall, the thickness of such wall shall be not less than one-fifth of its height; or

(c) is a timber framed wall such wall shall be constructed in accordance with BS 5268, and the height and unsupported length of such wall shall not exceed the limits given in Table J1.

Table J - 1: Permissible Dimensions for Timber-Framed Wall

1	2	3	4	5	6	7
			Maximum panel length, m			
Wall type	Stud size, mm	Stud spacing, mm	Supported both ends		*Max. height, m	Max. storey height, m
				Supported one end		
Structural	100x50 100 x 50	400 600	4,8 4.0	2.4 2.0	6.0 6.0	4.0 3.0
	75x50	450	3.8	1.8	3.0	3.0
Non-structural	100x50	600	4.S	3.0		4.0
	70x50	600	4.2	2.4		3,0

* **Maximum** height **means height to wall plate** of highest **storey** or height **to** top **of** gable, **if there** is **a** gable.

JJ - 7 MATERIALS

JJ - 7.1 Masonry units used in the erection of walling shall comply with the requirements for compressive strength contained in Table J3.

JJ - 7.2 Mortar used in the erection of a building shall comply with table J3.

JJ - 7.3 Materials used in any wall of timber framed construction shall be in accordance with KS 02 - 771 ; 1988.(on timber grading)

Table J - 2: STRENGTH REQUIREMENTS FOR MASONRY UNITS AND MORTAR

1	2		3	4	5
Wall type	Position		Minimum average compressive strength, MPa		Class of mortar required
			Solid units	Hollow units	
Structural other than foundation and retaining walls	Single storey building	External or Internal	7.0	3.5	II
	Single above storey building	External or Internal	10.5 or *14.0	7.0	II or I
Non- structural other than parapet, balustrade and free standing walls	External		7.0	3.5	II
	Internal		7.0	3:5	III
Free-standing	External or internal		10.5	7.0	II
Foundation	Supporting single storey		7.0	3,5	II
Foundation	Supporting double storey		10.5 or 14.0	7.0	II or I
Parapet			7.0	3.5	II or I
Balustrade			7.0	3.5	II
Retaining			10.5	7.0	II

* see Table J2

Note:

The required minimum average compressive strength of masonry units given in columns 3 and 4 of Table J3 is that calculated from the test method in the relevant masonry unit specifications. It is based on the gross bed area of the units without any deduction for perforations or hollows in the bed area of the units. It is therefore a measure of the actual material strength only in the case of solid units. The approximate mix proportions for the classes of mortar are contained in Table J4.

Table J - 3: Classes of Mortar

MQCBT Class	Mix Proportions Parts by volume		
	Portland Cement	Lime	Sand (Measured loose or damp)
I	2	3	4
II III IV	1 1 1	0.5 1 2	4 6 8

*The addition of lime is optional

JJ - 8 WALL DIMENSIONS

JJ - 8.1

(a) Where any wall is a masonry wall contemplated in Table J1 the height and unsupported length of such wall shall not exceed the relevant values given in Table J1;
(b) Where any wall is of timber framed construction, the height and
(c) unsupported length shall not exceed the values given in Table J2;
(d) All gable walls shall be adequately laterally supported.

JJ - 8.2 Where effective lateral support is to be provided to any masonry wall by means of an intersecting masonry wall, such intersecting wall shall:-

(a) be constructed of masonry units and mortar of strengths not less than those of the units and mortar used in the wall it supports;
(b) intersect the supported wall at an included angle of between 60 degrees and 120 degrees.
(c) have a height of not less than 80% of the height of the supported wall;
(d) have a thickness of not less than:-
  (i) the supported wall or load-bearing leaf of the supported wall where such supported wall is a structural wall
  (ii) 45% of the thickness of the supported wall or 90mm, whichever is the greater, where such supported wall is a non-structural wall, such thickness in the case of a cavity wall being deemed to be the sum of the thickness of the leaves of the wall; and
(e) have a length of not less than:-
  (i) 10 times the thickness of the supported wall or load-bearing leaf of
  (ii) the supported wall where such supported wall is a structural wall

(iii) one-fifth of the height of the wall panel to be supported or one-
(iv) eighth of the greatest distance between such intersecting wall and any other intersecting wall providing lateral support, whichever is the greater, where such supported wall is a non-structural wall, and such length shall not include the thickness of the supported wall.

JJ - 8.3 Where integral masonry piers are used in any non-structural masonry wall in order to provide resistance to flexure in the vertical plane, such piers shall:-

(a) have a depth perpendicular to the length of any such wall, of three times the thickness of such wall where such depth includes the thickness of such wall;
(b) have a width along the length of any such wall of twice the thickness of such wall;
(c) be effective only if the height of such pier is not less than 80% of the height of any such wall.

Table J - 4: Permissible Dimensions of Masonry Walls in Buildings

1	2	3	4	5	6	7	8
Nominal wall thickness (mm)	**Use of wall in a building**	**Max. storey height m(1)(5)**	**Max. height ground floor to top of external gable, m**	**Max. un-supported length (m)**	**Min. nominal unit strength MPa**		**Mm class mortar**
					Hollow units	Solid units	
SO	Non-structural internal wall in any storey	3.0	NA	4.0	7.0	3.5	III
	External infilling and cladding to framed						
	building to height of 25m	3.3	NA	note (3)	7.0	NP	II
	Wall providing lateral support in single						
	storey building but carrying no gravity load						
	other than its own weight	3.0	NA	4.0	7.0	3.5	.II
140	Non-structural internal wall in any storey	3.0	NA	6-0	7.0	3.5	III
	External infilling and cladding to framed						
	building to height of 25rn	3.0	NA	5.0	7.0	3.5	II
	Structural wall in single storey building	3.3	5.0	6.0	7.0	3.5	II
	Structural wall in double storey building	3.0	6-0	6.0	10.5	7.0	II
190	Non-structural internal wall in any storey	3.5	NA	8.0	7.0	3.5	111
	External infilling and cladding to framed						
	building to height of 25m	3.3	NA	7.0	7.0	3.5	II

	Structural wail in single storey building	3.5	5.5	7.0	7.0	3.5	II
	Structural wall in double storey building	3.3	8.0	7.0	10.5	7.0	II
230	Non-structural internal wall in any storey	4.0	NA	8.0	7.0	3.5	111
	External infilling and cladding to framed						
	building to height of 25m	3.3	NA	8.0	7.0	3-5	II
	Structural wall in single storey building	4.0	6.0	8.0	7.0	3.5	II
	Structural wall in double storey building	3.3	8.0	8.0	10.5	7.0	II
90-50-90	External infilling and cladding to framed						
to	building to height of 25m	3.3	NA	5.0	7.0	3.5	II
90-110-90	Structural wall in single storey building	3.0	4.5	7.0	7.0	3.5	II
cavity wall	Structural wall in double storey dwelling						
	unit without concrete slab roof	2-8	7.5	7.0	14.0	NP	II
140-50-140	External infilling and cladding to framed						
to	building to height of 25m	3.3	NA	6.0	7.0	3.5	li
140-110-140	Structural wall in single storey building	3.0	5.0	8.0	7.0	3.5	II
cavity wall	Structural wall in double storey building	3-0	8.0	8.0	14.0	7.0	II

NOTE :

NA means NOT APPLICABLE.

NP means NOT PERMITTED

(i) The storey height is measured from floor level to floor level or, in the case of the topmost storey, from floor level to eaves and the maximum height of any wall panel may be assured to be equal to the relevant maximum permissible storey height.

(ii) Distance between intersecting walls, concrete columns or other members providing effective lateral support to wall and to which it is securely bonded or anchored. Where wall panel is supported at one end only, the unsupported length shall not exceed one-half of the tabulated length.

(iii) Only permitted as exterior leaf of cavity wall in which internal leaf is a structural concrete wall to which a masonry wall is tied as required for cavity walls by regulation JJ8.

(iv) See Table J1

(v) A parapet wall of 500mm in height added to storey height is permitted.

Commentary:

Lateral support to structural walls is provided in horizontal or vertical planes (by means of floors and walls respectively) in order to restrict the relevant slenderness ratio. A pier may be regarded as a column in a plane at right angles to the wall and thus supplements the cantilever action

of a non-structural wall under lateral loading but it cannot be regarded as providing effective lateral support to a structural wall in all circumstances.

Non-structural walls are assumed to be neither supported nor vertically loaded at the top edge. Such walls may, however, be laterally loaded or may provide support to some other wall which is laterally loaded. Any internal wail, whether free-standing or whether provided with lateral support at one or both ends, will normally be subjected to lateral loading which is relatively small but in the case of external walls of a building or free-standing garden walls wind loading may be a significant factor.

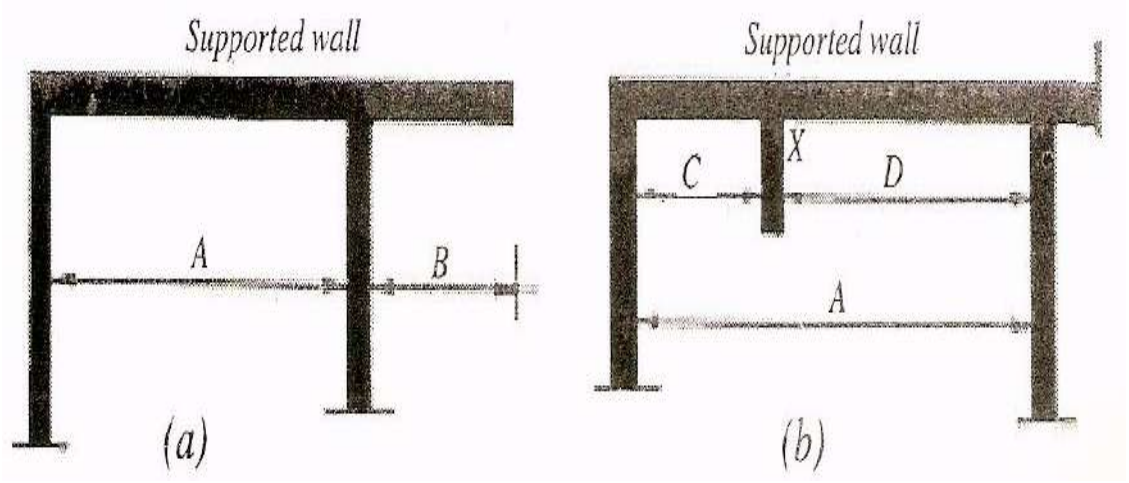
The use of piers in a free-standing garden wall serves to increase the stability of the wall but it should be noted that the minimum dimensions for piers indicated in Table J6 are most effectively employed where the pier is symmetrically placed i.e. where the projection each side of the wall is equal to half the projection required by Table J6.

It must be remembered that there is a sharp reduction in wind speed near the ground and that this effect is particularly evident in built-up urban areas, It may thus be found that for a free-standing garden wail of less than 2m in height the figures given in Table J6 are conservative under some circumstances. The table is, nevertheless, essentially intended to relate to the use of such walls in urban areas and where any wall is to be erected under exposed conditions on open terrain it is advisable to check the adequacy of the design.

Where a wall is given lateral support by cross-walls as shown in Figure J1, the dimension A shall be not more than the maximum unsupported length given in Table J6, and B shall be not more than half this value. Where A is more than the maximum value given, an additional supporting wall may be introduced at point X and the supported wail may be regarded as safe provided that neither dimension C nor dimension D Is more than the maximum unsupported length permitted by Table J3.

The length of the supporting wall, 'measured as a projection from the supported wall, must be not less than one-eighth of A or B in Figure J i (a) and one-eighth of C or of D, (whichever is the greater) in Figure J1

Figure J - 1: Lateral support of walls



JJ - 9 EXTERNAL MASONRY CLADDING OR INFILLING PANELS IN FRAMED BUILDINGS

JJ - 9.1 Any external masonry cladding or infilling panel in a framed building shall be securely anchored to the structure.

JJ - 9.2 Where the area of window openings in such panel is more than 20% of the face area of the panel calculated as the storey height multiplied by the unsupported length, the top of the panel shall be anchored to the structure in a manner that will permit relative vertical movement but restrain the wall against lateral movement.

JJ - 9.3 Such cladding shall be supported on suitable beams, slabs or nibs at each storey and adequate provision shall be made for relative vertical movement between the masonry and the structure frame at the underside of such supports.

JJ - 9.4 Movement joints shall be provided in such cladding at intervals of not more than 10m to allow for relative horizontal movement.

JJ - 10 COLUMNS AND PIERS IN WALLS

Masonry columns and piers between openings in walls shall have a height not exceeding twelve times their least lateral dimension:

Provided that The Approving Authority may require the strength and stability of such column or pier to be substantiated by calculation or other acceptable means.

JJ - 11 CAVITY WALLS

JJ - 11.1 Any cavity formed in an external masonry cavity wall shall not be less than 50mm wide and not more than 110mm wide.

JJ - 11.2 Wall ties shall be installed in any cavity wall in an evenly distributed pattern, at a rate of 2.5 ties per square metrer of the face area of such wall where the cavity is not more than 75rnm and at a rate of 3 ties per square meter of face area where the cavity is more than 75mm in width.

JJ - 11.3 Such wall ties shall comply with the requirements contained in BS 1243 : 1978, Kenyan Standards or any other Standards approved by Kenya Bureau of Standards.

JJ - 12 FOUNDATION WALLS

JJ - 12.1

(a) The height of any foundation wall not acting as a retaining wall shall not be more than 1.5m

(b) Where a difference in ground level including backfill exists between the two sides of any foundation wall consequently acting as a retaining wall, such difference shall be not more than 1.0 m

(c) No foundation wall shall have a thickness less than the relevant value given in Table

J5; Provided that such thickness shall not be less than:-

(i) the thickness of the wall carried by such foundation wall; or

(ii) the sum of the thicknesses of the leaves of such cavity wall where the wall carried by such foundation wall is a cavity wall,.

Table J - 5: Minimum Thickness of Foundation Walls

1	2	3	4	5	6	T. [9]		
Type of foundation wall		Minimum thickness of wall, mm						
		Acting as a retaining wall			Not acting as a retaining wall			
		* Difference in ground level, mm			Height, mm			
		Less than 500	500 to 750	75Qto 1000	Less than 300	300 to 500	50010 1000	1000to 1500
Single leaf brick	External Internal	140	190 190	230 230	140 90	140 140	140 140	190 190
Single leaf hollow block (cavities filled with concrete)	External Internal	140 140	190 190	230 230	140 90	140 140	140 140	190 190
Cavity walls (cavity filled to 150mm below damp-proof course level)	External	190	190	230	190	190	190	190

For difference in ground level of more than 1000mm see Table J7.

JJ - 13 BALUSTRADE WALLS

JJ - 13.1 Any balustrade wall shall conform to the requirements contained in these regulations.

JJ - 13.2 In any building:-

(a) solid masonry balustrade walls shall-

(i) be tied to reinforced concrete or block columns or bonded into

(ii) return walls or reinforced brick piers;

(iii) where deemed necessary, be provided with expansion joints spaced not more than 8m apart where such wall is supported by reinforced concrete or brick columns or reinforced brick piers and such expansion joints shall be formed in such columns or piers

(b) return walls and reinforced brick piers shall be bonded into the Structural beam or slab, and return walls shall not be spaced further apart than 6.0m for 230mm thick walls or 5.0m for 190mm thick walls or 4.0m for 110mm thick walls;

(c) brick balustrade walls shall be reinforced in the highest four bed joints with reinforcement consisting of two strands of galvanized steel wire not less than 3.5mm in diameter, or two flat galvanized strips of equivalent area and such reinforcement shall have a lap of not less than 150mm with the anchors to the supporting columns or piers.

JJ - 14 FREE-STANDING WALLS

JJ - 14.1

(a) Where any free-standing wall is a masonry wall:-
  (i) the courses of such wall shall be laid in any acceptable fully-bonded pattern.
  (ii) the height, thickness and pier size of such wall shall conform to the relevant values given in Table J6 and any cavities in piers in a wall constructed of hollow units shall be filled with concrete.

(b) In the case of a precast concrete fence the fixing of posts shall be in accordance with KS 1186 or BS EN 12839.

JJ - 14.2

(a) A damp-proof course shall not be installed in any free-standing wall.

(b) Where moisture is likely to be encountered from ground water, high density bricks with a water absorption of not more than 7% shall be used in any free-standing wall up to 150mm above ground level.

JJ - 14.3 Where any wall consists of two or more sections of different thicknesses:-

(a) the thickness of the top section shall be less than that of any lower section;

(b) the height of the top section shall not be greater than 80% of the maximum height given in Table J6 for the thickness in question;

(c) the sum of the heights of the various sections of such wall shall not be greater than the maximum height given in Table J6 for the thickest section of such wall; and

(d) any piers used in the thickest section of such wall shall extend, without reduction in size, to the top of such wall.

Table J - 6: Free-Standing Walls

	Maximum height of wall above		**Piers**	
Nominal wall thickness,	finished ground, m			
mm	Without piers	With piers	Nominal dimensions (projection x width), mm	Max. spacing (centre to centre), m
90	0.8	1.2	200 x 290	1.8
110	1.0	1.4	240 x 230	1.8
140	1.3	1.-6	300 x 290	2.0
190	1.5	2.0	400 x 290	2.5
230	1.8	2.3	480 x 350	3.5
290	2.2	2.6	400x290	4.5

Commentary:

The following example assumes that it is desired to construct a wall of 1.8m In height without using piers and that the upper section of the wall should be of reduced thickness. Figure J2 shows a possible configuration for such a wall

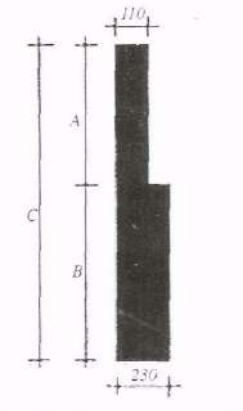
From table J6 it is evident that a wall without piers could be built to the desired height using a

thickness of 230mm. This thickness should therefore he used for the lower section of the wall.

For the upper section (A in Figure J2) assume the use of a thickness of 110mm. The maximum height of this section will be 80% of the relevant figure given in Table J6, i.e. 30% o 1.0m If this maximum figure is adopted the height of the lower section of the wall (B in Figure J2) will be restricted to 1.0m.

It should be noted that the height of can thus vary between 1.0m and 1.8m with the height of section A varying accordingly

Figure J - 2: Free-standing wall



JJ - 15 RETAINING WALLS OF MASONRY

JJ - 15.1 Any masonry retaining wall, not being a basement or foundation wall of a building, constructed in accordance with these rules shall not be erected in a position where the ground or fill which it retains may be subjected to superimposed loads, other than that from pedestrian traffic, within a distance equal to the height of the fill retained by such wall.

JJ - 15.2 Where any structure is to be erected on top of such wall the wall shall be designed in accordance with these Regulations provided that a wire fence not greater in height than 1.5m shall not be regarded as a structure.

JJ - 15.3 There shall be no surcharge of fill behind such wall within a distance equal to the height of the wall.

JJ - 15.4 Movement joints shall be provided at distances apart not exceeding 10m.

JJ - 15.5 Subsoil drainage shall be provided behind such wall together with sufficient weep holes in such wall to prevent the accumulation of water.

JJ - 15.6 No horizontal damp-proof course of sheet material shall be used in any such retaining wall.

JJ - 15.7 Any masonry retaining wall shall:-

(a) be constructed of solid masonry units laid in any acceptable fully-bonded pattern;
(b) not exceed the limits for height, wall thickness and pier size contained in Table J7

and where piers are indicated in such table, any length of wall shall be supported at each end by such a pier and all such piers in such wall shall project from the edge of the wall which is not in contact with the fill, and be bonded into the wall and extend to the full height of the wall.

Table J - 7: Retaining Walls

Nominal wall thickness,	**Max. height of fill to be retained**	**Piers**	
mm	m	Nominal dimensions (projection x width)	Max. spacing (centre to centre)
		mm	m
190	0.8 1.1	300x190	" No piers required 2.0
	1.3	400x190	2.4
230	0.9 1.4	360 x 230	No piers required 2,5
	1.5	480 x 230	2.7
290	1.1 1.5	300x290	No piers required 2.7
390	1.4	No piers required	

JJ - 16 ROOF ANCHORING

JJ - 16.1 In the case of a wall erected of masonry units or of concrete a galvanized

JJ - 16.2 steel strap or wire shall be embedded in the wall at positions suitable for anchoring any timber roof truss, rafter or beam to such wall. (See figures J3 to J10).

JJ - 16.3 Such strap or wire shall extend into the wall to a depth of at least 300mm in the case of a heavy roof (concrete or clay tiles or slate) or at least 600mm in the case of a sheet roof except that in the case where the depth of the masonry or in-situ concrete is less than 300mm and 600mm, respectively, such strap or wire shall extend as far as possible into such masonry or concrete.

JJ - 16.4

(a) Galvanized steel strap anchors shall be taken up over the top of the rafter or tie beam, bent down on the other side and nailed down from both sides, or galvanized roof ties shall be made up of two strands of wire which shall be taken up on either side of the rafter or tie beam, twisted together so as to have no slack, but not so as to overstrain the wire, and the free ends then nailed down to prevent untwisting.

(b) Any roof truss, rafter or beam shall be fixed to any wall by using one of the following types of anchors ;

(i) Type A: two strands of 4mm galvanized steel wire;

(ii) Type B: 30mm x 1.2mm galvanized steel strap;

(iii) Type C: 30mm x 1.6mm galvanized steel strap.

(c) For any roof truss, rafter or beam the type of anchor to be used shall be in accordance with Table J8.

Table J - 8: Types of Anchor

1	2	3	4
ROOF SLOPE DEGREES	MAXIMUM,ROOF TRUSS,RAFTER OR BEAM SPACING IN MM	TYPE OF ANCHOR REQUIRED	
		LIGHT ROOF	HEAVY ROOF
less than 15 slope	760 / 1050 / 1350	A,B,OR C B OR C C	TYPE A FOR ALL APPLICATIONS
slope 15 to30	760 / 1050 / 1350	A,B,OR C B OR C C	TYPE A FOR ALL APPLICATIONS
slope more than 30	760 / 1050 / 1350	A,B,OR C B OR C C	TYPE A FOR ALL APPLICATIONS

NB
TYPE A. TWO STRANDS OF 4MM GALVANIZED STEEL WIRE.
TYPE B. 30MM X1.2MM GALVANIZED STEEL STRAP.
TYPE C. 30MM X1.6MM GALVANIZED STEEL STRAP.

Figure J - 3:

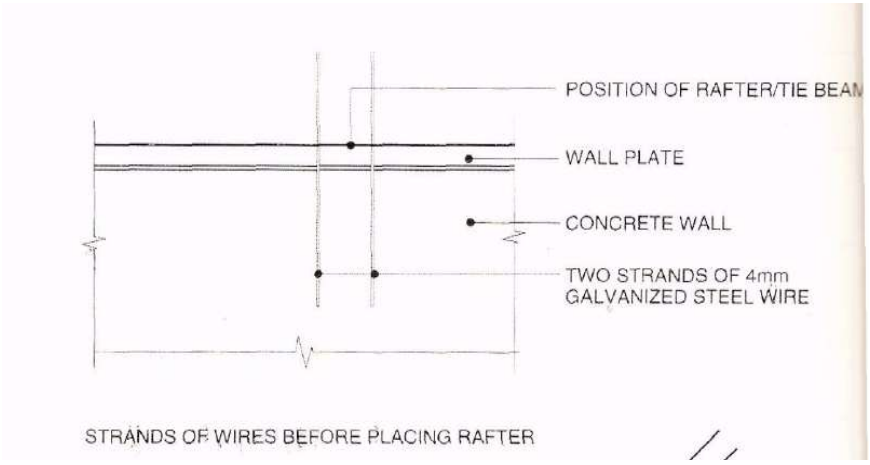


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Figure J - 4:

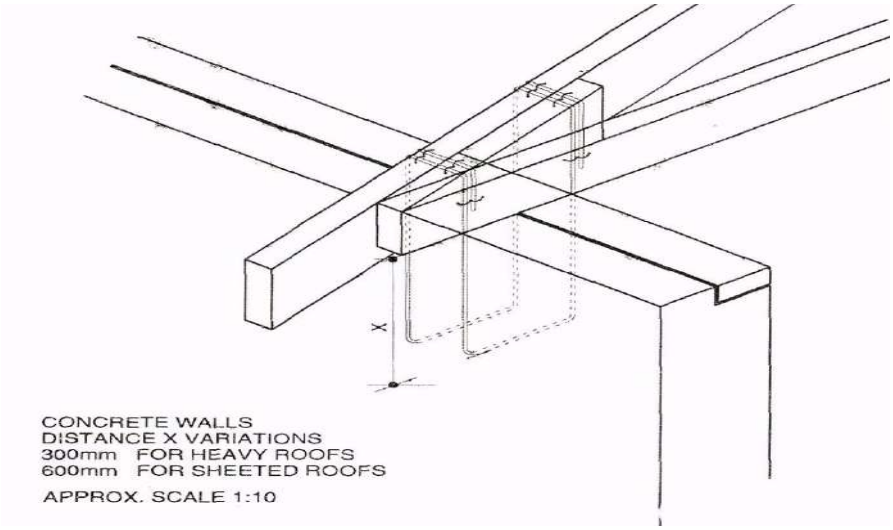

Figure J - 5:

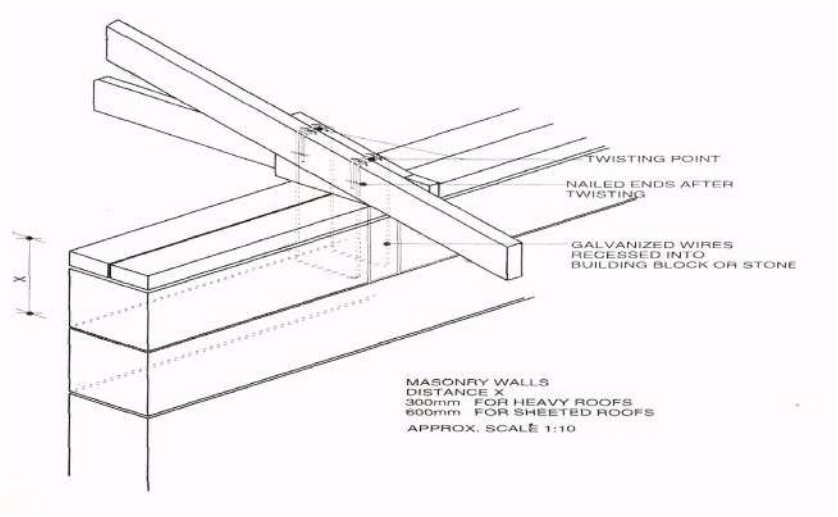

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Figure J - 6:

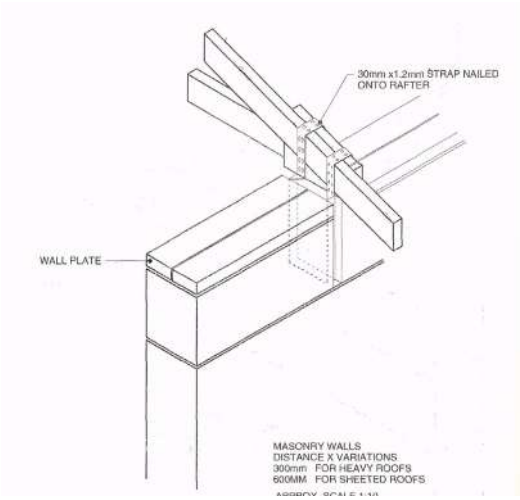
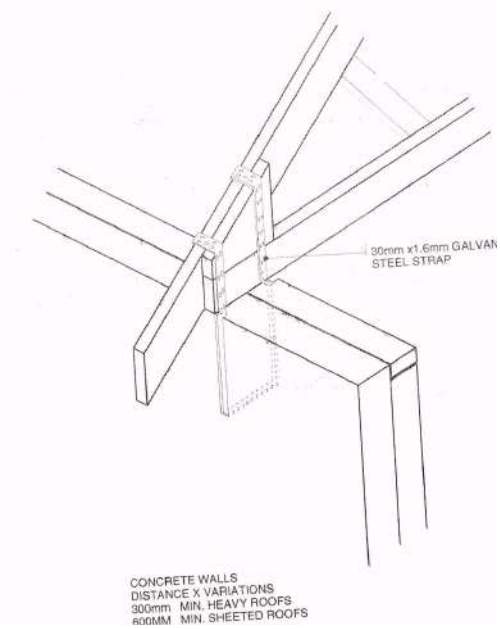


Figure J - 7:



JJ - 16.5 In the case of a building of timber framed construction, provision for anchoring of any timber roof truss, rafter or beam to the wall shall be made in the manner described in the BS 5268:

JJ - 17 WATER PENETRATION

JJ - 17.1 Any external wall of any building shall be:-

(a) capable of satisfying the relevant requirements of the rain penetration test contained in Regulation JJ20;
(b) a single leaf externally plastered block wall not less than 140mm thick or a single leaf brick wall not less than 190mm thick; or
(c) a cavity wall built of masonry; or
(d) a precast concrete wall forming part of a garage or garden store and having a nominal thickness not less than 40mm providing that any joints in such wall are sealed; or
(e) a timber framed wall built in accordance with Kenyan Standards, BS 5268 :1996.or any other Standards approved by Kenya Bureau of Standards.

JJ - 17.2 Notwithstanding the requirements of sub-regulation JJ17.1 (b), The Approving Authority may, in areas of prolonged heavy wind-driven rain, require that any external masonry wall shall be a cavity wall, or a double leaf wall with the inner face of the outer leaf bagged and painted with the two coats of approved sealer.

JJ - 18 Damp-proof course

JJ - 18.1 Any wall or sleeper pier of a building shall be provided with damp-proof courses in such position and to an extent that will protect the wall against rising damp and the interior of the building against ingress of moisture from abutting ground as per BS 8215.

JJ - 18.2

(a) Any material used as a damp-proof course shall conform to the relevant requirements contained in the BS6398and BS6515 or any other approved standard.

(b) In any masonry wall a damp-proof course shall be installed:-
  (i) at the level of the top of a concrete floor slab resting on the ground; or
  (ii) where applicable, below any ground floor timber beam or joist.

(c) In any timber framed wall a damp-proof course shall be installed between the bottom plate of the wall and any foundation wall or concrete floor slab.

(d) In the case of any solid masonry wall or timber framed wall any damp-proof course shall extend over the full thickness of such wall

(e) In the case of any masonry cavity wall:-
  (i) each leaf of such wall shall be provided with its own damp-proof -course which shall extend over the full thickness of such leaf, in which case the cavity must extend 150mm below the damp-proof course; or
  (ii) each leaf of such wall shall be covered by a membrane which extends across the cavity
  (iii) provided that the position of the membrane at the inner leaf is higher than the outer leaf and
  (iv) where necessary, weep holes to prevent build-up of water in the cavity shall be provided in the external leaf of every cavity wall, spaced not more than 1m apart in the masonry unit course immediately below the damp-proof course contemplated in paragraph (i) or in the masonry unit course immediately above the membrane contemplated in paragraph (ii).

(f) No horizontal damp-proof course shall be installed less than 150mm above the level of the adjacent finished ground

(g) Transverse joints in the damp-proof course shall be overlapped to a minimum distance of 150mm and at junctions and corners to a distance equal to the full thickness of the wall or the leaf, as the case may be

(h) Where any part of any wall of a room is so situated that the ground will be;
  (i) in contact therewith it shall be protected by a vertical water-proof membrane or by a drained cavity which shall extend below the level of the floor of such room
  (ii) drainage shall be provided at the base of such wall to prevent water accumulating there.

JJ - 19 BEHAVIOUR IN FIRE

Any wall shall comply with the relevant requirements for fire resistance, non-combustibility and where appropriate, wall lining index set out in Section S of these regulations.

JJ - 20 RAIN PENETRATION TESTS FOR WALLS

JJ - 20.1 TEST METHOD

The wall shall be thoroughly air-dry before being tested. In the case of a masonry or similar wall the inner surface may be lime washed or other means may be adopted to facilitate the detection of moisture which has penetrated through the wall. The portion of the outer surface under test shall then be continuously sprayed with water in the form of a finely divided spray distributed over the whole area under test at the rate of 40-50mm depth of water per hour. Spraying shall be conducted in a still atmosphere and shall be continued for the min-

imum period required in terms of column 3 of Table J9 (depending upon the mean annual rainfall and the hourly mean wind speed for the locality concerned given in columns 1 and 2 of such table relative to such period in each case) or until the first signs of dampness appear on the inner surface of the wall if such signs appear before the expiry of such period. In the case of any timber framed wall the covering of such wall shall be removed after the required test period in order to ascertain whether any moisture has penetrated to the interior of such wall and if so, whether water has been retained within the interior.

JJ - 20.2 TEST CRITERIA

The test wall shall, in regard to rain penetration, be considered to comply with the requirements of regulation JJ2 where:-

(a) no moisture has penetrated to the inner surface of the wall within the relevant minimum test period given in column 3 of Table J9, and

(b) in the case of a timber framed wall, there is no evidence of water having been retained within the cavity in the wall.

Figure J - 8: Test Period

Mean annual rainfall*, mm	Hourly mean wind speed*, m/s	Min. period, hour
More than	20	14
+1000	25	19
	30	24
	20	10
600-1000	25	15
	30	20
	20	6
200 - 600	25	11
	30	16
	20	2
0-200	25	7
	30	12

** See BS 6399 Part 3 of 1996 for the general procedures and loadings to be adopted for the design of buildings.*

+1000 is based on a maximum rainfall of 1400mm. Where the actual annual rainfall is known to exceed 1400mm the figures for duration of test may be linearly extrapolated.

JJ - 21 EXTERNAL WALLS WEATHER RESISTANCE

Every external wall of a domestic, public or warehouse class building, including any parapet wall thereto, shall adequately resist the penetration of rain.

JJ - 22 PROTECTION AGAINST MOISTURE FROM THE GROUND

No wall, pier or column of a building to which these Regulations apply, shall permit the passage of moisture from the ground to the inner surface of any storey of the building, or to any part of the building that would be harmfully affected by such moisture.

JJ - 23 DAMP-PROOF COURSES

JJ - 23.1 The requirements of these Regulations shall be deemed to be satisfied if every wall of the building in contact with the ground is provided with:-

(a) a damp-proof course which in the case of an external wall is at a height of not less than 150mm above the surface of the ground adjoining the wall; and

(b) such other additional barriers to moisture in continuation of the damp-proof course required by paragraph (a) of this Regulation as may be necessary to ensure that dampness from the ground cannot reach any timber or other material that would be harmfully affected by it or the interior of the walls of any storey of the building, other than a basement used for storage purposes only.

JJ - 24 PREVENTION OF DAMP IN CAVITY WALLS

JJ - 24.1 The cavity in every cavity wall, built of bricks or blocks or any other approved material, shall extend downwards to at least 150mm below the level of the lower damp-proof course in that wall.

JJ - 24.2 In every cavity wall wherever the cavity is bridged, a damp-proof course, or flashing so arranged, that moisture is directed away from the inner leaf of the wall, shall be inserted unless the bridging occurs at a place protected by the roof.

JJ - 25 NON-LOAD-BEARING WALLS, PARTITIONS AND INDIVIDUAL PANELS

The requirements of these Regulations shall not apply to load bearing structures generally and walls, piers, columns or bricks and stones, but to the construction of non-load-bearing walls or partitions or any individual panel, and the requirements of these Regulations will generally be satisfied for stability, if the size of the walls or partitions or individual panels are such that one dimension, either the length or the height, is not greater than the dimensions shown in table J10, and provided that for blocks up to 1 meter in thickness, alternate courses are reinforced in an approved manner:

Provided that:-

(i) where both the length and the height of a wall, partition or individual panel**,** would exceed these dimensions it must be divided into panels by vertical and horizontal supports of adequate strength and rigidity so that the above condition is fulfilled;

(ii) the wall, partitions or individual panels shall be supported along two vertical opposite ends and, where required, horizontal;

(iii) the supported ends shall be attached to the main structure by bonding, inserting into a groove or by other approved method of fixing.

Figure J - 9: Dimension of Non-Load-Bearing Wall

0.66 metres	block	3 metres
0.83 metres	block	3.33 metres
1 metre	block	4 metres
1 .33 metres	block	4.66 metres
1 .50 metres	block	5 metres
2 metres	block	6.66 metres
2.91 metres	block	8.33 metres

JJ - 26 RENDERING

All un-faced stone, bricks, blocks and slabs used in external walls shall be faced externally by rendering not less than 15mm thick or similar treatment where the permeability of the blocks requires.

JJ - 27 FOUNDATION WALLS

Hollow blocks shall not be used in sub-structure foundation walls.

JJ - 28 CHIMNEYS

Hollow blocks shall not be used in the chimney construction.

JJ - 29 CAVITIES

All exposed cavities at walls ends and returns shall be sealed.

JJ - 30 MORTAR

For both load and non-load-bearing walls the mortar shall be in accordance with the Classes in Table J2.

JJ - 31 CHASES

Chases shall not be cut so as to weaken the structural strength of the building below the design limit. In solid blocks the depth of horizontal chases shall not exceed one-sixth the thickness of the block and one third for vertical chases. In the case of load bearing structures, chases shall be cut under the supervision of a structural engineer.

JJ - 32 NON-LOAD-BEARING WALLS

Concrete blocks used in non-load-bearing external panel walls must comply with the strength requirement of these Regulations. The crushing strength of concrete blocks shall comply with BS : 2028.

JJ - 33 EXTERNAL WALLS IN DOMESTIC BUILDINGS

JJ - 33.1 The requirements of these regulations for external load bearing walls of the top or only storey in domestic buildings where such storey is to be used only for living accommodation shall be satisfied if such walls are constructed in accordance with this regulation.

JJ - 33.2 If the height from the level of the floor of the storey to that of the ceiling does not exceed 3.0 metres, and the floor, if not the ground floor, is constructed of reinforced concrete throughout and extends over the walls of the storey below, the walls of such top or only storey may be reduced to 200mm in thickness with a tolerance of 2mm, if built of square dressed stone, bricks or concrete blocks and supported at intervals of not more than 4.0 metres by a buttressing wall or a position of the wall at least 300mm in thickness for a length of 4.0metres:

Provided that such walls may be 3.30 metres in height and buttressed at intervals of up to 5.0 metres if the bearing stresses thereof are not thereby exceeded, and:-

(i) where a timber roof construction is used, a ring beam is provided at ceiling level not less than 200mm in both breadth and depth reinforced with two 12mm bars evenly distributed in the bottom having not less than 20mm in cover, and the roof securely tied thereto, or

(ii) a reinforced concrete flat roof is imposed thereon.

JJ - 33.3 For the purpose of the foregoing provisions of this regulation, a partition wall shall not be deemed to be a buttressing wall unless there be at least a length thereof of not less than 200mm bonded into the outer wall for its full height and is not less than 200mm thick with a tolerance of 2mm.

JJ - 34 PARTY OR SEPARATING WALLS

JJ - 34.1

(i) Except, as provided for in these Regulations, a party wall or separating wall built of bricks, blocks or stone, shall not be of a less thickness than 200mm:

Provided that in the case of a domestic building constructed with external wall of 200mm thickness in accordance with these Regulations, the party wall or separating wall may also be constructed in accordance with the provisions of that regulation.

(ii) Any wall, which is continuous with a boundary, shall fulfill the requirements of these regulations for party and external walls, and the thickness shall not be less than 200mm and in any case the wall shall be constructed as to have, in accordance with these Regulations, the notional period of fire resistance of not less than the specified period.

JJ - 35 BOUNDARY WALLS AND FENCES

JJ - 35.1 All boundary walls and fences shall be constructed of sound approved

JJ - 35.2 building materials and shall be erected with sufficient supports securely fixed to ensure the stability of the structure.

JJ - 35.3 All walls and fences shall be erected in a vertical plane or as designed and approved, and fences shall be suitably finished with an approved preservative.

JJ - 36 COPINGS TO PARAPET WALL

All parapet walls must have a coping designed and installed in such a manner to prevent vertical water penetration.

JJ - 37 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes any of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than KShs 500,000 (Kenya Shillings five hundred thousand only) or three (3) months imprisonment or both.

SECTION K

GENERAL REQUIREMENTS FOR ROOFS

CONTENTS

SECTION K

GENERAL REQUIREMENTS FOR ROOFS

KK - 1 GENERAL REQUIREMENTS FOR ROOFS

The roof of any building shall be so constructed that it will:-

(a) resist any forces to which it is likely to be subjected;

(b) be durable and waterproof;

(c) not allow the accumulation of any rainwater upon its surface; and

(d) as part of a roof and ceiling assembly provide adequate height in any room immediately below such assembly.

KK - 2 EMPIRICAL ROOFS REGULATIONS FOR THE CONSTRUCTION OF ROOFS

Where any roof is to be supported on the walls of any building, contemplated in Regulation JJ5 of these Regulations, such roof shall be constructed in accordance with regulations KK4, KK5 and KK6.

KK - 3 DESIGN, CONSTRUCTION AND FIXING OF STRUCTURAL ROOF COMPONENTS

KK - 3.1 Roof timber shall comply with the requirement of Kenya Standard KS 02-771 : 1988.

KK - 3.2 The design of timber members for roof construction shall comply with the requirements of BS 5268 : Part 2 : 1996 and Part 3 : 1985

KK - 3.3 The design for timber members for roof construction shall comply with the requirements of BS 5268: part 2 : 1996 and part 3 : 1985 save for the specification for softwood timber grades which shall comply with the requirements of KS 02-771-1988

KK - 3.4 All timber for structural use shall be of a quality and strength sufficient for the intended use, and shall be well seasoned and free from rot, beetle or other vermin. It shall not contain large loose knots, splits and other defects to such an extent and so situated as to render the timber member inadequate in strength or stiffness or durability.

KK - 3.5 Timber for structural roof components shall be treated against infestation to the approval of the Approving Authority.

KK - 3.6

(a) Timber roof trusses and other roof framing shall have all joints accurately cut, securely made with approved means and so fitted that the component parts are drawn tightly together.

(b) Where timber is jointed in its length, it shall be by means of approved tensile or compressive joint.

(c) Joints in adjacent truss members, purlins and rafters shall be staggered.

(d) Any trussed roof shall be provided with approved bracing to prevent buckling of rafters and tie.

(e) No member of any truss shall have a length greater than sixty times its least lateral dimensions

KK - 3.7 Timber roofs shall be designed in such a manner that they shall not impose any thrust on walls, piers or other means of support unless adequate provision has been made in the design and construction of such wall, pier or other means of support to take all the imposed outward thrust due to vertical and horizontal loads.

KK - 3.8 Timber roof truss, rafter, beam or wall plate shall be securely fastened down and connected to their means of support by properly built-in or cast-in galvanized steel strap or galvanized steel wires or bolts or other approved means to the satisfaction of The Approving Authority.

KK - 4 EMPIRICAL TIMBER ROOF REGULATIONS

Where timber contemplated in sub-regulations KK3.1 and the species is cypress or pine of at least general structural grade and such timber is used for the construction of:-

(a) Common rafters;
(b) Purlins and battens;
(c) Ceiling joists

The sizes given in Tables K1, K2 and K3 respectively may be used.

Table K - 1: Common Rafters
Clear span for various sections at different centres for tiles roofs

Effective span in metres		**Centres of rafters given in millimetres**				
	300	375	450	525	600	750
0.9 1.2			75x40	75x40	75x40 75x50	75x50 75x50
1.5	75x40	75x40	75x50	75 X50	75x50	75 x50
1.8	75x50	75x50	75x50	75x50	75x50	1 00 x 50
2,1	75x50	75x50	75x50	100 x 50	1 00 X 50	100x50
2.4	100x50	100 X 50	100x50	100 x 50	100x50	100 x 50
2.7	1 00 x 50	100x50	125x50	1 25 x 50	125x50	125x50
3.0	100 x 50	125x50	125x50	1 25 x 50	125x50	125x50

NOTES:

(d) Rafter sections are given in millimeters, the depth being the first dimension given.
(e) For Spanish or Italian half-rounded tiles the depth of the rafters to be increased by 20%.
(f) For pitches exceeding 35°, the span can be increased by 10% and for those exceeding 45° by 15%.

Table K - 2: Purlins and Battens

Clear span in metres	**Sections are given in millimetres**								
	Clear Distance apart of purlins in metres								
	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
0,9	50x40	50x40 50x50	50x40 75x40	75x25 75x40	75x40 5x50	75x40 75x50	75x40 75x50	75x50	75x50
1,2	50x40 50x50	75x25 75x40	75x40 75x50	75x40 75x50	75x50	100x40 100x40	100x50	100x50	100x50
1.5	75x25 75x40	75x40 75x100	75x50	100x40 100x50	100x50	100x50 100x75	100x50 100x75	125x50 100x75	125x50 100x75
1.8	75x40 75x50	75x50	100x50	100x50 100x50	125x50 125x75	125x50 25x75	150x50 125x75	150x50 150x75	150x50 150x75
2.1	75x50	100x50	125x50 100x50	125x50 125x75	125x50 125x75	150x50 125x75	150x50 150x75	175x50 150x75	200x50 50x75
2.4	100x50	100x50 100x75	125x50 125x75	150x50 125x75	150x50 150X75	175x50 150x75	175x50 150x75	200x50 150x75	200x50 150x75
3.0	125x50 100x75	150x50 125 x 75	150x50 125x75	175x50 150x75	200x50 150x75	200x50 200x75	200x50 200 x 75	200x75 200x100	200x75 200x100

NOTES:

(a) The bottom row of dimensions shown in each frame should be used where the purling are inclined to a greater extent than 30° to the vertical plane.

(b) For Spanish or Italian half-rounded tiles tie depth of the purlin is to be increased by 20%, the depth first dimension given.

Table K - 3: Ceiling Joists

Sections in mm		**Clear spans**	**for various sections at different centres**		
	mm	mm	mm	mm	mm
			Celotex or similar ceiling		
	450	600	750	1000	1200
			Plaster Ceiling		
	300	400	450	500	600
	m	m	m	m	m
75 x 50	1.90	1.80	1.70	1.60	1.40
100 x 50	2.40	2.30	2.20	2.10	2.00
125 x 50	3.00	2.90	2.80	2.60	2.40
150 x 50	3.60	3.50	3.30	3.20	2.90
180 x 50 '	4.20	4.10	3.90	3.70	3.40
205 X 50	4.90	4.70	4.40	4.20	3.80
230 X 50	5.50	5.30	5.20	4.80	4.30

KK - 5 FIRE RESISTANCE AND COMBUSTIBILITY

The fire resistance of any roof or ceiling assembly that has light fittings or any other component which penetrates the ceiling and the degree of non-combustibility of such assembly shall comply with the requirements contained in these regulations.

KK - 6 WATERPROOFING

For the purpose of runoff of water, any roof with a covering of one of the materials referred to in column 2 of Table K4 shall be constructed to a slope not less than the minimum angle of slope given in column 3 and such covering shall, where applicable, be provided with end laps not less than the minimum end lap given in column 4 or 5, as the case may be.

Table K - 4: Minimum Roof Slopes and Sheet End Laps

Class	Roof covering	Minimum angle	Minimum end lap, mm	
	Description	of slope (degrees)	End laps sealed	End laps not sealed
A	Corrugated metal, plastic or glass-reinforced plastic sheets (including box rib)	5 11 15 17 22	250 150 150 150 150	Not permitted 250 225 200 150
	Corrugated fibre-cement sheets	11 15 17 22 26	200 175 150 150 150	300 275 250 200 150
	Long span specialised metal sheets	5	As required by The Approving Authority	
	Single length long span and specialised sheets	3		
B	Fibre-cement slates I) with an approved underlay ii) without an approved underlay	10 17		
	Single-lap concrete or clay interlocking tiles; concrete, clay plain tiles or shingles 1) with an approved underlay if) without an approved underlay	17 26		
	Natural slate on open battens 1) with an approved underlay li) without an approved underlay	20 30		
	Thatch: Thickness of 150mm Thickness of 300mm	45 35		
C	Metal tiles I) with an approved underlay li) without an approved underlay	10 15		

NOTE: When metal roof tiles are used over an existing roof, the existing roof slope may be retained.

KK - 7 FLASHING

Flashing shall be used where a roof abuts against a wall or around any projection through a roof covering and any other place where it is deemed necessary by The Approving Authority.

KK - 8 FLAT ROOFS

(a) Where a nominally flat roof of boarded or concrete construction is used it shall be provided with an impervious surface and laid to a fall of not less than 1 in 50.

(b) Where a parapet wall abuts a covered flat roof the edges of the water-proofing material shall be turned up underneath corrosion proof metal cover flashing

which is tucked into the horizontal joint of the parapet wall at least 450mm above the roof level.

(c) Where any nominally flat roof is to be subjected to pedestrian or vehicular traffic any waterproofing membrane applied to it shall be protected against damage.

KK - 9 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes any of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than KShs 2,000,000.00 (Kenya Shillings two million only) or six (6) months imprisonment or both.

SECTION L

GLAZING AND CLADDING

CONTENTS

SECTION L
GLAZING AND CLADDING

LL - 1 TYPE AND FIXING OF GLAZING

LL - 1.1 Any material used in the glazing of any building shall be of a secure and durable type and shall be fixed in a manner and position that will ensure that it will:-

(a) safely sustain any wind loads to which it is likely to be subjected;
(b) not allow penetration of water to the interior of the building; and
(c) be visually manifest in the case of clear glazing, to any person approaching such glazing.

LL - 1.2 Glass, plastics and organic coated glass shall be selected in order to provide, in the case of human impact, a degree of safety appropriate in relation to:-

(a) the position of the glazed area; and
(b) the number and likely behaviour pattern of persons expected to be in
(c) close proximity to such glazed area.

LL - 1.3 The requirements of sub-regulation LL1.1 and LL1.2 shall be deemed to be satisfied where the glazing material is selected, fixed and marked in accordance with BS 8000 Part VII - 1990.

LL - 2 INSTALLATION OF GLAZING

LL - 2.1 In any vertical glazing installation, any pane of glass and the fixing of such pane shall comply with the following requirements:

(a) Where such pane is to be exposed to the effect of wind, the thickness of such pane in relation to its area shall be in accordance with BS 8000 Part VII -1990.
(b) Such pane shall be fixed in the frame in accordance with any suitable method described in BS 8000 Part VI -1990 and such frame shall be so installed that it is capable of sustaining the total wind load for which such pane was designed.
(c) Notwithstanding the requirements of sub-regulation LL2.1(a), the nominal thickness of a pane of glass shall be not less than that given in Table L1.

Table F - 1: Glazing

Nominal glass thickness, mm	Maximum size pane, m^2
3	0.75
4	1.5
5	2.1
6	3.2

LL - 2.2 Any pane of glass, not being a door leaf contemplated in sub-regulation LL2.3, which is to be installed without the support of a frame, shall be in accordance with BS 8000 Part VII – 1990

LL - 2.3 Any door leaf made entirely of glass which is not fully contained in a frame shall be in accordance with BS 8000 Part VI – 1990;

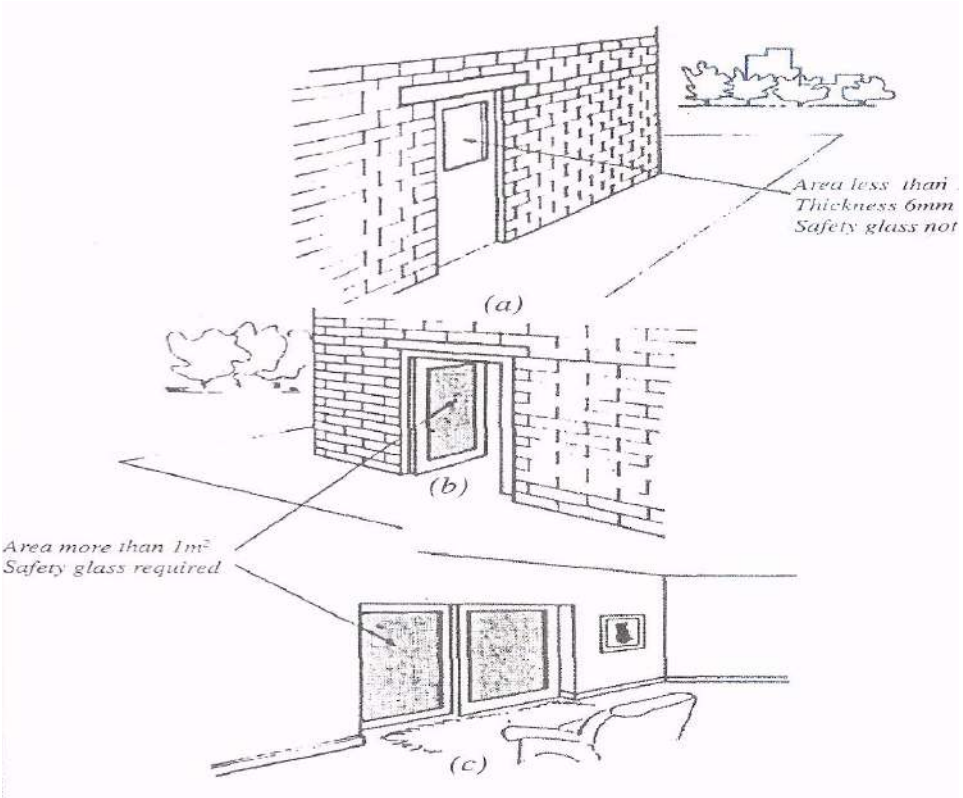
LL - 2.4 Where clear glazing is used and is not likely to be visually manifest to any person approaching it, such glazing shall bear markings which shall render such glazing apparent.

LL - 3 SAFETY GLAZING

LL - 3.1 Any pane of glass installed in any door shall, where not made of safety glass, be not more than 1m^2 in area and shall have a nominal thickness of not less than 6mm; and where more than 1m^2, safety glass is required.

Commentary; Figure L1 illustrates requirements for safety glazing in doors.

Figure F - 1: Safety Glazing in Doors

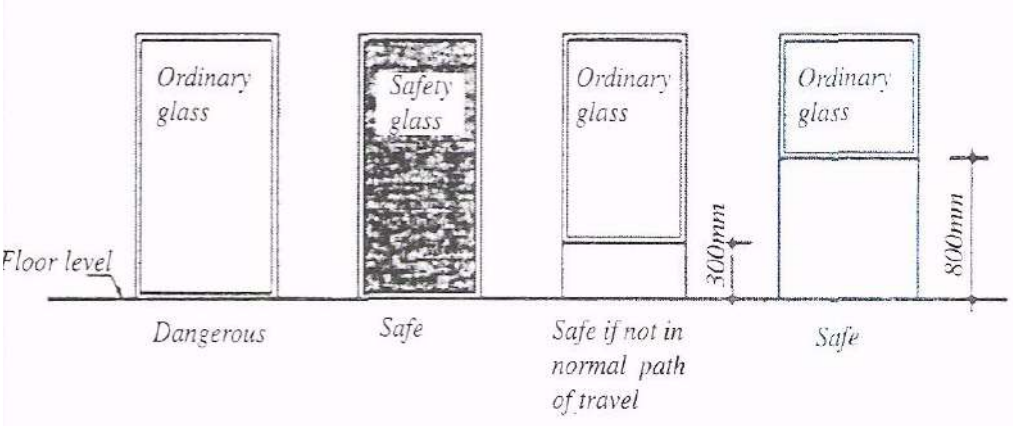


LL - 3.2 Where any window is not guarded by a barrier to reduce the possibility of persons coming into contact with any glass installed in such window:-

(a) the sill of such window shall be at a level of not less than 300mm from the floor or
(b) any glass used in such window shall comply with the requirements of sub-regulation LL3.1:
Provided that where, in the opinion of The Approving Authority, the window is so placed that persons are likely on normal traffic routes to move directly towards such window, such sill shall be at a level of not less than 800mm from the floor or

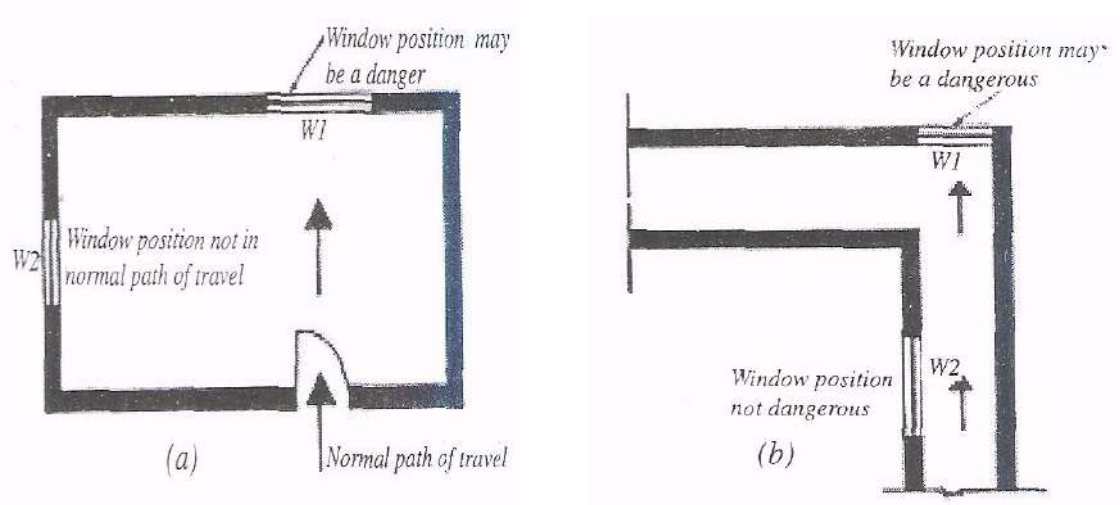
any glass installed in such window shall comply with the requirements of sub-regulation LL3.1

Figure F - 2: Safety Glazing in Windows



In Figure L3(a) and (b), windows W1 are in the normal path of travel and may present a danger. If so required by The Approving Authority, any glass installed in these windows with an area of more than 1m^2 and at a height of less than 800mm from floor level will have to be safety glass. Windows W2, on the other hand, are not in as dangerous a position and in accordance with sub regulation LL3.2 the height requirement for the provision of safety glazing is 300mm.

Figure F - 3: Safety Glazing



LL - 3.3 Where any bath enclosure or shower cubicle is constructed of glass such glass shall be safety glass.

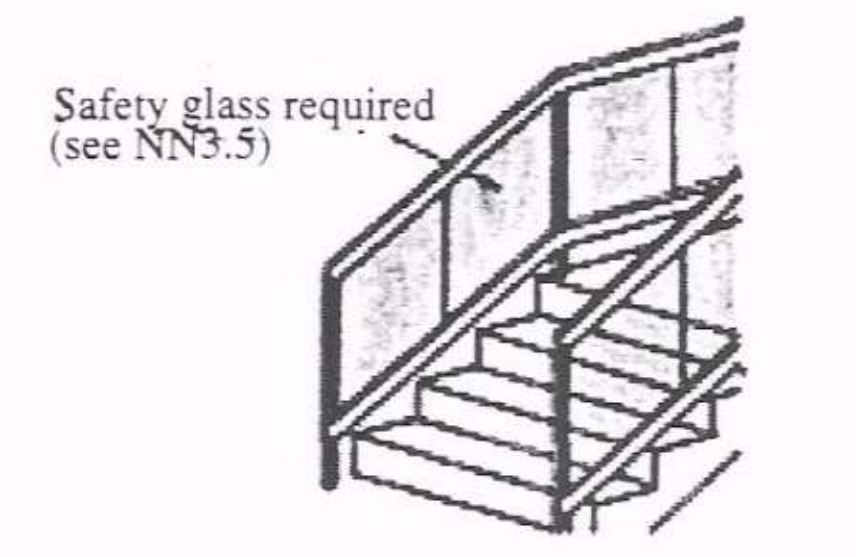
LL - 3.4 Any glass used in any shop front and having an area of more than 1m^2 shall be safety glass.

LL - 3.5 Where glass is used in any wall or balustrade to a stairway or ramp and is less than 1.8m above the pitch line of such stairway or the surface of such ramp or the surface of any

landing forming part of such stairway or ramp, such glass shall be safety glass.

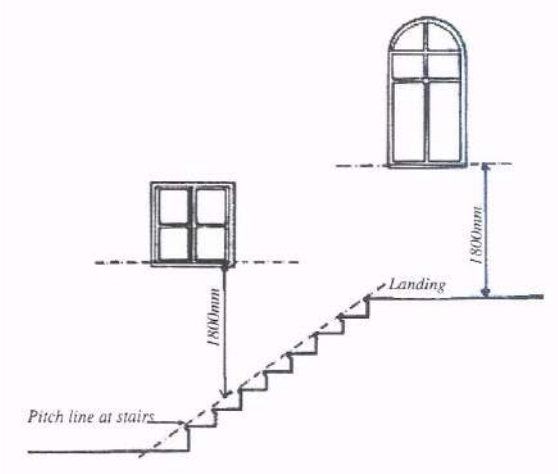
Commentary: *Figure L4 illustrates use of safety glazing in a balustrade to a stairway.*

Figure F - 4: Safety glass required



If it is required to locate a window at a distance less than 1800mm above the pitch line of the stairs or landing as the case may be, it must be glazed with safety glass

Figure F - 5: Safety glass



LL - 3.6 Where in these Regulations the use of safety glass is required, such requirement shall not be construed as meaning that other safety glazing materials complying with the requirements contained in the BS 8000 Part VII -1990 may not be used.

LL - 4 CRITICAL LOCATIONS RELATED TO GLAZING

LL - 4.1 The following locations may be considered 'critical' in terms of safety.

(a) between finished floor level and 800mm above that level in internal and external

walls and partitions (See figure L 6).

(b) between finished floor level and 1500mm above that level in a door or in a side panel, close to either edge of the door (See figure L 6).

LL - 4.2 Reducing their Risks

Glazing in critical locations should either:-

(a) break safely, if it breaks; or

(b) be robust or in small panes; or

(c) be permanently protected.

LL - 4.3 Safe Breakage of Glass

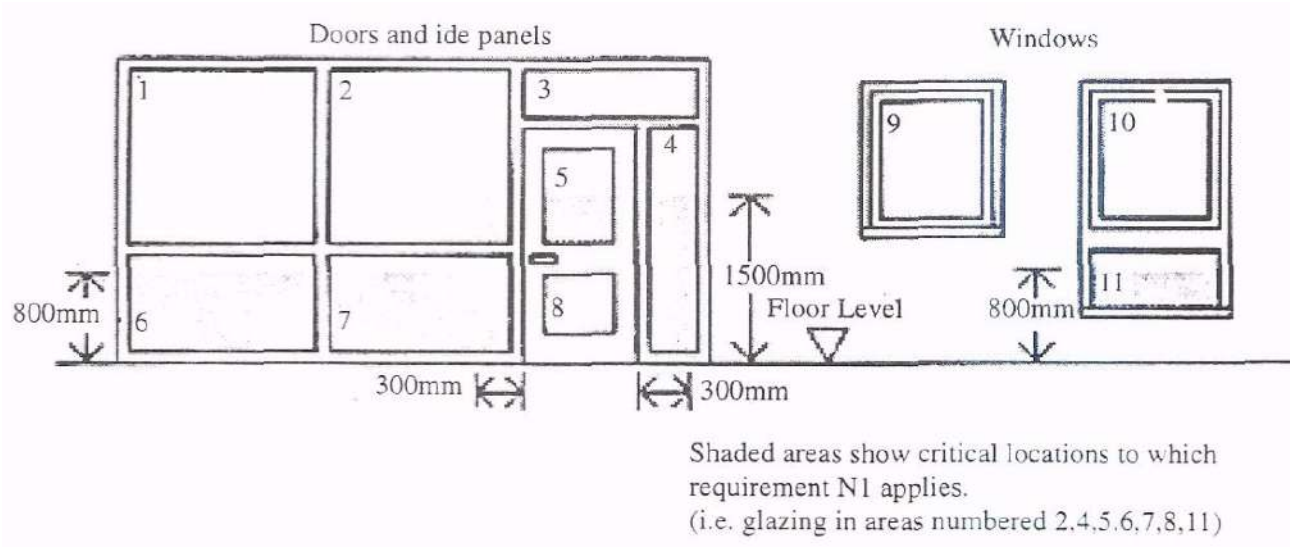
Safe breakage is defined in BS 6206:1981
and is based on an impact test which requires the result of the impact to be limited to creating:-

(a) A small clear opening only, with a limit to the size of the detached particles, or

(b) disintegration, with small detached particles, or

(c) (c) breakage resulting in separate pieces that are not sharp or pointed.

Figure F - 6: Critical locations in internal and external walls

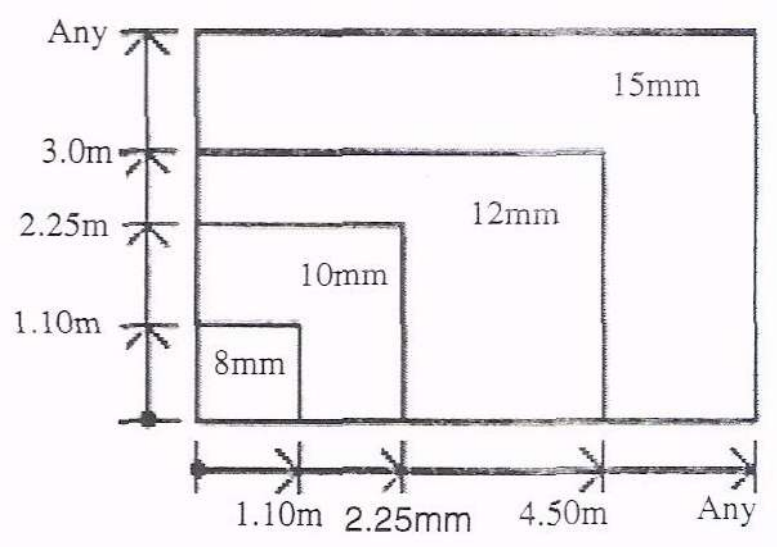


In terms of safe breakage, a glazing material suitable for installation in a critical location would satisfy the test requirements of Class C of BS 6206 or, if it is installed in a door or in a door side panel and has a pane width exceeding 900mm, the test requirements of Class B of the same standard.

LL - 4.4 Robustness of Glass

Some glazing materials, such as annealed glass, gain strength through thickness; others such as polycarbonates or glass blocks are inherently strong. Some annealed glass is considered suitable for use in large areas forming fronts to shops, showrooms, offices, factories, and public buildings. Reasonable glass thickness dimension limits for annealed glass which may be used in these locations are shown in Figure L7 (See also sub-regulation LL4.7)

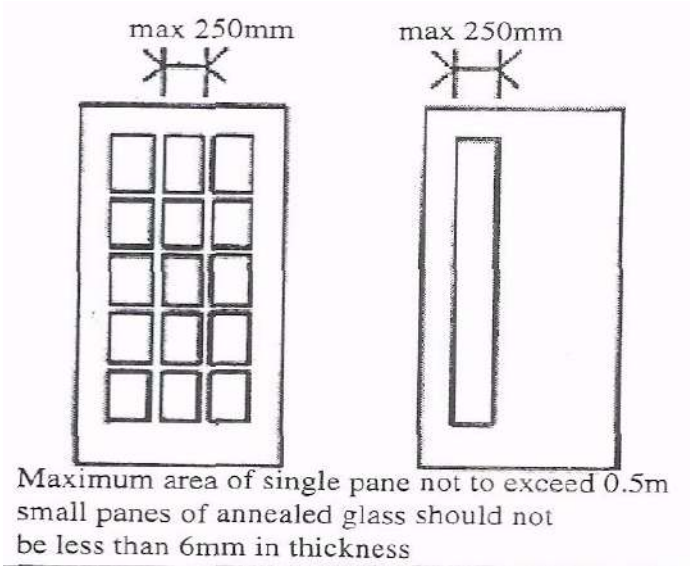
Figure F - 7: Annealed Glass Thickness/Dimension Limits



LL - 4.5 Glazing in Small Panes

In the context of these Regulations, a small pane' may be an isolated pane, or one of a number of panes contained within glazing bars, traditional leaded lights or copper-lights. Small panes should have a maximum width of 250mm and an area not exceeding 0.5sqm. each measured between glazing beads or similar fixings. Annealed glass in a small pane should not be less than 6mm nominal in thickness, except in traditional leaded or copper-lights in which 4mm glass would be acceptable, when fire resistance was not a factor. Typical installations are shown in figure L8

Figure F - 8: Dimensions and Areas of Small Panes



LL - 4.6 Permanent Screen Protection

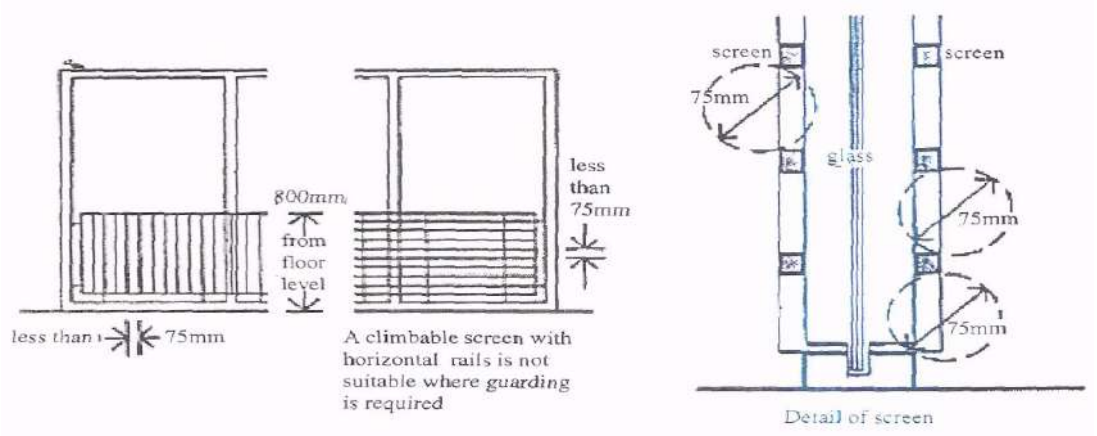
If, as part of a design solution, glazing in a critical location is installed behind permanent screen protection, the screen should;-

(a) Prevent a sphere of 75mm from coming into contact with the glazing,

(b) be robust and, if it is intended to protect glazing that forms part of protection from falling, be difficult to climb.

LL - 4.7 Glazing in a critical location which is afforded permanent screen protection, does not, itself, need to comply with sub-regulation LL4. The principles of screen protection are shown in Figure L9.

Figure F - 9: Permanent Screen Protection



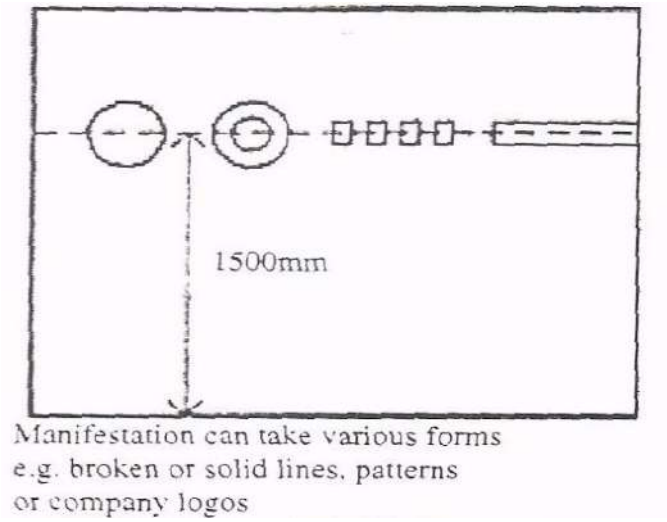
LL - 4.8 Permanent manifestation

Permanent manifestation of large uninterrupted areas of transparent glazing is only necessary when other means of indicating the presence of the glazing are not used. These other means may include mullions, transoms, door framing or large pull or push handles.

LL - 4.9 Where manifestation is necessary, it may take the form of broken or solid lines, patterns or company logos at appropriate heights and intervals (Figure L10)

LL - 4.10 Figure L11 includes examples of a number of methods of indicating the presence of glazing

Figure F - 10: Height of Manifestation of Large Areas of Transparent Glazing

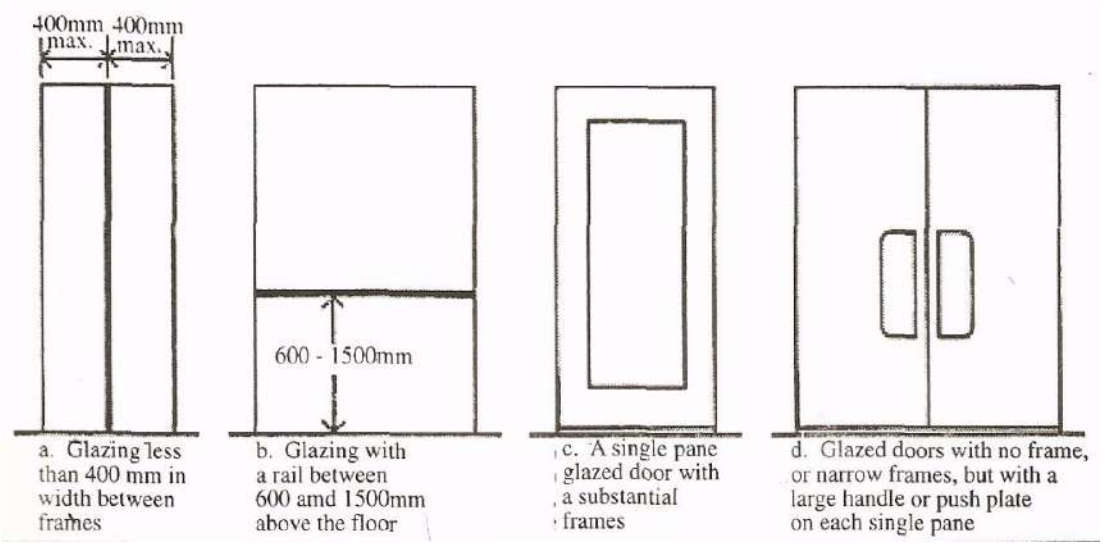


LL - 4.11 Alternative Indication of Glazing.

Examples of installations of glazing which would not normally warrant manifestation include-

(a) Door height transparent glazing less than 400mm in width
(b) Door height transparent glazing with a rail at a height of between 600mm and 1500mm above finished ground or floor level;
(c) A single pane glazed door with substantial framing or;
(d) A single pane glazed door which is either not framed or which has very narrow framing, but is provided with large easily seen push or pull plates or handles.

Figure F - 11: Number of methods indicating presence of Glazing



LL - 4.12 Adjustable Glass Louvre Blades

Glass louvre blades must be a minimum thickness of 4mm and the exposed edges must be polished.

The span of a louvre glass blade must not exceed 600mm.
Adjustable glass louvre blades are only permitted to be used on the ground and first floor.

LL - 5 ARCHITECTURAL GLAZING OR CLADDING

Curtain Walling must conform to BS 13830 and BS EN 13119

LL - 5.1 CATEGORIES

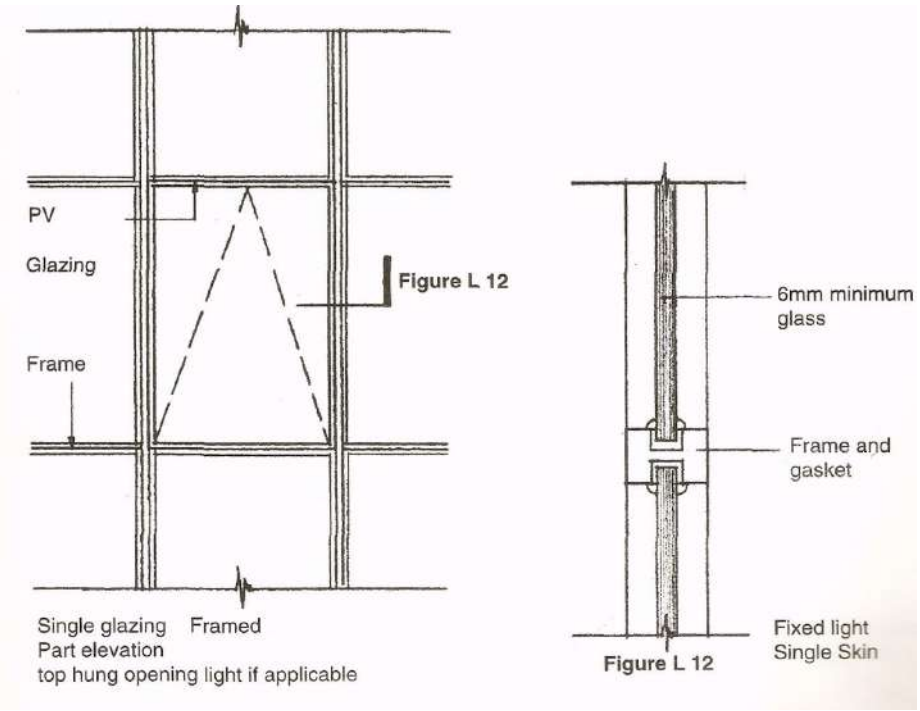
Architectural glazing and cladding is defined under the following categories:

(i) Glass curtain walling.
(ii) Rain screen cladding using modular composite panels or fixing system.
(iii) Stone cladding using modular composite panels or fixing system.
(iv) Aluminum cladding using modular composite panels or fixing system.
(v) Profile sheeting steel using modular composite panels or fix.
(vi) It shall be the responsibility of the Architect or Engineer to design to

international standards and specify those standards. Justification will be required from the Architect or Engineer that this occurred in order to comply with these Regulations.

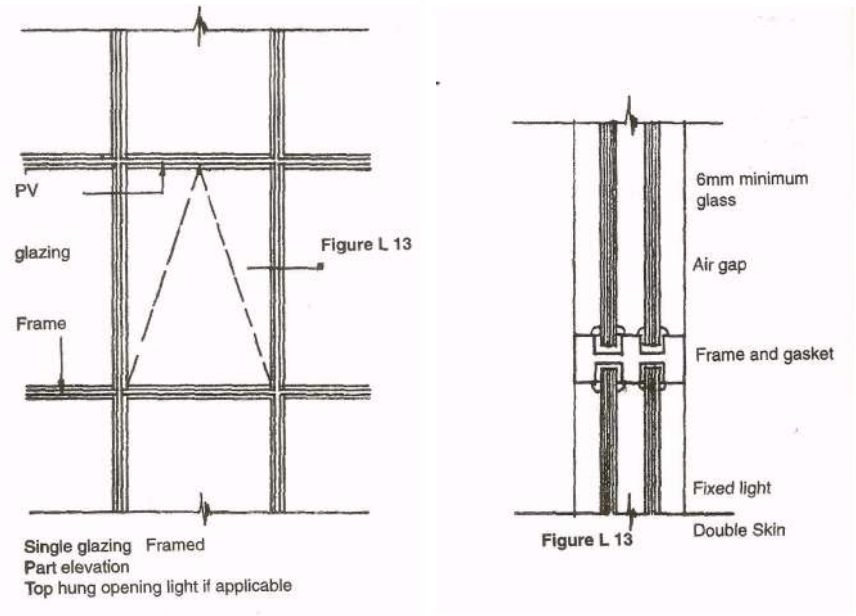
LL - 5.2 **LL5.1.** Framed clear or tinted glazing single skin curtain walling (Figure L 12).

Figure F - 12:



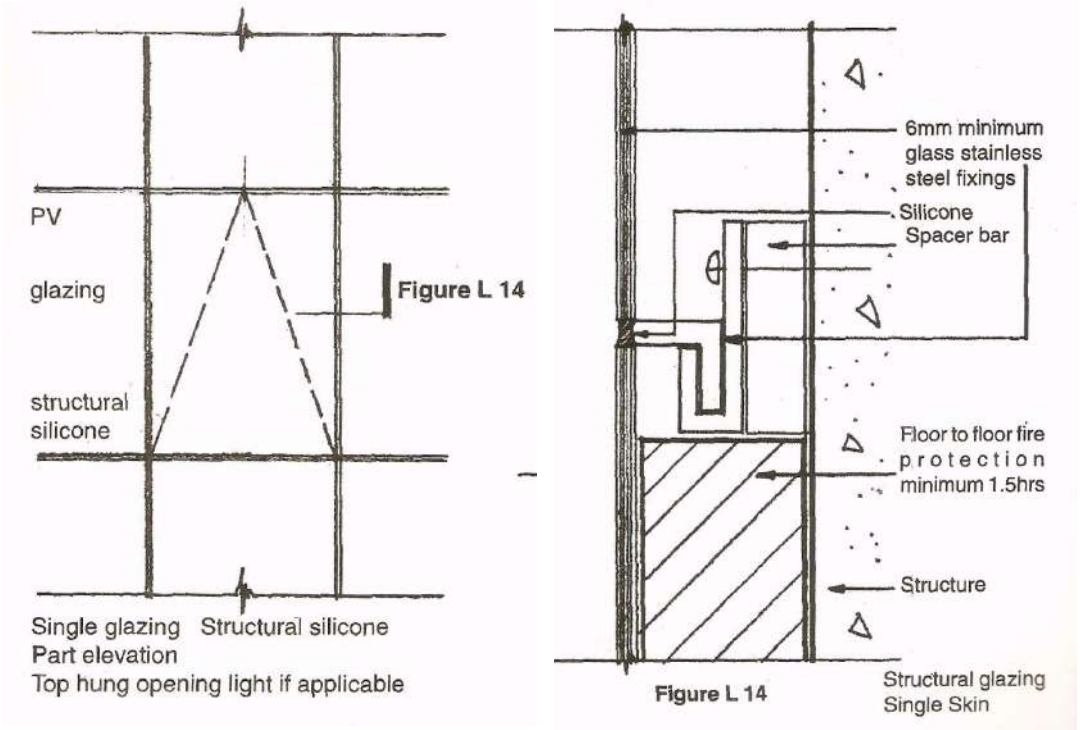
LL - 5.3 Framed Clear or tinted glazing double skin curtain walling (Figure L 13).

Figure F - 13:



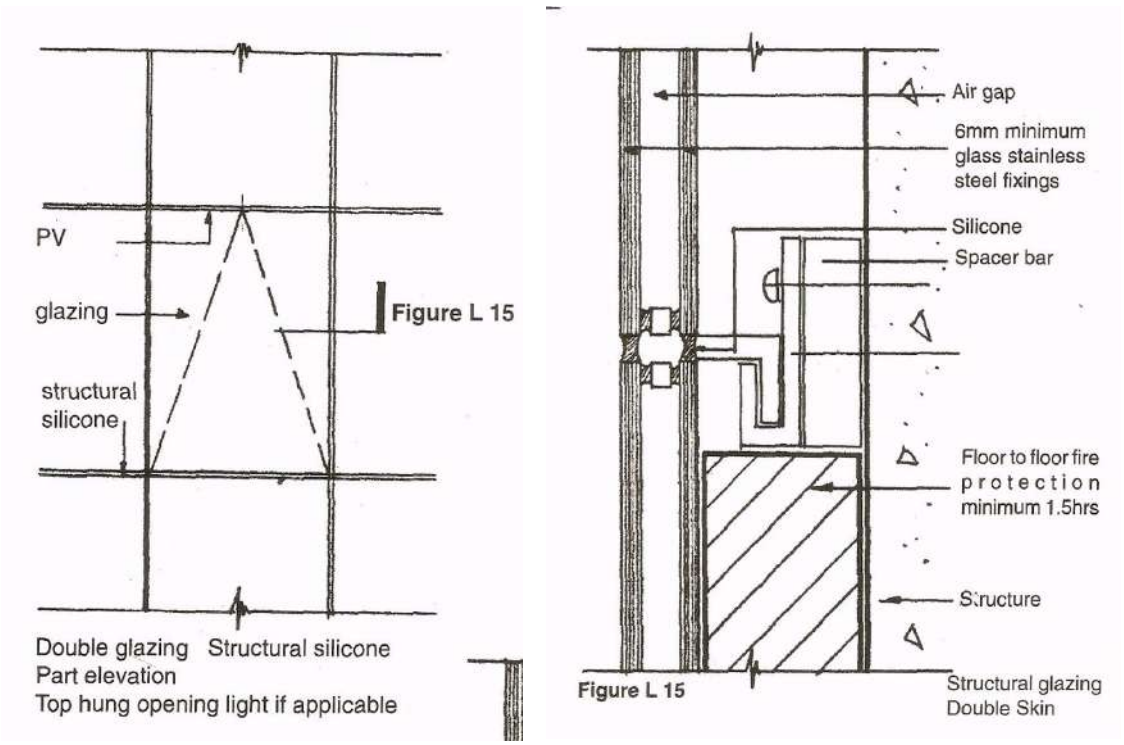
LL - 5.4 Frameless Structural Clear of tinted glazing single skin curtain walling (Figure L 14)

Figure F - 14:



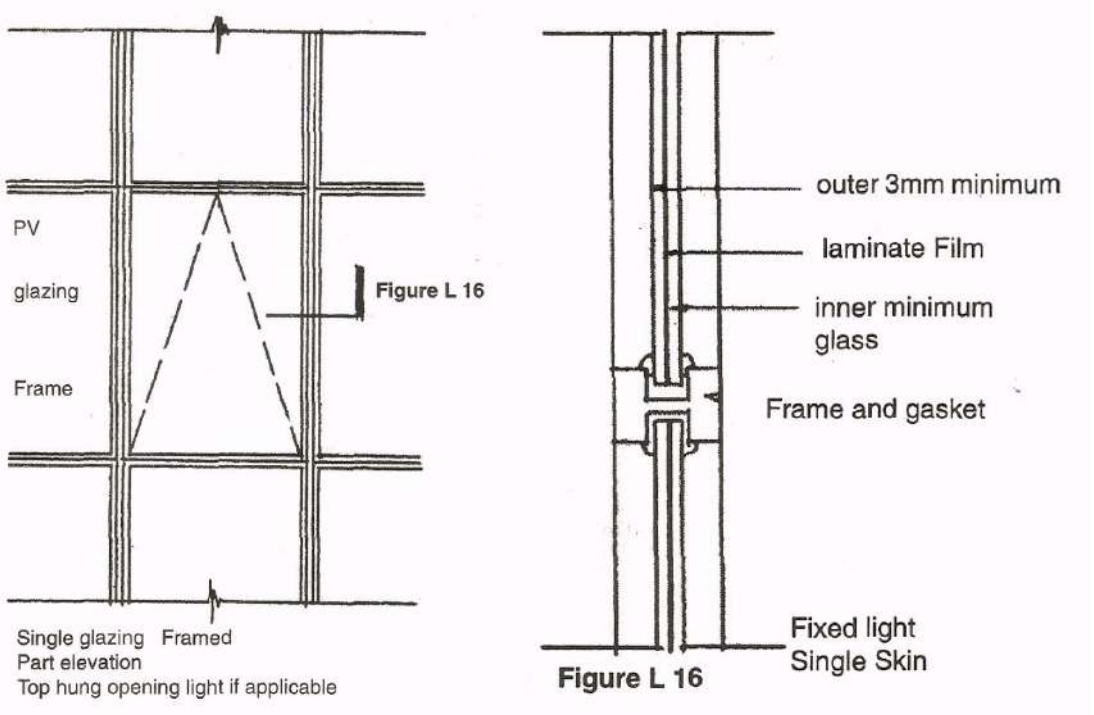
LL - 5.5 Frameless Structural Clear or tinted glazing double skin curtain walling (Figure L 15).

Figure F - 15:



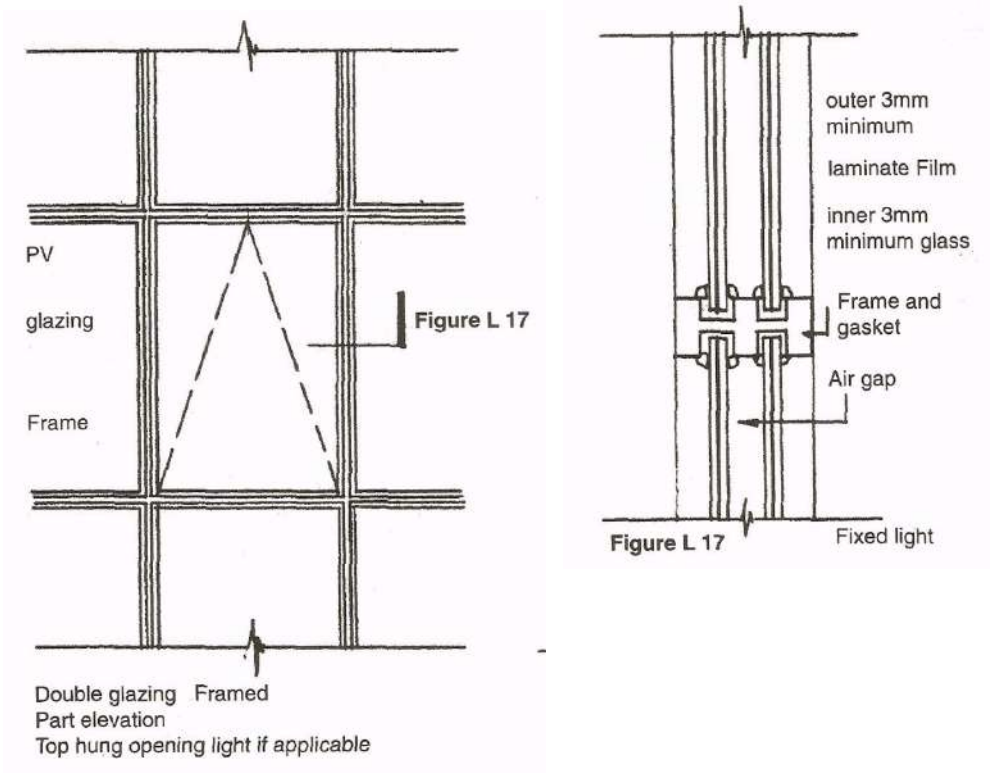
LL - 5.6 Framed Clear or tinted laminated glazing single skin, curtain walling (Figure L 16).

Figure F - 16:



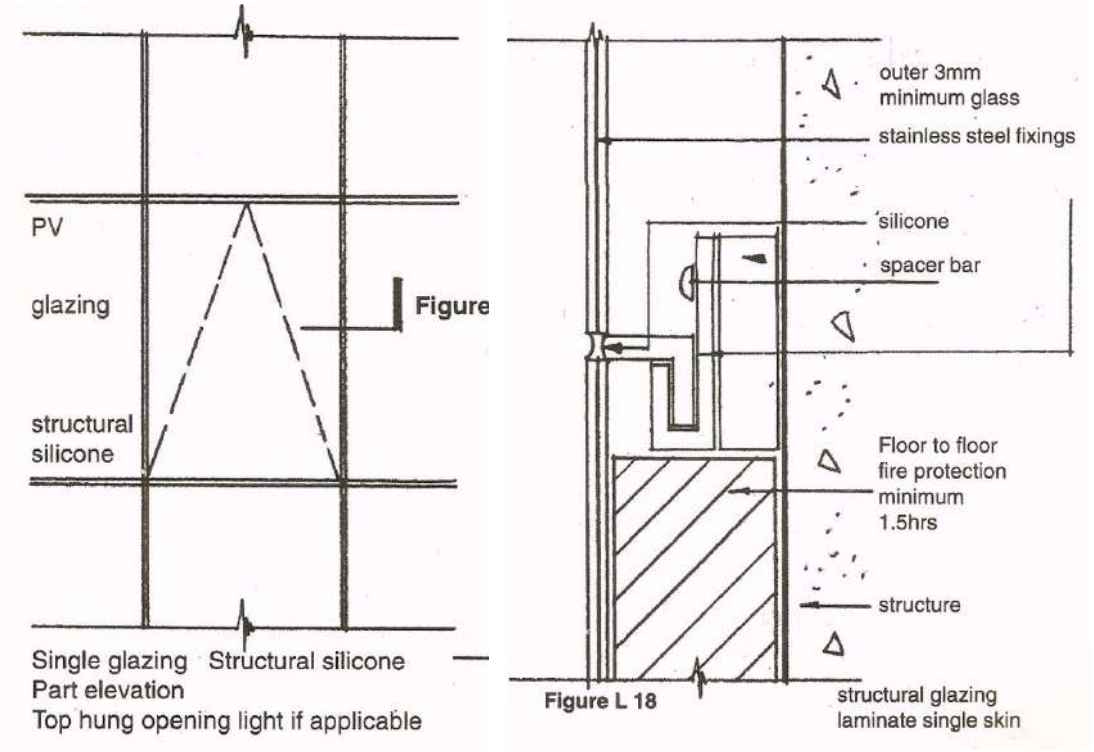
LL - 5.7 Framed clear or tinted laminated toughened/tempered glazing double skin curtain walling (Figure L 17).

Figure F - 17:



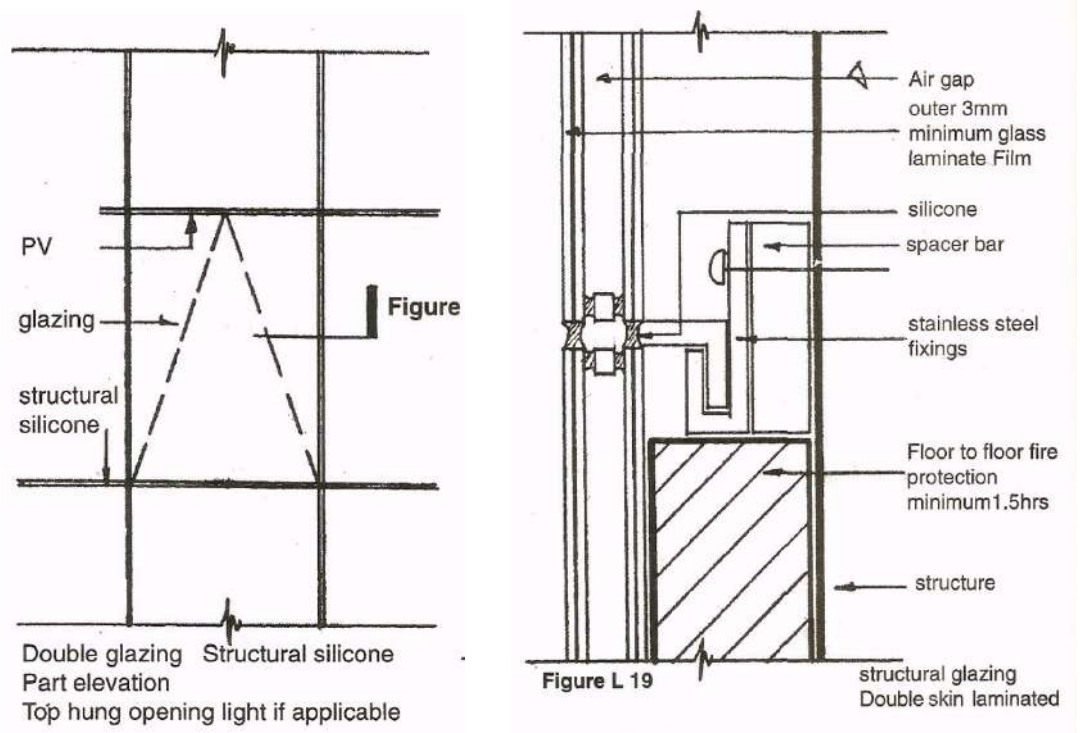
LL - 5.8 Frameless Structural Clear or tinted laminated toughened/tempered glazing single skin curtain walling {Figure L 18}

Figure F - 18:



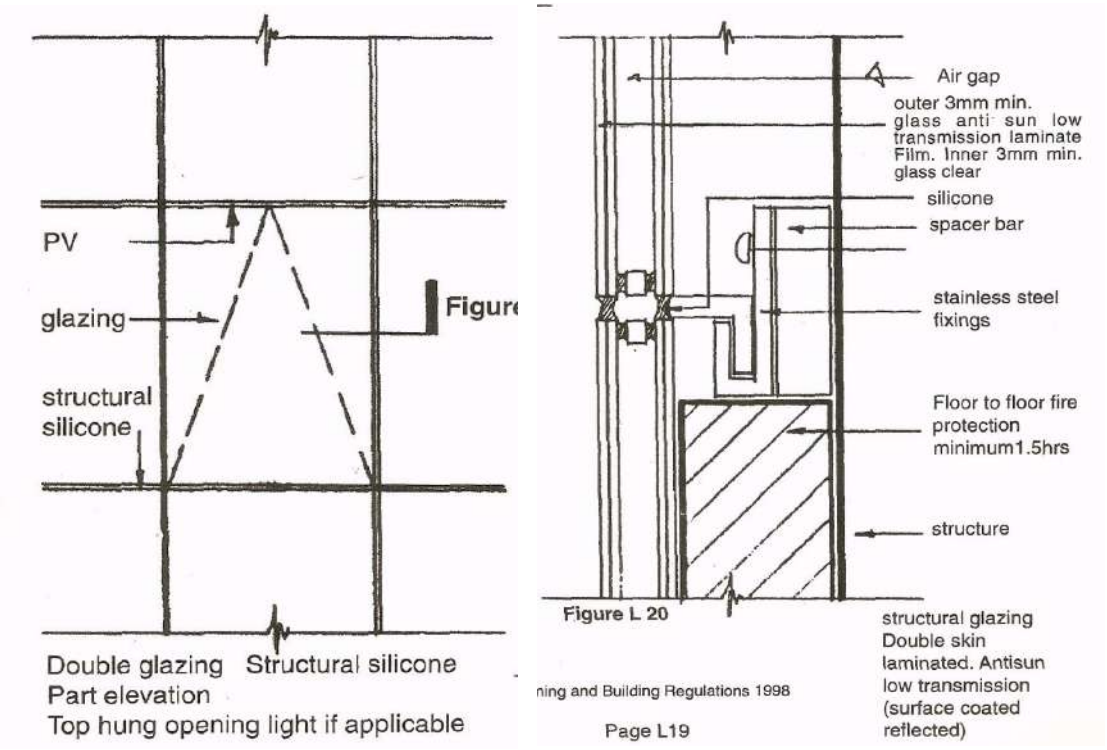
LL - 5.9 Framed Structural Clear or tinted laminated glazing double skin curtain walling (Figure L19).

Figure F - 19:



LL - 5.10 Frameless Structural Anti-solar glazing, curtain walling (Figure L 20).

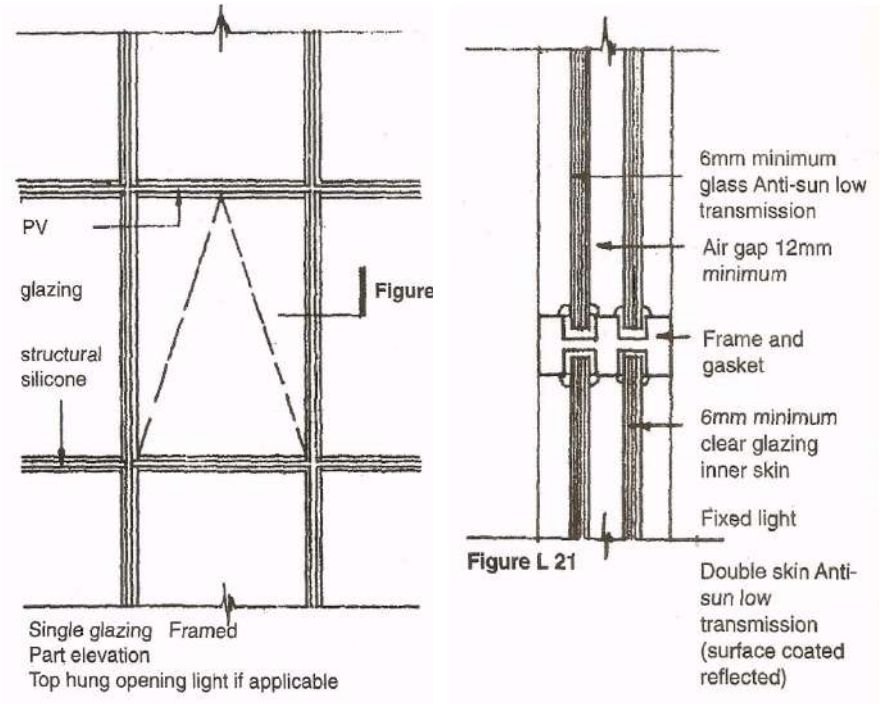
Figure F - 20:



LL - 5.11 Glazed Curtain Walling related to Sound insulation (Figure L21

It is good practice to provide good sound insulating seals to all glazing units. If these are consistent around a frame 10 decibels of sound reduction can be achieved.
The thicker the glass specified and the greater the sealed insulated air gap, the greater efficiency related to sound insulation will be achieved.

Figure F - 21:



LL - 5.12 Thermal Safety Check

The responsibility remains with the Architect or Engineer to receive from the specialist manufacturers, a guarantee that a full thermal movement safety check has been carried out related to unbroken areas of glazing.

LL - 5.13 Guarantee

The Architect and the Structural Engineer shall be responsible for arranging for a Certificate of Guarantee and Compliance for the curtain walling system, prior to the release of the Occupation Certificate.

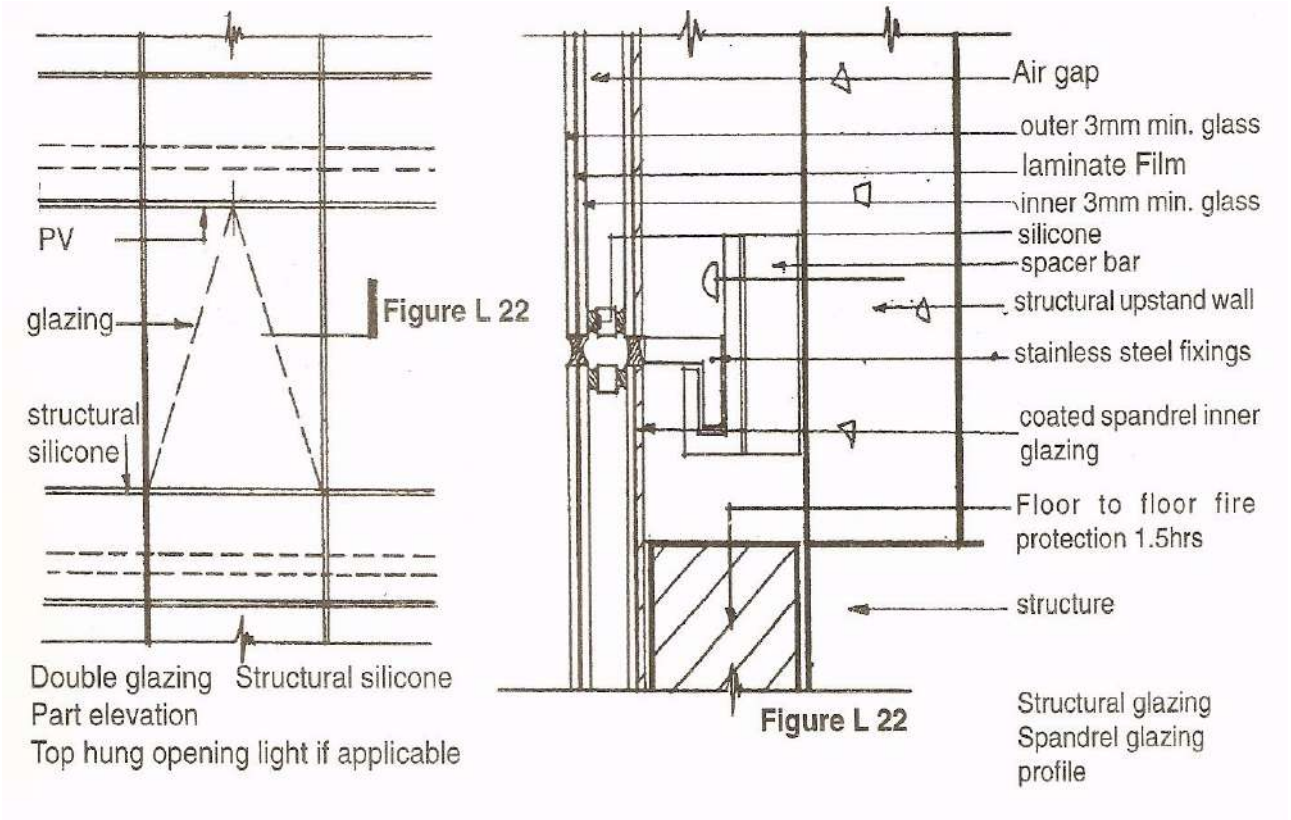
LL - 5.14 Sealing/Gasket

Sealing gaskets i.e. silicone, are to conform to British Standards
All glazing gaskets, sealing tapes, silicones and mastic shall Conform to BS 94/108 810 DC; BS 94/107 587 DC; BS 94/107 588 DC; BS 94/107 589 DC; and, BS 94/107 590 DC.

LL - 5.15 Framed Structural Spandrel Glazed Curtain Walling

Figure L 22 illustrates different methods of using curtain walling as a spandrel panel.

Figure F - 22:



LL - 5.16 Stone Cladding Curtain Walling

Indicate the minimum requirements when using glass curtain walling

LL - 5.17 Cleaning Systems of Curtain Walling

A cleaning cradle system is to comply with BS 2830 for all buildings where a fixed curtain walling system applies. If a cleaning cradle is not used, then the Architect must provide openable glazing units within the curtain walling system. The maximum dimension from any one point of the glazed opening light shall not exceed 3 metres, from the next glazed light.

LL - 6 SPECIFICATION REQUIREMENTS FOR GLAZED CURTAIN WALLING

All curtain walling glazing installations shall conform to the following codes for buildings over two storeys high - BS 94/108 810 DC; BS 94/107 587 DC; BS 94/107 588 DC; BS 94/107 589 DC; and, BS 94/107 590 DC.
Specialised manufacturers shop drawings may be requested from the Architect or Engineer. The onus is on the qualified person to achieve this minimum standard.

LL - 6.1 Fixings

All mechanical fixings of systems over 20metres high are to be stainless steel or any other non-corrosive material in accordance with BS 94/108 810 DC; BS 94/107587 DC; BS 94/107 588 DC; BS 94/107 589 DC; and, BS 94/107 590 DC.

LL - 6.2 Sound Insulation Glazing

It is good practice to provide good sound insulating seals to all glazing units. If these are consistent around a frame 10 decibels of sound reduction can be achieved.

The thicker the glass specified and the greater the sealed insulated air gap, the greater the efficiency related to sound insulation will be achieved.

LL - 6.3 Glazing Thickness

No glazing for curtain walling shall be less than 6mm thick.

LL - 6.4 Climate

The relevant climatic data from the Meteorological Department must be considered. The responsibility is on the qualified person to issue this information to the glazing specialist so that calculations can be achieved to meet safety requirements and international standards, and satisfy the Approving Authority accordingly.

LL - 6.5 Structural Loading Factors

Wind speed calculations and data are to be considered; earthquake prone zones must also be considered; the relevant Coefficient Correlation Factors must be issued by the Structural Engineer to the specialist manufacturers prior to fabrication of units.

LL - 6.6 Permanent Ventilation (PV)

PV's must be provided in the curtain walling.

LL - 7 STONE CURTAIN WALLING CLADDING

Specification requirements

(a) All stone cladding installation shall conform to the following code for building over two storeys high - BS 8298.

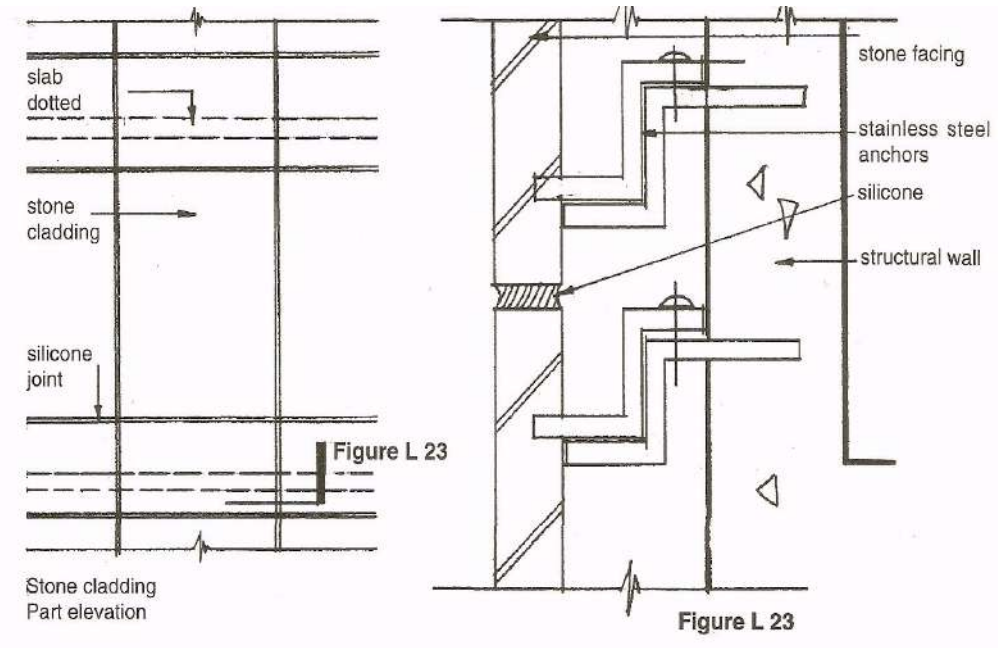
(b) Precast concrete paneling, granite, marble, stone, aluminum profiled sheet steel paneling shall have mechanical stainless steel fixings, over 20 metres high from the ground floor.

(c) It shall be the responsibility of the registered professional to design to international standards. Justification will be required from the qualified person that this has happened, failure to do so will result in the non-issuance of the Occupation Certificate.

The maximum thickness of the following materials shall apply:

	Granite	**Stone**	**Precast Concrete**	**Marble**	**Profile Sheet Steel**
Up to 20 metres from the ground floor	30mm	30mm	75mm	30mm	Not applicable
Over 20metres					
above the ground level	40mm	40mm	100mm	40mm	Not applicable
Maximum panel sizes permissible	1.20 metres vertically. 0.600 metres horizontally				Not applicable

Figure F - 23:



LL - 8 STRUCTURAL LOADING FACTORS

It shall be the responsibility of the Structural Engineer to design to international standards. Confirmation will be required from the Structural Engineer that this has happened, failure to do so will result in the non-issuance of the Occupation Certificate.

LL - 9 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence and shall be liable to a fine not less than KShs 3,000,000.00 (Kenya Shillings three million only) or imprisonment for a period not less than twelve (12) months or both.

SECTION M

STAIRWAYS, LIFTS AND ESCALATORS

CONTENTS

SECTION M

STAIRWAYS, LIFTS AND ESCALATORS

MM - 1 STAIRWAYS

MM - 1.1 Every building which exceeds one storey in height shall be provided with a staircase or staircases to give access to upper floors unless there is separate access to such upper floors.

MM - 1.2 The main staircase of every building which exceeds four storeys in height shall be continued to the roof of the building unless a secondary staircase of fire escape is provided.

MM - 1.3 The main staircase of every building which exceeds one storey in height shall:-

(a) have a clear height of not less than 2m;
(b) have a clear width of not less than 900mm in the case of domestic buildings but 1200mm in non-domestic buildings.
(c) be constructed as per the guidelines given in sub-regulation MM11
(d) have not more than 16 steps in any flight without the introduction of a landing;
(e) be provided on one or both sides with properly fixed handrails which, in section, shall be-
  (i) if tubular, not less than 38mm and not greater than 50mm in external diameter;
  (ii) if rectangular, not less than 40mm and not more than 50mm wide with an overall depth, or depth to a deep groove, of not more than 50mm;
  (iii) in any other case, such as to afford to the user thereto a grip analogous to that specified in the case of either tubular or rectangular handrails, whichever may be more appropriate having regard to the shape of the section.

(f) be so arranged as to provide access to a street or to an open space;
(g) if continued to the roof of the building as a means of escape in case of fire be provided with a door at this level, such door to be glazed in the upper panels.

MM - 2 STAIRCASES IN BUILDINGS INTENDED FOR SEPARATE OCCUPATION

In any building intended for separate occupation by more than two tenants, the staircase intended for common use shall be provided with adequate natural lighting at each storey above the ground floor and be ventilated at least at its highest point.

MM - 3 ESCALATORS TO BE IN ADDITION TO STAIRCASES OR FOR SEPARATE OCCUPATION

MM - 3.1 Where an escalator is installed in any building, it shall be in addition to-

(a) any staircase required by Regulation MM1; and
(b) the means of escape in case of emergency and second staircase required by Regulation MM4.

MM - 3.2 An escalator shall not be a staircase, passage or other normal means of egress for the purposes of these Regulations.

MM - 4 STEPS AND LANDINGS

MM - 4.1 An unrestricted area shall be provided at each landing of an escalator to accommodate passengers. Such unrestricted area shall have:-

(a) a width of not less than the distance between the handrail center lines of the escalator; and
(b) a depth, measured from the end of the balustrade, of not less than 2.5m, or not less than 2m. if the width of the unrestricted area is increased to at least double the distance between the handrail centre lines.

MM - 4.2 A clear height of not less than 2.3m shall be provided above:-

(a) the steps of an escalator at all points; and
(b) any unrestricted area provided in accordance with sub regulation

MM - 5 MEANS OF ESCAPE

MM - 5.1 Every building shall be provided with such means of escape in case of emergency as may be required by the intended use of the building.

MM - 5.2 Without prejudice to sub-regulation MM5.1, every building which exceeds 3 storeys in height shall, in addition to the main staircase, be provided with a second staircase as means of escape in case of emergency.

MM - 6 ACCESS STAIRCASES FOR FIREMEN

MM - 6.1 Subject to sub-regulation MM6.4, every building that exceeds 1 storey in height shall be provided with an adequate number of staircases, so designed and constructed as to allow firemen safe and unobstructed access to all floors of the building in the event of a fire ("access staircases").

MM - 6.2 In determining what is, in respect of a building, an adequate number of access staircases, regard shall be had to the intended use of the building and the size of each floor.

MM - 6.3 The access staircase or staircases in a building shall be so designed and constructed that, in the event of a fire:-

(a) an adequate number of firemen, with equipment, may reach the fire; and
(b) firemen using the staircase or staircases are adequately protected from fire and smoke.

MM - 6.4 This Regulation does not apply to a building not exceeding 3 main storeys in height that is used or intended to be used solely for domestic purposes and constituting a single household unit.

MM - 7 LOADS AND DIMENSIONS OF STAIRWAYS

(a) Any stairway, including any wall, screen, railing or balustrade to such stairway, shall be capable of safely sustaining any loads to which it is likely to be subjected and shall permit safe movement of persons from floor to floor.
(b) Any such stairway shall have dimensions appropriate to its use.

MM - 8 PEDESTRIAN ENTRANCES TO PARKING AREAS IN BUILDING

Where any pedestrian entrance is provided to a vehicle parking area in any building, such entrance shall be so positioned, marked or protected that no pedestrian can unintentionally walk into the path of any moving vehicle:

Provided that this requirement shall not apply in respect of any building classified as H4 in terms of Regulation AA23.

MM - 9 FIRE SAFETY REQUIREMENTS

A stairway contemplated in Regulation MM7 shall comply with the relevant requirements in Part S of these Regulations.

MM - 10 DIMENSIONAL REQUIREMENTS IN STAIRWAYS

MM - 10.1 The headroom at any point on any stairway shall be not less than 2.0m measured vertically from the pitch line, and the width of the stairway, measured to any enclosing wall or balustrade, shall be not less than 900mm. (as shown in figure M1)

MM - 10.2

(a) Any landing serving two flights in the same straight line shall:-
  (i) have a length of not less than 900mm; and
  (ii) have a width of not less than that of such flights.
(b) No flight of stairs shall have a vertical rise greater than 3m between landings.
(c) No door shall open onto a stairway unless such door opens onto a landing and the width of such landing shall be not less than that of such door.

MM - 10.3 The rise of any step shall not exceed 200mm (as shown in figure M2). The going and width of any tread shall be not less than 225mm:

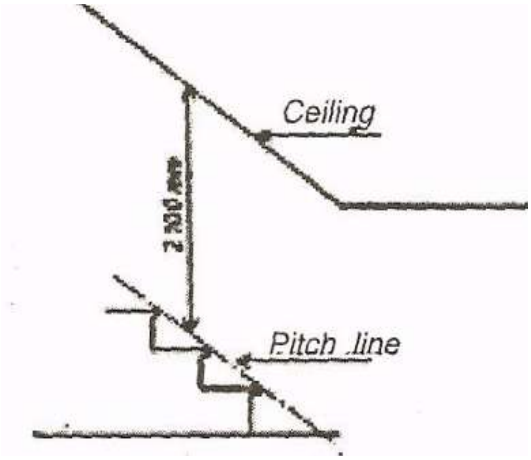
Provided that where the stairway does not have solid risers, each tread shall overlap the next lower tread by not less than 25mm.

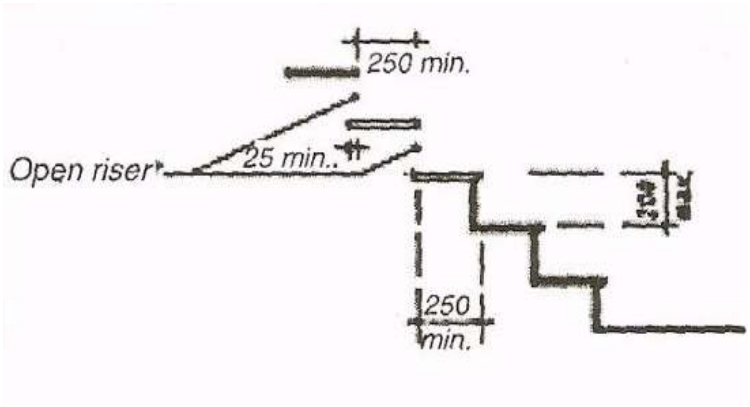
MM - 10.4 The dimensions of the risers and the going of the treads in any one flight shall be uniform.

Provided that this requirement shall not be construed as prohibiting the use of tapered treads in the same flight as treads that are not tapered.

Figure M - 1: Measurement of headroom on stairways

Figure M - 2: Dimensions of treads and risers.





MM - 10.5 Any tapered tread not being a winder and not forming part of a spiral stairway shall:-

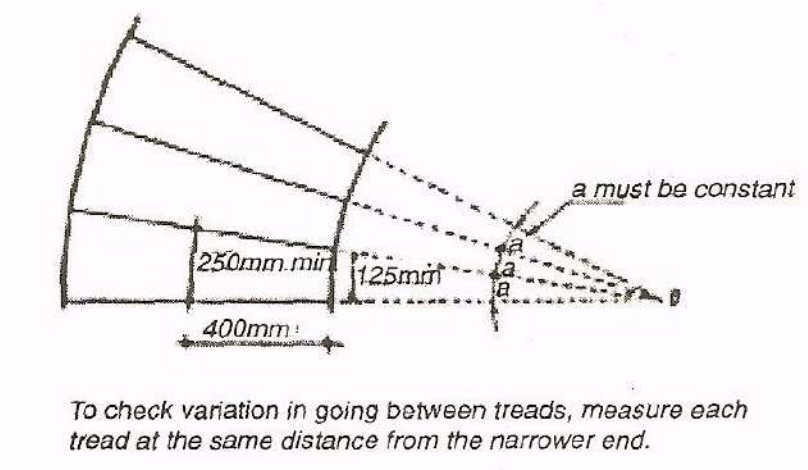
(a) be so designed that, in respect of that part of the tread which is 400mm from the narrower end of such tread, the going:-
  (i) shall comply with the requirement contained in sub regulation MM10.4; or
  (ii) shall be equal, in the case of a flight containing both tapered and non-tapered treads, to the going of the non-tapered treads;

(b) have a minimum going of 125mm;

(c) Be so constructed that the angle between successive risers, measured in the horizontal plane, shall be constant; and

(d) comply with the requirement for variation in going contained in sub regulation MM10.5; where such variation is in each case measured at the same distance from the narrower end of each tread.

Figure M - 3: Measurement of a tapered tread



To check variation in going between treads, measure each tread at the same distance from the narrower end.

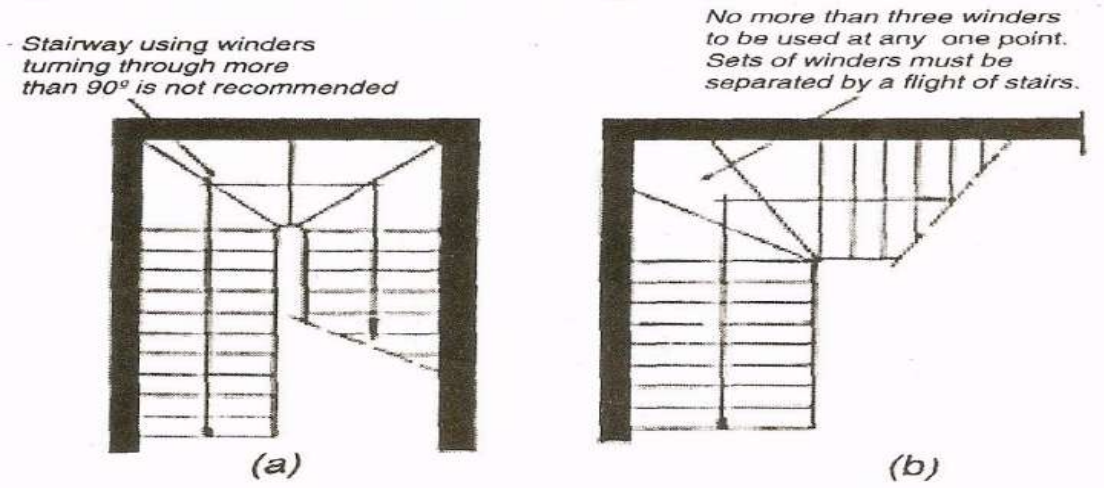
MM - 10.6 Stairways incorporating winders shall be permitted only in dwelling houses and within individual dwelling units, and at any point on such stairway:-

(a) there shall be not more than three successive winders; and
(b) such winders shall not turn through more than 90°- (fig M4)

MM - 10.7 Any spiral stairway shall have a width of not less than 800mm and such stairway shall be used:-

(a) as part of any emergency route; or
(b) in any occupancy classified in terms of Regulation AA23.

Figure M - 4: Permissible use of winders



MM - 11 PREVENTION AGAINST FALLING

(a) Any flight of steps which contains more than three risers shall have protection on each side provided by a secure wall, screen, railing or balustrade which shall be not less than 1m high and so erected that any such wall, screen, railing or balustrade in any occupancy classified E2, E3, H1, H2 and H3 shall not have any opening that permits the passage of a 100mm diameter sphere: Provided that such protection in any occupancy not being an occupancy classified E2, E3, HI, H2, H3 and H4 shall consist of at least a handrail and one other rail midway between such handrail and the stair tread.

(i) Any flight of steps which contains more than five risers shall be provided with at least one continuous handrail extending the full length of such flight: Provided that this requirement shall not apply to any building classified H3 or within individual dwelling units in occupancy classified H4.

(ii) Such handrail shall be securely fixed to such wall, screen, railing or balustrade at a height of not less than 850mm and not more than 1m measured vertically from the pitch line to the upper surface of the handrail.

(iii) Such handrail shall be of such a design and be so fixed that there shall be no obstructions on, above or near to it which may obstruct the movement of any hand moving along it

(b)

(i) Subject to this Regulation, any flight which is less than 1.1m wide shall have a handrail on at least one side and where the width of any flight is more than 1.1m, handrails shall be provided on both sides of such flight.

(ii) Such handrails shall comply with the requirements contained in this regulation.

MM - 12 STEEPNESS OF STAIR RISE AND GOING

MM - 12.1 The requirement will be satisfied if in a flight, the steps all have the same rise and the same going to the dimensions shown in sub regulation MM12.3 or comply with sub-regulations MM12.4 and MM12.5

MM - 12.2 Three categories of stairs are considered in these Regulations:-

(a) **"Private"** intended to be used for only one dwelling.
(b) "**Institutional and assembly"** serving a place where a substantial number of people will gather.
(c) **"Others"** in all other buildings.

MM - 12.3

(d) Indication of the practical limits for rise and going, for each category of stair which satisfies the requirements, is given below:-

(i) **Private stair**: Any riser is between 155mm and 200mm used with any going between 245mm and 260mm, or Any riser is between 165mm and 200mm used with any going between 225mm and 300mm.
(ii) **Institutional and assembly stair**: Any riser between 135mm** and180mm** used with any going between 280mm and 340mm.
(iii) **Other stair**: Any rise between 150mm** and 190mm** used with any going between 250mm and 320mm.

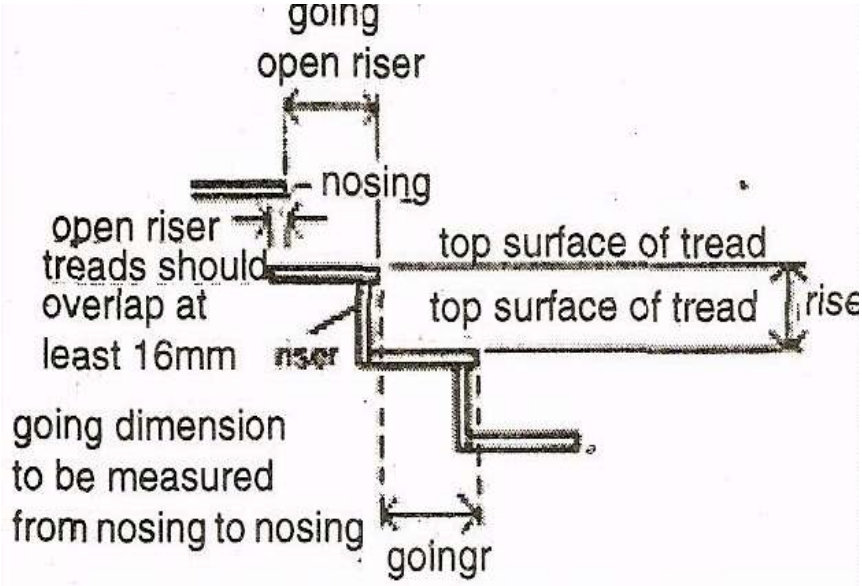
MM - 12.4 Table M1 gives the maximum rise and minimum going for the three stair categories.

Table F - 1: Rise and Going

		Maximum Rise (mm)	Minimum Going (mm)
1.	Private stair	220*f*	220f
2.	Institutional and assembly stair	180**	280*
3.	Other stair	190**	250

Note:
f The maximum pitch for a private stair is 42 degrees.
** If the area of a floor of the building is less than l00m^2 the going may be reduced to 250mm.*
*** For maximum rise for stairs providing the means of access for disabled people reference should be made to Part B.*

Figure M - 5: Measuring Rise and Going



MM - 12.5 The normal relationship between the dimensions of the rise and going is that twice the rise plus the going (2R+G) should be between 550mm and 700mm, the most comfortable being 640mm + or - 20mm.

Figure M5 shows how to measure the rise and going (for steps with tapered treads, see also sub-regulation MM12.15

MM - 12.6 In assembly buildings, the gangways may need to be at different pitches to maintain sightlines for spectators and this may affect the main stairs etc;

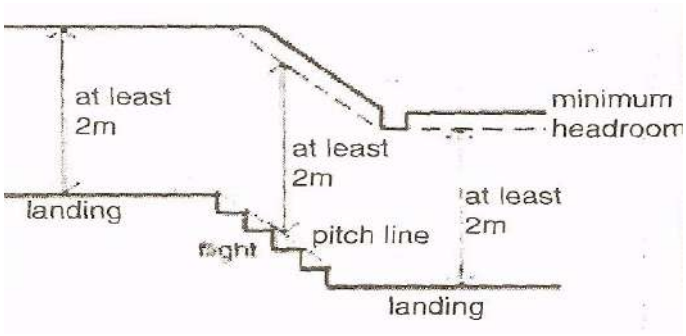
MM - 12.7 The maximum pitch for gangways for seated spectators is 35 degrees.
Steps should have level treads.
Steps may have open risers, but treads should then overlap each other by at least 16mm.
For steps in buildings providing the means of access for disabled people reference should be made to Part B.

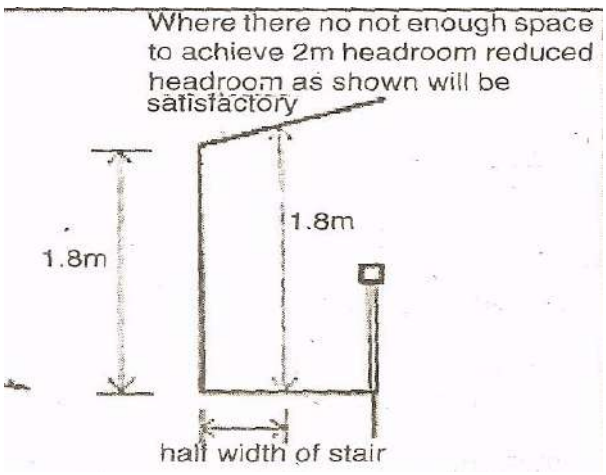
MM - 12.8 All stairs which have open risers and are likely to be used by children under 5 years should be constructed so that a 100mm diameter sphere cannot pass through the open risers.

MM - 13 HEADROOM ON STAIRS

A headroom of 2m is adequate on the access between levels (See Figure M6). For loft conversions where there is not enough space to achieve this height, the headroom will be satisfactory if the height measured at the centre of the stair width is 1.9m reducing to 1.8m at the side of the stair as shown in Figure M7.

Figure M - 6: Measuring headroom
Figure M - 7: Reduced Headroom for Loft Conversions





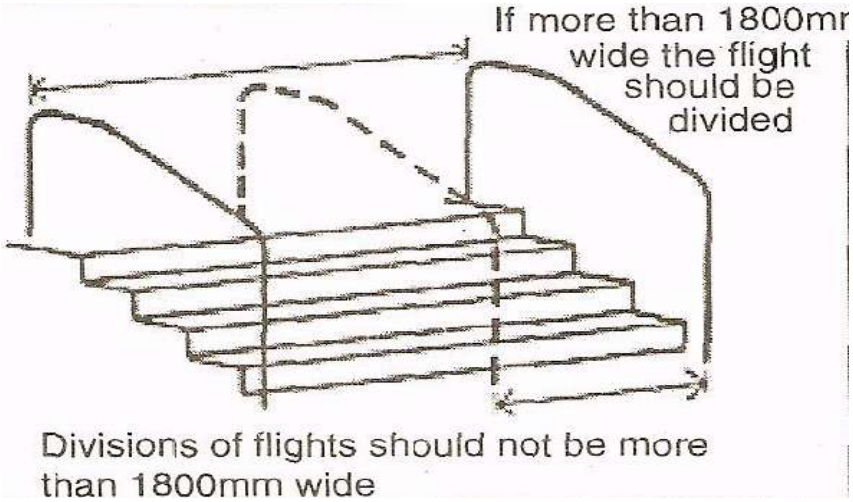
MM - 13.1 WIDTH OF FLIGHTS OF STAIRS

The minimum stair width for an auxiliary staircase shall not be less than 750mm .Designers should bear in mind the requirements for stairs which:-

(a) form part of means of escape, reference should be made to Part S.
(b) provide access for persons with disability, reference should be made to Part B

MM - 13.2 A stair in a public building which is wider than 1800mm should be divided into flights which are not wider than 1800mm as shown in Figure M8.

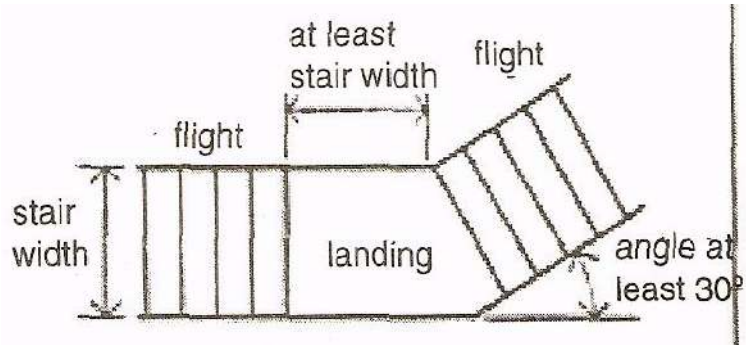
Figure M - 8: Dividing Flights



MM - 13.3 Length of Flights of Stairs

The number of risers in a flight should be limited to 16: Provided that: Stairs having more than 36 risers in consecutive flights should make at least one change of direction between flights of at least 30°. (See Figure M9)

Figure M - 9: Change of Direction

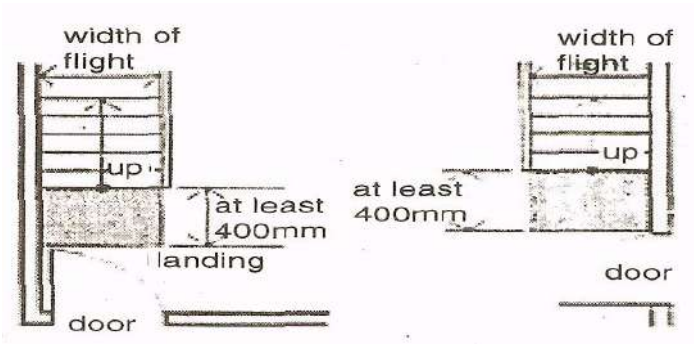


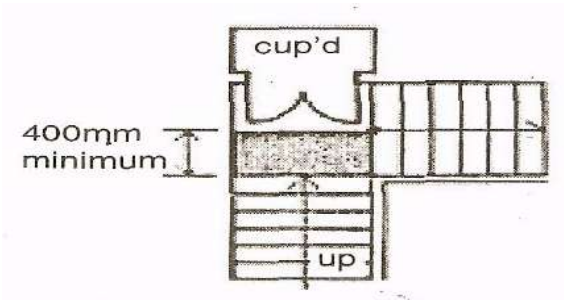
MM - 13.4 Landings on Stairs

MM - 13.5 Landings on stairs should be provided at the top and bottom of every flight. The width and length of every landing should be at least as great as the smallest width of the flight. The landing may include part of the floor of the building:
Provided that to afford safe passage landings should be clear of permanent obstruction. A door may swing across a landing at the bottom of a flight but only if it will leave a clear space of at least 400mm across the full width of the flight (See Figure M10). Doors to cupboards and ducts may open in a similar manner over a landing at the top of a flight (See Figure M11). For means of escape requirements reference should be made to Part S.

MM - 13.6 Landings should be level unless they are formed by the ground at the top or bottom of a flight. The maximum slope of this type of landing may be 1 in 20 provided that the ground is paved or otherwise made firm.

Figure M - 10: Landings next to Doors
Figure M - 11: Cupboard onto Landing





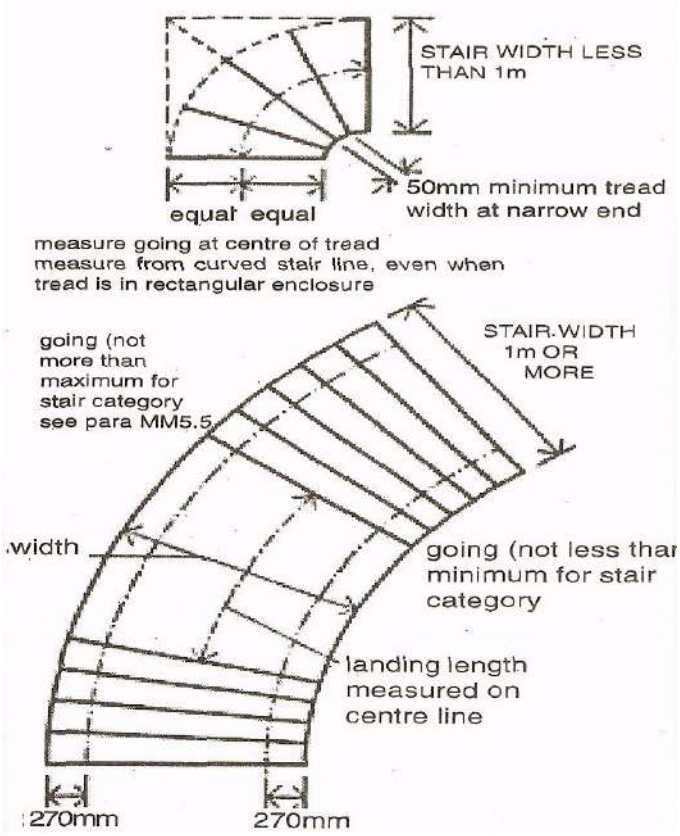
MM - 13.7 Stairs with Tapered Treads

For stairs with tapered treads the going should be measured as follows:-

(a) if the width of flight is narrower than 1 m measure in the middle; and,
(b) if the width of flight is 1 m or wider measure 270mm from each side.
(c) The requirement shall be satisfied if the rise and going complies with advice in sub-regulations MM12.1 to MM12.5

The going of tapered treads should measure at least 50mm at the narrow end. (See Figure M12)

Figure M - 12: Measuring Tapered Treads



MM - 13.8 Stairs in Conversion Work

Stairs shall only be designed in accordance with these Regulations:
Provided that stairs with goings less than acceptable in this Part may be considered in conversion work when space is limited and the stair does not serve more than one habitable room.

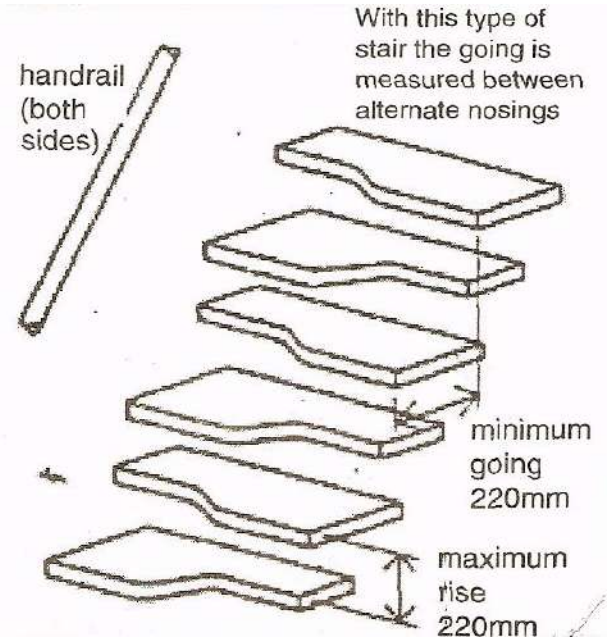
MM - 13.9 Alternating Treads Stairs

(a) This type of stair is one of a number of stair types designed to save space. The general pattern of steps has alternate handed steps with part of the tread cut away; the user relies on familiarity and regular use of reasonable safety (See Figure M13).

(b) Alternating tread stairs should only be used in one or more straight flights for a loft conversion and then only when there is not enough space to accommodate a stair satisfying sub regulations MM12.1 to MM12.14. It should only be used for access to one habitable room, together if desired with a bathroom and or a water closet. This water closetmust not be the only water closetin the dwelling.

(c) Steps should be uniform with parallel nosings. The stair should be used with handrails on both sides and the treads should have slip resistant surfaces. The tread sizes over the wider part of the step should be in line with dimensions shown in Table M1 with a maximum rise of 220mm and a minimum going of 220mm. The provisions stated in sub-regulation MM12.3 will apply.

Figure M - 13: Alternating Tread Stair



MM - 13.10 Fixed Ladders

Fixed ladder shall have fixed handrails on both sides and should only be used in a loft conversion and then only when there is not enough space without alteration to the existing space to accommodate a stair which satisfies sub-regulations MM12.1 to MM12.14. It should be used for access to only one habitable room. Retractable ladders are not acceptable for means of escape.

MM - 13.11 Handrails for Stairs

Stairs, ladders and walkways shall , be designed and constructed in accordance with these Regulations.

(a) Stairs shall have a handrail on at least one side if they are less
(b) than 1.1 m wide. They should have a handrail on both sides if they are wider. Handrails should be provided beside the two bottom steps in public buildings and where stairs are intended to be used by people with disabilities.
(c) In all buildings handrail height shall be between 850mm and
(d) 1000mm measured to the top of the handrail from the pitch line or floor.
(e) Handrails can form the top of a guarding if the heights can be
(f) matched.

MM - 13.12 Guarding of Stairs

(a) Flights and landings shall be guarded at the sides (See Figure M15)
  (i) in dwellings - when there is a drop of more than 600mm.
  (ii) in other buildings - when there are two or more risers.
(b) Except stairs not likely to be used by children under 5 years (for example in accommodation for old people) the guarding to a flight should prevent children being held fast-by the guarding. The construction should be such that:-
  (i) a 100mm sphere cannot pass through any openings in the

(ii) guarding and
(iii) children will not readily be able to climb the guarding.

(c) The guarding shall be able to resist a horizontal force, at the height
(d) given in Diagram M14 of 0.36kN for each metre of length if it guards a private stair or as shown in Figure M15 if it guards any other stair.

PEDESTRIAN GUARDING

MM - 14 SITING

Guarding shall be provided where it is reasonably necessary for safety to guard the edges of any part of a floor (including an opening window) gallery, balcony, roof (including roof lights and other openings), any other place to which people have access (unless it is only for the purpose of maintenance or repair) and any light well, basement area or similar sunken area next to a building. Guarding shall also be provided in vehicle parks, but not on any ramps used only for vehicle access. Guarding need not be provided to such places as loading bays where it would obstruct normal use.

MM - 15 DESIGN

Any wall, parapet, balustrade or similar obstruction may serve as guarding. Guarding shall be at least the height shown in Table M2. Guarding shall be capable of resisting at least the horizontal force given in Table M2 applied at the height shown. Where glazing is used in the guarding, reference should be made to Part L (Glazing, Cladding Materials and Protection).

Table F - 2: Guarding Design

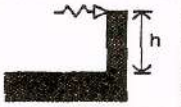
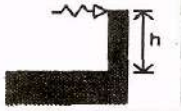
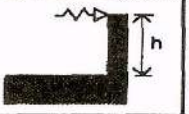
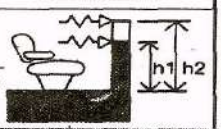
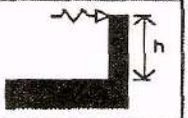
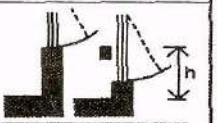
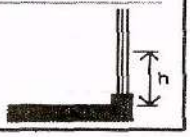
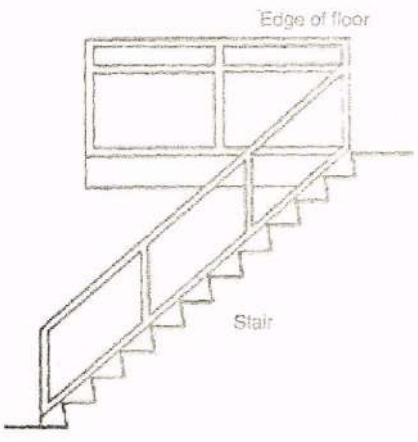
Building Category and location		Strength	Height (h)	
Single family dwellings	stairs, landings, ramps, edges of internal floors	0.36kN/m	900mm for all elements	
	external balconies and edges of roof	0.74kN/m	1100mm	
Factories & warehouses (light traffic)	stairs, ramps	0.36kN/m	900mm	
	landings and edges of floor	0.36kN/m	1100mm	
Residential, institutional, educational, office, and public buildings	all locations	0.74kN/m	900mm for flights otherwise 1100mm	
Assembly	530mm in front of fixed seating	Refer to BS 6399 Part 1	800mm (h1)	
	all other locations		900mm for flights elsewhere 1100mm (h2)	
Retail	all locations	1.5kN/m	900mm for flights otherwise 1100mm	
All buildings	at opening windows except roof windows in loft extensions, see Approved Document B1, Diagram 4		800mm	
	at glazing to changes of level	to provide containment	below 800mm	

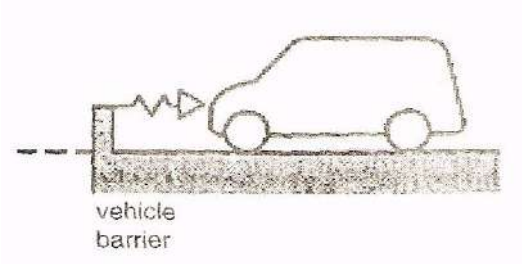
Figure M - 14: Typical Locations for Containment



MM - 15.1 Vehicle Barriers

If vehicles have access to a floor, roof or ramp which forms part of a building, a barrier should be provided to any edges which are level with or above the floor or ground or any other route for vehicles (See Figure Ml5 and M16)

Figure M - 15: Barrier Siting

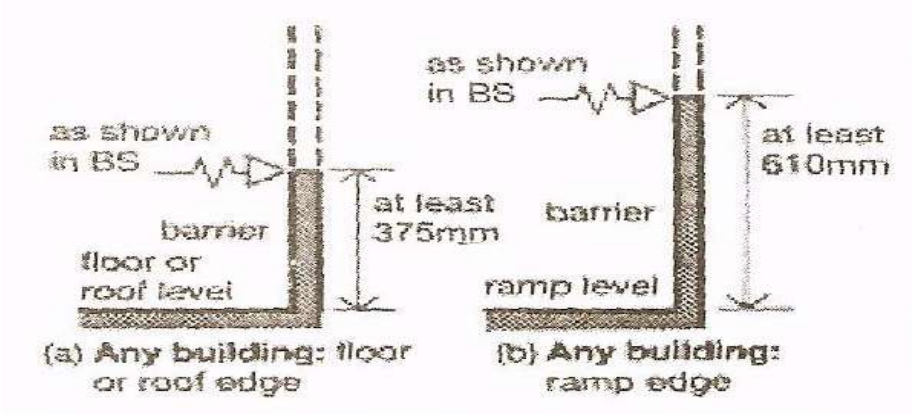


MM - 16 DESIGN FOR VEHICLE BARRIERS

Any wall, parapet, balustrade or similar obstruction may serve as a barrier.

Barriers should be at least the height shown in Figure M16 and should be capable of resisting forces set out in BS 6399 Loading for buildings: Part 1: 1984 Code of Practice for dead and imposed loads.

Figure M - 16: Barrier Design



MM - 17 RAMPS IN GENERAL

MM - 17.1 In any building not being classified H4, or any site on which such building is situated, any:-

(a) ramp or driveway used by motor vehicles shall have a gradient of not
(b) more than 1 in 25 within a distance of 5m from any street boundary crossed by such ramp or driveway;
(c) ramp or driveway used by pedestrians shall have a gradient of not
(d) more than 1 in 12;
(e) ramp designed for use by both vehicles and pedestrians shall have a walkway not less than 1.2m wide which shall be provided with a kerb not less than 150mm high.

MM - 18 PEDESTRIAN RAMPS

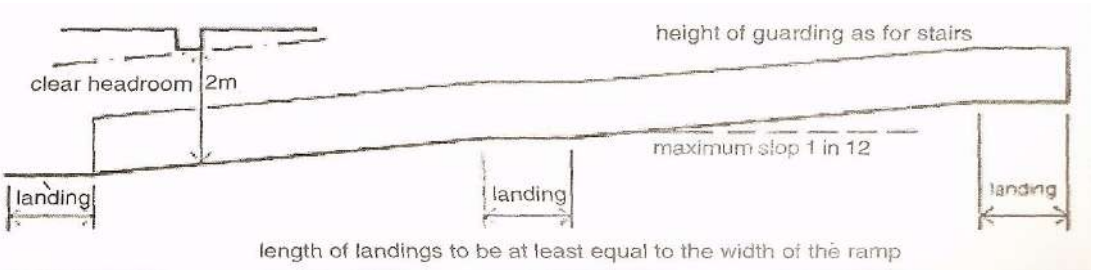
MM - 18.1 Steepness

To permit safe passage, the steepest slope of ramp that should be used is 1:12.

MM - 18.2 Headroom

All ramps and landings should have clear headroom throughout of at least 2m (See Figure M17).

Figure M - 17: Ramp design



MM - 18.3 Width

Ramps which form means of escape shall be designed in accordance with the provisions of Part S, while ramps which provide access for disabled persons shall be designed in accordance with the provisions of Part B.

MM - 18.4 Obstruction of Ramps

Ramps shall at all times be clear of permanent obstructions.

MM - 18.5 Handrails

(a) Ramps that are 600mm wide or less shall have no handrail.
(b) Ramps that are less than 1m wide shall have at least one handrail.
(c) Ramps that are over 1m wide shall have handrails on both sides.
(d) Handrails shall be at a height of between 850mm and 1000mm and should give firm support and allow a firm grip.
(e) Handrails can form the top of the guarding if the heights can be matched.

MM - 18.6 Landings

Ramps should be provided with a landing after every 9.0m of travel distance.

MM - 18.7 Guarding

Ramps and their landings should be guarded at their sides in the same way as stairs.

VEHICULAR CIRCULATION

MM - 18.8 External Circulation

Figures M18 to M27 represents minimum dimensional data in connection with external circulation.

MM - 18.9 Classification of vehicular circulation

Parking and parking Recommendations
Vehicular types
Turning circles
Garages
Access ramps
Barrier control types
Columns guard types
Signage.

MM - 18.10 Parking and parking Recommendations

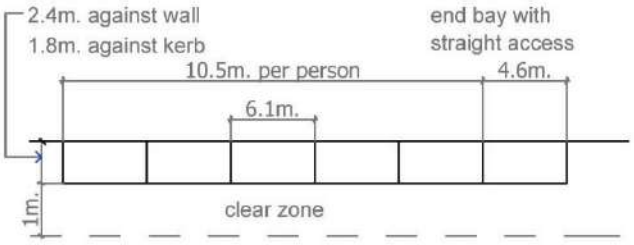
The minimum car parking dimensions shall be 2.4 x 4.8 m. (See Figure M18)

Basic Parking Dimensions
-Standard parking bay (stall) 4.8 x 2.4
-Allow 24 sq.m. per car
-Can contain most European cars
-Areas include half the clear zone,
but not access gangways.

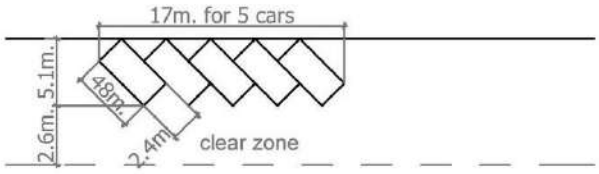
Basic Parking Dimensions
-Standard parking bay (stall)5.8 x 2.8
-Allow 33 sq.m. per car
-To accommodate American and
large European cars
-Areas include clear zone,
but no access gangways.

MM - 18.11 Minimum Dimensions for garages (See figure 19)

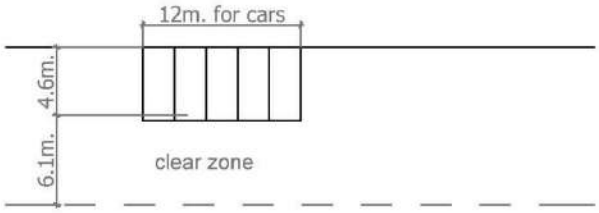
Figure M - 18: Car Parking Dimensions



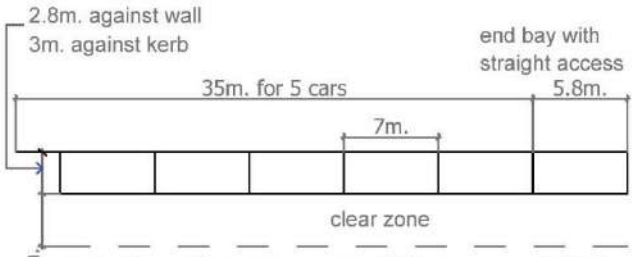
a). in - line parking area per car : 20.7. sq. m. against kerb 32.sq.m.against wall.



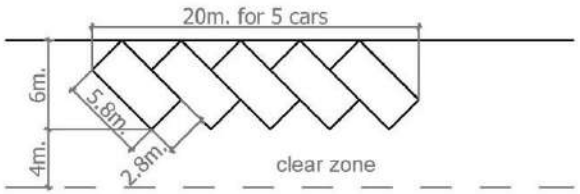
b). Echelon parking (45 degrees) , other angles can be used.
Area per car 22.1sq.m.
19.2sq.m. where nterlocking in adjacent rows.



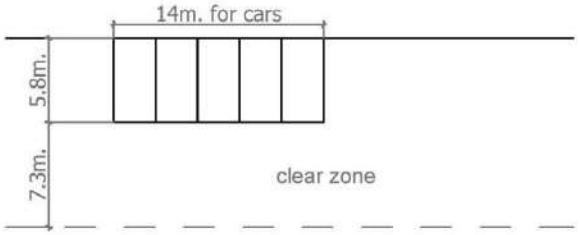
c) head on parking, area per car : 18.8q.m.



a). in - line parking area per car : 27.0. sq. m. against kerb 32.sq.m. against wall

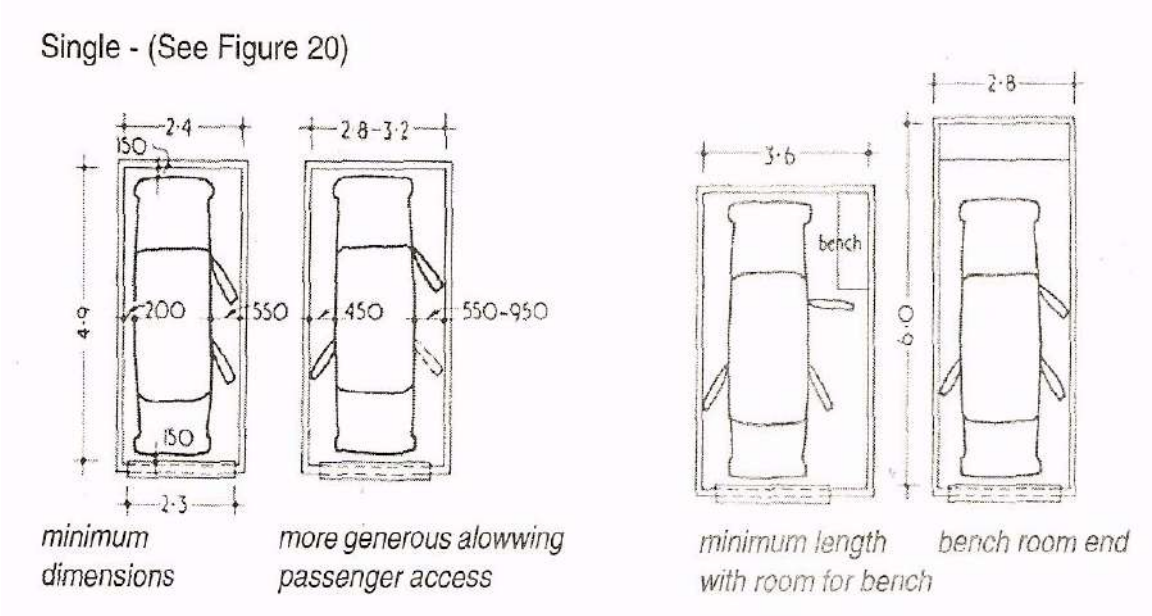


b). Echelon parking (45 degrees) , other angles can be used.
Area per car 32.0sq.m.
28.0sq.m. where nterlocking in adjacent rows.

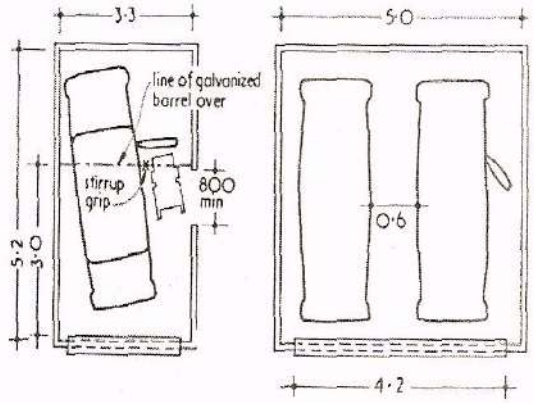


c) head on parking, area per car : 26.5q.m.

Figure M - 19: Minimum Dimensions for garages



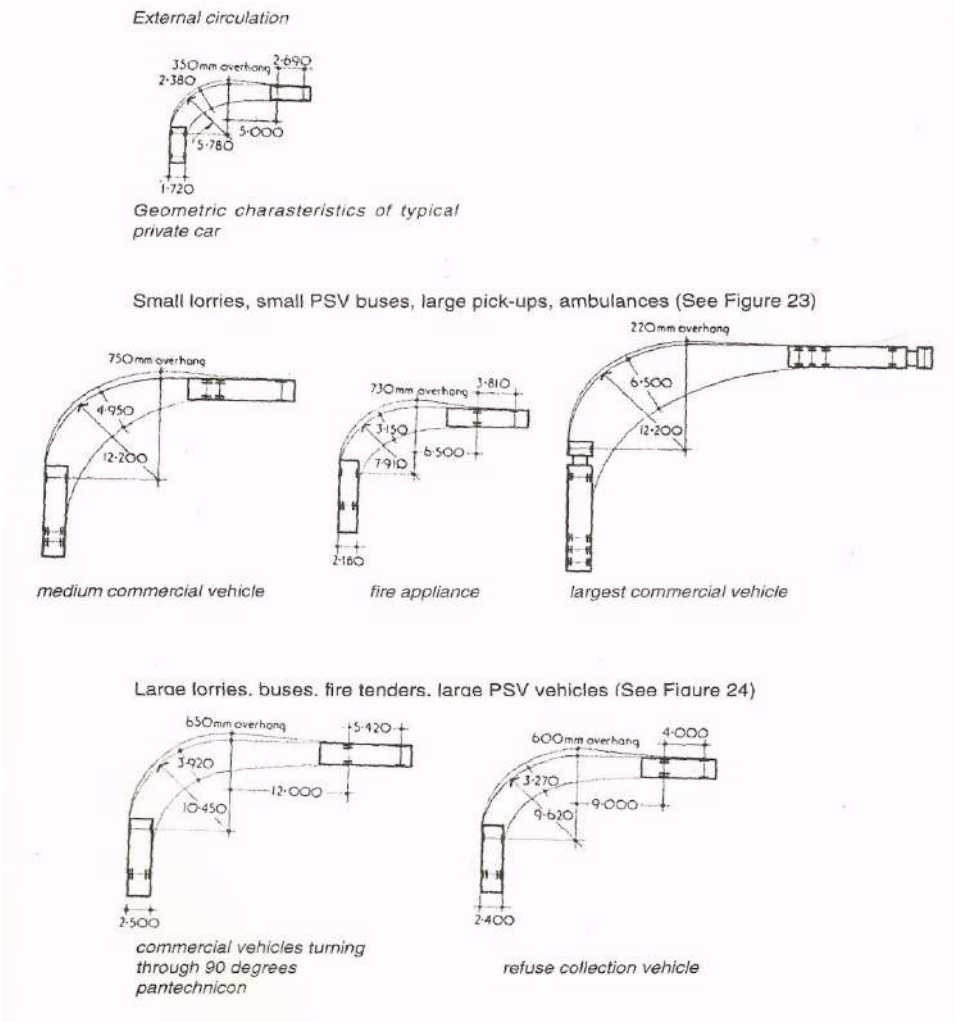
Double - (See Figure 21)



MM - 18.12 Turning Circles or circulation

Saloon cars or 4 wheel drive (See Figure 21)
External circulation

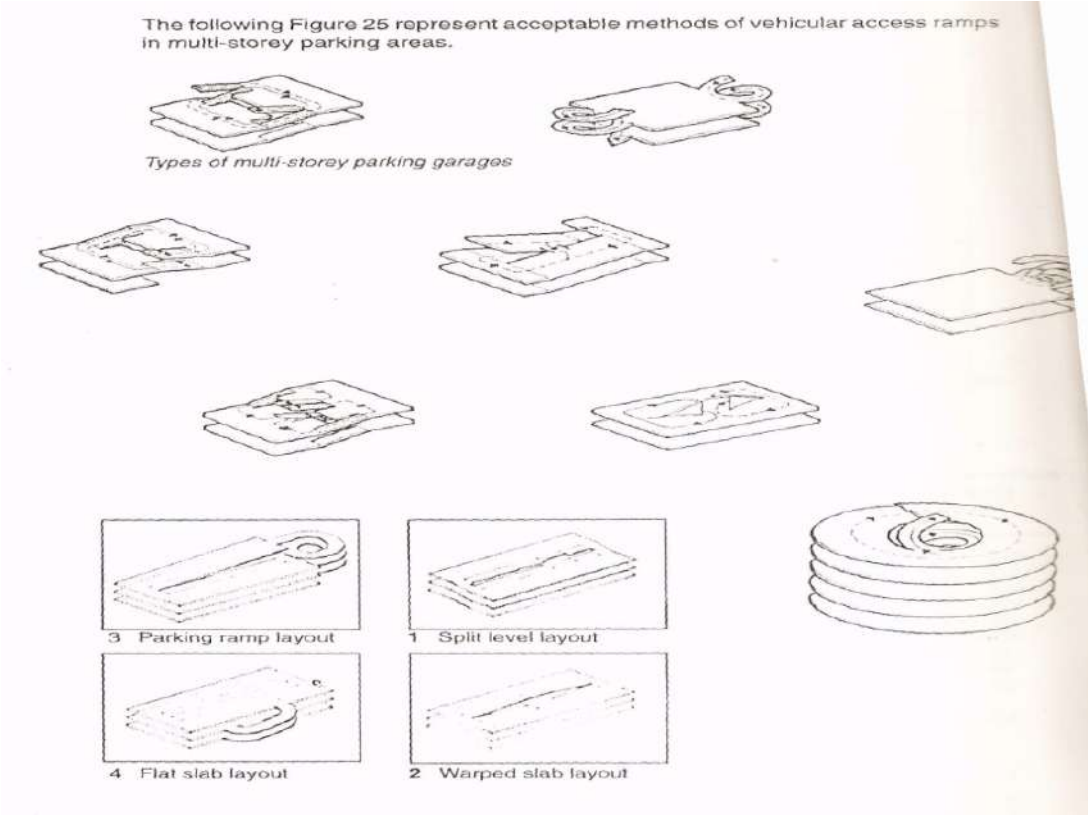
Figure M - 20: Turning Circles



MM - 18.13 Access Ramps

The following Figure 24 represents acceptable methods of vehicular access ramps in multi-storey parking.

Figure M - 21: Access ramps



4 Flat slab layout 2 Warped slab layout

The maximum slope permissible is 10% (See Figures M24)
The minimum widths are 3.0 metres (one directional traffic)
The minimum widths are 6.0 metres (two-way directional traffic)

MM - 18.14 Maximum Curved Gradients (See Figure M25)

Design for a ramp on a sharp curve such as in access to shopping centre loading dock. Maximum gradients: 10% on straight 7% on inner kerb.

MM - 18.15 Parking Recommendations

Housing
Residents - 1 parking space off street or road
Visitors - 1 parking space off street or road
Shopping
Staff - 1 parking space for each 50 sq.m. of gross floor area
Customers - 1 parking space for each 35 sq.m, of gross floor area

MM - 18.16 Large lorries or **buses**

5.0 metres wide x 15.0 metres long (See Figure 26)

Table F - 3: Lorry parking and loading bays- diagonal (45 degrees); for the largest vehicles.

X draw forward	Y centres	W o/a width	L o/a length for 5	Area per vehicle (sq.m.)	X draw forward	Y centres	W o/a width	L o/a length for 5	Area per Sq. gross	vehicle m.) net
1	5.0	27.4	22.5	123	4	4. 8	18.4	39,5	145	113
2	4.4	28.4	20.1	114	5	4. 5	19.1	37.8	144	111
3	4.0	29.4	18.5	109	6	4. 2	19.8	36.1	144	108
4	3.7	30.4	17.3	105	7	3. 9	20.5	34,4	141	105
5	3.4	31.4	16.1	101	8	3. 6	21.2	32.7	139	101
6	3.0	32.4	14.5	94	9	3. 4	21.9	31.6	138	100
					10	3. 2	22,6	30.5	138	98
Lorry parking and loading bays - head-on; for the					11	3. 1	23.4	29.9	140	99
largest vehicles.					12	3. 0	24.1	29.3	141	99

MM - 18.17 Vehicle types

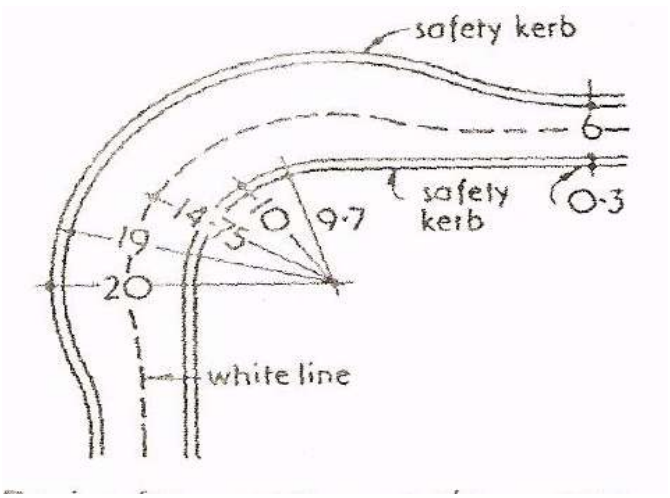
Classification 1 Saloon cars, 4 wheel drives

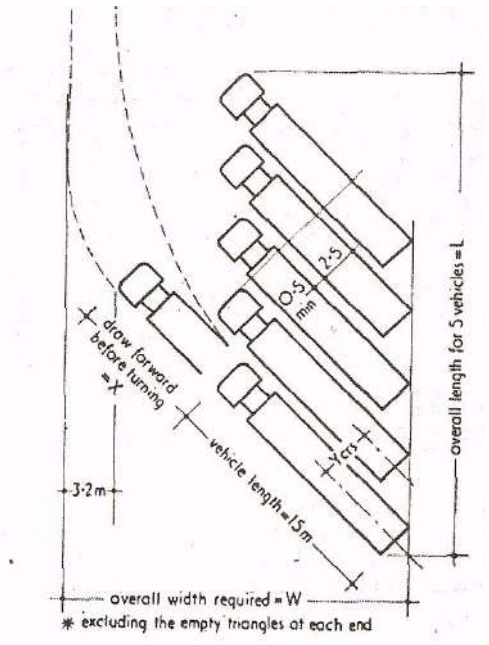
Classification 2 Small lorries, small PSV buses, large pickup trucks, ambulances

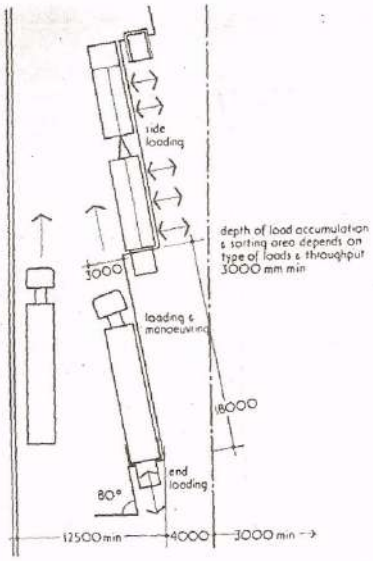
Classification 3 Large Lorries, buses, fire tenders, large PSV vehicles

Classification 4 Motor bikes, push bikes, impedes

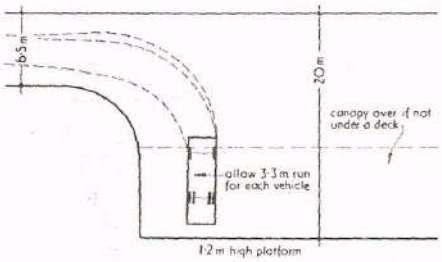
Figure M - 22: Finger dock



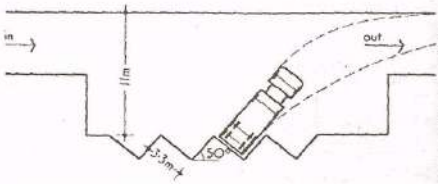




Finger dock - where manoeuvering depth is limited and side loading is required as well as end loading. Very fas turn-round times are possible although capacity is small.



Minimal loading docks. Appropriate for: 1 limited number of vehicles per day



2 extremely high land costs (as in city centres) or 3 other physical restraints.

MM - 19 FIRE SAFETY REQUIREMENTS IN STAIRCASES

Any stairway shall comply with the requirements contained in Part S, as the case may be.

MM - 20 ENCLOSURE AND POSITION OF LIFTS AND MOTOR ROOMS

MM - 20.1 The enclosure and position of lifts in new buildings, shall comply with the following requirements of these Regulations.

MM - 20.2 The motor room shall be impervious to moisture and fully enclosed with incombustible materials and separated from the lift shaft, except, for openings necessary for the passage of the requisite wires and cables.

MM - 20.3 In enclosed lift shafts, a smoke outlet to the open air shall be provided, at or near the head of the shaft. The smoke outlet shall be not less than 0.04m^2 in area and fitted with an openwork metal grille or widely spaced louvers, water and vermin proof.

MM - 20.4 The motor room, shall be cross-ventilated and, shall be provided with an approved window space, which shall open directly into the external air. The chamber shall be of sufficient size to permit an unobstructed circulating passage between the lift motor equipment and the external walls.

MM - 20.5 In domestic and public buildings, where any floor is more than 14 meters above the adjacent ground level, and there is only one staircase enclosure, the lift shaft shall be wholly enclosed in fire-resisting materials having a notional fire resistance equal to that of the walls of the building in which the lift is installed and not of less thickness than 100mm, and doors to the opening shall be of solid timber , steel shielded gates or any other material with a resistance to fire of not less than half of that required for the walls enclosing the lift shaft.

MM - 20.6 In buildings not exceeding 14 meters in height, if the motor chamber is situated at the bottom of the shaft, the lift shaft may be within the staircase enclosure if protected by solid fire-resisting enclosures and solid timber type doors or steel shielded gates. If the motor room is situated at the head of the shaft, the enclosure to the lift, may consist of metal grills with collapsible lattice gates at openings.

MM - 21 CERTIFICATE OF EFFICIENCY

MM - 21.1 Lifts and hoists shall comply with the following requirements of this Regulation.

MM - 21.2 Every hoist or lift shall be thoroughly examined at least once in every period of six months by a person approved for the purposes of this section by the approving authority by certificate in writing, and a report of the result of every such examination, in the prescribed form and containing the prescribed particulars, shall be signed by the person making the examination and shall within fourteen days be entered in or attached to the general register and form part of "Safety/Performance Compliance Certificate" for the building having the hoist.

MM - 21.3 A certificate issued in the manner described in sub-regulation MM19.2 relating to any lift or hoist other than an electric passenger lift shall be submitted to The Approving Authority when required.

MM - 21.4 Before a lift or hoist is put into use a certificate as required in sub-regulation MM19.2 or MM19.3, as the case may be, shall be submitted to The Approving Authority.

MM - 22 PROVISION OF LIFTS

Every building comprising 6 or more storeys above the ground level shall be provided with one or more passenger lifts.

MM - 23 INSTALLATION AND OPERATION OF LIFTS

MM - 23.1 The installation and operation of passenger lifts, service or goods lifts shall be in accordance with the BS 5655 Part 1 -14: 1979.

MM - 23.2 No person shall without the permission of The Approving Authority install or operate any man lift or any other means of vertical transportation of passengers or goods not referred to in sub-regulation MM21.1

MM - 23.3 The Approving Authority may grant permission under sub-regulation MM21.2 subject to other terms and conditions.

MM - 24 PROVISION OF ESCALATORS

The installation and operation of escalators whether for the vertical or horizontal transportation of passengers or goods shall be in accordance with BS 2655 Part 4 of 1969.

MM - 25 DIMENSIONS FOR LIFT INSTALLATIONS

The minimum dimensions of “well”, “entrance”, “pit”, “machine room” and “headroom” are given in Table M4. and figure 28.

Table F - 4: Minimum Dimensions for Lift Installations

Rated irw<1	**No. of ,** Pai-Knfcrs	**Ruled**	**Car internal size**				**Well mmMminimu minimum** dimensions		**(V«f** rnlrnrn-c		**lift** depth pfh 111	**1** Mi	**machineroom minimum** dimensions (nee Note 3)				**Overall headroom** uh
			Wkllh C’w	IVptti <vi	Mm. Aim r»	Ilciphl	Wiititi W*	Ifcpdi Wd	Wkllh I?«r	Ildfhl fh			Arta Kit	WMlh Rw	IVfMH Ril	IktfjM Rh	
Kg		mm	mm	mm	m»	mm	mm	mm	mm	inm	mm	mm	mm	mm	mm	nun	mm
		1.0	1 100	1400	1.66	2300	1X0(1	210ft	ROO	21 00	1700	44*1	15	2500	3700	2600	7230
630	8	1.5	1 100	1409	1.66	2300	moo	2100	MM	2100	1700	4650	.11	2300	3700	2600	7430
		1.73	non	1400	I.fi6	2300	1800	21001	MM	2100	1*00	4N50	15	2500	3700	2600	7630
		1,0	1400	1250	1.75	2300	1*00	2100	Mi	2100	1709	44.10	t5	2300	3700	2600	7230
650	9	1,3	1400	1250	K75	2300	1*01)	2100	•H	2 text	ITtift	4650	13	2300	3700	2600	7430
		1.75	1400	1250	1.75	2300	IMX)	210(1	MM	2100	1*00	4X50	t5	2500	3700	2600	7«0
		1.0	1400	1.190	2.0	2300	1900	2300	MM	2100	1 TOO	4450	13	2500	3700	2600	7250
		1.5	1400	1350	10	230(1	1900	2300	MM	lion	1700	46JW	15	2300	3700	2600	7450
800	10	1,75	uno	..135(1	2.0	2300	1909	2300	ROO	2100	1800	4 X SO	15	2506	3700	2600	7650
		2,0	14410	1350	2,0	2300		2300	mm	2 ion	2000	$630	13	3200	4900	2600	§430
		IS	non	H50	2.0	2300	two	2300	MM	2100	2000	5650	13	3200	4 WO	2600	X450
		til	I4MJ	11541	12	2V»	2100	210(1	mm	210(1	iTftn	4450	15	2 5«l	37o»	2600	71MI
		1.5	|4M	1350	2.2	2300	2100	2lOd	900	2100	1700	4650	15	2300	3700	2600	7430
900	12	1.75	IMM	1350	12	2300	2100	2100	WO	2100	1000	4R50	15	2300	3700	2600	7630
		10	1600	1350	2.2	2300	2100	2100	900	2100	2000	5650	15	32(10	4900	2600	9430
		IS	1600	1330	12	23W	2100	2100	WO	2100	200	5650	15	3200	4900	2600	1430
		to	I MO	1400	2.4	2300	2400	2300	100	2100	1000	4300 _	20	3200	4900	2.700	7200
		IJ	I6no	1400	14	230T)	2400	2300	too	2109	1000	4300	29	3200	4900	2700	7200
		1.6	1600	1400	2.4	230(1	2400	2300	100	2 ion	1000	430(1	2fl	3200	4900	2700	7200
1000	13	t.75	1600	1400	14	230(1	MOO	2300	ino	2100	1000	4X50	20	3200	4900	2700	7730
		. IJ	1600	1400	14	2300	24tn	2300	100	2100	1000	4X50	20	3200	4900	2700	7750
		10	1600	1400	2.4	2300	2400	2300	100	2100	2000	6000	20	3200	4900	3030	9400
		15	1600	1400	2.4	2300	2400	2300	100	2100	2000	60(10	20	3200	4900	3.050	9400
		5.5	1600	1400 .	14	2300	2400	2300	100	2100	3600	630(1	20	3200	4900	3250	10400
		IJ	1950	1400	19	2300	2600	2300	MOO	2100	19011	440tt	22	3200	4900	2700	7230
		1.5-	1950	1400	19	2300	2600	2300	1100	2100	1900	4400	22	32110	4900	2700	7230
		IJ	1950	1400	19	2300	2600	23W	1 100	2100	1900	440(1	22	320(1	4*10	2700	7230
1250	16	1.75	1950	1400	19	23fl0	2600	2.VNI	f ion	2100	1900	4X30	22	3200	4<tt)	2X00	7X50
		tJ	1950	1400	19	23t*	26HO	2300	I ion	2lfl0	two	4X<0	22	3200	4900	2X00	7X30
		2.fl’	1950	1400	19	2300	2«n	230ft	1 100	2IW	2M*t	6150	22	3200	4900	“3150	9300
		15	1950	1400	19	2300	2600	23011	MM	2100	2*nu	6150	22	3200	4900	3150	9500
		3.5	1950	1400	19	2300	2600	2300	ion	2100	3650	6300	22	3,200	490(1	3330	10400
		1.0	2000	1500	3,1	23W>	2600	2300	100	2100	1900	4X011	22	.V*.	4900	2*00	7X00
		L5	2000.	1300	3.1	2300	2600	2300	100	2100	1900	4X00	22	i200	4900	2100	7X00
1350	16	1.75	2000	1500	XI	2300	2600	2300	100	2100	1900	4X50	22	/3200	4900	2X00	7150

		2.0	2000	1500	3.1	2300	2600	2300	100	2100	2*00	6130	22	3200	4900	3130	9500
		15	2000	1500	3.1	2300	2600	2300	100	2100	2*00	6130	22	3200	4900	3130	9300
		3.5	2000.	1500	3.1	2300	2600	2300	100	2100	3650	6300	22	3200	4900	3400	10400
		1.0	2000	1730	3.56	2300	2600	2600	100	2100	loon	4X00	11	3200	5300	2X00	7X00
		1.5	2000	1730	3,56	2300	2600	260(1	• ion	2100	1900	4X00	23	3200	5300	2X00	7X00
1600	21	1.75	2000	4 7X1	3.56	2300	2600	2600	100	2100	1900	4X30	23	3200	5500	2X00	7131)
		2.0	2000	1750	3.56	2300	2600	2600	100	2100	2*00	6150	23	3200	5500	3330	9700
		15	2000‘	1750	3.56	2300	2600	2600	100	2100	2*00	6t30	25	3200	5300	3330	9700
		X5	2000	1750	3.56	2300	2600	2600	100	2100	3650	6300	23	3200	5300	3630	10600

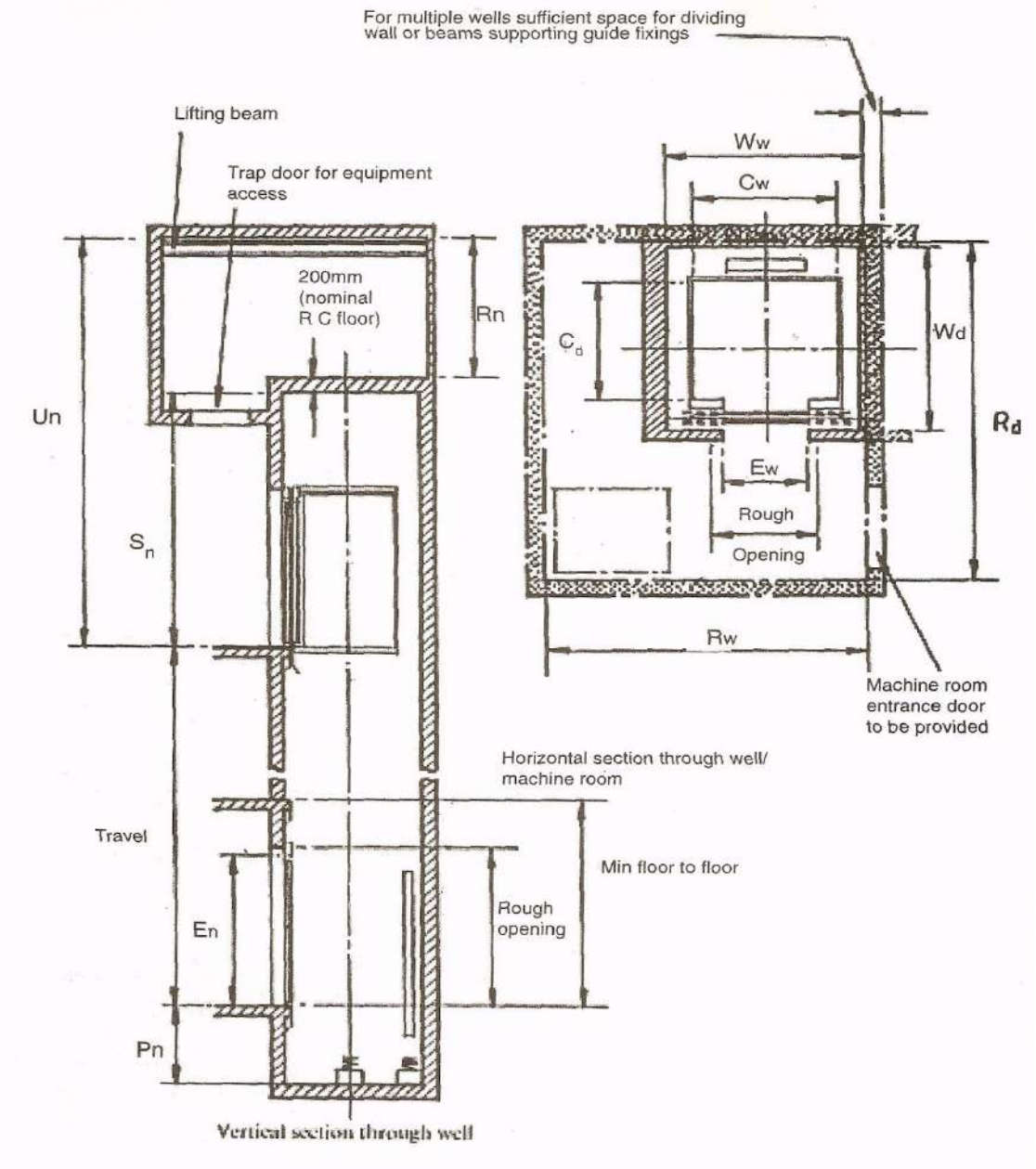
Notes on Table M4

1. Refer to Figure M28 for annotations on the dimensions used In this table.
2. The dimensions specified in this table are also applicable to rated speeds lower than those stated. For intermediate loads and rated speeds, the dimensional are determined by linear interpolation from relevant dimensions in Table M4.
3. Dimensions Cw and Cd may vary provided that the product of Cw and Cd does not exceed the area given In Ca.
4. For the rated load of 750 Kg. Ca (max.) = 1.9m2
5. For the design of machines rooms, select dimensions for Rw and Rd:-
   (a) Which are equal to or greater than those specified, and
   (b) Whose product results in an area which is equal to or greater than that specified for Ra.

For lifts having a rated load beyond 1600 Kg:-

(a) The car internal area Ac shall be increased by adding a maximum of 0.16ma for each extra 100 Kg rated load;
(b) the machine room area Ra shall be increased by adding 0.6ma for each extra 100 Kg rated load; and
(c) the value of the other dimensions shall not be less than that for a lift of 1600 Kg rated load and having the same rated speed.

Figure M - 23:



MM - 4 LIFTWELL ENCLOSURE

Each well shall be totally enclosed by imperforate walls, floor and ceiling.

MM - 5 LIFTWELL INSPECTION AND EMERGENCY DOORS AND INSPECTION TRAPS

MM - 5.1 Inspection and emergency doors, and inspection traps to a well, shall not be permitted except on grounds of safety to users or the requirements of servicing.

MM - 5.2 Inspection doors shall have a minimum height of 1.4m and a minimum width of 600mm.

MM - 5.3 Emergency doors shall have a minimum height of 1.8m and a minimum width of 500mm. In addition the emergency doors shall:-

(a) be located in a position readily accessible to rescuers; and
(b) bear on its outside face a notice in English and in Kiswahili in letters and characters
(c) not less than 25mm high as follows

DANGER
UNAUTHORISED ACCESS PROHIBITED
LIFTWELL RESCUE DOOR
CLOSE AND LOCK THIS DOOR

MM - 5.4 Inspection traps shall have a maximum height of 500mm and a maximum width of 500mm.

MM - 5.5 When the distance between consecutive landing door sills exceeds 11m, Intermediate emergency doors shall be provided, such that the distance between sills is not more than 11 m.

MM - 5.6 Inspection and emergency doors and inspection traps shall be imperforated and shall not open towards the interior of the well.

MM - 5.7 Inspection doors, emergency doors and inspection traps shall be provided with a key-operated lock, capable of being reclosed and relocked without a key.

MM - 5.8 Inspection and emergency doors shall be capable of being opened from inside the well without a key even when locked.

MM - 6 VENTILATION OF A LIFTWELL

MM - 6.1 A well shall be suitably ventilated. It shall not be used to provide ventilation of rooms other than those for the service of lifts.

MM - 6.2 Openings shall be made at the top of a well, with a minimum area of 1% of the area of the horizontal cross section of the well, ventilating to the open air either directly or via ducting or the machine or pulley room, provided that in no case the ventilation openings shall be less than 0.15m^2 net free area.

MM - 7 WALLS, FLOOR AND CEILING OF A LIFTWELL

MM - 7.1 The structure of a well shall be able to support at least the loads which may be applied by the machine, by the guides at the moment of safety gear operation, or in the case of off-centering of the load in a car, by the action of buffers, or those which may be applied by an anti-rebound device.

MM - 7.2 In the case of hydraulic lifts the structure of a well shall be able to support at least the loads which may be applied:-

(a) by the machine, the jacks and guides;
(b) by the buffers, any safety gear, clamping device or other devices, at the moment of application; and due to off-centering of loads in the car,

MM - 7.3 The walls, floor and ceiling of a well shall be, constructed of non-combustible and durable materials which do not assist the creation of dust and shall have sufficient structural strength.

MM - 7.4 The inner surface of all walls shall form a continuous vertical surface composed of smooth and hard elements unless, such surface is inaccessible from the top of a car or from the top of the car via its adjacent installation such as a counterweight and structural supports.

MM - 8 CONSTRUCTION OF THE WALLS OF LIFTWELLS FACING A CAR ENTRANCE

Notwithstanding sub-regulation MM26.4, below each landing sill over a vertical distance of 350mm, the wall of a well facing a car entrance shall be so constructed that:-

(a) the inner surface of such wall shall form a continuous vertical surface composed of smooth and hard elements. The smooth surface shall extend at least 25mm on both sides beyond the full car entrance width. Plaster faced and glass walls are forbidden, and

(b) where it is not practicable to provide a continuous smooth surface, any projection in excess of 5mm shall either be connected to the lintel of the door opening below, or be extended downward and splayed, on its underside, to an angle of not less than 75° from the horizontal plane for a distance of not less than 20mm, by means of metal plates, concrete or other similar material.

MM - 9 PROTECTION OF ANY SPACE LOCATED BELOW A CAR OR A COUNTERWEIGHT

MM - 9.1 Lift wells shall preferably not be situated above a space accessible to persons.

MM - 9.2 If an accessible space exists beneath a car or a counterweight, the base of the pit shall be designed for an imposed load of at least 5kN/m^2, and –

(a) either there shall be installed below the counterweight buffer a solid
(b) pier extending down to solid ground; or
(c) the counterweight shall be equipped with safety gear.

MM - 10 WELL CONTAINING CARS AND COUNTERWEIGHTS BELONGING TO SEVERAL LIFTS OR SERVICE LIFTS

MM - 10.1 In the lower part of a well there shall be a partition between the moving parts (car or counterweight) of different lifts or service lifts. This partition shall extend at least from the floor of the lift pit to a height of 2.5m above the floor of the pit, and across the whole depth of the well.

MM - 10.2 If the horizontal distance between the edge of a car roof and a moving part (car or counterweight) of an adjacent lift or service lift is less than 300mm, the partition required in sub-regulation MM29.1 shall be extended through the full height of the well.

MM - 11 LIFT PIT

MM - 11.1 The lower part of a well shall consist of a pit, the bottom of which shall be smooth and approximately level, except for any bases for buffers, guides and jacks and for water drainage devices. After the building in of guide fixings, buffers, or any grids, the pit shall be impervious to infiltration of water.

MM - 11.2 An access door shall be provided to the pit if the pit depth exceeds 1.6m and if the layout of the building so permits.

MM - 11.3 Where an access door is provided it shall:-

(a) have a minimum height of 1.4m and a minimum width of 600mm;
(b) bear on its outside face a notice in English and also in Kiswahili in letters and characters not less than 25mm high as follows:

DANGER
UNAUTHORIZED ACCESS PROHIBITED
LIFTWELL CLOSE AND LOCK THIS DOOR

MM - 11.4 If there is no other access a permanent means of access, with suitable hand holds at an appropriate height above the sill shall be provided inside the well, easily accessible from the landing door, to permit maintenance personnel to descend safety to the floor of the pit. Such means of access shall not project into the clear running space of any lift equipment.

MM - 12 EXCLUSIVE USE OF A LIFTWELL

A liftwell shall be exclusively used for a lift .

MM - 13 OUTSIDE OF A LIFTWELL

MM - 13.1 Every landing entrance shall incorporate a sill of sufficient strength to withstand the passage of loads being introduced into a car.

MM - 13.2 A slight counter slope shall be provided in front of each landing sill to avoid water from washing, sprinkling, draining or entering into a well.

MM - 13.3 On the outside of a well at each landing level, as near as practical to the landing door or, where there are two or more adjoining lifts, the landing door of one in every two lifts, there shall be displayed a notice in Kiswahili and English and in letters and characters not less than 15mm high as follows:

WHEN THERE IS A FIRE
DO NOT USE THE LIFT

MM - 14 MACHINE AND PULLEY ROOMS

MM - 14.1 The machine and its associated equipment shall be in a special room, comprising solid walls, ceiling and door or trap.

MM - 14.2 Machine or pulley rooms shall be used only for accommodating the equipment necessary for the operation of a lift. Provision of the following is, however, permitted:-

(a) machines for service lifts and escalators;
(b) equipment for air-conditioning or ventilating these rooms; and
(c) fire service installations and equipment as may be required by the Chief Fire Officer for these rooms;
(d) sprinkler system, however, shall not be fitted in these rooms.

MM - 14.3 Machine rooms shall preferably be placed above a well.

MM - 15 MACHINE AND PULLEY ROOM ACCESS

MM - 15.1 Access to machine and pulley rooms shall be from common areas without necessitating entry into private premises. A clear and safe access shall be maintained at all times and in all circumstances. The access ways to the machine rooms and the entrances themselves shall be at least 2m high provided that door sills and edges with a height not exceeding 400mm are permitted.

MM - 15.2 Access for persons to machine or pulley rooms shall be effected entirely by way of stairs if the difference in levels so requires. If it is impractical to install stairs, then ladders may be used provided that the following conditions are satisfied:-

(a) the ladder shall be permanently fixed;
(b) if greater than 2m in height the ladder shall be fitted with safety hoops or other suitable fall arrest system; and
(c) adjacent to the top end of the ladder, there shall be a platform with railings and one or more hand holds within easy reach.

MM - 15.3 Means of access shall be provided for hoisting of heavy equipment during erection and, if need be, its replacement, so that this can be done safely, especially avoiding handling on stairs.

MM - 16 STRUCTURAL STRENGTH AND FLOOR SURFACE OF MACHINE AND PULLEY ROOMS

MM - 16.1 Machine and pulley rooms shall be so constructed to withstand the loads and forces to which they will normally be subjected. They shall be durable material not favouring the creation of dust.

MM - 16.2 Room floors finish shall be of non-slip material.

MM - 17 DIMENSIONS OF MACHINE AND PULLEY ROOMS

MM - 17.1 The dimensions of machine rooms shall be sufficient to permit easy and safe access for maintenance personnel to all components, especially the electrical equipment in the machine rooms.

MM - 17.2 In no case shall the clear height of machine rooms for movement or working be less than 2.1m. This full height for movement or working shall be taken to the underside of the structural roof beams and measured from:-

(a) the floor of the access area;
(b) the floor of the working area.

MM - 17.3 The height under the roof of pulley rooms shall be at least 1.5m.

MM - 17.4 When the machine room floor comprises a number of levels, differing by more than 500mm, stairways or steps and guard rails shall be provided.

MM - 17.5 When the floor of the machine room has any recesses more than 500mm deep and less than 500mm wide, or any channels, they shall be covered with steel chequer plate of 4mm thick or other non-corrosive materials having adequate strength to support the weight of maintenance personnel.

MM - 18 DOORS AND TRAP DOORS TO MACHINE AND PULLEY ROOMS

MM - 18.1 Access doors shall have a minimum width of 600mm and a minimum height of 1.8m for machine rooms, and 1.4m for pulley rooms. They shall not open towards the inside of the room.

MM - 18.2 Access trap doors for persons shall give a clear passage of at least 800mm x 800mm, and shall be counter-balanced. All trap doors, when they are closed, shall be able to support two persons, i.e. able to resist a vertical force of 2 kN at any position, without permanent deformation. Trap doors shall not open downwards. Hinges, if any, shall be of a type which cannot be unhooked.

MM - 18.3 Doors or trap doors shall:-

(a) be fitted with locks having keys which can be opened without a key
(b) from inside the room; and
(c) bear on the outside face a notice in Kiswahili and English and in letters and characters not less than 25mm high as follows:

DANGER
UNAUTHORIZED ACCESS PROHIBITED
MACHINE ROOM CLOSE AND LOCK THIS DOOR

MM - 18.4 Trap doors used only for access of material shall be locked from the inside only.

MM - 19 OTHER OPENINGS IN MACHINE AND PULLEY ROOMS

MM - 19.1 The dimensions of holes in the slab and room floor shall be reduced to a Minimum.

MM - 19.2 To prevent objects from falling through openings situated above a well, including those for electric cables, protective cap which project at least 50mm above a slab or a finished floor shall be used.

MM - 20 HANDLING OF EQUIPMENT IN MACHINE ROOMS

One or more metal supports or hooks with safe working load notice, as appropriate, shall be provided in a machine room ceiling or on beams, conveniently positioned to permit hoisting of heavy equipment during erection and, if need be, its replacement.

MM - 21 MACHINE ROOMS AND ENCLOSURES

MM - 21.1 The machine and its ancillary equipment shall be accommodated in an enclosure within a lift well, or in a separate machine room.

MM - 21.2 For service lifts of a rated load of 150 Kg and above, the machinery space floor area shall not be less than 1.5m x 1.5m and the clear heights shall not be less than 1.2m. For service lifts of a rated load below 150 Kg, the machinery space depth shall not exceed 600mm and the clear height shall not be less than 800mm.

MM - 21.3 The Machine room shall be soundly constructed, weather-proof and dry. It shall be safe for access by maintenance personnel to all equipment.

MM - 21.4 For service lifts of a rated load of 150 Kg and above, the floor of the machinery space shall be of adequate strength at every point to withstand the load of maintenance personnel and equipment.

MM - 21.5 For service lifts of a rated load below 150 Kg either the requirements in sub-regulation MM41.2 or those listed below shall be followed:-

(a) the maintenance personnel, shall be able to reach every part of the
(b) equipment inside the machinery space with his hands while standing outside the space, and
(c) rigid partition or wire mesh shall be provided to prevent any object
(d) from falling down into the lift well from the machinery space.

MM - 21.6 The Machine room shall be accessible for maintenance and inspection purposes. Such access shall comply with sub-regulation MM34.2.

MM - 21.7 An access door to a Machine Room shall:-

(a) for service lifts of a rated load below 150 Kg, be not less than 800mmin height and have a width of 900mm or the full width of the machinery space, whichever is the less;
(b) for service lifts of a rated load of 150 Kg and above, be not less than 1.0m in height

and have a width of not less than 1.2m;

(c) be facing the machine and its ancillary equipment to allow installation and maintenance work;

(d) be lockable; and

(e) bear on its outside face a notice in Kiswahili and English and in letters and characters not less than 25mm high as follows:-

DANGER
UNAUTHORIZED ACCESS PROHIBITED
MACHINE ROOM CLOSE AND LOCK THIS DOOR

MM - 21.8 The Machine room shall not be used for purposes other than for the lift. It shall not contain ducts, cables or devices other than those for the lift.

MM - 22 MACHINE ROOMS AND DRIVING AND RETURN STATIONS

MM - 22.1 Where separate Machine rooms, or separate driving and return stations are provided, the machines and associated equipment shall be in a special room, comprising solid walls, ceilings and door or traps.

MM - 22.2 Separate machine rooms and separate driving and return stations shall be used for accommodating the equipment necessary for the operation of the elevators and escalators respectively. Provision of the following is, however, permitted:-

(a) machines for lifts or service lifts;

(b) equipment for air-conditioning or ventilating these rooms; and

(c) fire service installations and equipment as may be required by the Chief Fire Officer for these rooms

(d) Sprinkler system, however, shall not be fitted in these rooms.

MM - 22.3 Separate machine rooms and separate driving and return stations shall be of sufficient size to permit easy and safe access for maintenance personnel to all the components, especially the electrical equipment. In no case shall the clear height of such rooms and stations be less than 2.1m.

MM - 22.4 Access for persons to separate machine rooms and separate driving and return stations shall be effected entirely by way of stairs if the difference in levels so requires, if it is impractical to install stairs, then ladders may be used provided that the following conditions are satisfied:-

(a) the ladder shall be permanently fixed;

(b) if greater than 2m. in height, the ladder shall be fitted with safety hoops or other suitable arrest system; and

(c) adjacent to the top end of the ladder, there shall be a platform with railings and one or more hand holds within easy reach.

MM - 22.5 Access doors or inspection traps to separate machine rooms or separate driving and return stations shall bear on their outside face a notice in Kiswahili and English and in letters and characters not less than 25mm as follows:-

DANGER
UNAUTHORIZED ACCESS PROHIBITED
MACHINE ROOM CLOSE AND LOCK THIS DOOR

MM - 23 OBSTRUCTIONS

MM - 23.1 Where any part of a building obstructs or may obstruct passengers riding on escalators, for example, at floor intersections or on criss-cross escalators, protection against injury to persons such as imperforate triangular guards shall be provided in accordance with these Regulations.

MM - 23.2 The horizontal distance between the outer edge of a handrail of an escalator and any wall or any part of a building likely to cause an obstruction shall under no circumstances be less than 80mm.

There shall be marked conspicuously on every hoist or lift the maximum working load which it can safely carry and no load greater than that load shall be carried on any hoist or lift.

If it is shown to the satisfaction of the chief inspector that it would be unreasonable in the special circumstances of the case to enforce any requirement of this section in respect of any class or description of hoist, lift, hoistway or liftway, he may, by notice published in the Gazette, except from such requirements hoists, lifts, hoistways or liftways of that class or description, and any such exception may 'be unqualified or may be subject to such conditions as may be contained in the notice.

MM - 24 OFFENCES AND PENALTIES

Any person who contravenes provisions of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than Kshs 3,000,000 (Kenya Shillings three million only) or twelve (12) months imprisonment or both.

SECTION N

LIGHTING AND VENTILATION

CONTENTS

SECTION N
LIGHTING AND VENTILATION

NN - 1 LIGHTING AND VENTILATION REQUIREMENT

NN - 1.1 Any habitable room, bathroom, shower-room and room containing a WC pan or urinal, or any room which is a parking garage shall be provided with a means of lighting and ventilation which will enable such room to be used, without detriment to health or safety or causing any nuisance, for the purpose for which it is designed.

NN - 1.2 The requirement of sub regulation NN1.1 shall be deemed to be satisfied where:-

(a) subject to the requirements of sub regulation NN1.3, such room is provided with one or more openings for natural light and ventilation in accordance Regulation NN8; or

(b) Such room is provided with artificial lighting and ventilation in accordance with the provisions of Regulation NN12 and NN13.

NN - 1.3

(a) Notwithstanding the provision of openings for natural light in accordance with sub regulation NN1.2(a) any room contemplated in sub regulation NN1.1 or any corridor, lobby or staircase serving such room shall be provided with a means of artificial lighting:-

(i) for periods when natural lighting is inadequate; or

(ii) Where the size or shape of any such room, or the glazing material used in any such opening, will not permit sufficient natural light effectively to illuminate all parts of such room.

(b) (b) Notwithstanding the provision of openings for natural-ventilation in accordance with sub regulation NN10 any room in sub regulation NN1.1 where:-

(i) Due to conditions of high temperature, may be dangerous to safety or health;

(ii) There will be dust, gas, vapour or volatile matter which may be dangerous to safety or health; or

(iii) Used for any purpose for which natural ventilation is not suitable, shall be provided with a means of artificial ventilation.

NN - 2 SPECIAL PROVISION OF NATURAL LIGHTING

Any habitable room in any dwelling house or dwelling unit, or any bedroom in any building used for residential or institutional occupancy shall, notwithstanding the provision of artificial lighting, be provided with at least one opening for natural light in accordance with sub regulation NN1.1.

NN - 3 APPROVAL OF ARTIFICIAL VENTILATION SYSTEMS

No person shall without the prior written approval of The Approving Authority install any air conditioning system in any building:
Provided that this prohibition shall not apply in the case of room electrical fans or other

individual appliances installed for comfort.

NN - 4 DESIGN OF ARTIFICIAL VENTILATION SYSTEMS

Any rational design of an artificial ventilation system shall be carried out by or under the supervision of a qualified person and such person shall certify that the system has been designed to comply with Regulation NN1.

NN - 5 ARTIFICIAL VENTILATION PLANT

Any plant forming part of an artificial ventilation system shall be so designed, located and protected that:-

(a) Any condensate from such plant cannot be the cause of danger or nuisance to the public;

(b) Inspection and servicing can be undertaken; and

(c) Unauthorized persons cannot tamper with such plant.

NN - 6 TESTING OF ARTIFICIAL VENTILATION SYSTEMS

The owner shall test every year and submit to The Approving Authority test reports indicating that any artificial ventilation system installed in terms of these Regulations is operating in the designed manner.

NN - 7 FIRE REQUIREMENTS

In addition to the requirements of this Part, lighting and ventilation shall be provided to comply with Part S of these Regulations.

NN - 8 NATURAL LIGHTING

(a) Where for the purposes of natural lighting a room is provided with one or more openings, such opening or openings shall be situated in an external wall, or in a suitable position in the roof of the building.

(b) Where such opening is glazed it shall be glazed with transparent or approved translucent glazing material.

(c) The area of such opening, or total area of such openings, inclusive of frames and glazing bars, shall be not less than 10% of the floor area of the room or rooms served by it, or 0.2m^2, whichever is the greater.

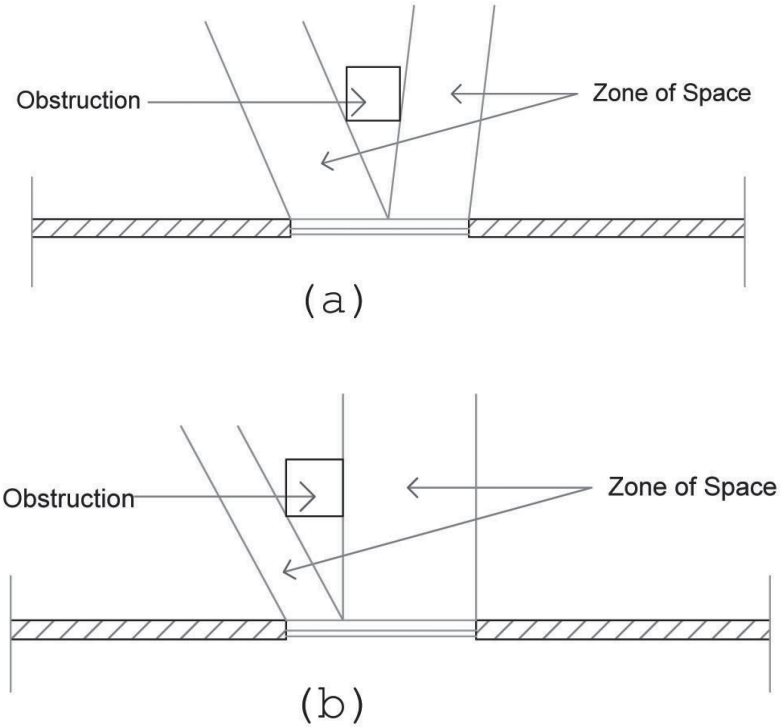
NN - 9 ZONE, OF SPACE FOR NATURAL LIGHTING

NN - 9.1 Any opening contemplated in sub regulation NN8.1 shall have a zone of space outside it.

NN - 9.2 Such opening may be divided into portions, each with its own zone of space.

Note: *Figure N1 (a) and (b) illustrates the zones of space identified in Sub regulation NN9.2 that may exist when an opening is divided into portions. The lines that determine these zones depend on the size and shape of the obstruction.*

Figure N - 1: Zone of space

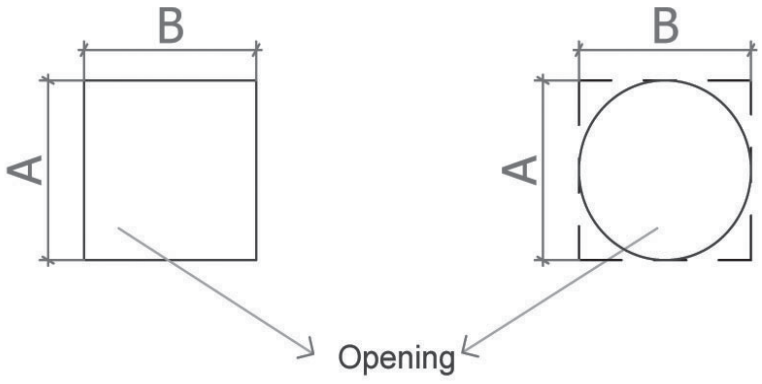


NN - 9.3 Any such zone of space shall be limited by parallel planes passing through and extending from the highest and lowest points of such opening and by parallel planes passing through and extending from the points of such opening that are furthest apart in the lateral direction.

NN - 9.4 Such parallel may extend from the building at any angle to the plane of the opening.

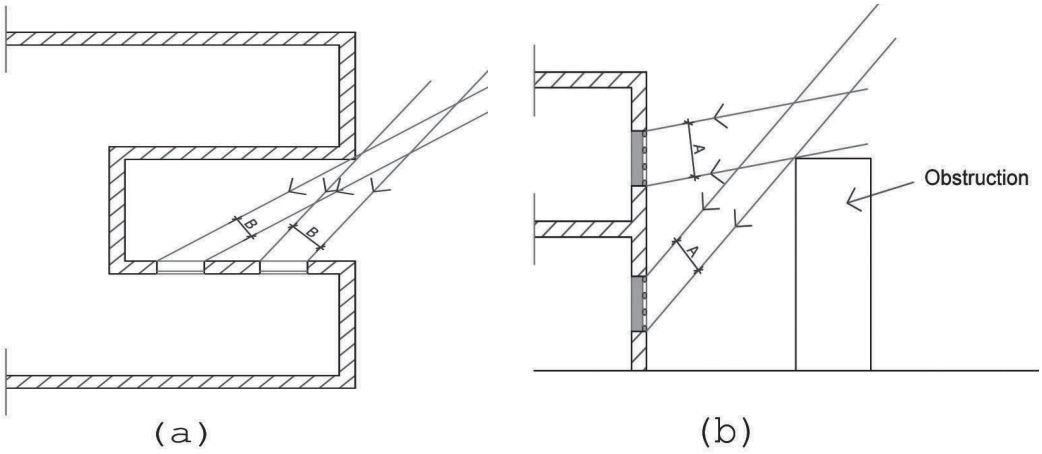
Commentary: Fig N2 illustrates the measurement of openings

Figure N - 2: Measurement of openings



NN - 9.5 Where the planes bounding such zone of space are not at right angle to the plane of the opening the area of such opening shall for the purpose of sub regulation NN8.3 be deemed to be A x B, where A is the shortest distance between the planes bounding the top and bottom of such zone and B is the shortest distance between the vertical planes bounding the sides of such zone.

Figure N - 3: (a) Illustrates the case of zones of space which are not at right angles to the plane of the opening and (b) Zone of Space at Angle to Opening

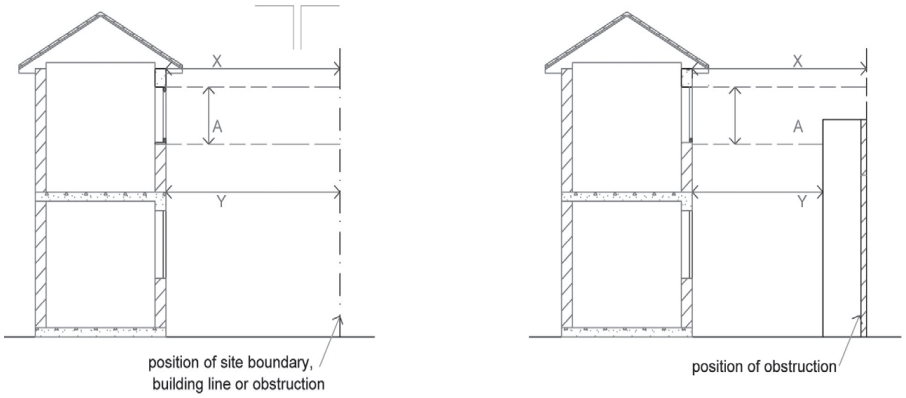


NN - 9.6 The available length of any zone of space shall be calculated either as half the sum of the lengths of the vertical planes or as half the sum of the length of the planes passing through the highest and lowest points of the opening, and the length of individual planes shall be measured as the distance along such plane from such opening to:-

(a) Any obstruction on the site which intersects such plane; or
(b) Where there is no such obstruction, to any statutory building line on an adjoining site; or
(c) Where there is no such obstruction or line, to the boundary between the site and any adjoining site: Provided that where a zone extends across a street reserve the statutory building line and the boundary contemplated in paragraph (b) and (c) respectively, shall be taken to mean the statutory building line and street boundary of the site opposite the site concerned.

Commentary: *Figure N4 illustrates how to calculate the length of a zone of space.*

Figure N - 4: Measurement of zone space



(b) Section P-P. (d) Section Q-Q.

In all cases the length of the zone of space is $\frac{X+Y}{2}$

NN - 9.7 The available length of any zone of space when calculated in accordance with sub regulation NN9.6 shall be not less than 0.5m when measured to a boundary line or not less than 1m when measured to a building line and, notwithstanding the requirements contained in sub regulations NN9.8 and NN9.9, shall not be required to be more than 8m.

NN - 9.8 Where none of the planes bounding a zone of space intersects an obstruction on the site, the available length of such zone shall be not less than that contained in Table N1 where H represents the distance measured vertically from the head of the opening to the top of the wall containing the opening.

NN - 9.9 Where one or more of the planes bounding a zone of space intersects an obstruction on the site the available length of such zone shall be not less than that contained in Table N1, where H represents the height of the obstruction above the level of the head of the opening concerned: Provided that the shortest horizontal distance between the opening and such obstruction shall be not less than 1m.

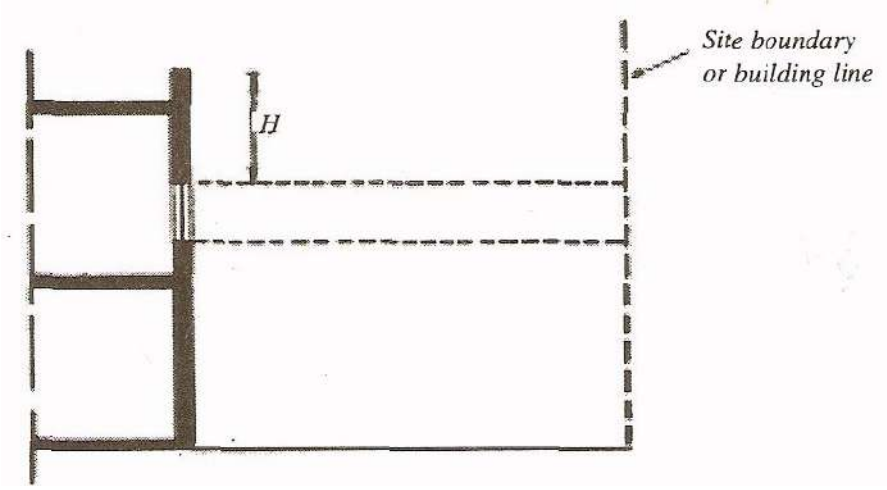
Table N - 1: Length of Zone of Space

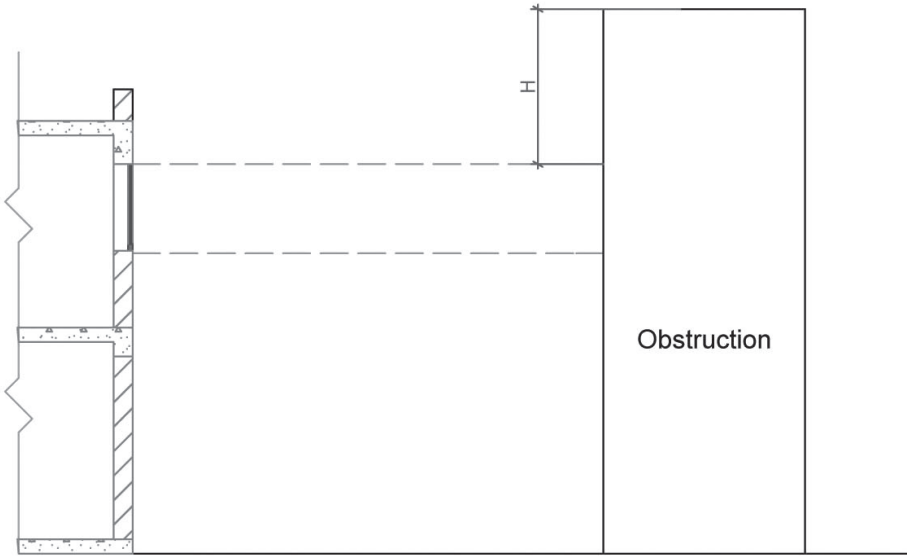
Type of room served by opening	Length of zone of space
Habitable room in dwelling house, dwelling unit or a building used for a residential- or institutional occupancy	1/3 H
Any other habitable room	1/5 H
Bathroom, shower or room containing a WC pan or urinal	1/10 H

Note:
Figure N5 (a) and (b) shows the height of obstruction which controls the required length

of the zone of space.

Figure N - 5: (a) Zone of space intersecting boundary of building line
Zone of space intersecting an obstruction





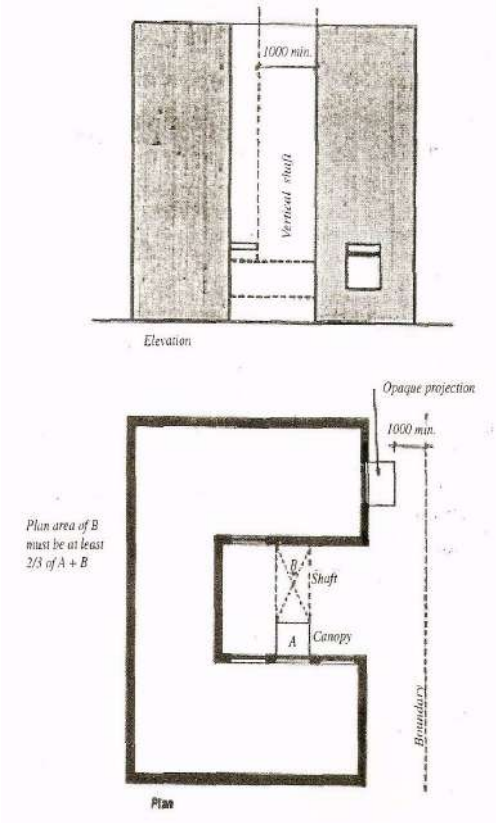
NN - 9.10 Where any projection from the surface of the wall above any opening contemplated in sub regulation NN8.1 is likely significantly to reduce the amount of light reaching such opening:-

(a) At least two-thirds of the plan area of the zone of space outside such opening shall have an unrestricted vertical shaft extending upwards from the plane bounding the top of such zone; and

(b) (b) No opaque projection over such zone shall extend to a line closer than 1m from any obstruction or lateral site boundary intersecting such zone.

Note:
Figure N6 shows the vertical shaft required above any zone of space has a projection covering part of it.

Figure N - 6: Projection over zone of space



NN - 10 NATURAL VENTILATION

NN - 10.1 Where for the purposes of natural ventilation any room is provided with an opening or openings:-

(a) The position of such opening or openings in relation to each other and to any internal doors to such room shall be such as to enable such room to be ventilated; and

(b) The arrangement and sizes of such openings in a garage shall be such that the quantity of noxious fumes or gases in such garage does not exceed a safe limit.

NN - 10.2 Every such opening shall be either:-

(a) An opening or door in an external wall; or

(b) An openable glazed window in an external wall or in a suitable position in the roof; or

(c) An opening in the ceiling or at the top of an internal or external wall, connected directly to a vertical ventilating flue.

NN - 10.3 The total area of any opening, door or openable glazed window contemplated in sub regulation NN10.2 or (b) shall be not less than 5% of the floor area of the room, or 0.2m^2, whichever is the greater.

NN - 10.4 The total area of any opening contemplated in sub regulation NN10.2 (c) shall be not less than 2% of the floor area of the room.

NN - 10.5 Extract Ventilation of habitable and non-habitable rooms without operable windows can be achieved through mechanical extraction, open flued heating appliances and passive stack ventilation. In all non-habitable room cases an air inlet should be provided in the form of a 10mm gap under the door.

NN - 10.6 Passive Stack Ventilation could be either natural stack, wind assisted by use of ventilation cowls, roof ventilators or mechanical extract ventilation.

NN - 10.7 Passive Downdraught Evaporative Cooling (PDEC) is applicable in hot arid climates and it uses pre-cooled air to flush out heated air within a space. There are limitations in use of spaces where moisture content is critical.

NN - 10.8 Where the variants to natural ventilation described in Regulations NN 10.6 and NN 10.7 above are used, the passive ventilation design should be justified through 'air changes per hour' calculations should be carried out by or under the supervision of a qualified environmental design consultant to the satisfaction of the Approving Authority.

NN - 10.9 The recommended Ventilation rates in Air Changes per Hour for Natural Ventilation are as indicated in Table N2.

Table N - 2: Requirements for Natural Ventilation

Building Type/Facility	**Recommended Ventilation Rates in Air Changes per Hour (ACH)**
Broadcasting studios	6-10
Offices including Call centres	4-6
Catering (inc. commercial kitchens)	30-40
Communal residential buildings	0.5-1
Dwellings (inc. high rise dwellings)	0.5-1
Hotels	10-15 for guest rooms with ensuite bathrooms
High rise (non-domestic buildings)	4-6 for office areas Up to 10 for meeting rooms
Schools	4-6
Dark rooms (photographic)	6-8
Laboratories	6-15
Standards rooms	45-60
Transportation buildings	6 ACH for car parks (normal operation) 10ACH (fire conditions)
Toilets	Opening windows of area 1/20th of floor area or mechanical ventilation at 6 litres/s per wc or 3ACH minimum for non-domestic buildings

Building Type/Facility		**Recommended Ventilation Rates in Air Changes per Hour (ACH)**
Assembly Halls and Auditoria		
	Using Displacement ventilation strategy	3-4
	Using High level mechanical ventilation strategy	6-10
Sports Centres		
	Fitness Centres	10–12
	Weight Training	10-12
	Squash Courts	4
	Ancillary Halls: -Sports -spectators	 15 3
	Changing rooms	10
	Reception, administration and circulation spaces	3
	Creche	3
	Refreshment and bar areas	Not less than 8
	Swimming pool	4-6 8-10 if extensive water features
Hospitals and Health Care Buildings		
	Toilets -general -ensuite	 10 6
	Bathrooms -general -ensuite	 10 6
	Dirty utility room	10
	Changing rooms	5
	Isolation rooms	10 minimum
	Delivery rooms	10 minimum
	Recovery rooms	15
	Treatment rooms	6 minimum

NN - 11 NATURAL LIGHTING AND VENTILATION OF ROOMS OPENING ONTO ENCLOSED BALCONIES, GALLERIES, VERANDAHS AND COURTS

NN - 11.1 Any room having an opening which opens onto any roofed and enclosed balcony, gallery or verandah, as the case may be, shall be deemed to satisfy the requirements contained in Regulation NN1 and:-

(a) a portion of the outer wall of any such balcony, gallery or verandah has openings complying with sub regulation NN8.2 and the area of such openings is at least

10% of the combined floor area of the room concerned and the balcony, gallery or verandah;

(b) any such balcony, gallery or verandah is provided with doors or other openable areas having an area of at least 5% of the combined floor area of the room concerned and the balcony, gallery or verandah; and

(c) that portion of the outer wall of such balcony, gallery, or verandah in which openings contemplated in paragraphs (a) and (b) are formed is provided with a zone of space complying with the requirements contained in Regulation NN9.

NN - 11.2 Any room having an opening which opens onto any enclosed and covered or partially covered court shall be deemed to satisfy the requirements contained in Regulation NN1 where such opening satisfies the requirements contained in Regulations NN8, NN9 and NN10 and:-

(a) The cover to such court is adequately translucent; and

(b) The plan area of such cover is not more than one-third of the plan area of such court; or

(c) the plan area of such cover is more than one-third of the plan area of such court but additional openings from such court of the outside air have been provided to the extent that the total area of all such openings is equal to at least two-thirds of the plan area of such court:

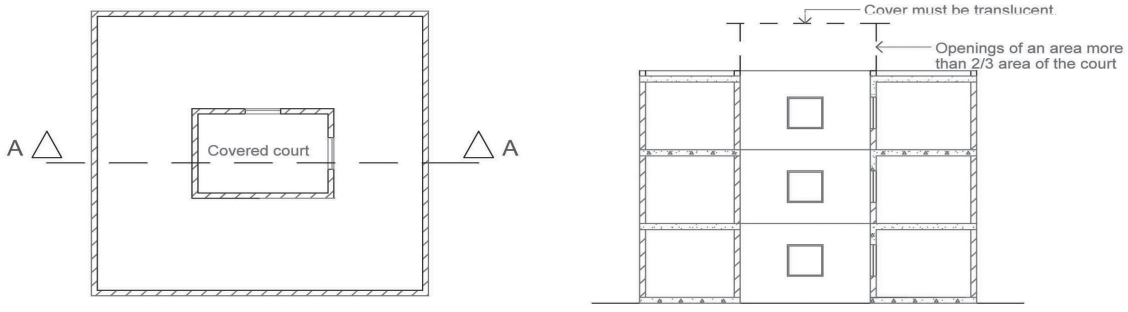
Provided that where such court is to be occupied for any purpose, whether or not any room has an opening which opens onto such court, such cover shall be translucent and:-

(i) Additional openings shall be provided in accordance with paragraph (c); or

(ii) Such court shall be provided with artificial ventilation in accordance with Regulation NN13.

Commentary: *Where natural ventilation is required and the cover extends over more than one-third of any enclosed court, additional ventilation openings must be as shown in Figure N7(a and (b) pr through the building.*

Figure N - 7: Lighting and ventilation of court



(a) Typical Floor Plan

(b) Sectional Elevation A-A

NN - 12 ARTIFICIAL LIGHTING

Where in any building the requirements for lighting contained in Regulation NN1 are to be satisfied by the installation of a system of artificial lighting such lighting shall be in accordance with the relevant recommendations contained in ***ISO/CIE 8995-1:2002***

NN - 13 ARTIFICIAL VENTILATION

NN - 13.1

(a) Outside air used in any artificial ventilation system shall be introduced to the system from an inlet positioned to ensure that such air is as far as possible free from local contamination.

(b) Where it is not possible to so position such inlet a filter which will reduce contamination of such air to an acceptable level and prevent discharge into rooms of dust or fluff that has accumulated in ducts shall be fitted to such inlet.

NN - 13.2 The exhaust outlets for air which has been used for artificial ventilation purposes shall be so located and arranged as to ensure that such air does not cause a nuisance nor contaminate any air which is likely to be drawn into or ventilate any existing building.

NN - 13.3 Exhaust outlets or air inlets forming part of any artificial ventilating system shall be protected by a substantial grille or screen through which a 12mm diameter sphere cannot pass.

NN - 13.4 Where an artificial ventilation system has been connected to a room:-

(a) Designed to be occupied by persons suffering from infectious or contagious diseases;

(b) Contemplated in sub regulation NN1.3(b) or

(c) Containing a WC pan or urinal or used as a sauna, darkroom or refuse storage room;

(d) air from such room shall not be re circulated to or permitted to pass into any other room, whether or not such room falls into the same occupancy category, and all such air shall be discharged or exhausted to the outside air.

NN - 13.5

(a) In any room contemplated in sub regulation NN1.3 (b) where heat, dust, gas, vapour or volatile matter is liberated in one or more localized areas, each such area shall be provided with an extract facility which shall exhaust air from such area at a rate that will ensure that such heat, dust, gas, vapour or volatile matter is effectively removed through such facility and discharged to the outside air.

(b) Any such extract facility shall be so constructed that any condensate deposited upon the internal surface of such facility cannot run or drip from such surface back onto such area.

NN - 13.6

(c) The artificial ventilation system serving any parking garage shall be separate from any other artificial ventilation system: Provided that contaminated air exhausted from such garage may be circulated through a transformer, machine or similar service room in order to dissipate heat from machines before passing to the outside air.

(d) The arrangement and sizes of air inlets and outlets in every garage required in terms of this Part to be artificially ventilated shall be such as to ensure that the level of noxious or toxic fumes or gases at any location in such garage does not rise above a safe limit.

NN - 13.7

(a) Where any kitchen contains an extraction facility for the purpose of extracting heat or vapour such facility shall, where it is to be subjected to an atmosphere containing grease in suspension, be fitted with a means which will filter the air entering such facility to prevent such grease being carried into the system:Provided that where such means cannot be fitted an easily accessible trap or settling chamber shall be installed in the duct leading from such facility.

(b) Provision shall be made at every change in direction of such duct for easy inspection and for cleaning of the interior of the duct.

(c) Any such extraction facility and the artificial ventilation system required therefore shall be - constructed or lined throughout with a non-combustible material.

(d) Any such extraction facility shall not be connected to any other extraction facility or artificial ventilation system.

NN - 13.8 Any self-contained artificial ventilation unit installed in the wall of any building where such wall abuts on a public street or place shall be installed and operated in such a way that condensate formed by the operation of the unit is prevented from dripping onto such street or place by means of:-

(a) The use of a unit which disposes of all condensate by evaporation; or

(b) Arranging for the condensate from the unit to be collected and disposed of into a drain or storm water drain or in such manner as will be acceptable to The Approving Authority.

NN - 13.9 The arrangement and sizes of air inlets and outlets in any room which is artificially ventilated shall be such as to ensure an even and uniform distribution and circulation of air throughout the occupied zone of the room, without the creation of an air velocity of more than 0.5 m/s.

NN - 13.10

(a) Any room or space which is required to be artificially ventilated and is used for an occupancy contemplated in column 1 of Table N3 shall be supplied with outside air at a rate not less than that contemplated in columns 2 and 4 of such table: Provided that:-

(i) where no figure is given in column 2, the rate given in columns 3 and 4 shall be used; or

(ii) where air has been recirculated through an approved filter capable of removing tobacco smoke particles, or The Approving Authority is satisfied that smoking will not take place in such room or space or in any room or space from which the air has been recalculated, the rate may be reduced to that given in columns 3 and 4 of such table;

(iii) where airborne toxic substances will be released into the room or space, concerned, extract ventilation which is able to remove such substances shall be provided;

(iv) in the case of a kitchen or any room containing a bath, shower, WC pan or

urinal in any dwelling unit or private dwelling house or any such room serving any bedroom, borrowed air may be used in lieu of outside air and the system shall be capable of supplying the required quantity of air under conditions of intermittent use;

(v) in the case of any motor car repair garage, photographic darkroom, working area in a commercial dry-cleaning establishment, private or central kitchen in a hotel, motel, resort, dormitory and similar facilities or any wash-room or room containing a WC pan or urinal located in an office-type occupancy or intended for use by the public, the extract ventilation quantity shall exceed the supply air quantity to ensure negative pressure in the area concerned;

(vi) in the case of any laboratory, any fume cupboard provided shall be capable of removing all fumes, gas, vapour or volatile matter likely to be generated in such cupboard; and

(vii) in the case of a ticket kiosk situated in a parking garage, the air supply to such kiosk shall be sufficient to create positive pressure within the kiosk.

(b) For the purpose of this sub-regulation the number of persons shall be based upon the requirements contained in Regulation AA24.

Table N - 3: Air Requirements for Artificial Ventilation

Occupancy	**Minimum air requirement, l/s**		**Remarks**
Public halls	Smoking	Filtered or non-smoking	
Assembly halls	7.5	3.5	Air supply required per person
Churches	7.5	3.5	
Theatres (including lobbies and auditoria)	7.5	3.5	
Cinemas	7.5	3.5	
Dry-cleaners and laundries			
Commercial dry-cleaners (working areas)	-	120.0	Air supply required per person
Storage/collection area	7.5	5.0	
Laundries	7.5	5.0	
Educational buildings			
Classrooms	-	7.5	Air supply required per person
Laboratories	-	7.5	
Libraries	-	6.5	
Food and eating facilities public)			
Dining-rooms and restaurants	7.5	5.0	Air supply required per person
Cafeterias	7.5	5.0	
Bars and cocktail lounges	7.5	5.0	
Kitchens	17.5	17.5	
Photographic darkrooms	-	10.0	Air supply required per person

Occupancy	Minimum air requirement, l/s		Remarks
Dwelling units			
Kitchens	50.0	50.0	Air supply required per person
Other living areas	5.0	5.0	
Bathrooms and shower-roams	25.0	25.0	
Rooms containing WC pan or urinal	25.0	25.0	
Shops Malls, arcades, warehouses	 7.5	 7.5	Air supply required per room
Sales floors, showrooms, dressing rooms	7.5	7.5	
Sports and amusement facilities			
Ballrooms and discos	7.5	-	Air supply required per room
Bowling alleys (seating area)	7.5	-	
Playing area (gymnasium, etc)	-	10.0	
Locker-rooms	7.5	7.5	
Spectator areas	5.0	-	
Health spas and slimming salons	-	7.5	
	Smoking	Filtered or non-smoking	
Garages Parking garages Ticket kiosks Motor car repairs	7.5	3.5	Air supply required per sq.m. of floor area
	5.0	5.0	Air supply required per person
	10.0	10.0	Air supply required per sq.m. of floor area
Hotels, motels, resorts, dormitories and similar facilities Lobbies Conference rooms Assembly rooms Bedrooms Living-rooms (suites) Central kitchens Private kitchens	 7.5 7.5 7.5	 5.0 5.0 5.0	Air supply required per person
	7.5 7.5 17.5 50.0	 17.5 50.0	Air supply required per person Air supply required per room
Libraries General Bookstock	 - -	 6.5 3.5	Air supply required per person
Offices General Meeting and waiting spaces Conference and board rooms Cleaner's rooms	 7.5 7.5 10.0	 5.0 5.0 5.0	Air supply required per person

Occupancy	Minimum air requirement, l/s		Remarks
	-	1.0	Air supply required per sq.m. of floor area
Stages, TV, radio and movie film	7.5	5.0,	Air supply required per person
Rooms containing baths, showers, WC pans or urinals Serving a dwelling unit or any bedroom All others **Transportation** Waiting-rooms, ticket and baggage areas, corridor & gate areas, platforms, concourses	25.0	25.0	Air supply required per room
	20.0 7.5 5.0 7.5	20.0 7.5 - 	Air supply required per bath, * shower, WC pan, urinal stall or 600mm of urinal space
		5.0	Air supply required per person
Smoking-rooms	20.0	-	Air supply required per person
Occupancies other than those listed above		As determined by The Approving Authority	
	10.0	10.0	Air supply required per sq.m. of floor area
Hotels, motels, resorts, dormitories and similar facilities Lobbies Conference rooms Assembly rooms Bedrooms Living-rooms (suites) Central kitchens Private kitchens	7.5 7.5 7.5	5.0 5.0 5.0	Air supply required per person
	7.5 7.5 17.5 50.0	 17.5 50.0	Air supply required per person Air supply required per room
Libraries General Bookstock	- -	6.5 3.5	Air supply required per person
Offices General Meeting and waiting spaces Conference and board rooms Cleaner's rooms	7.5 7.5 10.0	5.0 5.0 5.0	Air supply required per person
	-	1.0	Air supply required per sq.m. of floor area
Stages, TV, radio and movie film	7.5	5.0,	Air supply required per person
Rooms containing baths, showers, WC pans or urinals Serving a dwelling unit or any bedroom All others **Transportation** Waiting-rooms, ticket and baggage areas, corridor & gate areas, platforms, concourses	25.0	25.0	Air supply required per room

Occupancy	Minimum air requirement, l/s		Remarks
	20.0 7.5 5.0 7.5	20.0 7.5 - 	Air supply required per bath, * shower, WC pan, urinal stall or 600mm of urinal space
		5.0	Air supply required per person
Smoking-rooms	20.0	-	Air supply required per person
Occupancies other than those listed above		As determined by The Approving Authority	

NN - 14 WINDOWS

Every domestic building shall be provided with approved means of ventilation and shall have a sufficient number of windows suitably positioned so as to directly open to the external air.

NN - 15 AREA OF WINDOWS

NN - 15.1 Every habitable room shall have a window or windows opening directly into the external air, which shall have for the purpose of daylight, a total area exclusive of frames, equal to at least one-tenth of the floor area of such room.

NN - 15.2 For a window in a wall abutting on to an open verandah or immediately beneath a balcony or canopy, the minimum area required by sub regulation NN15.1 above of these Regulations shall be increased by 5 percent for each 300mm that the verandah, balcony or canopy projects from the wall.

NN - 15.3 In habitable rooms windows shall be constructed so that an area thereof equal to at least one-twentieth of the floor area of the room shall be made to open to the external air, and part of the area so required to open shall not be less than 1.75m above the floor:

Provided that a window which opens from a habitable room on to an enclosed verandah, conservatory or similar place, shall be deemed to open directly into the external air if that room and that place are together provided with windows which open directly into the external air, and would suffice for the purposes of this sub regulation if they were the windows of a room having a floor area equivalent to the combined floor area of the first mentioned room and that place.

NN - 16 SPACE OPPOSITE WINDOWS

NN - 16.1 A window of a habitable room shall not be deemed to have direct communication with the external air unless there is opposite to such window for its entire area an unobstructed open space distant from:-

(a) the plot boundary facing such window; or
(b) if such a boundary abuts on to a street or on to land designated as a public open space, the plot boundary on the opposite side of such street or land; or

(c) if the window faces an internal open space contained entirely on the same plot as the building in which the window is situated, the wall on the opposite side of such open space, by an amount whereby the vertical face of the wall in which the window is placed does not intersect the theoretical plane created by an angle of 68 degrees from the horizontal and projected towards the wall from the aforementioned boundary or opposite wall at a height of 1.5m above the level of the floor of the room which the window serves:

Provided that;-

(i) if adjoining plots are developed in such a manner as to allow for an internal open space, part of which is situated on each plot, the said theoretical plane may, if The Approving Authority so agrees, be projected from the wall on the opposite side of that open space; and

(ii) in no case, shall the distance across an open space opposite a window of a habitable room be less than 2.4m.

NN - 16.2 No balcony or other projection from the face of a wall containing the window of a habitable room shall be so constructed that it intersects the theoretical plane described in sub regulation NN16.1 of these Regulations

NN - 17 BACK-TO-BACK DWELLINGS

All back-to-back dwellings shall be constructed in such a manner that every room shall have cross ventilation and adequate lighting.

NN - 18 VENTILATION - HABITABLE ROOMS

NN - 18.1 If required by The Approving Authority, every person who erects a building, shall cause every habitable room to have approved permanent air vents of sufficient number, so arranged as to ensure cross or through ventilation to the external air.

NN - 18.2 Air vents shall be placed at a height above the floor of not less than two-thirds of the average height of the room.

NN - 18.3 For the purpose of these Regulations, communication with the external air may be obtained through a ventilated corridor or passage which itself has an external wall through which adequate ventilation to the external air is provided, or The Approving Authority may accept a flue communicating the room directly to the external air as one part of the means of providing through ventilation: Provided that, in all cases permanent ventilation shall be provided in one external wall.

NN - 19 LADDERS - VENTILATION

Every pantry or ladder shall be ventilated to the external air by an opening fitted with a fly-proof cover, so constructed as to allow adequate flow of air.

NN - 20 STAIRCASES - VENTILATION AND LIGHTING

All common stairs and common passages shall be adequately cross ventilated, and for common stairs sufficient natural and artificial lighting shall be provided.

NN - 21 VENTILATION OF SHOPS

Where the light and ventilation of a shop into the external air is restricted to one wall, the width of such shop shall not, unless The Approving Authority otherwise agrees, be less than half the depth and approved through-ventilation provided.

NN - 22 GARAGES CONNECTED TO A DWELLING

NN - 22.1 There shall be no communication between a habitable room and a garage except through a passage, ventilated to the satisfaction of The Approving Authority.

NN - 22.2 A garage connected to a habitable room through a passage shall be provided with external permanent through-ventilation by means of vents at a height of 450mm above the floor level and at the ceiling level of the garage.

NN - 23 BUILDINGS OF THE WAREHOUSE CLASS; VENTILATION AND LIGHTING

NN - 23.1 Every part of a building of the warehouse class, used for human occupation, shall be provided with lighting and ventilation to a standard not less than that required for a habitable room: Provided that:

(a) Nothing in these Regulations in respect of lighting and ventilation, shall exclude the provision of approved artificial lighting and mechanical ventilation.

(b) If an approved mechanical ventilation and artificial lighting system is installed, The Approving Authority may review the requirements of these Regulations relating to the height of rooms and the requirement as to windows.

NN - 24 PUBLIC BUILDINGS - LIGHTING AND VENTILATION

NN - 24.1 Except, as otherwise provided for in these Regulations, every public building shall be provided with adequate means of lighting and ventilation to a standard not less than that prescribed for a domestic building.

NN - 24.2 In foyers, shopping malls etc where large numbers of people are expected to gather and not spaces principally used for circulation, ventilation shall be achieved through natural ventilation by appropriately located openings to external walls with a total area of 2% of the floor area.

NN - 24.3 In public spaces described under NN 24.2 above, mechanical ventilation shall be designed to provide a ventilation rate of 1 litre/sec/m^2 of floor area.

NN - 25 DESIGN, CONSTRUCTION AND INSTALLATION OF SPACE HEATING

NN - 25.1 Any system of space heating in any building shall be so designed, constructed and installed as to operate safely and any flue, flue pipe or chimney used in such system shall be so designed as to safely remove any smoke or noxious gases produced by such system.

NN - 25.2 No flue pipe shall be designed and installed in such a manner that it will cause a fire hazard to any adjacent material.

NN - 25.3 No flue pipe shall be connected to any shaft or duct which forms part of a ventilation system.

NN - 25.4 No flue pipe shall be installed in any shaft or duct in which any services which may be adversely affected by heat are to be situated.

NN - 26 CHIMNEYS

NN - 26.1 Any chimney which is within or is attached to a building shall comply with the following requirements:

(a) It shall be designed and erected in non-combustible materials and in such a manner that it will not cause a fire hazard to any adjacent material.
(b) It shall not be installed in any shaft or duct in which any services which may be adversely affected by heat are to be situated.
(c) No combustible material such as a timber floor joist, trimmer or roof truss shall be built within 200mm of the inside of such chimney.

NN - 26.2

(a) Where in any dwelling house or dwelling unit the walls of any chimney are erected of masonry units such walls shall be of solid masonry, and where such walls are less than 190 mm thick such chimney shall be lined in compliance with sub regulation NN26.3: Provided that any such walls shall not be reduced to less than 90mm in thickness.
(b) Without prejudice to the requirements contained in this sub regulation the thickness of any chimney wall in any building covered by a combustible roof shall be not less than 190 mm.

NN - 26.3 Where any chimney is provided with a flue lining such lining shall be made of material which will withstand any action of the flue gases and resist, without cracking or softening, the temperatures to which it may be subjected and it shall extend throughout the full height of such chimney.

NN - 26.4 Where any chimney has either a laterally unsupported height greater than 4 m or a laterally unsupported height greater than six times its minimum lateral dimension it shall be designed in accordance with the requirements for the design of structural systems contained in Part J of these Regulations.

NN - 26.5 The height of any chimney outlet shall be not less than:-

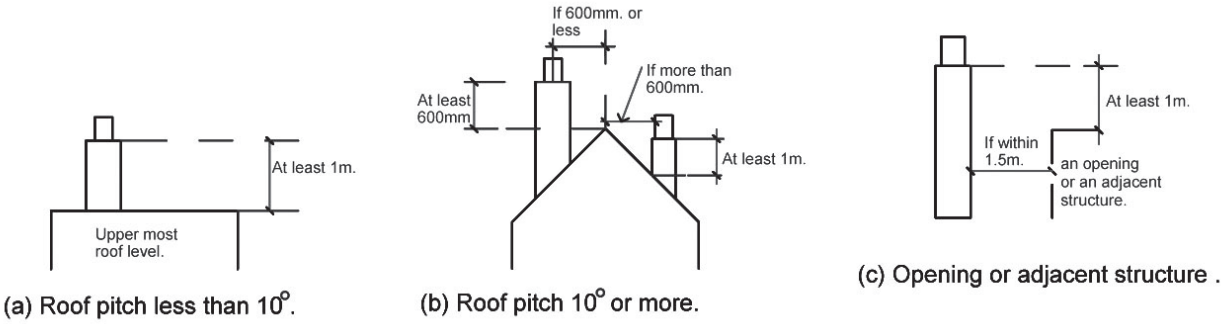
(a) 1 m above the highest point of contact between such chimney and the roof: Provided that where a roof has an angle of slope on both sides of a ridge of not less than 10° from the horizontal and the centre line of the flue of the chimney is not more than 600 mm from the ridge, the height of such chimney outlet shall not be less than 600 mm above such ridge;
(b) 1 m above the highest point of any window or roof light capable of being opened or any ventilation inlet situated in any roof or external wall where the horizontal

distance from the nearest point of such window, roof light or opening to a vertical line through the centre of such chimney outlet is less than 2.3 m;

(c) 1 m above the eaves level in the case of any chimney which does not pass through the roof of a building but is within 1.5 m of the nearest wall of such building: Provided that at a gable end of such building such chimney shall extend not less than 600 mm above the highest point of such gable end.

Commentary: *Figure N8 illustrates chimney height measurements.*

Figure N - 8: Chimney Position



(a) Roof pitch less than 10°. (b) Roof pitch 10° or more. (c) Opening or adjacent structure .

NN - 27 HEARTHS AND FIREPLACES FOR SOLID FUEL APPLIANCES

NN - 27.1 Every fireplace used for the burning of solid fuel shall have a hearth made of non-combustible material of adequate thickness.

NN - 27.2 Such hearth shall extend not less than 500mm in front of the grate or fire basket and not less than 300mm beyond each side of such grate or fire basket.

NN - 27.3 No timber floor joist or trimmer or any other combustible material shall be built into any hearth.

NN - 28 VENTILATION OF SPECIALIST ACTIVITIES

NN - 28.1 Ventilation design for specialist activities shall be as follows:-

(a) School / Educational Establishment

Ventilation provision shall be made either in accordance with Table N2, except for sanitary accommodation where six air changes per hour are required. In spaces where noxious fumes may be generated additional provision for ventilation shall be requiring the use of fume cupboards.

(b) Workplaces

The Approving Authority shall require the owner to satisfy it regarding enhanced ventilation air-conditioning for specific work places.

(c) Hospitals

The ventilation needed for various types of accommodation will be different depending on the functional use of the space. These values will also vary throughout the year. The requirements shall be in accordance with ISO 5636-5:2003.

(d) Building Services Plant Rooms

Provision shall be made for emergency ventilation to control dispersal of contaminating gas releases . The Approving Authority shall require the owner to satisfy it regarding enhanced air conditioning and ventilation for these areas.

(e) Rest Rooms Where Smoking Is Permitted.

In rest rooms, rest areas, where smoking is permitted suitable arrangements to protect non-smokers from discomfort caused by tobacco shall be made as follows:

(i) Natural Ventilation. Provision should be made for both:
-an air supply in accordance with Table N2 for an occupiable room; and
-the removal of tobacco smoke particles through local extract ventilation.

(ii) Mechanical Ventilation. The design of the ventilation system should prevent the recirculation of air contaminated with tobacco smoke shall be extracting the smoke-laden air to the outside at a rate of at least 16 litres/second per person.

(f) Commercial kitchens.

Ventilation in commercial kitchens shall be designed in accordance with ISO 5636-5:2003

NN - 28.2 Ventilation for car parks below 6 levels and multi-storey car parks shall be designed as follows:

(a) Naturally Ventilated Car Parks. The provision of well distributed permanent natural ventilation, e.g. openings at each car parking level with an aggregate area equal to at least 5% of the floor area at that level, of which at least half should be in two opposing walls.

(b) Mechanically Ventilated Car Parks, either:

(i) the provision of both permanent natural ventilation openings of not less than 25% of the floor area and a mechanical ventilation system capable of at least three air changes per hour; or

(ii) for basement car parks, the provision of a mechanical ventilation system capable of at least six air changes per hour; and

(iii) for exits and ramps, where cars queue inside the building with engines running, provision should be made to ensure a local ventilation rate of at least ten air changes per hour.

NN - 28.3 Design of Mechanical Ventilation or Air-Conditioning Plant

(a) In every design of mechanical vent or air conditioning plant, provision shall be made to protect the fresh air supplies from contaminants injurious to health. Air inlets for ventilation systems shall not be sited where they may draw in excessively contaminated air.

(b) In every design of mechanical vent or air conditioning plant every effort shall be made to avoid contamination.

NN - 29 VENTILATION IN ROOF SPACES

All roof spaces must be adequately ventilated.

NN - 30 NOISE CODE FOR NEW HOUSING AND REFURBISHMENTS

NN - 30.1 The following Noise Exposure Categories shall be adhered to when approving new housing developments and refurbishments near busy roads.

(a) **NEC D** Building permission shall not be granted where external free-field noise levels are in excess of 72 dB L_{Aeq} 16h (07:00-23:00 hours), or 66 dB L_{Aeq} 8h (23:00 - 07:00 hours)

(b) **NEC C** Building permission shall not be granted where external free-field noise levels are in excess of 63 dB L_{Aeq} 16h (07:00-23:00 hours), or 57d B L_{Aeq} 8h (23:00 - 07:00 hours) but less than those in NEC D
Where it is considered that permission should be granted then conditions requiring adequate protection against noise shall be imposed.

(c) **NEC B** Noise should be taken into account when determining building applications and, where appropriate, conditions requiring adequate noise protection shall be imposed where external free field noise levels are in excess of 55 dB L_{Aeq} 16h (07:00-23:00 hours), or 45 dB L_{Aeq} 8h (23:00 - 07:00 hours) but less than those in NEC C.

(d) **NEC A** Noise need not be considered as a determining factor in granting building permission where external free-field noise levels are below 55 dB L_{Aeq} 16h (07:00-23:00 hours), and 45 dB L_{Aeq} 8h (23:00 - 07:00 hours).
However, noise levels at the high end of the category should not be considered as a desirable level.
For dwellings with windows open for ventilation the noise levels in NEC A indicate that 45 dB L_{Aeq} is normally acceptable internally during the day and 35 dB L_{Aeq} at night.
For proposed residential developments, the 68 (dB L_{A10} 18h) or
65dB L_{Aeq} 18h shall be the control value for road traffic noise beyond which developments shall not be allowed.

NN - 30.2 The following Noise Exposure Categories (NEC) shall be adhered to when approving new housing developments and refurbishments near railway lines.

(a) **NEC D** Building permission shall not be granted where external free-field noise levels are in excess of 74 dB L_{Aeq} 16h (07:00-23:00 hours), or 66 dB L_{Aeq} 8h (23:00 - 07:00 hours)

(b) **NEC C** Building permission shall not be granted where external free-field noise levels are in excess of 66 dB L_{Aeq} 16h (07:00-23:00 hours), or 59 dB L_{Aeq} 8h (23:00 - 07:00 hours) but less than those in NEC D, or where individual noise events exceed 82 dB $L_{Amax,\,s}$ (maximum SPL on 'slow' meter setting) at night. Where it is considered that permission should be granted then conditions requiring adequate protection against noise should be imposed.

(c) **NEC B** Noise should be taken into account when determining building applications and, where appropriate, conditions requiring adequate noise protection should be imposed where external free field noise levels are in excess of 55 dB L_{Aeq} 16h (07:00-23:00 hours), or 45 dB L_{Aeq} 8h (23:00 - 07:00 hours) but less than those in NEC C.

(d) NEC A Noise need not be considered as a determining factor in granting building permission where external free-field noise levels are below 55 dB LAeq 16h (07:00-23:00 hours), and 45 dB LAeq 8h (23:00 - 07:00 hours). However, noise levels at the high end of the category should not be considered as a desirable level.For dwellings with windows open for ventilation the noise levels in NEC A indicate that 45 dB LAeq is normally acceptable internally during the day and 35 dB LAeq at night.

NN - 30.3 The following Noise Exposure Categories shall be adhered to when approving new housing developments and refurbishments near airports.

(a) **NEC D** Building permission shall not be grantedwhere external free-field noise levels are in excess of 72 dB L_{Aeq} 16h (07:00-23:00 hours), or 66 dB L_{Aeq} 8h (23:00 - 07:00 hours)

(b) **NEC C** Building permission shall not be grantedwhere external free-field noise levels are in excess of 66 dB L_{Aeq} 16h (07:00-23:00 hours), or 57d B L_{Aeq} 8h (23:00 - 07:00 hours) but less than those in NEC D, or where individual noise events exceed 82 dB $L_{Amax,\ s}$ (maximum SPL on 'slow' meter setting) at night. Where it is considered that permission should be granted then conditions requiring adequate protection against noise should be imposed.

(c) **NEC B** Noise should be taken into account when determining building applications and, where appropriate, conditions requiring adequate noise protection should be imposed where external free field noise levels are in excess of 57 dB L_{Aeq} 16h (07:00-23:00 hours), or 48 dB L_{Aeq} 8h (23:00 - 07:00 hours) but less than those in NEC C.

(d) **NEC D** Noise need not be considered as a determining factor in granting building permission where external free-field noise levels are below 57 dB L_{Aeq} 16h (07:00-23:00 hours), and 48 dB L_{Aeq} 8h (23:00 - 07:00 hours). However, noise levels at the high end of the category should not be considered as a desirable level. For dwellings with windows open for ventilation the noise levels in NEC A indicate that 45 dB L_{Aeq} is normally acceptable internally during the day and 35 dB L_{Aeq} at night.

NN - 30.4 For new housing developments and refurbishments near any two or all of the above sources, the Noise Exposure Categories near busy roads in Table N4 will be employed.

Table N - 4: NOISE LEVELS CORRESPONDING TO THE NOISE EXPOSURE CATEGORIES FOR NEW DWELLINGS $L_{Aeq,\ T}$ dB

Noise Source	Noise Exposure Categories			
	A	B	C	D
Road Traffic 07:00 – 23:00 23:00 – 07:00	 <55 <44	 55 – 63 45 - 47	 63 – 72 57 - 66	 >72 >66
Rail Traffic 07:00 – 23:00 23:00 – 07:00	 <55 <44	 55 – 66 45 - 59	 66 – 74 59 - 66	 >74 >66

Air Traffic 07:00 – 23:00 23:00 – 07:00	 <57 <48	 57 – 66 48 - 57	 66 – 72 57 - 66	 >72 >66
Mixed Sources 07:00 – 23:00 23:00 – 07:00	 <55 <44	 55 – 63 45 - 47	 63 – 72 57 - 66	 >72 >66

NN - 30.5 Planning and building permission should not be granted in residential neighborhoods for the following activities: Bars and discotheques.

NN - 31 MAXIMUM PERMISSIBLE INTRUSIVE NOISE LEVELS

NN - 31.1 Table N5 represents the ambient noise levels to be met for both domestic and non-domestic buildings. By satisfying these noise rating values, the developer would have met the noise insulation criteria that would mitigate noise pollution to neighbouring facilities and create an acceptable internal aural environment. Table N6 and Graph N1 should be used in conjunction with Table N5.

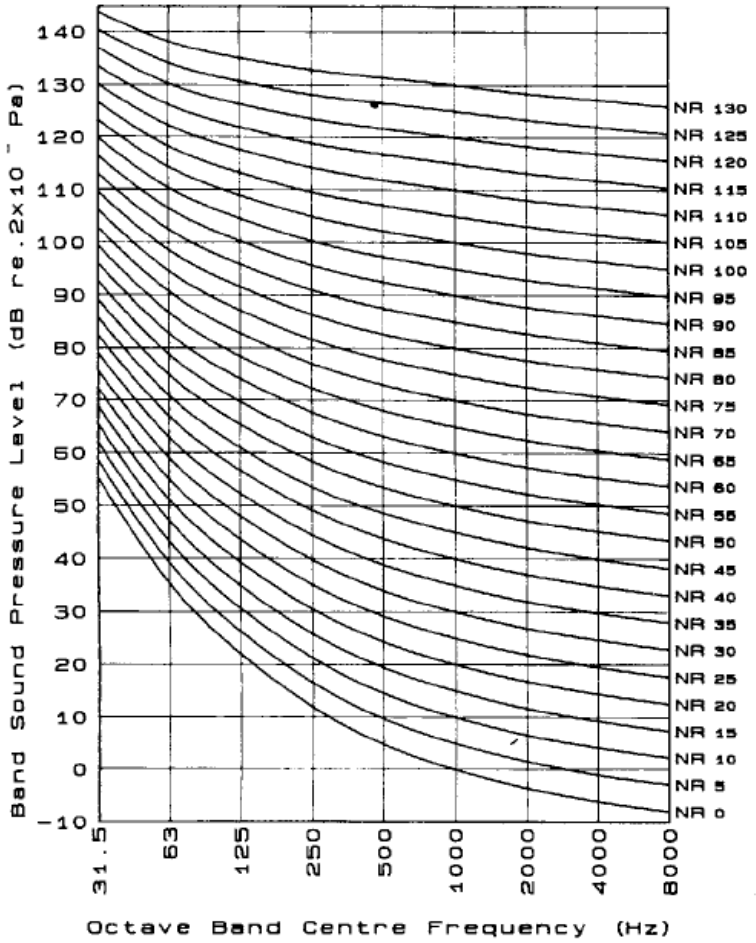
Table N - 5: Permissible Intrusive Noise Levels

Type of Use	dB (A)	NR	Type of Use	dB (A)	NR
Banks	50	40	Lecture rooms and theatres	35	25
Churches	35	25	Libraries, loan	45	35
Cinemas	35	25	Libraries, reference	40	30
Classrooms	35	25	Music rooms	30	20
Concert Halls	30	20	Open air theatres	40	30
Conference rooms	30	20	Shops	55	50
Court rooms	35	25	Telephoning, good	50	40
Council Chambers	35	25	Telephoning, fair	55	45
Department Stores	55	50	Television studios	30	20
Flats, living	45	35	Theatres	30	20
Flats, sleeping	35	25	Typing pools	55	50
Hostels, bedrooms	35	25	Works canteens	60	55
Houses, living	45	35	Offices, private	40	30
Houses, sleeping	35	25	Offices, public	50	40
Radio drama	-	10	Restaurants	50	40
Radio talks, continuity studios, live television studios	-	15	Quiet wards, overnight stay rooms, chapel, resuscitation	35	25
Recording studios, audiometric rooms, concert halls, opera halls	30	20	Children's wards, treatment and recovery rooms, staff rest rooms.	45	35
Theatres, cathedrals and large churches, commercial television studios, music practice rooms	35	25	Operating theatres, circulation, utility rooms, day rooms, pharmacy, reception areas	50	40

Table N - 6: Noise Rating Number (Nr) Criterion Values (In Db)

Octave Band Centre Frequency (OBCF) - Hz									
NR Value	31.5	63	125	250	500	1k	2k	4k	8k
15	66	47	35	26	19	15	12	9	7
20	69	51	39	31	24	20	17	14	13
25	72	55	44	35	29	25	22	20	18
30	76	59	48	40	34	30	27	25	23
35	79	63	52	45	39	35	32	30	28
40	83	67	57	49	44	40	37	35	33
45	86	71	61	54	49	45	42	40	38
50	89	75	65	58	54	50	47	45	43
55	92	78	70	63	58	55	52	50	48

Figure N - 9: Noise Rating Curves



Definitions:

Noise Rating Number, NR: The noise rating number is a single index obtained from an octave band analysis of a noise. This criterion relates to meaningless and fairly continuous noise such as that from road traffic.

NN - 32 ALLOWABLE MID FREQUENCIES REVERBERATION TIMES

FOR PUBLIC PERFORMANCE SPACES

The reverberation times indicated in Table N7 should be met for a good aural environment for the enjoyment of performances.

Table N - 7: Allowable Mid Frequencies Reverberation Timesfor Public Performance Spaces

Activity	Reverberation Time (RT)	Building Type
Broadcast	0.2-0.25 0.3 1.0 - 2.0	Sound dubbing, announcer booths Small speech studios Large music studio
Speech	0.6-1.2	Council chambers, law courts, lecture theatres, meeting rooms, conference halls
Drama	0.9-1.4	Theatres, function rooms
Amplified sound	0.5-1.2	Multiplex cinemas, pop concert venues, discotheques, video wall settings
Multiuse	1.0-1.7	School assembly halls, community halls, sports/arts halls
Opera	1.0-1.6	Opera houses, theatres with orchestra pits
Soloists, ensembles	1.2-1.7	Recital halls, orchestra rehearsal halls, chamber music salons
Orchestral music	1.7-2.2	Concert halls
Organ and choir music	2.0-5.0	Ceremonial halls, organ concert halls, churches and cathedrals

Definitions

Reverberation: Is generally defined as the continuation of an audible sound in an enclosed space after the sound source has been cut off.

Reverberation Time: It is the time taken for reverberant sound energy in an enclosure to decay to one millionth of its equilibrium value, i.e. by 60dB, after the source is turned off.

NN - 33 ENERGY EFFICIENCY AND THERMAL COMFORT

NN - 33.1 All new buildings or alterations and extensions to existing buildings should make provision for adequate natural lighting, natural cooling and natural ventilation.

NN - 33.2

(a) Passive and natural cooling methods should be considered as part of overall energy efficiency in buildings. In which case environmental design should follow the fundamental steps of prevention of heat gain (protection) and the provision of cooling (heat dissipation). Lighting, Ventilation, Condensation and Space Heating

(b) Prevention of heat gain should include planning and design of building layout,

landscaping and appropriate choice of construction materials together with sun shading and other controls of heat gain or loss.

(c) Provision of cooling includes the natural removal of any heat gains from outside, internally generated heat from people, lighting, equipment and any other processes within the building through the various forms of natural ventilation.

NN - 33.3 Passive and Natural Cooling

All external glazed areas including windows, other wall glazed areas, atriums and other roof glazed areas should mitigate against solar heat gain by use of design devices.

NN - 33.4 Natural Lighting

(a) All habitable spaces should be provided with natural light.
(b) All new buildings or alterations and extensions to existing buildings should allow for daylight factor as tabulated in table N8.
(c) Where natural lighting is not possible, energy efficient light fittings should be installed.

Table N - 8: Recommended Daylight Factors and Limiting Glare Indexes for Specific Situations

Situation	Average daylight factor (per cent)	Minimum daylight factor* (per cent)	Position of measurement	Limiting daylight glare Index	Notes
Assembly and concert halls					
Foyers, auditoria	1	0.6	Working plane	24	
Corridors	2	0.6	Floor	-	
Stairs	2	0.6	Treads	-	
Drawing offices					
General	5	2.5	On boards	21	
General building areas					
Entrance halls and reception areas	2	0.6	Working plane	24	
Offices					
General offices	5	2	Desks	23	
Typing, business machines, manually operated computers	5	2.5	Desks	23	
Schools and colleges					
Assembly halls	1	0.3	Working plane	21	
Classrooms	5	2	Desks	21	
Art rooms	5	2	Easels	21	
Laboratories	5	2	Benches	21	
Staffrooms, common rooms	5	1.5	Working plane	23	
Sports halls					
General	5	3.5	Working plane	21	
Surgeries (medical and dental)					
Waiting rooms	2	0.6	Working plane	24	
Surgeries	5	2.5	Working plane	21	

Laboratories	5	2	Benches	22	
Swimming pools					
Pool	5	2	Pool surface	23	Care should be taken to minimize glare and reflections from water surface
Surrounding areas	1	0.5	Working plane	23	

NN - 33.5 Renewable Energy Sources

(a) All new housing developments or alterations and extensions to existing buildings should have renewable energy water heating installations.

(b) All premises with hot water requirement of a capacity exceeding a 100 litres per day shall install and use renewable energy for hot water heating subject to any other laws and regulations governing the energy sector.

(c) All the premises shall have a minimum annual renewable energy source contribution of 60% to the premises hot water demand.

(d) An electric power supplier or distributor shall not provide electricity supply to premises that have not installed renewable energy source heaters in accordance with regulation NN31.5b.

(e) New developments should consider generating electricity from stand alone renewable energy source installations in suitable locations.

NN - 34 WATER MANAGEMENT

NN - 34.1 All new buildings or alterations and extensions to existing buildings should make provision for rainwater harvesting. In urban areas and others that are prone to pollution, the water is to be used for flushing of toilets and cleaning, otherwise it should be treated for drinking.

NN - 34.2 Consideration should be given for use of grey water in toilet flushing and irrigation. Such building should have grey water management systems designed to separate grey water (from wash hand basins and sinks) from blackwater (from toilets)

NN - 35 INDOOR AIR QUALITY

NN - 35.1 Ensure good ventilation of both habitable and non-habitable spaces.

NN - 35.2 For artificial ventilation, ensure air intakes are properly located to prevent cross contamination from building exhausts.

NN - 35.3 Maintain strict control of use of chemicals on premises to prevent a cocktail effect on indoor air quality.

NN - 35.4 Every major construction material should be researched, its chemical make-up analyzed, and then chosen or rejected on its environmental and Indoor Air Quality impact.

NN - 35.5 Specify furniture, carpets and other products which are low emitters of formaldehyde and volatile organic compounds (VOCs). VOCs are carbon-based chemical solvents distilled

from petroleum or petroleum byproducts. VOCs are often carcinogenic and in quite small amounts can cause or contribute to a wide range of serious human ailments ranging from birth defects and metabolic disorders to kidney and lung disease, memory loss and respiratory problems.

NN - 35.6 Specify low solvent or water based paints, varnishes and glues.

NN - 35.7 Indoor landscaping should be considered to improve Indoor Air Quality. Plants absorb carbon dioxide and release oxygen. This is particularly useful in zones with stagnant air and ineffective natural ventilation. 8litres/sec per person supply of fresh air is recommended and the maintenance of room air at CO_2 concentration of 0.5%. Plants thus augment natural ventilation in the removal of CO_2 and provision of oxygen.

NN - 36 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence and shall be liable to a fine not less than KShs 3,000,000 (Kenya Shillings three million only) or imprisonment for a period not less than twelve (12) months or both.

SECTION 0

WATER SERVICES, DRAINAGE, WASTE DISPOSAL AND STORM WATER

CONTENTS

SECTION O

WATER SERVICES, DRAINAGE, WASTE DISPOSAL AND STORM WATER

OO - 1 COMPULSORY DRAINAGE OF BUILDINGS

OO - 1.1

(a) Where in respect of any building, the owner of such building shall provide a drainage installation and ensure that a suitable means of disposal of water borne sewage is available.
(b) Where there is no such means of disposal, sewage shall be disposed of in accordance with Part P of these Regulations.

OO - 1.2

(a) Where a sewer is or becomes available for the drainage of such building the owner of such building shall, at his own cost, lay, alter or extend any drain serving such building to terminate at a location and level as prescribed by the Approving Authority for the connection to such sewer.
(b) In the case of any existing building, The Approving Authority shall serve a notice, in writing, upon the owner stating the period within which the connection contemplated in paragraph (a) shall be made.

OO - 1.3 Where a connecting sewer has been provided to any site the owner of such site shall cause all sewage discharged from any building on such site to be conveyed by a drain to such connecting sewer.

OO - 1.4 Where the owner of such building fails to lay, alter or extend any drain in terms of sub regulation OO - 1.2 The Approving Authority, may in public interest, alter or extend such drain and recover the costs thereof from the owner:
provided that The Approving Authority shall, before carrying out such work, give not less than 14 days notice to such owner of its intention to carry out such work.

OO - 1.5 Any owner who fails to comply with any requirement of sub regulation OO - 1.1 or OO - 1.2 shall be guilty of an offence.

OO - 2 DESIGN OF DRAINAGE INSTALLATIONS

OO - 2.1 Any drainage installation in any building shall be so designed and constructed that:-

(a) an adequate number of sanitary fixtures is provided in relation to the occupancy and class of occupancy of such building;
(b) such installation is capable of carrying the design hydraulic load;
(c) such installation is capable of discharging into any common drain, connecting sewer or sewer provided to accept such discharge;
(d) all components and materials used in such installation are watertight;
(e) no nuisance or danger to health will be caused as a result of the operation of any

such installation; .

(f) any drain in such system is of such strength, having regard to the manner in which it is bedded or supported, that it is capable of sustaining the loads and forces to which it may normally be subjected and that it is, where necessary, protected against any damage;

(g) all sanitary fixtures are so located that they are easily accessible to those persons they are intended to serve;

(h) any necessary inspection, cleaning and maintenance required, may be performed through the means of access provided.

OO - 2.2 The requirements of sub regulation OO - 2.1 shall be deemed to be satisfied where such installation:-

(a) is the subject of an acceptable rational design prepared by or under the supervision of a qualified person, or

(b) Complies with Regulation OO23:

(c) Provided that where The Approving Authority is of the opinion that the size or complexity of the drainage installation in any building renders it essential for such installation to be the subject of a rational design, The Approving Authority shall, in writing, notify the owner of such building of its reasons for the necessity for such design and may require such owner to submit for approval plans and particulars of a complete drainage installation based on such design.

OO - 3 CONTROL OF OBJECTIONABLE DISCHARGE

OO - 3.1 No person shall cause or permit sewage discharged from any sanitary fixture to enter:-

(a) any storm-water drain, storm-water sewer or excavated or constructed watercourse;

(b) any river, stream or natural watercourse whether ordinarily dry or otherwise; or

(c) any street or other site.

OO - 3.2 No person shall cause or permit storm-water to enter a sewer installation on any site.

OO - 3.3 The Approving Authority may by notice in writing order the owner of any site to execute, at his own cost, any precautionary measures required by The Approving Authority to prevent such entry contemplated In sub regulation OO3.1 or OO3.2, as the case may be.

OO - 3.4 No person shall, without the written permission of The Approving Authority, discharge or cause the discharge of any water from a swimming pool, fountain or reservoir, either directly or indirectly, onto any public street or public place, or onto any site other than onto the site upon which such swimming pool, fountain or reservoir is situated.

OO - 3.5 Any person who contravenes or permits the contravention of any requirement of this regulation or fails to comply with a notice served on him in terms of sub regulation OO3.3, shall be guilty of an offence.

OO - 4 INDUSTRIAL EFFLUENT

OO - 4.1

(a) Where any person has obtained approval to discharge into any drain any liquid or solid matter, other than soil water or waste water, and where any additional drainage and other installations including storage, pre-treatment and metering installations are required by The Approving Authority as a condition of such approval, such person shall submit any plans and other details of such installations required by The Approving Authority.

(b) The installations contemplated in paragraph (a) shall be constructed in accordance with the relevant requirements of these Regulations and shall be maintained in good working order.

OO - 4.2 Any person who constructs an installation contemplated in sub regulation OO - 4.1 other than in accordance with such approval shall be guilty of an offence.

OO - 5 DISCONNECTIONS

OO - 5.1 Where any soil fixture is permanently disconnected from any soil pipe, or where any soil pipe is permanently disconnected from any drain, the owner shall seal the opening to such pipe or drain in such a manner that such disconnection will not be a danger to health.

OO - 5.2 Where any drain is permanently disconnected any remaining part shall be sealed by the owner of such drain.

OO - 5.3 When any drainage installation is disconnected from a connecting trunk sewer The Approving Authority shall be notified, in writing, by the owner thereof within 30 days from the date of such disconnection.

OO - 5.4 Any person who contravenes any requirement of this regulation shall be guilty of an offence.

OO - 6 UNAUTHORIZED DRAINAGE WORK

OO - 6.1 Unless authorized by The Approving Authority;-

(a) no person shall in any manner interfere with any sewer or connecting sewer (outside his premises);

(b) no person shall break into or interfere with any part of a drainage installation other than for the purpose of repair and maintenance.

OO - 6.2 Any person who carries out or permits the carrying out of any unauthorized work contemplated in this regulation shall be guilty of an offence.

OO - 7 INSPECTION AND TESTING OF DRAINAGE INSTALLATIONS

OO - 7.1 Any drain, discharge pipe or ventilating pipe shall be so installed as to be capable of withstanding the test pressures contemplated in regulations O032 or OO33, as the case may be and such tests shall be carried out in the presence of the building control officer of, or other officer duly authorized by The Approving Authority.

OO - 7.2 Any equipment, material or labour required for any inspection or any testing contemplated in this Part of these Regulations shall be made available by the person installing such pipe or drain.

OO - 7.3 No person shall put into use any drainage installation before such installation has been inspected, tested and passed by The Approving Authority as complying with these Regulations.

OO - 7.4 Any person who contravenes the requirement of sub regulation OO7.3, shall be guilty of an offence.

OO - 8 MATERIALS, PIPES, FITTINGS AND JOINTS

In any drainage installation any type of joint between pipes or between such pipes and fittings shall:-

(a) be appropriate to the materials of which such pipes and fittings are made;

(b) remain watertight to the standard set in Regulation OO32 under normal working conditions or where there may be any differential movement between such pipes and any building or ground or other construction forming part of the drainage installation; and

(c) be able to withstand an internal water pressure of 50 kN/m^2 and an external water pressure of 30 kN/m^2 without leaking.

OO - 9 SANITARY FIXTURE STANDARDS

OO - 9.1 Any sanitary fixture shall be made of impermeable, non-corrosive material, shall have a smooth and readily cleanable surface and shall be so constructed and fitted as to discharge through a trap, into a soil pipe or waste pipe, as the case may be.

OO - 9.2 The water supply outlet to any waste fixture shall be situated not less than 20mm. above the flood-level rim of such fixture:

Provided that this requirement shall not apply to any bidet.

OO - 10 STANDARDS FOR WC PANS

OO - 10.1 Any WC pan shall be so designed and manufactured as to comply with the relevant requirements contained in KS 03-1106:1994, KS03-1281:1986 and KS03-1024-1:1990 Provided that any WC pan which has a horizontal outlet spigot where the connection

between such spigot and the soil pipe connected to it is made by an adapter which can provide a slope downwards at a gradient of not less than 1 in 40 towards the inlet of such soil pipe may be installed in any building.

OO - 10.2 Any WC pan of the pedestal type shall be manufactured as a single unit and where such pan is installed in a position so that the joint between its outlet spigot and the soil pipe into which it discharges, is concealed, such pan shall be installed in such a manner that there is ready access to such joint.

OO - 10.3 Any WC pan of the wall-mounted type shall be manufactured as a single unit and shall be so constructed that such pan can:-

(a) be firmly attached to a wall; or
(b) be rigidly supported by a bracket.

OO - 10.4 Any WC pan of the squat type may be manufactured in two parts where the joint between the upper and lower parts is situated above the normal level of the water seal in the trap of such pan.

OO - 10.5 Any WC pan shall be served by its own separate flushing device.

OO - 10.6 Any seat associated with any WC pan shall have a smooth non-absorbent surface and be held in place by fasteners made of corrosion resistant material.

OO - 11 STANDARDS FOR URINALS

OO - 11.1

(a) Any urinal shall be of either one or more slabs, or a stall, trough, bowl or other suitable receptacle which shall have a smooth and readily cleanable non-absorbent surface.
(b) Where a slab or trough type urinal is provided a 600 mm length of such slab or trough shall be deemed to be equivalent to one urinal stall or bowl.

OO - 11.2 Any urinal or group of urinals shall for the purposes of sub regulation OO11.3 be provided with a flushing device:

OO - 11.3 Provided that this requirement shall not apply with regard to any urinal that is specifically designed and constructed as a flushless urinal.

OO - 11.4 Any urinal shall be so designed and installed that its entire surface, within its perimeter, from a distance of not more than 100 mm below the outlet of its flushing device, is cleaned by the water discharged from the device.

OO - 11.5 When any urinal is made of stainless steel it shall be made as a single unit and shall be so constructed that:-

(a) any weld shall have a degree of corrosion resistance not less than that of the parent metal:

(b) any crevice on the exposed side of joints shall be filled with weld metal;
(c) any removable cover shall be attached by means of a corrosion resistant fastener.

OO - 11.6 The channel fitted to any slab or stall type urinal shall be graded with a fall of not less than 1 in 100 and the outlet to this channel shall:-

(a) Serve not more than 4.8 m of slab urinal, or 8 stall units: and
(b) be provided with a trap, which shall be provided with a corrosion resistant grating designed to retain solid matter without obstructing the flow of liquids:

Provided that any such grating shall not be installed in the case of any trap which serves any siphonic urinal.

OO - 11.7 Any joint between any parts of a urinal shall be urine resistant and watertight.

OO - 11.8

(a) Any urinal of the wall-mounted type shall be so constructed that It shall discharge by gravity and have the following minimum dimensions:
  (i) a vertical distance of 300 mm from the outlet of the bowl to the lowest point of discharge of flushing water into the urinal;
  (ii) an external width of 300 mm at the widest point;
  (iii) iii. a horizontal distance of 230 mm from the front of the lip to the wetted face immediately opposite the centre point of such lip; and
(b) such urinal shall be manufactured as a single unit and where it is a urinal flushed by wash-down action it shall be provided with a separate trap or where it is flushed by siphonic or jet action it shall have an integral trap.

OO - 11.9 Any urinal having dimensions less than those contained in sub regulation OO11.6 (a) may be permitted if a trapped floor drain is installed in the same room.

OO - 11.10 Any flushless urinal shall:-

(a) be constructed of inert material with a smooth finish and a high resistance to water absorption;
(b) be so constructed that the inner surface of any bowl and outlet is smoothly curved to ensure that any flow of urine into any trap Is unimpeded and cannot pond in any such urinal;
(c) have waste fittings and discharge piping made of plastics material or other inert material resistant to corrosion.

OO - 12 FLEXIBLE CONNECTORS FOR WC PANS

OO - 12.1 Any flexible connector which is used to connect the outlet spigot of a WC pan to any soil pipe shall not permit any leakage of soil water at the joint.

OO - 12.2 Such connector shall have maximum water absorption of 2 % and shall be flexible to accommodate any dimensional variations and any surface irregularities of such spigot and pipe.

OO - 12.3 The requirements contained in sub regulations OO12.1 and OO12.2 shall be deemed to be satisfied if such connector complies with the requirements contained in KS ISO 265-1: 1988 and KS ISO 4427- 0:2007.

OO - 13 ELECTRICAL SANITARY FIXTURES

OO - 13.1 Any clothes-washing machine or dish-washing machine which is permanently connected to any drainage installation shall discharge through a trap into a waste pipe.

OO - 13.2 No person shall incorporate into any drainage installation a mechanical food waste or other disposal unit or garbage grinder which has a power capacity in excess of 500W unless:-

(i) the owner of the building has registered such unit or grinder with The Approving Authority or it is shown on an approved plan and The Approving Authority is satisfied that the working of any sewerage or sewage treatment system shall not thereby be impaired; and

(ii) such unit or garbage grinder has been installed in compliance with the relevant requirements contained in the compulsory specification for the safety of electrical appliances.

OO - 13.3 Any food-waste disposal unit shall discharge through a trap having a depth of water seal of not less than the relevant depth given in the Regulations contained in regulationOO24.

OO - 13.4 Where any food-waste disposal unit is:-

(a) Installed in contravention of the provisions of these Regulations; or

(b) not functioning efficiently or is impairing the work of any part of the sewerage system, The Approving Authority may serve a notice on the owner of such unit, or the owner or the occupier of the building in which such unit is installed, requiring him to remove or alter such unit or to alter the manner of its installation, by a date and on such conditions as it may determine.

OO - 13.5 The owner shall notify The Approving Authority within 14 days of the removal of any registered unit or grinder.

OO - 14 MACERATOR TYPE SANITARY-TOWEL DISPOSERS

OO - 14.1 In any room containing sanitary fixtures designated for the use of females, suitable means shall be provided for the disposal of sanitary towels.

OO - 14.2 Any macerator type sanitary-towel disposer shall discharge through a trap into a soil pipe.

OO - 15 SEWAGE LIFTS

OO - 15.1 Where any building is at such a level in relation to the nearest connecting sewer that any drainage installation serving such building cannot discharge into such connecting sewer by gravitation the owner of such building shall, at his own cost, install an approved

appliance and where required by The Approving Authority, standby facilities, for the purpose of raising sewage to a level which will enable it to gravitate to such connecting sewer.

OO - 15.2 Such appliance shall be operated and maintained at the cost of such owner and shall be so designed and located as not to be offensive or to be injurious or dangerous to health.

OO - 16 CONSERVANCY TANKS, SEPTIC TANKS, FRENCH DRAINS AND SOAK PITS

OO - 16.1 Any conservancy tank shall:-

(a) have a capacity as prescribed by The Approving Authority;
(b) be constructed with means of access for cleaning;
(c) be provided with a means for clearing as prescribed by The Approving Authority.

OO - 16.2 Any conservancy tank or septic tank to be used on a site for the reception of sewage shall:-

(a) be so designed and constructed that it will be impervious to liquid;
(b) be so sited:-
  (i) that there will be a ready means of access for the clearing of such tank;
  (ii) as not to endanger the structure of any building or any services
  (iii) on the site; and
(c) be so designed and sited that it is not likely to become a source of nuisance or a danger to health.

OO - 16.3 Any septic tank shall, subject to the requirements contained in sub regulation OO16.7, discharge to a french drain.

OO - 16.4 Any septic tank shall:-

(a) where it is to serve a dwelling house or dwelling unit be of a designed
(b) capacity of not less than 1.7 m^3 and be capable of receiving one day's sewage flow as given in Table O1.
(c) where it is to serve any building not being a dwelling house or dwelling unit, be of a designed capacity not less than 3 times the daily flow from such building, using the per capita sewage flow given in Table O1 or such other flow as may be determined by the Approving Authority where not so given;
(d) be so constructed that:-
  (i) it is provided with a means of access for the purpose of emptying and cleaning; and
  (ii) the depth in such tank below the outlet invert is not less
  (iii) than 1.0 m and there is an airspace of not less than 200 mm between the surface of the liquid contained therein and the underside of the top cover of such tank.

Table O - 1: Sewage Flow from Buildings

Type of establishment	Sewage flow, litres per person per day
Boarding houses	110
(Additional kitchen wastes for non-resident boarders)	
Hotels without private baths	23
Hotels with private baths	110
Restaurants (toilet & kitchen wastes per patron)	140
Tourist camps or caravan parks with central bathhouse	20
Day schools	90
Day workers at offices per shift	37
Hospitals	90
Factories (litres per person per shift, exclusive of industrial wastes)	500 140
Swimming baths	9
Motels (per bed)	90
Drive-in theatres (per car space)	9
Residential dwelling units	150

No industrial effluent shall be allowed to flow into any septic tank.

OO - 16.5 Any french drain which is to receive effluent or any evapotranspirative bed shall:-

(a) be so constructed and located as not to cause the pollution of any spring, stream, well or other source of water which is used or is likely to be used for drinking, domestic or kitchen purposes;

(b) have a capacity, be so constructed and contain suitable material so as to adequately receive and dispose of any effluent flowing into it; and

(c) be not less than 3 m from any building or boundary of the site on which it is situated.

OO - 16.6

(a) The ground in which it is proposed to construct a french drain shall be tested for percolation in accordance with the method contained in Regulation OO34.

(b) Where, after testing in accordance with Regulation OO34, the site has been found suitable for the use of a french drain, such french drain shall be constructed to such dimensions that the rate of application of effluent to the infiltration area, within such french drain, does not exceed the values given in column 2 of Table O2 as appropriate to the percolation rate given in column 1 of such table.

Table O - 2: Rates of Percolation and Effluent Application

Percolation rate: Average time for 25mm fall of test water level, minutes	Rate of application of effluent to subsoil infiltration areas, litres per sq.m. of french drain wall area per day
0-3	108 max.
3-5	108-100
6-10	99-80
11-15	79-65
16-20	64-53
21-26	52-40
27-30	39-33
Over 30	Not permitted

NOTE:
Intermediate values to be obtained by interpolation.

(c) No french drain shall be constructed in any ground where:- such ground has a percolation rate exceeding 30 minutes;

(i) any effluent may flow out due to the contours of or the strata forming such ground;

(ii) the site to be affected by such effluent is of insufficient size to accommodate the soaking away of the effluent;

(iii) the level of the water table is or may be such as to prevent adequate percolation; or

(iv) any site may be affected by the presence of such french drain.

OO - 16.7 An evapotranspirative bed may, subject to the approval of The Approving Authority be installed instead of a french drain.

OO - 17 DISCHARGES FROM WASHING AREAS

OO - 17.1

(a) Any building used as a stable, garage, cowshed, dairy, kennel, butchery, abattoir or any vehicle washing area or other similar area that requires regular cleansing which produces waste water or soil water shall be connected to a drain which shall serve such building or area;

(b) such area shall be paved with an approved impervious material, and be graded to a gully which shall be fitted with a removable grating and be connected to an approved silt trap, grease trap, petrol and oil interceptor or two or more of the foregoing.

OO - 17.2 Such area shall:-

(a) be roofed over; and

(b) be surrounded by a kerb not less than 100 mm high or it shall be elevated above the immediately surrounding ground level by not less than 100 mm.

OO - 18 DISCHARGES FROM SWIMMING BATHS, SWIMMING POOLS, FOUNTAINS OR RESERVOIRS

OO - 18.1 Where any swimming bath, swimming pool, fountain or reservoir is required by the owner thereof to have an overflow to lead away excess rainwater, such overflow shall be designed and constructed to discharge:-

(a) onto the site upon which such bath, pool, fountain or reservoir is situated; or
(b) into an approved surface channel, storm-water drain or natural watercourse.

OO - 18.2 Any swimming bath, swimming pool, fountain or reservoir shall be so designed and constructed that the water from the backwashing of any filter is discharged onto the site upon which such bath, pool, fountain or reservoir is situated or, with approval, into a drain.

OO - 19 PROVISION OF SANITARY FIXTURES

OO - 19.1 The number of sanitary fixtures to be provided in any building shall be based on the occupancy for which such building is designed, and such occupancy shall be calculated in terms of Regulation AA24:

Provided that:-
(a) where in any particular occupancy, separate sanitary facilities are provided for each gender the number of sanitary fixtures installed for them shall be based on the occupancy of that particular sex for which such facilities are intended, and if the number of persons of each sex cannot be determined it shall be assumed that they are in equal proportions;
(b) where fixtures are to be situated in separate groups the number of fixtures in any group shall be based on the calculation of that portion of the total occupancy for which the group is intended;
(c) any building for which the occupancy cannot be determined shall, where such building contains one or more habitable rooms, be provided with at least 1 WC pan and 1 wash hand basin.
(d) for every five units provided for able-bodied persons, there shall be one unit provided for person with disabilities.

OO - 19.2 Subject to the requirements contained in sub regulation OO19.1, the minimum number of sanitary fittings to be provided in any building shall be as given in Tables O3 to O7, and such fixtures shall:-

(a) be situated in places which are convenient of access; and
(b) where necessary shall be designated for the use of males or females or both:

Provided that any room containing fixtures designated for the use of both sexes shall be capable of being locked from inside.

Note:
The occupancy calculated In terms of Regulation AA24 is the total occupancy for a building of a particular class of occupancy and includes personnel, public and visitors.

Table O3 refers to Table 05 in most occupancy classifications for the minimum provision to be made for personnel as distinct from that for the public and visitors. In using Table OS the occupancy referred -to in column 1 of the table is then the number of personnel only of a particular sex in an occupancy. The total number of personnel will in some cases sensibly be the total occupancy obtained from Regulation AA24. the public and visitors being very few in number. In other cases the proportion of personnel to public and visitors will have to be established. The total number of personnel in a shopping complex, or in any particular shop, may be taken as 10 % of the total occupancy for such complex or shop calculated in terms of Regulation AA24.

If the facilities provided in a shopping complex can be suitably situated such that they are available to personnel and the public and visitors it may not be necessary to provide separate facilities for the personnel in individual shops. The minimum number of facilities provided should then be the total required in accordance with Table O5 for the total number of personnel in the shops within the complex who make use of these facilities. In column 2 of Table O3 the minimum provision for public and visitors is given. In some circumstances this minimum may be considered less than adequate. The view has been taken that rather than be prescriptive it should be left to the owner to decide what provision he wishes to make above the minimum to satisfy the public and to safeguard his business interests. It is suggested that part (b) of Table O6 may be used where guidance on any provision above the minimum is required.

Table O - 3: Provision of Sanitary Fixtures and Fittings

Type of occupancy and occupancy	Fixture	Exceptions
A1 : Personnel	Table 05	a) In any building where facilities with Table 05 are available to both the public or visitors, no separate facilities shall be required for the public or visitors, b) No separate facilities for the public or visitor shall be required within any shop having a floor area of less than 50 sq.m. c) In any group of shops under one ownership or in any shopping complex on a single site- i) facilities for personnel may be situated at convenient locations and not necessarily in any particular shop or shops; ii) facilities for the public and visitors may be situated at convenient locations and not necessarily in any particular shop or shops: iii) facilities for personnel may be grouped or combined with those provided for the use of the public or visitors. d) In any occupancy where personnel are exposed to high risk substance, dirt, filth, dust, soot, oil, grease or any similar substance, exposure to which is such that showers are necessary, at least a shower per 1 5 persons shall be provided separately for each sex and such showers shall be located in, or have direct access to, a change room.
Public and visitors	Males:	
	1 WC pan	
	1 wash hand basin	
	Females:	
	1 WC pan	
	1 wash hand basin	
A2: Personnel		
Public and visitors	Table 05	
Peak demand		
No peak demand	Table 06 (part a)	
Participants in sports	Table 06 (part b)	
	Table 07	
A3: Table 05		
A4: Personnel	Table 05	
Public and visitors	Mates:	
	1 WC pan	
	1 wash hand basin	
	Females:	
	1 WC	
	1 wash hand basin	
A5: Public and visitors		
Peak demand	Table 06 (part a)	
No peak demand	Table 06 (part b)	
Participants in sport	Table 07	
B1, B2 and B3		
Personnel	Table 05	
Public and visitors	1 WC pan	
	1 Wash Hand Basins wash hand basin	
C1 and **C2** Personnel Public and visitors	Table 05 Males 1 WC pan 1 Wash Hand Basins wash hand basin Females: 1WC pan 1 Wash Hand Basins	

Type of occupancy and occupancy	Fixture	Exceptions
D1, P2 and D3 Personnel Public and visitors D4	Table 05 No separate provision required No provision required	
F1: Personnel Public and visitors	Table 05 Males: 1 WC pan 1 Wash Hand Basins wash hand basin Females: 1 WC pan 1 Wash Hand Basins wash hand basin	Any single hotel or suite or any servant's room with its own facilities need not be provided with separate facilities for males and females Showers may be substituted for baths in the following maximum ratios: Males - two-thirds of total Females - one-third of total
F2 and F3 Personnel Public and visitors	Table 05 Males: 1 WC pan 1 Wash Hand Basins wash hand basin	
G1: Personnel Public and visitors	Table 05 Males; 1 WC pan 1 Wash Hand Basins wash hand basin Females: 1 WC pan 1 Wash Hand Basins wash hand basin	
H1: Personnel Public and visitors Residents	Table 05 Males: 1 WC pan 1 Wash Hand Basins wash hand basin Females: 1 WC pan 1 Wash Hand Basins wash hand basin	
H2	Table 04	
H3 and **H4:** Within each dwelling unit	1 WC pan 1 Wash Hand Basins wash hand basin 1 bath or shower	
J1, J2, J3 and J4	Table 05	

Type of occupancy and occupancy	Fixture	Exceptions
Educational Institutions Classrooms and lecture rooms (A3 occupancy) Personnel Students or Pupils Dormitories or other residential accommodation (H2 occupancy) Personnel Students or pupils E1, E2 and E3	Table 05 Table 06 Table 04 Table 04 Number to be provided depends on type and design of Institution. Table 05 may be used as a guide.	In primary schools the indicated number of sanitary facilities shall in each case be increased by one Separate facilities for personnel and students or pupils shall not be required where all facilities are available to both groups. Separate facilities for residential accommodation and classrooms or lecture rooms shall not be required where facilities in one are easily available to the other.

Commentary:
In using Tables 04 to 07 the occupancy referred to in column 1 of the tables is the occupancy of the particular sex for which the minimum provision is to be determined. Unless the occupancy of each sex is otherwise known this will be one half of any total number of persons or total occupancy, in accordance with sub regulation OO19.1(a).

Table O - 4:

For a occupancy of up to —-	Number of sanitary fixtures to be installed relative to the occupancy given in Column 1						
	Males				Females		
	WC pans	Urinals	Wash Hand Basins	Baths	WC pans	Wash Hand Basins	Baths
8	1	1	1	1	2	1	1
20	1	2	2	2	3	2	2
40	2	3	3	3	4	3	3
60	3	4	4	4	6	4	4
80	4	6	5	5	9	5	5
100	4	8	6	6	12	6	6
120	5	9	6	6	14	7	7
140	5	10	7	7	15	8	8
180	5	11	8	8	16	8	8
	For a occupancy in	For a occupancy in	For a occupancy in excess of 180 add 1		For a occupancy in excess of 180 add 1 WC pan, 1 wash hand basin		
	excess of 180 add 1 WC	excess of 180 add 1	wash hand basin and 1 bath for every 50 persons		and 1 bath for every 60 persons		
	pan for every	urinal for					
	50 persons	every 40					
		persons					

Table O - 5:

For a occupancy of up to —	Number of sanitary fixtures to be installed relative to the occupancy given in Column 1				
	Males			Females	
	WC pans	Urinals	Wash Hand Basins	WC pans	Wash Hand Basins
15	1	1	1	2	1
30	1	2	2	3	2
60	2	3	3	5	3
90	3	5	4	7	4
120	3	6	5	9	5
	For a occupancy in excess of 120 add 1 WC pan, 1 urinal and 1 wash hand basin for every 100 persons			For a occupancy in excess of 120 add 1 WC pan for every 50 persons	For a occupancy in excess of 120 add a wash hand basin for every 100 persons

Table O - 6:

For a occupancy of up to	Number of sanitary fixtures to be installed relative to the occupancy given in Column 1				
	Males			Females	
	WC pans	Urinals	Wash hand basins	WC pans	Wash hand basins
a) Facilities subject to peak demand					
50	1	1	1	2	1
100	1	2	1	3	2
150	1	3	1	5	3
250	2	4	2	7	4
500	3	7	3	12	6
1000	3	12	4	16	7
1500	4	15	5	20	8
	For a occupancy in excess of 1,500 add 1 WC pan for every 500 Persons	For a oc-cupancy in excess of 1 ,500 add 1 urinal for every 300 Persons	For a occupancy in excess of 1,500 add 1 Wash hand basin for every 500 persons	For a occupancy in excess of 1 .500 add 1 WC pan for every 150 Persons	For a occupancy in excess of 1,500 add 1 wash hand basin for every 500 Persons
b) Facilities not subject to peak demand					
50	1	-	1	1	1
100	1	1	1	2	1
150	1	2	1	3	2
250	2	3	2	5	3
500	2	4	3	6	4

1000	2	6	5	8	6
1500	3	7	6	10	7
	For a occupancy in excess of 1,500add 1 WC pan for every 1.000 Persons	For a occupancy in excess of 1,500 add 1 urinal for every 500 Persons	For a occupancy in excess of 1.500 add 1 wash hand basin for every 700 persons	For a occupancy in excess of 1,500 add 1 WC pan for every 300 Persons	For a occupancy in excess of 1,500 add 1 wash hand basin for every 700 Persons

Table O - 7:

For a occupancy of up to	Number of sanitary fixtures to be installed relative to the occupancy given in Column 1						
	Males				Females		
	WC pans	Urinals	Wash hand basins	Showers	WC pans	Wash hand basins	Showers
10	1	1	1	2	2	1	2
20	1	2	2	2	3	2	2
30	9	2	3	3	5	3	3
40	3	3	3	3	6	3	4
60	3	4	4	5	7	4	5
60	4	5	5	5	9	5	5
100		6	5	6	10	5	6
	For a occupancy in excess of 100 add 1 WC pan& 1 urinal for every 100 Persons		For a occu-pancy in excess of 100 add 1	For a occu-pancy in excess of 100 add	For a occupancy in excess of 100 add 1 WC pan and 1 wash hand basin for every 80		For a occupancy in excess of 1 00 add 1
			wash hand basin	1 shower	persons		shower for
			for every 100	for every			every 40
			persons	40 persons			persons

OO - 20 HYDRAULIC LOADING OF DRAINAGE INSTALLATIONS

OO - 20.1 The hydraulic load discharged into or carried by any discharge pipe or any drain shall be calculated in units, referred to as fixture units.

OO - 20.2 The hydraulic load at any point in any discharge pipe or any drain shall be the sum of the fixture unit ratings of all sanitary fixtures, the discharges from which enter the discharge

pipe or drain upstream of such point.

OO - 20.3 The hydraulic load discharged from any sanitary fixture specified in column 1 of Table O8 shall be as given in column 3, and in the case of any sanitary fixture not listed in column 1 the diameter of the trap outlet of such a fixture, when identified in column 2, shall indicate the hydraulic load, given in column 3, which is to be prescribed for such a fixture.

Table O - 8: Fixture Unit Ratings of Sanitary Fixtures

Examples of Sanitary fixtures	Nominal diameter of trap, mm	Hydraulic load, fixture units
Wash hand basin, bidet, wall-mounted urinal (separate trap)	32	1
Bath, sink, shower, wash trough	40	2
Wall-mounted urinal with integral trap, commercial electrical sanitary fixtures	50	3
	75 or 80	5
WC pan	100	8
Sanitary group		12

Note:
The fixture unit rating given in Table O8 for each type of fixture is a - measure of the hydraulic load and takes into account the duration of discharge, the interval between discharges and the mean discharge rate of the particular fixture.

The hydraulic load for a sanitary group given in Table O8 is not the same as the sum of the hydraulic loads for the individual fixtures comprising such group because the assumption made regarding the interval between discharges is different in each case.

OO - 21 DRAINAGE SYSTEMS

OO - 21.1 The following requirements shall apply with regard to the single stack system (See Figure O1):

(a) (a) It shall only be installed where the building in question is of the office class which has sanitary fixtures installed in ranges or of the residential class which has sanitary fixtures installed in groups.

(b) (b) It shall not be installed in any residential building exceeding 30 storeys in height or in any office building exceeding 24 storeys in height above the lowest ground level abutting such building.

(c) (c) No trap vents for the protection of any water seals shall be required in terms of this regulation or in terms of sub regulation OO21.2 or OO21.3.

(d) (d) Any supplementary vent stack contemplated in sub regulations OO21.2 and OO21.3 shall be cross-connected at each storey with the discharge stack above the level of the highest branch discharge pipe connection to the discharge stack.

(e) (e) The discharge stack shall be continued upwards to form a stack vent.

(f) (f) The radius of the centre line of any bend at the foot of the discharge stack shall be not less than 300 mm .

(g) (g) No offset shall be made in any discharge stack unless a ventilating pipe is provided to reduce any pressure which may be caused by any offset, and the

nominal diameter of such ventilating pipe shall be not less than half the diameter of such discharge stack. Every waste fixture trap shall be either a P trap which has a water seal of not less than 75 mm in depth or shall be a resealing trap of the P type.

(h) (a) The vertical distance between the invert of the lowest branch discharge pipe connected to any discharge stack and the invert of the bend at the foot of the stack shall be not less than;-

(i) (i) 450 mm for stub stacks, stacks in single dwellings of up to three storeys in height and stacks of up to two storeys in height serving a maximum of two groups of sanitary fixtures;

(j) (ii) 750 mm for stacks of up to five storeys in height in other

(k) buildings; and

(l) one storey in height for stacks higher than five storeys.

(m) (k) Where any waste branch and any opposed soil branch from a WC pan are connected to any discharge stack the centre line of such waste branch shall not intersect the centre line of such stack within 200 mm below the intersection of the centre line of such soil branch with the centre line of such stack.

(n) (l) The inlet of a branch discharge pipe or a fixture discharge pipe joining a discharge stack of equal diameter shall be swept in the direction of flow with a radius of not less than 50mm or shall be at an angle of 45 degrees.

OO - 21.2 The following additional requirements shall apply with regard to any single stack installation in any building where the occupancy is of the residential class;

(o) The fixture branch of any sanitary fixture in any sanitary group shall be separately connected to the discharge stack.

(p) Where the trap fitted to any wash hand basin has a nominal diameter of 32mm the internal diameter of the fixture branch serving such wash hand basin shall be not less than 40 mm.

(q) Not more than two sanitary groups installed in any one storey shall be connected to the same discharge stack.

(r) A discharge stack of not more than two storeys in height serving a maximum of two groups of sanitary fixtures may discharge into a stub stack.

(s) The minimum discharge stack size and, where required, supplementary vent stack size and cross-ventilation requirements shall be as prescribed in Table O9.

Table O - 9: Minimum Discharge Stack and Supplementary Vent Stack Sizes and Requirements for Single Stack Systems: Residential Occupancy

Number of storeys served by discharge stack	Nominal diameter of discharge stack, mm	Minimum nominal diameter of supplementary vent stack for discharge stack serving one or two sanitary groups in each storey, with cross vent at each floor, mm
Up to 1 0	100	None
11 to 15	100	50
	150	None
1 6 to 30	150	None

OO - 21.3 The following additional requirements shall apply with regard to any single stack installation in any building where the occupancy is of the office class:

Where sanitary fixtures are installed in ranges as contemplated in column 2 of Table O10, the minimum nominal diameter of any discharge stack and of any supplementary vent stack, where required, shall be as given in columns 3 and 4 respectively for the number of storeys served by such discharge stack as given in column 1.

Any soil or waste branch discharge pipe to which such sanitary fixture referred to in paragraph (a) is connected, shall be separately connected to the discharge stack.
For the purposes of Table O10 any number of urinals not exceeding 4 may be regarded as equal to one WC pan.

Where a closed system is used and any branch discharge pipe is connected to a stub stack, such closed system shall not receive the discharge from more than four sanitary fixtures in a range. (See figure O2).

Figure O - 1: A single stack installation

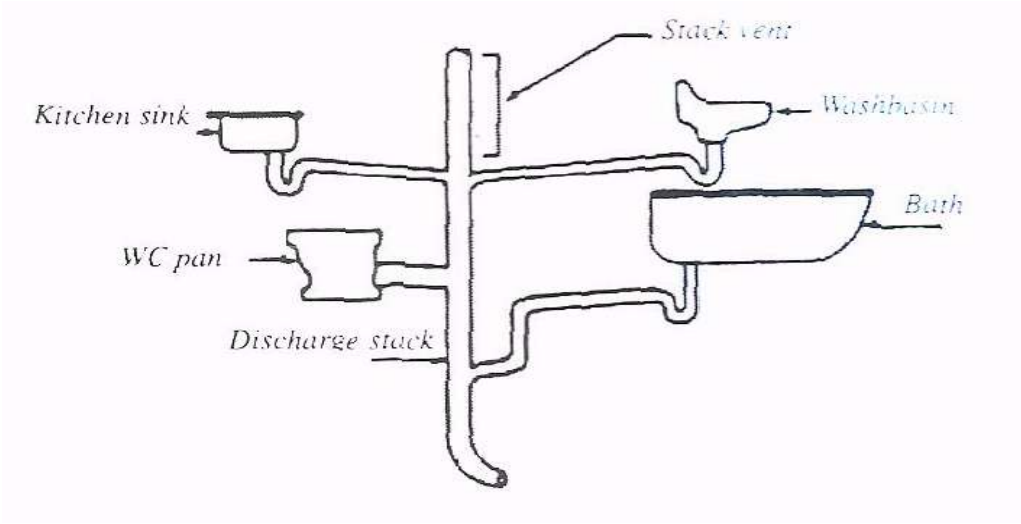


Figure O - 2: A stub stack in a closed system

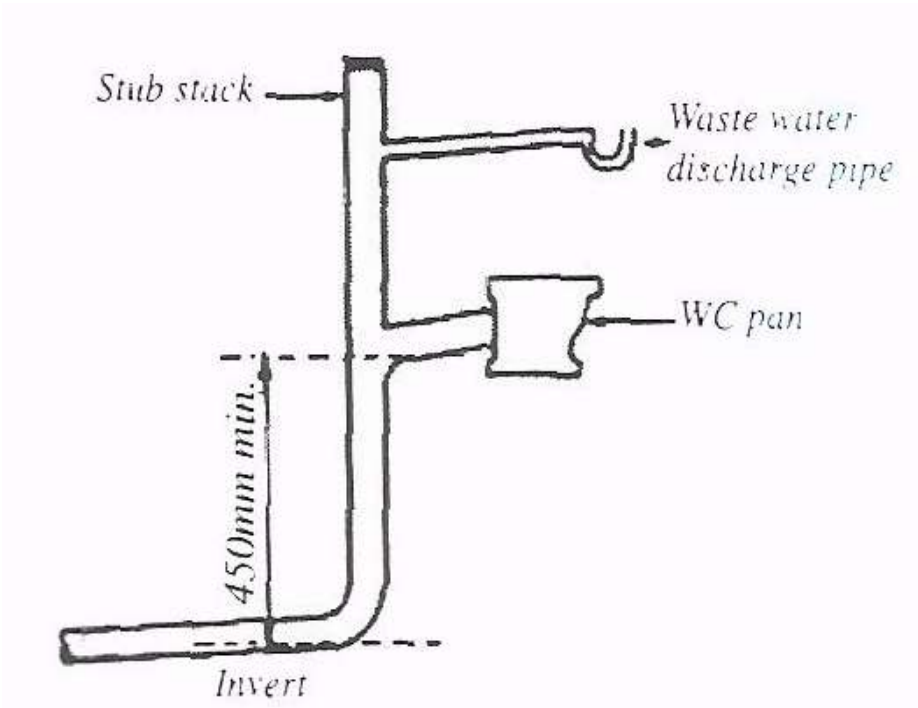


Table O - 10: Minimum Discharge Stack and Supplementary - Vent Stack Sizes and Requirements for Single Stack Systems: Office Occupancy

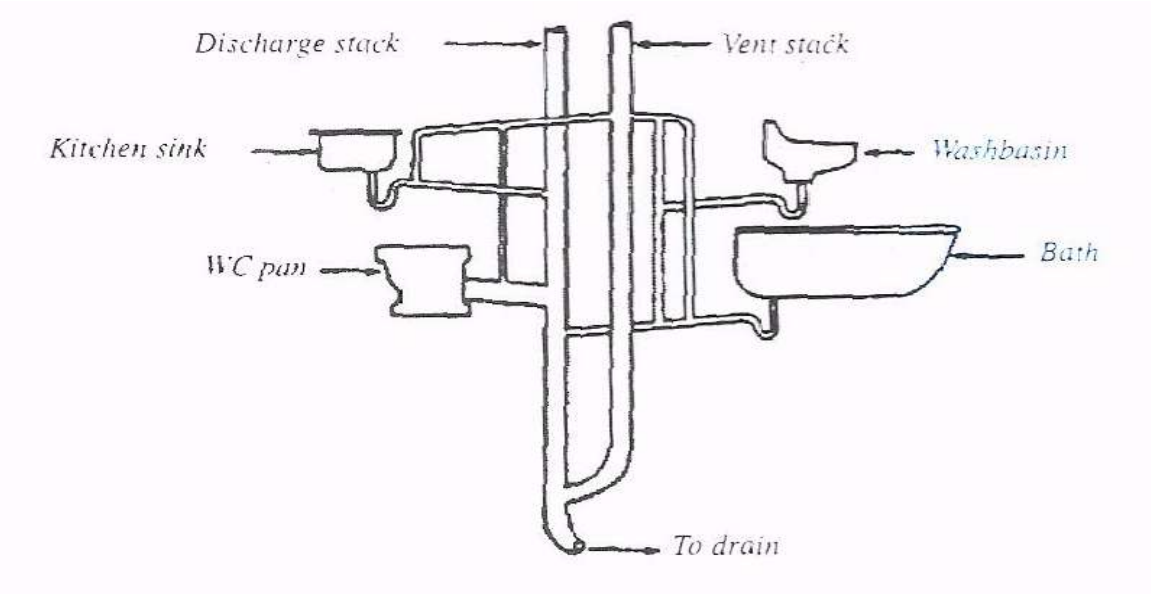
Number of storeys served by discharge stack	Maximum number of sanitary fixtures in a range in each storey	Minimum nominal diameter of discharge stack, mm	Minimum nominal diameter of supplementary vent stack, mm
1 -4	Not exceeding 5 WC pans and 5 wash hand basins	100	Vent stack not required
5-8	Not exceeding 2 WC pans and 2 wash hand basins		
	3 WC pans and 3 wash hand basins		32
	Exceeding 3WC pans and 3 wash hand basins but not exceeding 5WC pans and 5 wash hand basins		40
9-12	Not exceeding 2 WC and 2 wash hand basins		32
	Exceeding 2WC pans and 2 wash hand basins but not exceeding 4WC pans and 4 wash hand basins		40
1 -8	Not exceeding 5 WC pans and 5 wash hand basins	150	Vent stack not required
9-24	Exceeding 3WC pans and 3 wash hand basins, but not exceeding 5WC pans and 5 wash hand basins		75

NOTE: Where there are fewer wash hand basins than WC's in each storey the number of WC's shall determine the supplementary vent stack requirements.

OO - 21.4 The following requirements shall apply with regard to the one-pipe system (including the single system) (See figure O3):

(a) Any soil pipe shall be connected to another soil pipe, a stack or directly to a drain;
(b) Any waste pipe shall be connected to another waste pipe, a soil pipe, a stack, directly to a drain or to a gully which shall be connected to a drain;
(c) any waste or any soil fixture trap may have a common ventilating pipe.

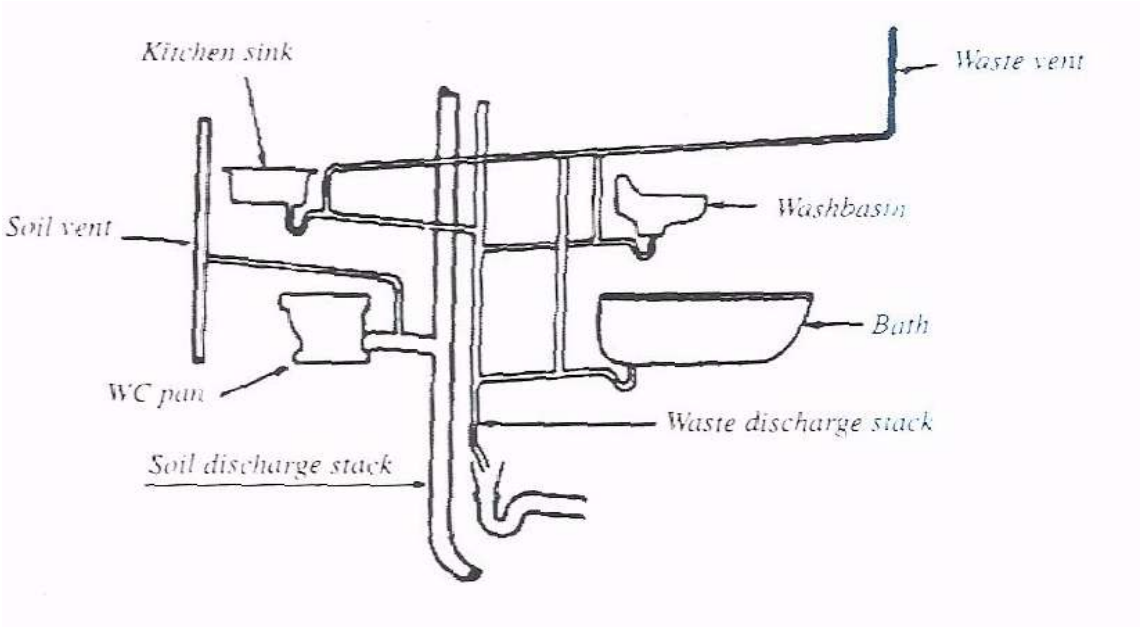
Figure O - 3: A one-pipe system.



OO - 21.5 The following requirements shall apply with regard to the two-pipe system (See figure O4):-

(a) Any soil pipe shall be connected to another soil pipe, a stack or directly to a drain;
(b) any waste pipe shall discharge into another waste pipe, a stack or to a gully which shall be connected to a drain;
(c) any waste and soil fixture traps shall be separately ventilated.

Figure O - 4: A two-pipe system.



OO - 22 SIZING OF DISCHARGE PIPES

OO - 22.1 The following requirements shall apply with regard to the sizing of any discharge pipe:

(a) The nominal diameter of any discharge pipe shall not be less than the internal diameter of any pipe or outlet of any sanitary fixture which discharges into it: Provided that where the nominal diameter of any horizontal pipe in an offset is more than that of the discharge stack which discharges into it, the nominal diameter of such stack downstream of such off-set may be less than that of such horizontal pipe.

(b) The internal diameter of any soil pipe other than a soil pipe from any urinal shall be not less than 100 mm .

(c) The internal diameter of any waste pipe shall be not less than 32 mm if it serves a wash hand basin, bidet or drinking fountain and not less than 40 mm if such pipe serves any other waste fixture.

(d) In the single stack system the internal diameter of any waste pipe shall be not less than 40 mm.

(e) The hydraulic load carried by any discharge pipe which has a nominal diameter given in column 1 of Table O11 shall not exceed the number of fixture units given in columns 2, 3 or 4 as the case may be: Provided that where a horizontal pipe to which a discharge stack is connected is larger than such stack, any bend connecting such horizontal pipe to such stack shall have a nominal diameter equal to that of such horizontal pipe.

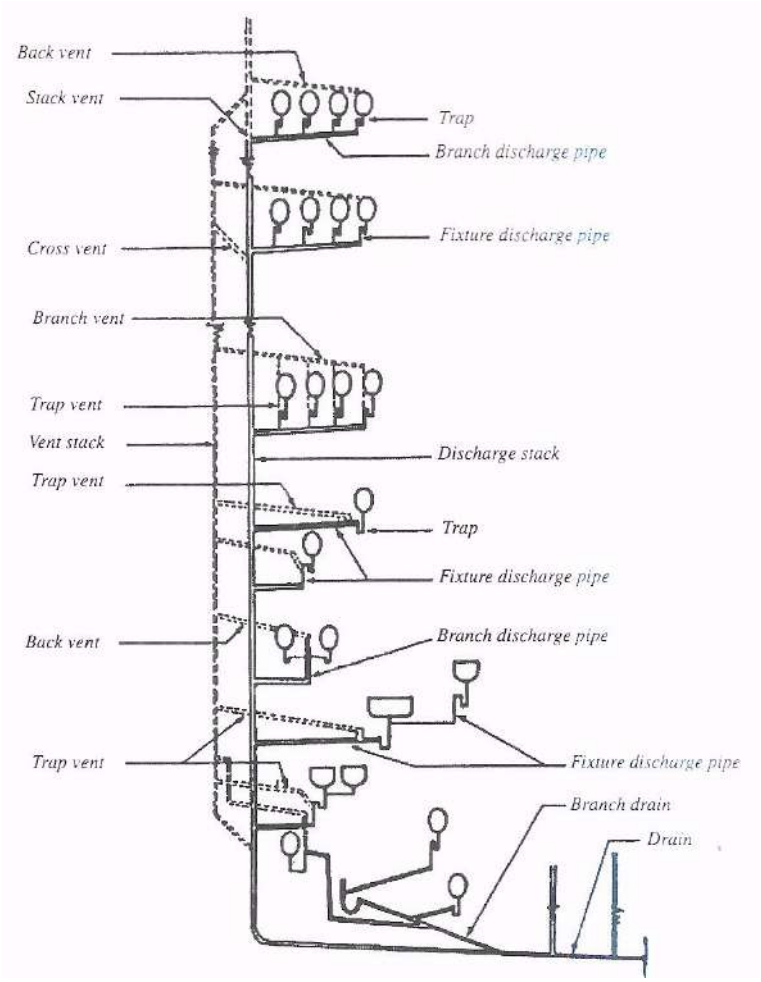
OO - 22.2 For the purposes of Tables O11 and O12, any waste pipe which has a diameter of 100 mm or greater and any soil pipe shall, subject to the requirements contained in sub regulation OO22.3, be deemed to be a drain from that point downstream of which the gradient of such pipe or of any drain to which it is connected does not again exceed 45° below the horizontal except where such pipe or drain is connected to any connecting sewer.

OO - 22.3 Where the diameter of any horizontal pipe at the base of a discharge stack is more than that of the drain to which it discharges, such horizontal pipe shall have a length of not less than 2.5 m, measured from the centre line of such discharge stack, before it is reduced in diameter and connected to such drain.

Table O - 11: TABLE O11—MAXIMUM PERMISSIBLE DISCHARGE PIPE LOADINGS

Maximum loading (fixture units)			
Nominal pipe diameter, mm	Discharge stacks stacks	Fixture discharge pipes and branch discharge pipes	Horizontal discharge pipes other than pipes referred to in column 3
32	2	1	1
40	6	2	3
50	18	5	8
65	84	18	35
75	140	29	60
100	680	120	280
125	2400	350	870
150	6000	760	2100

Figure O - 5: Parts of a drainage installation



OO - 23 SIZING OF DRAINS

The following requirements shall apply with regard to the sizing of any drain:

(a) The nominal diameter of any drain shall not in any case be less than 100mm.

(b) The hydraulic load carried by any drain which has a nominal diameter given in column 1 of Table O12 and a gradient given in columns 2 to 14, as the case may be, shall not exceed the number of fixture units given in such table for such diameter and gradient of drain.

(c) Where due to slope of the ground any drain is required to be laid at a gradient steeper than 1 in 5 the hydraulic load carried by the drain shall not exceed that given in column 2 in Table O12 for a gradient of 1 in 5.

Table O - 12: TABLE O12 - MAXIMUM PERMISSIBLE DRAIN LOADS

	Maximum load (fixture units)												
Nominal pipe diameter,	Drain having a gradient of												
mm	1 in 5	1 in 10	1 in 20	1 in 40	1 in 60	1 in 80	1 in 100	1 in 120	1 in 150	1 in 200	1 in 300	1 in 400	1 in 500
100	12 000	9 000	6 400	4 500	3 650	3 150 (sp)	2 800 (sp)	2 550 {sp)	np	np	Np	np	np
(110 OD)													
150	40 000	27 000	19 000	13 500	11 000	7 500	8 400	7 700	6 900	6 000	Np	np	np
(160 OD)													
200	75 000	56 000	40 000	28 500	23 000	20 000	18 000	16 500	15 000	13 000	10 600	np	np
225	105 000	76 000	54 000	38 000	31 000	27 000	24 000	22 000	19 500	17 000	14 000	np	np
250		100 000	72 000	51 000	41 000	36 000	32 000	29 000	26 000	22 500	15 500	16 000	np
300	-	165 000	117 000	82 000	67 000	58 000	52 000	47 500	42 500	37 000	30 000	26 000	23 S00
375	-	295 000	210 000	148 000	125 000	104 000	93 000	85 000	76 000	66 000	54 000	47 000	42 000

OO - 24 PROTECTION OF WATER SEALS

OO - 24.1 The following requirements shall apply with regard to the preservation of any water seal under working conditions:

The water seal contained in the trap of any soil fixture shall subject to the requirements contained in sub regulation OO21.1 be protected by a trap vent where the discharge from such soil fixture is conveyed by:-

(i) an unventilated branch drain or soil pipe which has a fall exceeding 1.2 m within 300mm of the outlet of the fixture trap;

(ii) an unventilated soil pipe which receives the discharge from any other soil fixture ;or

(iii) a discharge stack which receives at higher level the discharge from any other soil fixture; or .

(iv) a soil branch which receives the discharge from any other soil

(v) fixture.

Provided that such trap vent may be omitted in the case where a soil fixture discharges to a soil branch where:-

(a) the hydraulic load carried by such soil branch does not
(b) exceed 50 fixture units;
(c) such soil branch is served by a 100 mm diameter backvent; and not more than 16 soil branches discharge into the same discharge stack.

OO - 24.2 Without prejudice to the requirements contained in sub regulation OO24.1:-

(a) in the case of any installation of the two-pipe system the water seal in the trap of any waste fixture shall be protected by a trap vent unless a resealing trap is fitted to such fixture: Provided that this requirement shall not apply to any single bath, shower or sink which discharges independently into a gully where such bath, shower or sink is situated within 2m vertically above and 3 m horizontally from such gully;
(b) in the case of any installation of the one-pipe system the water seal in the trap of any waste fixture shall except in the case of the single stack system, be protected by a trap vent.

OO - 24.3 The water seal in the trap of any waste fixture which is required to be protected in terms of sub regulation OO24.2 may as an alternative be protected by a vent valve.

OO - 24.4 A ventilating pipe shall be provided for any:-

(a) main drain or branch drain at a point not more than 6 m from the head of such main drain or branch drain, as the case may be. where such head is deemed to be the centre-line of the discharge stack or vertical discharge pipe to which such main drain or branch drain is connected:

Provided that such ventilating pipe shall not be required:-

(i) for any branch drain where the length, measured along such
(ii) branch drain from its head to the point of connection to any
(iii) ventilated main drain, is not more than 6 m; or
(iv) where such main drain or branch drain is connected to a
(v) discharge stack having a stack vent.

(b) soil branch which receives the discharge from only one sanitary fixture and which exceeds 6 m in length measured along such branch from the outlet of the trap of such fixture to the point of connection to any ventilated soil pipe;
(c) waste pipe longer than 6 m measured along such pipe from the outlet of the trap of any waste fixture discharging to it, to the point of discharge of such pipe into any gully or in the case of the one-pipe system, to the point of connection of the waste pipe with any ventilated soil pipe or any ventilated drain: Provided that such vent pipe may be omitted where the diameter of such waste pipe, as referred to in column 1 of Table O11, is increased by one nominal pipe size and the length of such waste pipe is not more than 10 m;
(d) waste branch longer than 6 m measured along such branch from the outlet of the trap of any waste fixture discharging into it, to its point of connection to any ventilated waste pipe.
(e) Stub stack where:-
(i) The crown of any WC trap connected to such stack is more than 1.5 m above

the invert of the bend at the base of any such stack;

(ii) The topmost connection of a waste pipe to any such stack is more than 2 m above the invert of the bend at the base of any such stack;

(iii) Any such stack serves more than one group of sanitary fixtures; or

(iv) Any such stack serves branch discharge pipes to which ranges of sanitary fixtures are connected.

OO - 25 SIZING OF VENTILATING PIPES

OO - 25.1 The following requirements shall apply with regard to the sizing of ventilating pipes:

(a) Any drain or branch drain or any part thereof carrying a hydraulic load of not more than 50 fixture units shall have a ventilating pipe with a nominal diameter of not less than 40 mm .

(b) The diameter of any ventilating pipe shall be not less than that given in Table 013 for the relevant developed length of such pipe and the sum of the fixture units derived from any sanitary fixtures whose traps are ventilated, either directly or indirectly by such ventilating pipe.

(c) Any stack vent shall have a nominal diameter which is not less than that of the discharge stack to which it is connected: Provided that any stack vent connected to the following types of discharge stack may have a nominal diameter less than that of any such discharge stack but shall not have a nominal diameter of less than 40 mm;

(i) a stub stack, where a stack vent is required; and

(ii) a discharge stack of two storey high serving a maximum of two groups of sanitary fixtures.

(d) Where any stack vent is connected to the top of any discharge stack such connection shall be at a point not less than 150 mm above the flood level of the highest positioned sanitary fixture in the drainage installation which discharges to such discharge stack: Provided that the nominal diameter of the stack vent connected to such discharge stack shall be not less than the nominal diameter of such discharge stack or not less than that required in terms of sub regulation OO25.1(c), whichever is the greater.

OO - 25.2

(a) The developed length of any branch vent shall be measured from the point of its connection to a vent stack or stack vent to the farthest trap vent connected to such branch vent;

(b) the developed length of any back vent shall be measured from the point of its connection to a vent stack or-stack vent to the furthest point of its connection to any discharge pipe; and

(c) the developed length of any vent stack shall be measured from the open end of such vent stack or, where such vent stack is connected to a stack vent, from the open end of such stack vent to the farthest trap vent served by it or its farthest point of connection to any discharge pipe, whichever is the greater.

Table O - 13: Size of Ventilating Pipes

Maximum number of fixture units served by vent	Minimum nominal diameter of ventilating pipe, mm											
									100		150	
	32	40 (OD)	40	50 (OD)	50	65	75 (OD)	75	(100 OD)	125	(160 ODJ	200
	Maximum developed length of ventilating pipe, mm											
6		*										
16		9	30	51								
48			9	30	51							
84			o	9	21	51	75					
128				7	15	36	60	90				
190				5	7	27	51	75				
1 000						7	18	24	96			
2 200						5	9	15	57	177		
3 800							5	7	27	75	195	
7 200									7	21	57	222

* Minimum vent size, unlimited length.

OO - 26 INSTALLATION OF DISCHARGE PIPES & VENTILATING PIPES

OO - 26.1 Any discharge pipe or ventilating pipe shall:-

(a) (not cause electrolytic corrosion due to any association of dissimilar metals;
(b) not be deformed in any way that would restrict flow;
(c) be so installed that any bend does not form an acute angle and has the largest practicable radius of curvature with no change in the cross section of the pipe throughout such bend;
(d) be safely supported at intervals along its length without restraining thermal movement;
(e) be so installed that the gradients, where applicable, are within the limits given in Table O14;
(f) be so installed as to be capable of withstanding the test referred to in Regulation OO33; and
(g) have means of access for internal cleaning.

OO - 26.2

(i) Where any discharge pipe is located within any building and it is desired that such pipe be enclosed it shall be enclosed within a duct: Provided that any part of such pipe may be built into brickwork or concrete where the interior of such part is rendered readily accessible for cleaning.
(ii) Such duct shall either be of a size and shape that any person can readily enter it and work therein or shall be provided with covers that can be readily removed to enable access to be gained to all junctions, bends and cleaning eyes.

(iii) Where in any room contemplated in sub regulation OO27.1(c) such duct is installed there shall be provided inside such duct a means which in the event of any leak from any pipe therein will direct any released liquid or matter from the area of such room to a point of discharge where it shall be readily detectable.

(iv) Any pipe shall be so installed that the removal of any part of a building for the purpose of gaining access to such pipe will not endanger the structural stability of such building.

Table O - 14: LIMITING GRADIENTS OF DISCHARGE PIPES

Waste branches				**Soil branches**				**Horizontal pipes other than branch discharge pipes**	
Single stack system		Ventilated one or two-pipe system		WC pan		Other soil fixtures		All systems	
Min.	Max.*	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1.25°	5°	1.25=	5°	5°	14°	2.5°	5°	2.5:	45=
(1/46) 16	(1/11.5)	(1/46) 9	(1/11.5) 30	(1/11.5) 51	(1/4)	(1/23)	(1/11.5)	(1/23)	d/1)

* The maximum gradient of a waste pipe serving one or more wash hand basins only shall be 2.5" (1/23),

OO - 26.3 Any discharge pipe or any ventilating pipe shall be adequately protected against damage from vehicular impact.

OO - 26.4 Any ventilating pipe shall:-

(a) be carried upwards without any reduction in diameter and shall throughout its length be horizontal or so graded as to provide a continuous fall from its open end back to the discharge pipe or drain to which it is connected;

(b) Be so installed that its open end is:-

(i) Not less than 2.5 m above finished ground level;

(ii) not less than 100 mm above the closest part of the roof covering of the building through which it passes or to which it is attached;

(iii) Not less than 2 m above the head of any window, door or other opening in the same building or any other building, whether on the same site or not, within a horizontal distance of 5 m of the said open end; and

(iv) Not less than 2.5 m above the surface level of any roof slab covering the building which it serves where the slab may at any time be occupied by people.

OO - 26.5 Any trap vent shall be connected to the crown of the fixture discharge pipe on the outlet side of the protected trap at a point not less than 75 mm or not more than 750 mm from the crown of such trap and such trap vent shall, unless carried up independently, be connected to another ventilating pipe at a point not less than 150 mm above the flood-

level of the sanitary fixture which such trap vent serves.

OO - 26.6 Where a two-pipe system is installed any ventilating pipe serving any soil pipe or any soil fixture shall not be connected to any ventilating pipe serving any waste pipe or waste fixture.

OO - 26.7 Where any supplementary vent stack is installed in addition to and adjacent to any discharge stack, such vent stack shall be connected to such discharge stack at a point below the lowest branch discharge pipe connection to such discharge stack and continued upwards, either independently or interconnected with such discharge stack; as prescribed in sub regulation OO25.1(d).

OO - 26.8 The interconnection between any ventilating pipe and any discharge pipe or drain shall be so located and made that no soil water or waste water can under any circumstances be discharged through any ventilating pipe.

OO - 27 ACCESS TO DRAINAGE INSTALLATION

OO - 27.1 The following requirements shall apply with regard to the access to any drain:

(a) Any drainage installation shall be so designed and constructed as to permit adequate access to the interior of any pipe in such installation for the purposes of inspection, testing and internal cleaning.

(b) Where any discharge pipe enters the ground, adequate means of access to the interior of such pipe shall be provided within 2 m above the point of such entry.

(c) Where any drain or discharge pipe passes through a room which is used as a kitchen, pantry or for the preparation, handling, storage or sale of any food the means of access to such drain or pipe, for cleaning purposes, shall be situated outside such room: Provided that this requirement shall not apply in the case of the waste pipe serving any waste fixture contained in such room.

(d) Any access opening to a drain or discharge pipe installed within any building shall be covered by an adequately screwed or bolted airtight cover.

(e) A rodding eye shall be installed:-

  (i) Where there is a change in direction of the drain that exceeds 45 degrees: Provided that where any bend which has a centre line radius of not less than 600 mm is installed such rodding eye may be omitted for not more than two such changes of up to 90 degrees each between any two rodding eyes required in terms of paragraphs (e) (ii), (iii) and (iv);

  (ii) At any point within 1.5 m of the connection of the drain to a connecting sewer, septic tank or conservancy tank: Provided that an inspection eye shall be installed immediately downstream of such point;

  (iii) at the highest point of the drain; and

  (iv) at such intervals along the drain that no rodding distance is more than 25 m measured along the line of such drain from a rodding eye or other permanent means of access to such drain;

(f) Such rodding eye shall:-

  (i) join the drain in the direction of flow at an angle of not more than 45 degrees, be continued up to ground level and be adequately supported; and

  (ii) be adequately marked and protected.

OO - 27.2 The access contemplated in sub regulation OO27.1 may subject to the requirements contained in sub regulation OO27.7 be provided by the installation of an inspection chamber or manhole.

OO - 27.3 Any permanent access, contemplated in this regulation, which is covered by any paved area of ground, shall be covered by an adequate and appropriately marked removable device.

OO - 27.4 Where any part of a drainage installation passes under a building there shall be:-

(a) access provided to such installation outside of and as near as possible to such building at each point of entry to or exit from under such building; and
(b) no access provided from within such building.

OO - 27.5 The lid covering any opening which gives access into any drainage installation shall be so sealed that such lid will remain effective under any working conditions.

OO - 27.6 Any means, other than a manhole or inspection chamber, provided for access to any drainage installation shall:-

(a) have a removable cover and be so designed and constructed that it will sustain any normal load which may be imposed upon it and exclude the ingress or egress of water;
(b) be of such size and shape as to permit ready access to such installation for the purposes of inspecting, testing or cleaning, as the case may be; and
(c) when within any building, be so constructed as to be watertight when subjected to a maximum internal water pressure of 50 kPa.

OO - 27.7

(a) Any manhole or inspection chamber shall be:-
  (i) located in an open air space;
  (ii) so constructed and covered to prevent the ingress of water; and
  (iii) of sufficient strength to sustain any load which may normally be imposed upon it.
(b) Any inspection chamber shall have a minimum plan dimension of not less than 450 mm.

Note:
The requirement that any manhole or inspection chamber shall be located in an open air space should not be taken to preclude location under the roof of a carport or any similar well ventilated area outside the building,

OO - 27.8 Where the connection between two sections of any drain are at different levels which necessitate a steep fall, the change in level shall be effected by one or more 22.5 degrees bends which shall be connected to the shortest possible length of drain pipe connected in turn through one or more 22.5 degrees. bends to the lower drain.

OO - 28 PROVISION OF TRAPS

OO - 28.1 Any sanitary fixture shall be provided integrally or immediately at its outlet with an effective self-cleaning trap except where such fixture is a bath, wash hand basin or shower which discharges into:-

(a) an open channel which shall:-
  (i) be made of impervious material;
  (ii) have a semi-circular cross-section of diameter not less than 100 mm;
  (iii) be accessible for cleaning throughout its length;
  (iv) be fixed immediately beneath the point of discharge; and discharge into a gully; or

(b) an open channel serving a urinal where such bath, wash hand basin or shower is installed in the same room as such urinal.

OO - 28.2 Any trap which is integral with a sanitary fixture shall:-

(a) have a smooth waterway; and
(b) be so constructed that any change from one cross-section to another does not cause an obstruction to the passage of solids.

OO - 28.3 Any trap that is not integral with a sanitary fixture shall be made of non-absorbent and corrosion resistant material and shall be so constructed that:-

(a) it has a smooth waterway;
(b) there is no constriction;
(c) it has an outlet diameter which is not less than that of its inlet; and
(d) it has at its lowest point a means of access for cleaning:

Provided that this requirement shall not apply where the trap is made of rubber or other similar material

OO - 28.4 The minimum nominal diameter of a trap connected to any sanitary fixture and the minimum depth of its water seal shall be in accordance with those values given for the relevant fixture and installation in Table O15: Provided that the maximum depth of the water seal contained in any trap shall be 100 mm.

OO - 28.5 Where any trap serving any WC pan is provided with a vent horn, such horn shall have a nominal diameter of not less than 40 mm and shall be located at the side of and not less than 75 mm from the crown of such trap on its outlet side.

Table O - 15: Minimum Diameter and Water Seal Depth of Traps

Type of trap	Type of sanitary fixture	Type of Installation	Minimum nominal diameter, mm	Minimum depth of water seal, mm
Integral	Wc pan, hospital soil fixture wall	All	75	50
	Mounted urinal		50	50
Non-integral	Bidet, drinking fountain, wash hand basin, wall-mounted urinal	Two-pipe system	32	40
		One-pipe system	32	40
		single stack system	32	75
	Bath, shower, sink (hospital, kitchen or laboratory type), laundry trough, clothes-washing machine, food-waste	Two-pipe system	40	40
	Disposal unit (all of the domestic type), sanitary-towel disposer			
		One-pipe system	65	65
		single stack system	40	75
	Clothes-washing machine, dish	All	50	75
	Washing machine, food-waste disposal unit, floor drain (all of commercial type)			
	Urinal of slab or	All	50	50
	Stall type up to 3 units or 1.8M in			
	Length			
	Urinal of slab or			
	Stall type (all other), gully	All	75	50

OO - 29 PROVISION OF GULLIES

OO - 29.1 Subject to the requirements contained in sub regulations OO29.2, OO29.3 and OO29.4, any drainage installation shall be provided with one gully,

(a) The head of any such gully shall consist of:-

(i) an overflow fitting covered with a removable cover which fits over the gully head and that permits overflow through a cross-sectional area not less than that of the trap of such gully, but that prevents the ingress of foreign matter directly from above; or

(ii) a hopper covered with a removable grating set in the gully head and the spaces between the bars of such grating shall be not less than 10 mm or

more than 12 mm wide and shall provide an effective open area through such bars not less than the minimum cross-sectional area of the trap of such gully: Provided that such gully head may be dished, in which case the overflow level of such dish shall be not less than 75 mm above the level of the grating of such gully.

(b) The overflow level of any such gully shall be not less than:-

(i) 150 mm below the crown of the lowest trap serving any sanitary fixtures in such installation: Provided that this requirement shall not apply to any sanitary fixtures where its discharged is raised;

(ii) 150 mm above the surrounding ground or 50 mm above any permanent surrounding paving and such paving shall ensure drainage away from such gully.

(c) The following requirements shall apply with regard to the trap of any such gully:

(i) The nominal diameter equivalent to its minimum cross-sectional area and the depth of its water seal shall be in accordance with the requirements contained in sub regulation OO28.4;

(ii) the surface level of the water in such gully shall be not more than 500 mm below the overflow level of such gully where such gully is a dished gully; and

(iii) The water seal in such gully shall be maintained by means of at least one waste pipe which discharges into such gully.

Commentary:
Although this sub regulation calls for installation of one gully this does not preclude more gullies being fitted, should they be required.

OO - 29.2 A trapped floor drain may be installed within any building as a waste water out-let in any floor which shall slope at a gradient of not less than 1 in 200 from all sides towards any such floor drain: Provided that any such floor drain shall:-

(a) be so located that it is accessible;

(b) be made of non-absorbent and corrosion resistant material;

(c) have a minimum outlet diameter and a trap seal depth as contemplated in sub regulation OO28.4;

(d) be provided with a removable grating, the open area of which shall be not less than two-thirds of the area of the waste pipe into which such outlet discharges; and

(e) have its water seal maintained by means of:-

(i) a tap situated above it; or

(ii) a waste fixture located in the same room, the outlet of which will discharge waste water directly into the gully above the level of the water seal in such a manner as not to overflow onto the floor.

OO - 29.3

(a) A suitable grease trap shall be provided to take the discharge of waste water from any sink or other fixture:-

(i) in any building where waste water is to be discharged to a french drain; and

(ii) where the discharge of grease, oil or fat may cause an obstruction to the

flow in any drain or sewer or may interfere with the efficient operation of any sewage disposal system.

(b) Any such grease trap shall be designed and constructed to have a removable lid or a manhole cover which shall permit the effective removal of grease, oil, fat or solid matter.

(c) No person shall permit any accumulation of grease, fat, oil or solid matter in any grease trap tank or chamber, which will prevent the effective operation of such grease trap tank or chamber.

OO - 29.4 Any paved area upon which petrol or oil or wash-water contaminated with petrol or oil may fall shall be graded and drained to a gully which shall discharge into a suitable petrol and oil interceptor trap which shall discharge into a drain.

OO - 29.5 The surface level of the water in any gully trap shall be not more than 500 mm below the top of a dished gully except that where it is impracticable so to comply the gully trap shall be located in a manhole which shall have its walls brought up to a height of not less than 150 mm above the surrounding ground and the access to such manhole shall be covered with a metal grating of such a strength as to sustain any load which may normally be imposed upon it.

OO - 29.6 Any waste pipe which discharges into any gully shall discharge at a point above the surface of the water seal of the gully trap but not more than 100 mm above the level of the grating.

OO - 29.7 Any gully shall be situated outside the building or be situated in any place which is permanently open to the external air and shall in either case be accessible for cleaning and maintenance: Provided that a gully may be installed within a building as a waste water outlet in a floor and be so located that it is easily accessible and such floor shall slope at a gradient of not less than 1 in 200 from all sides towards such gully.

OO - 29.8 The outlet contemplated in sub regulation OO29.7 shall be made of non-absorbent and corrosion resistant material and shall have a minimum diameter of 50 mm .

OO - 30 INSTALLATION OF DRAINS

OO - 30.1 Where any drain is constructed adjacent to or under or through a structural part of any building adequate measures shall be taken to ensure that the trench in which such drain is laid in no way impairs the stability of such building or the stability of any other building or interferes with or affects any existing services.

OO - 30.2 Where any portion of any drain passes under any building such portion shall:-

(a) be protected against the transmission of any load to it;
(b) be laid without change of direction or gradient;
(c) not be provided with any means of access for cleaning from inside such building.

OO - 30.3 Where any portion of a drain passes through a building such portion shall be:-

(a) supported throughout its length without restricting thermal movement and such support shall be securely attached to the building; and
(b) so placed that any junction, bend or any point of access into it is readily accessible.

OO - 30.4 Any drain shall:-

(a) be laid in a straight line between any points where changes of direction or gradient occur; and
(b) be laid with approved flexible joints which will permit joint movement to take place throughout the life of the drainage installation, withstand root penetration and not deteriorate when in contact with sewage or water and will not cause any obstruction in the interior of such drain;
(c) be laid at a gradient, suitable for the hydraulic load to be carried by such drain, as given in Table O12; and
(d) where its gradient may exceed 1 in 5 anchor blocks shall be provided to securely fix such drain in place.

OO - 30.5 Any drain shall have:-

(a) soil cover over the outside of the drain of not less than 300 mm; or
(b) precast or cast-in-situ concrete slabs placed over such drain, isolated from the crown of the pipe by a soil cushion not less than 100 mm thick and such slabs shall be wide enough and strong enough to prevent excessive superimposed loads being transferred directly to the pipes.

OO - 30.6 Where any drain has a branch drain connected to it such connection shall:-

(a) be by means of a junction fitting which shall not be a saddle junction;
(b) enable the flow from such branch drain to enter the drain obliquely in the direction of flow so that the included angle between the axes of the two drains does not exceed 45 degrees.

OO - 31 COMMON DRAINS

Drainage installations on any two or more sites, whether such sites are in the same ownership or not, may be permitted to discharge into a connecting sewer through a common drain.

OO - 32 TEST FOR DRAINS

After any drainage installation has been completed and partially back-filled the drains shall be tested as follows:-

(a) An air test conducted by pumping air into such drains under a pressure of not less than 0.35 kPa (35 mm head of water) shall be performed.
(b) Such drains shall be deemed to have passed such test if the pressure after 3 minutes is not less than 0.25 kPa (25 mm head of water).

OO - 33 TESTS FOR DISCHARGE PIPES AND VENTILATING PIPES

After any drainage installation has been completed the discharge pipes and ventilating pipes shall be tested as follows:-

(a) All traps shall be filled with water;
(b) the outlets of all ventilating pipes shall be plugged;
(c) the air test given in Regulation OO32 shall be applied and the criterion for passing

the test shall apply.

OO - 34 IN-SITU PERCOLATION TEST FOR SOILS

OO - 34.1 For the purpose of establishing the suitability of any soil in which a french drain is to be constructed the following test procedure and evaluation shall be carried out.

OO - 34.2

(a) A test hole or, where necessary, a number of holes uniformly spaced shall be excavated on such site to a depth estimated for the proposed french drain,
(b) The bottom 350 mm of such hole shall have a diameter of 300 mm or have a plan shape 300 mm square.
(c) The sides of such bottom part shall be roughened to provide a natural infiltration surface.
(d) Any loose material shall be removed from the bottom of such hole and shall be replaced with a 50 mm thick layer of gravel to prevent scouring when such hole is filled with water.

OO - 34.3

(a) Such hole or holes shall be filled with water to a height of not less than 300mm above such gravel and maintained at such a level for a period of not less than 4 hours.
(b) At the end of the period contemplated in paragraph (a) the level of the water in such hole or holes shall be marked and the time noted. The drop in level of such water as it soaks away over a subsequent period of 30 minutes shall be measured: Provided that if all the water percolates away before such 30 minutes, the actual time taken for this to occur shall be measured.
(c) The percolation rate shall be reported as the time taken for such water level to drop 25 mm: Provided that where a number of holes are tested the. average percolation rate for the site shall be calculated and such average shall be used as the percolation rate for the french drain effluent.

OO - 34.4 Where such percolation rate is less than 30 minutes the soil on the site shall be deemed suitable for the construction and use of a french drain.

OO - 35 STORM-WATER DISPOSAL REQUIREMENT

OO - 35.1 The owner of any site shall provide suitable means for the control and disposal of accumulated storm-water which may run off from any earthworks, building or paving.

OO - 35.2 Such means of storm-water disposal may be in addition to or in combination with any drainage works required in terms of Regulation OO37.

OO - 35.3 The requirements of sub regulation OO35.1 shall be deemed to be satisfied where:-

(a) The means of storm-water disposal is the subject of an acceptable rational design prepared by or under the supervision of a qualified person; or
(b) Such means of storm-water disposal is provided in accordance with this Part:

Provided that where The Approving Authority is of the opinion that the conditions on any site render it essential for storm-water disposal to be the subject of a rational design, The Approving Authority shall, in writing, notify the owner of such site of its reasons for the necessity for such design, and may require such owner to submit for approval plans and particulars of a complete storm-water control and disposal installation for such site and for any building erected thereon, based on such design.

OO - 36 STORM-WATER DISPOSAL

Any means of storm-water disposal on any site shall include:-

(a) in the case of any building on such site, roof valleys and gutters and down pipes or, where gutters and downpipes have not been provided, other means of ensuring that storm-water from any roof is controlled and will flow away from such building; and

(b) Any surface storm-water drains, channels or below-ground storm-water drains than may be necessary to convey storm-water away from such site or from one part to another part of such site.

OO - 37 VALLEYS, GUTTERS AND DOWNPIPES

OO - 37.1 Any valley or gutter shall have a cross-sectional area of not less than 115mm^2 in cross sectional area of valley or, gutter, per square meter of roof plan area served.

OO - 37.2 Such requirements in respect of any downpipe shall be deemed to be satisfied where the internal cross-sectional area of such downpipe is not less than 100 mm^2 per 1m^2 of roof plan area served by such downpipe; Provided that such internal cross-sectional area is not less than 4,400 mm^2.

OO - 38 ACCESS TO STORM-WATER DRAINS

On any storm-water drain ready means of access shall be installed at such intervals that no part of such drain, measured along the line of such drain, is more than 40 m from such means of access.

OO - 39 CONNECTION TO STORM-WATER SEWER

Where any storm-water sewer is available in any street or servitude, abutting any site to be provided with storm-water drainage, the owner of such site shall, if so required by The Approving Authority, at its own cost install one or more storm-water drains to be connected by The Local Approving Authority to such storm water sewer.

OO - 40 USE OF STREET SURFACE DRAINAGE SYSTEM

Where The Approving Authority considers the capacity of any street surface drainage system to be adequate to accept the discharge of storm-water from any site it may permit such storm-water to so discharge: Provided that the owner of such site shall, where so required by The Approving Authority, at his own cost provide one or more conduits to convey such storm-water to such street surface drainage system.

OO - 41 DRAINAGE

Unless, The Approving Authority otherwise agrees, plans of every building must show satisfactory provision for the drainage of the building.

OO - 42 LEVEL OF LOWEST STOREY

The lowest or the only storey of a building (other than so much of a storey as comprises, a basement or other chamber below ground level intended for storage only, and constructed so as to be impervious to water) shall be at such level or so constructed as to allow the construction of a drain or drains sufficient for the effectual drainage of that storey.

OO - 43 DRAINAGE OF ROOFS

OO - 43.1 The roof of a building shall be so constructed, or so provided with appliances for drainage, as to prevent rain which may fall upon it, from causing dampness in any part of the building or damage to the foundations.

OO - 43.2 No building shall be so designed that rain water will be discharged over or upon a street.

OO - 43.3 Rain water pipes at a height of less than 3 metres above pavement level, shall not project beyond the building line.

OO - 43.4 Every building shall have provision for rain water harvesting.

OO - 44 SURFACE WATER

OO - 44.1 No person shall cause or permit any subsoil, surface, storm or rain water any drain for the conveyance of such waters to discharge into or communicate with any sewer for the conveyance of sewage or waste water except, with the written permission of The Approving Authority, and then only on the condition that such subsoil, surface, storm or rain water drain shall discharge directly into the open air or into a trapped gully the level the water in such sewer, or be otherwise disconnected there from.

OO - 44.2 No person, shall cause or permit any sewage or waste water drain to *discharge* into or communicate with any drain for the conveyance of subsoil surface, storm or rain water.

OO - 44.3 If the Approving Authority so requires, surface water from a plot shall be disposed in an approved manner. The Approving Authority may require the provision of paved areas laid to falls to gullies or channels connected to the approved point of disposal.

OO - 45 COMBINED DRAINS

If it appears to The Approving Authority, that two or more buildings may be drained advantageously in combination and a sewer of sufficient size already exists or is about to be constructed within 70 metres of any part of such *buildings,* The Approving Authority may, when the drains of such buildings are first laid order that such buildings be drained by a combined system of drainage to be constructed either by The local Approving Authority,

or by owners of the buildings, in such manner as The Approving Authority may direct, and the costs and expenses of the construction of such combined system of drainage and of the repair and maintenance thereof, shall be apportioned between the owners of such buildings in such manner as The Approving Authority may determine, and, if paid by The local Approving Authority be recovered from such owners as a civil debt.

OO - 46 DRAINS IN STREETS

A person who carries out drainage works in a street, shall not disturb the surface thereof without the previous consent in writing of The Approving Authority and subject to such conditions as it may prescribe, and shall only make any sewer connection at a position approved by The Approving Authority.

OO - 47 MATERIALS AND CONSTRUCTION OF DRAINS AND PRIVATE SEWERS

Every drain other than a subsoil drain or a drain to which these Regulations apply, shall comply with the Following provisions of regulation:

(a) The drain shall be constructed of approved materials.

(b) Where the soil would cause undue corrosion of cast iron, asbestos or concrete pipes, and such pipes shall not be used unless protected in an approved manner,

(c) The drain shall be properly supported and protected against injury, provided with watertight joints and laid to falls as may be required by The Approving Authority.

(d) The drain when constructed, shall withstand a reasonable hydraulic, smoke or air test under pressure, or other approved test

(e) The drain shall be of an approved size and shall in no case have an internal diameter less than 100mm.

(f) Where any drain is laid under a building, it shall :-

- (i) be laid in a straight line or if this is impracticable; in a series of straight lines;
- (ii) unless, it is constructed of cast iron or material of not less strength which complies with the requirements of KS02-548: 1986, KS06-217: 1981 and KS ISO 8773: 1991, be laid in the ground or supported throughout its length, and be completely surrounded with concrete not less than 150mm thick; and
- (iii) be provided with adequate means of access for inspection and rodding of its whole length. Such means of access, shall provided with a bolted airtight cover if within a building.

OO - 48 INLETS TO DRAINS TO BE TRAPPED

Every inlet to a drain other than a soil pipe, ventilating pipe, or waste stack used as a ventilating pipe, shall be properly trapped.

OO - 49 DRAINS AND SEWERS PASSING THROUGH OR UNDER WALLS

Where a drain, combined drain or sewer passes through or immediately under a wall, suitable support for the wall shall be provided so as to prevent the wall from damaging the pipe.

OO - 50 BRANCH DRAINS

A connection between a branch drain and any other drain, and a drain and a sewer, shall be so made that the tributary drain joins the other drain or sewer obliquely in the direction of flow of that other drain or sewer, and in manholes shall join it at the invert level or a level

not higher than the radius of the main drain or sewer above that level.

OO - 51 MANHOLES

OO - 51.1 Manholes shall, if required by The Approving Authority, be so positioned as to enable every length of drain to be accessible for rodding.

OO - 51.2 Unless The Approving Authority otherwise agrees, a manhole shall be provided at a point within the curtilage of the building, which is drained, and as near as practicable to the point of entry of the drain to the sewer.

OO - 52 CONSTRUCTION OF MANHOLES

OO - 52.1 Every manhole shall comply with the following internal dimensions;-

Depth Size
Not exceeding 750mm
750mm- 1500mm
Exceeding 1500mm
or circular with a diameter of not less than 1 metre.

OO - 52.2 Every manhole shall be constructed of approved materials and in an approved manner. It shall be watertight, and if constructed of brickwork, solid block work or stonework, it shall be rendered with cement plaster of at least 12mm in thickness and finished with a smooth surface and the walls shall not be less than 150mm in thickness down to a depth of 2 metres and at a greater depth the wall thickness shall not be less than 225mm.

OO - 52.3 The sides of the channels in every manhole, shall be brought up vertically to a height not less than the diameter of the drains, and shall be benched in concrete or any other suitable material, and such benching, shall be sloped off from the top of the channels at an angle of thirty degrees from the horizontal, and finished smoothly with cement or any other suitable material.

OO - 52.4 A manhole which is more than 1.5 metres in depth, shall be provided with a sufficient number of step irons.

OO - 52.5 Every manhole, shall be fitted with a moveable airtight manhole cover of cast iron or of any other suitable materialof adequate size and strength, and fixed in a manner which prevents surface water gaining access into the drainage system.

OO - 52.6 In all other respects, an installation of drainage, constructed in accordance with the appropriate Kenya Standards, Code of Practice, and withmaterials which comply with the appropriate Kenyan Standards specification shall satisfy these regulations.

OO - 53 VENTILATING PIPES

OO - 53.1 A drain for conveying foul water from a building, shall be properly ventilated with at least one ventilating pipe not less 75mm in diameter, situated as near as practicable to

the building and as far as practicable from the point at which the drain empties into the sewer or other means of disposal.

OO - 53.2 A ventilating pipe shall be provided at the upper extremity of every branch drain which exceeds 12 metres in length.

OO - 53.3 Nothing in these Regulations shall be deemed to prevent a soil pipe, or waste stack of approved dimensions connected directly to a drain, from serving as a ventilating pipe to the drain.

OO - 54 SOIL PIPES AND VENTILATING PIPES

Every ventilating pipe to a drain, and every soil pipe shall comply with the following requirements of these Regulations:-

(a) the pipe shall be of approved material;

(b) if the pipe is of cast iron, the thickness of metal in the pipe and fittings shall be not less than:-

  (i) 5mm if the diameter of the pipe is not more than 100mm.; and

  (ii) 6mm if the diameter of the pipe is more than 100mm.;

  (iii) the pipe shall;-

  (iv) be carried upwards to such a height and position as effectually to prevent the escape of foul air from such pipe into any building: and

  (v) be fitted at its open end with a wire cage or other suitable cover made of durable material admitting the free passage of air.

(c) the pipe, shall be capable of withstanding after erection, a reasonable hydraulic smoke, or air test under pressure;

(d) the pipe, shall not have a trap at its point of junction with the drain, or elsewhere, except, where necessary as part of the apparatus of any water-closet or slop-sink;

(e) the pipe shall not have any bend, except, where unavoidable in which case the bend shall:-

  (i) have an obtuse angle as large as possible;

  (ii) have the largest practicable radius of curvature; and

  (iii) not change in any way the cross section of the pipe.

(f) unless, The Approving Authority otherwise agrees, no joints in soil pipes shall be permitted within the thickness of walls or floors;

(g) any soil or vent pipe, which is constructed within a building, shall be of cast iron or other approved material and provided with flanged joints or other approved airtight joints, and shall be fixed inside a duct fitted with access panels or otherwise encased or supported in an approved manner;

(h)

(i) the internal diameter of a soil pipe (including any part of such pipe carried up as a ventilating pipe) shall be not less than that of any pipe discharging into it, and, unless it is a waste pipe from urinals only, the internal diameter shall in no case be less than 75mm.; and

(j) the bend at the foot of every soil pipe, shall rest in a solid bed of concrete.

OO - 55 ACCESS

OO - 55.1 Except, when a branch drain connects a soil pipe with the main drain at a manhole, an access plate shall be provided at the foot of the soil pipe.

OO - 55.2 Bolted access plates shall be provided at every junction between a branch pipe and a soil pipe and between soil pipes.

OO - 56 WASTE PIPES

OO - 56.1 Every waste pipe from a bath, sink (not being a slop sink), bidet, or lavatory basin and every other pipe for carrying off waste water, shall comply with the following requirements of these Regulations: Provided that a waste pipe used as a ventilating pipe to a drain and any waste pipe which is a waste stack shall comply with this Regulation.

OO - 56.2 The pipe, shall have an internal diameter adequate for the function it has to perform, and not less than that of any pipe connecting it with the appliance it serves. It shall also have means of access for cleansing, in no case shall the waste pipe be less than 40mm in diameter, and where it has a common waste pipe, it shall have a minimum diameter of 50mm: Provided that the waste pipe receiving the discharge from not more than two lavatory basins, may be of an internal diameter of 40mm.

OO - 56.3 The pipe, shall if it is more than 2 metres in length, be provided with a suitable trap. Every such trap shall be fixed in such a manner as to be easily accessible for cleaning.

OO - 56.4 Nothing in this Regulation, shall be deemed to prevent two or more lavatory basins fixed in a range from discharging into a common waste pipe, provided that the common waste pipe (whatever its length) itself discharges through a trap and has adequate-means of access for cleansing.

OO - 56.5 If a waste pipe discharges into a soil pipe, ventilating pipe to a drain, or waste stack:-

(a) the quality of the pipes and the joints shall be in accordance with KS ISO 3633: 2002 and KS ISO 15874-1-5: 2003.
(b) the waste pipe shall be provided with an approved deep seal or anti-vac trap at each outlet from the appliance;
(c) the diameter of the waste pipe shall be greater than that of the trap leading into it; and

OO - 56.6 Any trap connected to a common waste pipe shall be protected from siphonage.

OO - 56.7 A waste pipe, if it discharges to a drain otherwise than as specified in sub regulation OO57.5, shall discharge into the open air, and be disconnected from the drain by a trapped gully fitted with a suitable grating, and the waste pipe, shall discharge above the level of the water in the trap and in such a way as not to cause dampness in a wall or foundation of any building: Provided that, with the approval of The Approving Authority, waste water may be received into a trapped gully inside a building.

OO - 57 MAINTENANCE OF WATER SEAL IN TRAPS

Such provision shall be made in the lay-out of drains and soil pipes, waste pipes and ventilating pipes, as may be necessary to prevent under working conditions, the destruction of the water seal of any drain trap or trap of a soil or waste appliance.

OO - 58 WATER-CLOSETS

OO - 58.1 A water-closet constructed in connection with a building, shall comply with the following provisions of these Regulations.

OO - 58.2 The pan, basin or other receptacle forming part of such water-closet (hereinafter in these Regulations called "the pan") shall be made of a smooth and readily cleansed non-absorbent material, and of such shape, capacity and mode of construction, as to receive and contain sufficient quantity of water, and to allow all faecal matters to fall free of the sides thereof directly into the water received and contained in such pan.

OO - 58.3 The flushing apparatus shall be capable of securing the prompt and effective cleansing of the pan.

OO - 58.4 No part of the pan, shall be directly connected with any pipe, other than a soil pipe, drain or flush pipe, leading from the flushing apparatus.

OO - 59 URINALS

OO - 59.1 A urinal constructed in connection with a building, shall comply with the requirements of sub regulations 0060.2 and OO60.5, and where a supply of water is laid on to the building, it shall also comply with the requirements of sub regulations OO60.3 and O060.4.

OO - 59.2 The urinal shall be provided with a slab stall, trough or other suitable receptacle or receptacles, which shall:-

(a) have a smooth and readily cleansed non-absorbent surface;
(b) be provided with an outlet which, shall be fitted with an approved grating and trap; and
(c) be so constructed as to facilitate cleansing.

OO - 59.3 The urinal, shall be provided with an apparatus capable of effectively flushing and cleansing the receptacles from a supply of clean water.

OO - 59.4 No part of any basin or other receptacle, forming part of a urinal, shall be directly connected with any pipe other than a soil pipe, drain, or flush pipe leading from the flushing apparatus.

OO - 59.5 The floor of a urinal, shall be impervious to moisture, and finished with a hard wearing surface which can be easily cleansed and satisfactorily drained to a point within the compartment.

OO - 60 TROUGH CLOSETS

OO - 60.1 No person shall construct a trough closet, except, with the written permission of the Approving Authority.

OO - 60.2 A room containing a trough closet shall be so constructed as to open directly to the external air.

OO - 60.3 An automatic water flushing system of not less than a 20 litres flush shall be provided to a trough closet.

OO - 61 FIXINGS AND FLOOR WATER CLOSETS

OO - 61.1 Every water closet shall be fitted so as to comply with the requirements of either sub regulation OO62.2 or OO62.3.

OO - 61.2 The requirements referred to in sub regulation OO62.1 shall be that:-

(a) the whole of the pan, shall be fixed above the level of the floor and shall be adequately secured thereto;
(b) the pan shall be provided with a seat of an approved type,
(c) unless, The Approving Authority otherwise agrees; the sides of the pan shall not be enclosed;
(d) if required by The Approving Authority, the floor of the water closet shall be finished with a smooth and readily cleansed hard wearing surface.

OO - 61.3 The requirements referred to in sub regulation OO62.1 shall be that:-

(a) the pan shall be sunk so that the upper edge of the flushing rim is below the level of the floor. The joint between the flushing rim and the floor finish shall be made in an approved manner;
(b) the pan shall be encased in cement concrete at least 100mm in thickness;
(c) the floor of the water closet, shall be constructed of cement concrete at least 100mm in thickness, be impervious to moisture, finished with a hard wearing readily cleansed surface and laid to fall so that any liquid will flow into the pan of the water closet;
(d) a smooth and readily cleansed coved skirting Shall be formed at the junction of the floor and wall.

OO - 62 BATHROOMS

OO - 62.1 Every dwelling shall be provided with a bathroom of not less than 2.5 m^2 in area having a minimum dimension of 900mm.

OO - 62.2 Where a floor trap is used in connection with any bathroom, the floor shall be constructed of cement concrete at least 75mm in thickness, be impervious to moisture and finished with a smooth and readily cleansed hard wearing surface.

OO - 62.3 The walls of a bathroom for a minimum height of 1200mm shall be impervious to moisture, finished with a hard wearing readily cleansed surface.

OO - 63 LIGHTING AND VENTILATION OF WATER CLOSETS AND URINALS

OO - 63.1 In these Regulations, the expression "water closet" includes a urinal constructed in connection with a building and any room or part thereof which is partitioned or divided into cubicles any one of which contains a pan, if the partitions or divisions are so constructed as to allow the free circulation of air throughout the room.

OO - 63.2 A water closet entered directly from the external air shall be provided with a sufficient opening for lighting and ventilation of not less than 10 per cent of the floor area as near to the ceiling as practicable and communicating directly with the external air.

OO - 63.3 A water closet not entered directly from the external air shall be sufficiently ventilated and the requirements of this paragraph shall be satisfied if:-

(a) it is provided with a window, roof light or other approved opening which shall:-
  (i) open directly into the external air;
  (ii) be so constructed that an area not less than one twentieth of the floor area of the water closet may open; and
  (iii) provide permanent ventilation directly connected to the external air of not less area than 150mm; or

(b) it is provided with mechanical or other means of ventilation which give not less than three air changes per hour.

OO - 63.4 Each cubicle forming part of a water closet shall have a minimum dimension of 1500mm by 750 mm.

OO - 63.5 A water closet, shall not communicate directly with any room intended principally for human habitation (other than a bedroom or dressing room, or a room intended to be used solely by one occupant) or for the manufacture, preparation or storage of food for human consumption.

OO - 63.6 If the water closet is in a domestic building it shall, if it communicates with a bedroom or a dressing room and there is no other water closet in the building which does not so communicate, be so constructed that it can be entered otherwise than through the bedroom or dressing room.

OO - 64 BUILDINGS OVER SEWERS

OO - 64.1 No person shall, without the written consent of The Approving Authority, erect, or cause to be erected, a building over a sewer.

OO - 64.2 The Approving Authority, may cause a building constructed in contravention of sub regulation OO65.1 to be altered, pulled down, or otherwise dealt with and may recover as a civil debt any expenses incurred in so doing from the person erecting the same or the owner thereof.

OO - 65 POWER TO PROHIBIT

If, in the opinion of The Approving Authority, the introduction into a sewer of any matter, chemical, manufacturing trade or other refuse, including vapours *of* gaseous matters, or any steam, condensing water or heated liquid which either causes or may cause a nuisance, or involves danger to the health of persons entering the sewers, or is or may be injurious to the sewers or other works, The Approving Authority may, by written notice, served upon the person responsible, prohibit (from a date to be stated in such notice, not being earlier than fourteen days from the date of service of such notice) the introduction of any such matter as aforesaid into any sewer.

OO - 66 TRADE EFFLUENT

The Approving Authority may refuse to admit into a sewer any trade waste, manufacturing liquid waste, or other effluent, unless it has been treated in an approved manner.

OO - 67 MANUFACTURING PREMISES

The Approving Authority, may, require the occupier of any premises from which trade effluent is discharged into a sewer to construct an approved manhole on his premises connected to the pipe or channel conveying such effluent. An officer of The Approving Authority shall at all times have access to such manhole and may examine such effluent.

OO - 68 INJURIOUS MATTERS

Any person who shall throw or suffer to pass into any sewer or into any drain communicating with a sewer any matter or substance, which will interfere with the free flow of sewage, or by which any sewer or drain may be injured, shall be guilty of an offence.

OO - 69 SEWER CONNECTION NOTICE

Any person who intends to connect a drain to a sewer shall give not less than 3 working days notice in writing to The Approving Authority of his intention to do so as prescribed in form AA63

OO - 70 SEWER CONNECTIONS TO BE AUTHORISED

OO - 70.1 No person shall make any sewer connection, unless a written permit authorising the making of such sewer connection shall have been issued by the Local Approving Authority, and no person shall make any sewer connection otherwise than under the direction of The Approving Authority and in an approved manner.

OO - 70.2 The Approving Authority may close, demolish, or remove any sewer connection made by any person in contravention of these Regulations and may recover as a civil debt from such person any expenses hereby incurred.

OO - 71 SEWAGE AND WASTE WATER DISPOSAL

Except, as may be otherwise permitted under these Regulations, unless The Approving Authority considers other satisfactory means of disposal can be provided, sewage and

waste water disposal other than through a sewer, shall be by means of one or a combination of more than one of the means approved by The Approving Authority shown in table O16.

Table O - 16: Sewage and waste disposal

Fittings	Permeable Soils	Impermeable Soils
1. Sink waste, water closets & servant quarters waste	Septic tank, or soak pit, or radial arms or french drains	Conservancy tank
2. Baths, lavatory basins and showers	As indicated in 1but a separate waste water storage tank	As indicated in 1 but a separate waste water storage may be permitted with an approved overflow into the main system of disposal. tank may be permitted with an approved overflow into the main system of disposal

Note:

(1) If The Approving Authority so requires, a certificate shall be submitted setting out the results of a soil test for permeability.

(2) Every septic tank provided in pursuance of this Regulation shall be of an approved size, construction and siting.

OO - 72 RADIAL ARMS

OO - 72.1 Unless the Approving Authority otherwise agrees, septic tanks and soak pits shall be provided with adequate radial arms.

OO - 72.2 The disposal shall be so arranged as not to cause site pollution or to become a nuisance.

OO - 72.3 The trenches forming radial arms shall be cut square to proper gradients and suitably level and filled with approved hardcore properly graded and at ground level suitably blinded with fine materials not less than 225mm deep.

OO - 73 WASTE WATER STORAGE TANKS

OO - 73.1 Unless, The Approving Authority otherwise agrees, the capacity of a waste water storage tank shall not exceed 300 litres.

OO - 73.2 An approved pump shall be fitted for emptying such tank unless gravity discharge is used.

OO - 73.3 The access to such storage tank shall be provided through a medium weight, hinged, manhole cover made of cast iron or any other suitable material.

OO - 74 PROHIBITION OF OPEN CHANNELS

Unless, The Approving Authority otherwise agrees, no waste water shall be discharged by means of open channels.

OO - 75 TEMPORARY CONSTRUCTION

Where it is expected that within two years from the date of approval of the plans of a building that the owner of such building may be required to connect the drains thereof to a sewer, The Approving Authority may permit such modification in the construction as may be required by these Regulations, and may also allow the drains to be constructed in a manner which will simplify the eventual connection to the sewer.

Unless, the approving authority otherwise agrees, no waste water shall be discharged by means of open channels unless the waste water has been treated to meet the standards for effluent disposal into the environment as prescribed by Legal Notice No. 120 of September 2006.

The approving authority may permit the use of pail closets.

OO - 76 EXEMPTIONS

OO - 76.1 These Regulations shall not be construed as requiring the installation in any building of any roof gutter or downpipe where other suitable means has been provided to ensure the disposal or dispersal away from such building of rainwater from the roof of such building.

OO - 76.2 The regulations in this Part shall not apply to any site used exclusively for the erection of any dwelling house or any building appurtenant thereto:

OO - 76.3 Provided that where, due to special site features, the discharge of storm-water from such site may cause significant damage, The Approving Authority may require compliance with Regulation OO35.

OO - 77 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence and shall be liable to a fine not exceeding than KShs 1,000,000 (Kenya Shillings one million only) or imprisonment for a period not exceeding than six (6) months or both.

SECTION P

WASTE DISPOSAL

CONTENTS

SECTION P
WASTE DISPOSAL

PP - 1 MEANS OF DISPOSAL

Where water-borne sewage disposal is not available other means of sewage disposal shall be permitted by The Approving Authority.

PP - 2 PERMISSION

No person shall construct any pit latrine without the permission of The Approving Authority.

PP - 3 CONSTRUCTION, SITING AND ACCESS

(a) Any such other means of sewage disposal shall be so constructed sited and provided with access that the health and convenience of persons using such means shall not be adversely affected.

(b) The number of sanitary receptacles shall be adequate for the population of the building served by such receptacles.

PP - 4 CONSTRUCTION

PP - 4.1 Any closet shall be constructed with a floor, walls and a roof of material adequate for its purpose and such closet shall be provided with a door or other means which will ensure privacy of the occupant of such closet.

PP - 4.2 Any closet shall be provided with an opening which will give natural lighting and ventilation and the area of such opening shall be not less than 0.2 m^2

PP - 4.3 Any closet shall be provided with a seat and a riser of such height that a space of not more than 25 mm is left between the underside of such seat and the top of the receptacle.

PP - 4.4 The aperture in such seat shall be at least 25 mm less in every diameter than the corresponding diameter of the top of such receptacle and such aperture shall be fitted with a self-closing fly proof lid.

PP - 5 SITING

PP - 5.1 No excavation for a pit latrine shall be sited within 3m of any building or of any boundary of the site on which it is located.

PP - 5.2 Where any excavation for a pit latrine is positioned outside the closet, so that excreta are delivered into it from a chute fitted under the closet seat, such excavation shall be adequately covered over.

PP - 5.3 Where any closet, other than a chemical closet, forms part of any dwelling house such closet shall be so positioned and constructed as to prevent the transmission of odours to the rest of such house.

PP - 5.4 No closet, other than a chemical closet, shall open directly into any habitable room.

PP - 5.5 Any closet which is not a chemical closet shall have direct access from the open air or from a permanently ventilated space.

PP - 6 LATRINES AND ABLUTIONS

PP - 6.1 A latrine and an ablution, shall be provided either in separate compartments in which case each compartment shall have minimum dimensions of 1350mm by 750 mm., or in a combined compartment having a minimum area of 1.350M^2.

PP - 6.2 Where a combined compartment is provided, separate provision for the washing of utensils, shall be made to the satisfaction of The Approving Authority.

PP - 6.3 The walls of any combined compartment or ablution, shall have a smooth and readily cleansed surface to a height of not less than 1350mm. above the floor level and the floor shall be likewise finished and laid to a proper fall. The junction between the floor and the wall shall be formed with a cement cove or similar construction of not less radius than 37.5 mm.

PP - 6.4 For each family or group not exceeding twelve persons, there shall be provided one latrine and one ablution, or one combined compartment and ablution as required under sub-regulation PP3(b).

PP - 7 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence and shall be liable to a fine not exceeding KShs 50,000 (Kenya Shillings fifty thousand only) or imprisonment for a period not exceeding three (3) months or both.

SECTION Q

ELECTRICAL INSTALLATIONS

CONTENTS

SECTION Q
ELECTRICAL INSTALLATIONS

QQ - 1 APPLICATION

QQ - 1.1 Electrical installation work in all buildings shall be carried out in accordance with the Energy Act, No 12 of 2006, the Electric Power (Electrical Installation Work)Rules, 2006 and the Kenya Wiring Regulations Part 1 and 2 of 2006 (KS 662,1-2:2006), as may be amended from time to time. Energy Regulatory Commission (ERC) in consultation with Kenya Bureau of Standards shall ensure that the regulations are kept current.

QQ - 1.2 Nothing in these Regulations shall apply to a conductor, apparatus or appliance which does not form part of a building or fixture thereto, or a site electrical system.

QQ - 2 CONDUCTORS AND APPARATUS

QQ - 2.1 Every electrical:-

(a) Conductor shall be of sufficient size and current rating; and
(b) Apparatus shall be of sufficient power rating, for the purpose for which it's to be used.
(c) Conductor shall comply with the KS- KS 04-178:1980, KS 04-187:1987, KS 04-190-2:1987, KS 04-499-1:1985, KS 04-499-2:1985, KS 04-308:1982, KS 04-1069:1991.

QQ - 2.2 Every live conductor, including that forming part of an apparatus, shall be:-

(a) Insulated and where necessary further effectively protected; or
(b) Placed and safeguarded, so as to prevent danger as far as is reasonably practicable.

QQ - 2.3 Every electrical joint and connection shall be of proper construction with respect to conductance, insulation, mechanical strength and protection and be accessible for inspection and maintenance and shall comply with KS 04-180-1:1985, KS 04-180-2:1991, KS 04-468-1:1987, KS 179-2:2001, KS 04-645-4:1987.

QQ - 3 FUSES, SWITCHES AND CIRCUIT-BREAKERS

QQ - 3.1 Every electrical circuit and sub-circuit shall be protected against excess current by fuses, circuit-breakers or other similar devices which:-

(a) Shall operate automatically at current values suitably related to the safe current ratings of the circuit;
(b) Be of adequate breaking capacity; and
(c) Be suitably located and of such construction as to prevent danger from overheating, arcing or the scatter of hot metal when in action.
(d) shall comply with KS 04-194:1990, KS 04-1230-3:1994, KS 04-1230-4:1994, KS 04-1230-5:1994, ,KS 04-1230-7:1994, KS IEC 60947-3: 1999

QQ - 3.2 Where an earth fault leakage current from a circuit is insufficient to operate the fuse, circuit-breaker or other similar device, the circuit shall be protected by an earth leakage circuit-breaker or equivalent device against the persistence of an earth current liable to cause danger.

QQ - 3.3 No fuse or circuit-breaker, other than a linked circuit-breaker, shall be inserted in a conductor connected to earth, and any linked circuit-breaker inserted shall be arranged so as to break every live conductor.

QQ - 3.4 Every single pole switch shall be inserted in a live conductor only and shall comply with KS 247:1999.

QQ - 4 PRECAUTIONS AGAINST METAL BECOMING LIVE

QQ - 4.1 Where metal, other than current-carrying conductors, is liable to become charged with electricity in such a manner as to create a danger if the insulation of a conductor should become defective, or if a defect should occur in any apparatus, the metal work shall be effectively earthed in such a manner as to ensure an immediate electrical discharge without danger, or other adequate precautions shall be taken.

QQ - 5 ISOLATION OF SYSTEMS AND APPARATUS

QQ - 5.1 Effective means, suitably placed for ready operating shall be provided for the immediate disconnection of voltage from any circuit, sub-circuit or apparatus.

QQ - 6 ISOLATION OF APPARATUS

QQ - 6.1 Apparatus which requires operation or attention in normal use shall be installed so that adequate means of access and working space are afforded for such operation or attention.

QQ - 6.2 Every part of a building in which apparatus is placed shall be adequately lighted to prevent danger.

QQ - 6.3 Every electric motor having a rating exceeding 0.37 kW shall be provided with control apparatus incorporating a suitable device which affords protection against excess current in the motor or in the cables between the device and the motor.

QQ - 7 CONNECTION OF APPLIANCES TO SUPPLY

QQ - 7.1 Every appliance shall be:-

(a) controlled by means of a switch in addition to any automatic control device and arranged to disconnect the appliance from a live conductor; or

(b) connected by means of a plug and socket outlet: complying with KS 1432-1,: 1999, KS 1432-2,:1999,KS 1432-3,: 1999,KS 1432-4,:1999

(c) Provided that nothing in this regulation shall apply to. an electric clock, a bell transformer or other similar appliance fed from a separate extra low voltage circuit.

QQ - 7.2 Every heating appliance shall be controlled by a linked switch arranged to break the supply conductors.

QQ - 8 PRECAUTIONS AGAINST SPECIAL CONDITIONS

QQ - 8.1 Every apparatus or conductor:-

(a) exposed to weather, corrosive atmosphere or other adverse conditions shall be constructed or protected so as to prevent deterioration or danger from such exposure; and

(b) which is or is likely to be exposed to flammable surroundings or an explosive atmosphere shall be protected by a flameproof enclosure or be otherwise designed, constructed and installed so as to prevent danger.

QQ - 8.2 For the purposes of sub-regulation QQ8.1(a) a "flameproof enclosure", in relation to any apparatus or conductor, means an enclosure or casing which will withstand without injury an explosion of a flammable gas which may occur therein and will prevent the transmission of flame such as would ignite any flammable gas which may be present in the surrounding atmosphere.

QQ - 8.3 A flammable installation shall be deemed-to-satisfy if in compliance with KS IEC 60079:2002.

QQ - 9 VOLTAGES EXCEEDING 200 VOLTS

Apparatus and conductors operating at voltages between conductors or to earth exceeding 200 volts shall be completely enclosed in earthed metal which shall be electrically continuous and adequately protected against mechanical damage or constructed, installed and protected so as to prevent danger.

QQ - 10 ELECTRICAL APPLIANCES

Every fixed electrical appliance to which these Regulations apply shall be designed, constructed and installed so as to operate efficiently and safely and shall comply with KS 1111.

QQ - 11 LIGHT FITTINGS, APPARATUS OR APPLIANCES IN ROOM CONTAINING BATH OR SHOWER

QQ - 11.1 Every light fitting or other electrical apparatus or appliance in a room containing a fixed bath or shower shall comply with the following requirements:-

(a) Be situated so as to be out of reach of any person in a bath or under a shower; (if) every part of a lamp-holder likely to be touched by a person replacing a lamp shall be constructed of or shrouded in insulating material;

(b) every switch or other means of control or adjustment associated with a light or electrical appliance in a room shall be:-

(i) Of a type operated by an insulating pull-cord switch; or

(ii) Placed in an accessible position outside and immediately
(iii) Adjacent to the normal access door of the room:

QQ - 11.2 Provided that nothing in regulation QQ11.1 shall prohibit the provision in a room of a shaver supply unit which:-

(i) Complies with KS 1111
(ii) Is situated out of reach of a person in a bath or under a shower;
(iii) Has the earth terminal earthed in compliance with regulation QQ4 and
(iv) Has its secondary .circuit isolated from both the supply mains and earth.

In a room containing a bath or a shower no provision shall be made for the use of an electrical portable appliance other than a shaver.

QQ - 12 WIRING DIAGRAMS AND DISTRIBUTION BOARDS

QQ - 12.1 With the exception of a building comprising a single dwelling house or part thereof, every building or part thereof to which these Regulations apply shall, on a wall beside the main switch for that building or part thereof or at some other suitable place, display a schematic diagram, in a permanent form and of suitable size showing the main distribution circuit and control of the wiring in the building.

QQ - 12.2 Every switch or current breaker the purpose of which is not obvious shall be labelled to indicate the apparatus it controls.

QQ - 13 ELECTRIC LIGHTING

QQ - 13.1 In every building or part thereof in which electricity is installed for lighting:-

(a) the system shall include at least one terminal point for lighting in every room having a floor area of $2m^2$ or more and in every bathroom, water closet, entrance vestibule, hall, passage and stairway terminal landing; and
(b) Every light at a stairway terminal landing shall, unless automatic switching devices are installed, be controlled by switches at "such landing and at any other terminal landing thereon.

QQ - 14 ELECTRICITY POINTS

QQ - 14.1 In every building or part thereof where electricity points are installed the electricity points shall be provided in such a manner as to be safe and efficient under normal conditions of use for the attachment and use of any portable apparatus or appliance.

QQ - 14.2 All socket outlet points shall be shuttered in compliance with KS04-662: Part 1and 2.

QQ - 15 PROTECTION AGAINST LIGHTNING

Means of earthing for lightning protection shall comply with the code of practice for the protection of structures against lightning and shall comply with - KS04-503.

QQ - 15.1 Buildings shall have a master antenna television station system and shall comply with KS IEC 60050-712: 1999, KS 04-1278:1998)

QQ - 15.2 For buildings with alternative sources of energy installations shall comply with KS 1673, KS 1674, KS1675, KS1676, KS1677, KS 1678, KS 1679, KS 1680, KS 1681, KS 1682, KS 1683, KS 1684. KS 1685, KS 1686, KS 1687, KS 1688 as applicable.

QQ - 15.3 For buildings with Access and CCTV systems shall adhere to the required safety requirements and shall comply with SANS 10222-1,2,3 and BS7958:2005,BS8418:2003 & SANS10222 Part 5 all section.

QQ - 15.4 For buildings with Internet Cabling installations shall comply with KS ISO IEC 15018:2004 and KS ISO IEC 14763 -3:2006.

QQ - 15.5 Intruder alarm systems in buildings shall comply with KS 04-111.

QQ - 15.6 The Approving Authority in liaison with Communication Commission of Kenya (CCK) and Kenya Bureau of Standards (KEBS) shall ensure that Telecommunication installations within the Built Environment conform to safety requirements as regulated by Government.

QQ - 16 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence and shall be liable to a fine not less than KShs 1,000,000.00 (Kenya Shillings one million only) or twelve (12) months imprisonment or both.

SECTION R

REFUSE DISPOSAL

CONTENTS

SECTION R

REFUSE DISPOSAL

RR - 1 PROVISION OF AREAS

Any building, excluding a dwelling house, in which refuse is or will be generated shall be provided with an adequate storage area for refuse containers.

RR - 2 ACCESS TO AREAS

The location of any area contemplated in these Regulations shall be such that access thereto from any street for this purpose of removing the refuse, is to the Satisfaction of The Approving Authority.

RR - 3 DOMESTIC DEVELOPMENTS

RR - 3.1 **CAPACITY**: In low rise domestic developments any dwellings should have, or have access to, a movable individual waste container with a capacity not less than 0.12m^3 or a communal waste container or between 0.75 m^3 and 1 m^3 capacity,

Note: This capacity assumes an output of refuse of 0.09 m3 per dwelling and collection at weekly intervals. Where an Approving Authority provides a less frequent service larger capacity containers or more individual containers will be needed.

RR - 3.2 In multi-storey domestic developments dwellings up to the 4th floor may each have their own container or may share a container. Dwellings above the 4th storey should share a container fed by chute unless siting or operation of a chute is impracticable. In such a case a satisfactory management arrangement for conveying refuse to the storage should be assured.

RR - 3.3 Individual containers should have close fitting lids.

RR - 3.4 Containers need not be enclosed but if they are, the enclosure should allow room for filling and emptying and provide a clear space of 150mm between and around the containers and for communal containers be a minimum of 2m high. The enclosure should be permanently ventilated at the top and bottom.

RR - 4 NON-DOMESTIC DEVELOPMENTS

In other types of developments, and particularly where special problems such as high density influence the provision of a system, it is essential that the collecting authority is consulted for guidance on resolving the following points:

(a) The volume and nature of the waste and the storage capacity required, based on the frequency of collection and the size and type of container.
(b) The method of storage, including any on-site treatment proposed related to the intended layout and building density.
(c) The location of storage and treatment areas and the access to them for operatives and vehicles.

(d) Hygiene arrangements in the storage and treatment areas.
(e) Fire hazards and protection measures.

RR - 5 SITING

RR - 5.1 Containers and chutes should be sited so that household occupants are not required to carry refuse farther than 30.0m. Containers should be within 25.0m of the vehicle access.

RR - 5.2 Containers should be sited so that they can be collected without being taken through a building, unless it is a garage, carport or other open covered space.

RR - 6 STORAGE CHAMBERS TO BE PROVIDED FOR IN PLANS RELATING TO BUILDINGS SPECIFIED IN THE SCHEDULE

RR - 6.1 Every plan relating to a building of a description, or two or more buildings both or all of which are of the same description, specified in the first column of the Table 1with a total floor area specified opposite that description of building in the second column thereof shall show provision for a storage chamber of the description specified opposite that floor area in the third column and such storage chamber shall have a total floor space of not less than that specified opposite that storage chamber in the- fourth column thereof.

RR - 6.2 In the case of a plan relating to two or more buildings falling within two or more of the descriptions specified in the first column of theTable 1, sub regulation RR6.1 shall apply as if those buildings were comprised in a single composite building and the plan related to that composite building.

RR - 6.3 This regulation shall not apply to a building constructed or adapted for use principally as a church, a school, an industrial building or a car park.

Table R - 1:

Description of building	Total floor area as shown on plan	Description of storage chamber	Minimum floor space of storage chamber
Domestic Building	(a) Usable floor space 1,320m^2 or more but less than 32,200 m^2 (b) Usable floor space 1,320 m^2 or more but less than 13,200 m^2	Storage chamber Storage chamber with vehicular access	Total usable floor space in m^2 divided by 440 Total usable floor space in m^2 divided by 440
Non-domestic Building	(a) Usable floor space 3,960m^2 or more but less than 39,600 m^2 (b) Usable floor space 39,600 m^2 or more	Storage chamber Storage chamber with vehicular access	Total usable floor space in m^2 divided by 1,320 Total usable floor space in m2 divided by 1,320

Description of building	Total floor area as shown on plan	Description of storage chamber	Minimum floor space of storage chamber
Composite Building	(a) Aggregate usable floor space 1,320m^2 or more but less than 13,200 m^2 (b) Aggregate usable floor space 1,320m^2 or more	Storage chamber with vehicular access Storage chamber with vehicle access	Aggregate of:- (a) the total usable floor space of the domestic building component in m^2 divided by 440; and (b) the total usable floor space of the non-domestic building component in m^2 divided by 1,320 Aggregate of:- (a) the total usable floor space of the domestic building component in m^2 divided by 440; and (b) the total usable floor space of the non-domestic building components in m2 divided by 1,320

RR - 7 STORAGE CHAMBERS TO COMPLY WITH REGULATIONS RR8 TO RR15

Where a storage chamber is provided in any building it shall be so designed as to comply with the requirements of regulations RR7 to RR14.

RR - 8 ACCESS TO STORAGE CHAMBERS FOR EMPTYING REFUSE CONTAINERS

RR - 8.1 Every storage chamber shall be of a design approved by The Approving Authority and in such location approved by The Approving Authority as to provide ready access thereto for the purpose of removing any refuse container stored in such storage chamber.

RR - 8.2 Where access to any storage chamber other than a storage chamber with vehicular access is obtained along a passage or alley or similar way, the passage, alley or other way shall be not less than 1.5 m in width shall be without steps and paved and shall have a longitudinal gradient not greater than 1 in 20.

RR - 9 STORAGE CHAMBERS TO BE FULLY ENCLOSED

Save for the access door provided in accordance with regulation RR10, the opening for any refuse chute and any opening for a hopper, there shall be no openings in any storage chamber.

RR - 10 STORAGE CHAMBERS TO HAVE ONE EXTERNAL WALL

At least one of the walls of every storage chamber shall be an external

RR - 11 MINIMUM DIMENSIONS OF STORAGE CHAMBERS

RR - 11.1 No storage chamber shall have any dimension less than 1.5 m.

RR - 11.2 The height, measured to the ceiling, of every storage chamber shall, throughout the chamber, be not less than 2.0m.

RR - 12 CONSTRUCTION OF STORAGE CHAMBERS

RR - 12.1 Every storage chamber shall be constructed of brickwork, concrete or other approved material.

RR - 12.2 The whole of the internal faces of the walls of every storage chamber shall be lined with glazed bricks, glazed tiles or other approved material.

RR - 12.3 The ceiling of every storage chamber shall be rendered in cement and finished with a smooth surface.

RR - 12.4 The floor of every storage chamber shall be:-

(a) Constructed of concrete not less than 75mm thick;
(b) Laid to fall towards the gully provided in accordance with regulation RR14; and
(c) Finished with quarry tiles or other approved hard impervious material.

RR - 12.5 In every storage chamber the junction of the floor with the walls shall be coved.

RR - 13 ACCESS DOOR TO STORAGE CHAMBERS

RR - 13.1 Every storage chamber shall be provided with a close fitting door made of steel or other suitable material.

RR - 13.2 Every such door shall:-

(a) Be situated in an external wall of the storage chamber;
(b) Have a height of not less than 1.8 m;
(c) Have a width of not less than 1.25 m; and
(d) Be provided with a lock or other means of preventing unauthorized persons obtaining access to the storage chamber.

RR - 13.3 The internal surface of the door shall be without projections.

RR - 14 DRAINAGE OF STORAGE CHAMBERS

RR - 14.1 Every storage chamber shall be provided, in the floor thereof, with an outlet drain.

RR - 14.2 Every such drain shall be:-

(a) Provided with a grating; and
(b) Connected, by means of a pipe having an internal diameter of not less than 100 mm, to a back inlet trapped gully.

RR - 14.3 Every such gully shall be:-

(a) Situated in a position immediately outside the storage chamber;
(b) Fitted with an airtight cover to provide access to the gully for inspection and cleaning; and
(c) Connected to a drain provided for the carriage of foul water.

RR - 15 STORAGE CHAMBERS TO HAVE WATER SUPPLY POINT

RR - 15.1 For the purpose of cleaning the same, there shall be provided, in every storage chamber, a water supply point.

RR - 15.2 Such water supply point shall be connected to the supply of water provided for flushing the soil fitments in the building for which the storage chamber is provided.

RR - 16 REFUSE CHUTES TO COMPLY WITH REGULATIONS RR17 TO RR28

Where a refuse chute is provided in any building it shall be so designed as
(a) to be vertical safe as provided in regulation RR17;
(b) Terminate at its lower level in a storage chamber; and
(c) Comply with the requirements of regulations RR17 to RR28.

RR - 17 BENDS OR OFFSET IN ANY REFUSE CHUTE PROHIBITED

RR - 17.1 No refuse chute shall have a bend or offset in it except at its foot or above the level of the highest hopper.

RR - 17.2 Where any refuse chute has an offset at the foot thereof, such offset shall;-

(a) Have a slope of not less than 60 degrees to the horizontal; and
(b) Be constructed of replaceable galvanised or stainless steel of not less than 3 mm thickness.

RR - 18 MINIMUM HEIGHT OF TOP OF REFUSE CHUTES

The top of every refuse chute shall be not less than 300 mm above the top of the highest hopper

RR - 19 LINING AND INTERNAL SIZE OF REFUSE CHUTES

Every refuse chute shall have an internal diameter of not less than 450mm.

RR - 20 WALLS OF REFUSE CHUTES

The walls of every refuse chute shall be constructed of solid brick, stone or concreteand shall be not less than 100 mm thick, exclusive of any lining.

RR - 21 REFUSE CHUTE TO BE PROVIDED WITH SHUTTER

Every refuse chute shall be provided at its lower end with a galvanized or stainless steel shutter or plastic shutter or so constructed as to enable the chute to be closed when necessary.

RR - 22 VENTILATING PIPE FOR REFUSE CHUTE

RR - 22.1 Every refuse chute shall be provided at the top thereof with a ventilating pipe

RR - 22.2 Every such ventilating pipe shall:-

(c) Have an internal area of not less than 0.05 m^2; and
(d) Be carried up from the top of the refuse chute to a height above the roof of the building, of not less than 1.0 m.

RR - 22.3

(a) The end of every such ventilating pipe shall be provided with a grating or grille having apertures of an aggregate area not less than the sectional area of the pipe.
(b) The least dimension of every such aperture shall be not more than 10mm.

RR - 23 INSPECTION AND CLEANSING OF REFUSE CHUTE

RR - 23.1 Every refuse chute shall be provided, above the level of the highest hopper, with an access opening, not less than 225mm in diameter, for the inspection and cleansing of the chute.

RR - 23.2 Every such access opening shall be provided with a close fitting metal shutter.

RR - 24 CONSTRUCTION OF INTERNAL SURFACE OF REFUSE CHUTE

RR - 24.1 The internal surface of every refuse chute shall be smooth and impervious and shall be formed of or lined with glazed ware or other approved material.

RR - 24.2 Where such surfaces are formed of or lined with pipes, the pipes shall be jointed in:-

(i) Cement mortar in the proportion of one volume of cement to one volume of sand; or
(ii) Other approved material; and
(iii) Securely and solidly bedded into the walls of the chute.

RR - 25 SITUATION OF HOPPER

Every hopper shall be situated in a place permanently ventilated to the open air,

RR - 26 CONSTRUCTION OF HOPPER

RR - 26.1 The mouth of every hopper shall have a clear opening having dimensions not less than 250 x 150 mm and not more than 350 x 250 mm.

RR - 26.2 Every hopper shall be so constructed:-

(a) that it will remain only in a completely closed or completely open
(b) position and will not open of its own accord; and
(c) as to prevent the escape of dust or fumes both when it is closed and when it is open.

RR - 26.3 Every hopper and frame shall be so constructed as to prevent refuse becoming lodged therein.

RR - 26.4 Every hopper and frame shall be constructed of galvanised or stainless mild steel plate, of not less than 3 mm thickness, or other approved material.

RR - 26.5 The inner plate of every hopper shall project downward at an angle of not less than 45 degrees to the horizontal when the hopper is closed.

RR - 27 HOPPER RECESS

The recess into which any hopper is fitted shall be of a size adequate to house the frame and the moving parts of the hopper so that no part of the frame or hopper projects into the refuse chute.

RR - 28 JUNCTION OF HOPPER WITH REFUSE CHUTE

The junction of every hopper with the refuse chute shall be so made as to provide a continuous smooth and impervious surface.

RR - 29 REFUSE COLLECTION AND DISPOSAL

RR - 29.1 Every service provider shall, to the satisfaction of The Approving Authority, make sufficient provision for the collection, and safe disposal of refuse within its area of jurisdiction.

RR - 29.2 Where The Approving Authority is satisfied that the service provider:-

(a) Has failed to satisfactorily perform the functions of collection and disposal of refuse;
(b) Has made no provision for the collection and safe disposal of refuse,
(c) The Approving Authority may on application by a service provider, permit any such service providerto carry out the said function of collection and disposal of refuse, provided that, every such service providershall satisfy The Approving Authority that he has made sufficient provision for the collection and safe disposal of refuse.

RR - 29.3 Any person who wishes to dispose refuse within his premises shall apply to The Approving Authority for approval.

RR - 29.4 Any person who wishes to dispose refuse outside the boundary wall of his premises shall apply to The Approving Authority for a license.

RR - 30 OFFENCES AND PENALTIES

Any person who contravenes the provisions of these Regulations shall be guilty of an offence, and shall be liable on conviction to a fine not less than KShs 3,000,000.00 (Kenya Shillings three million only) or, twelve months imprisonment or, both.

SECTION S

FIRE SAFETY AND FIRE INSTALLATIONS

CONTENTS

SECTION S

FIRE SAFETY AND FIRE INSTALLATIONS

SS - 1 GENERAL REQUIREMENT

SS - 1.1 Any building shall be so designed constructed and equipped so that in case of fire:-

(a) The protection of occupants or users therein is ensured and that provision is made for the safe evacuation of such occupants or users;
(b) The spread and intensity of such fire within such building and the spread of fire to any other building will be minimised;
(c) Sufficient stability will be retained to ensure that such building will not endanger any other building: Provided that in the case of any multi-storey building no major failure of the structural system shall occur;
(d) The generation and spread of smoke will be minimised or controlled to the greatest extent reasonably practicable, and
(e) Adequate means of access and equipment for detecting, fighting, controlling and extinguishing such fire, is provided.

SS - 1.2 The requirements of sub-regulation SS1.1 shall be deemed to be satisfied where the design, construction and equipment of any building:-

(a) Is the subject of an acceptable rational design prepared by a qualified person or
(b) Complies with BS 9999:2008; Provided that where The Approving Authority is of the opinion that such compliance would not conform with all the requirements of sub regulation SS1.1, The Approving Authority shall, in writing notify the owner of the building of its reasons for its opinion and may require the owner to submit for approval a rational design as contemplated in this sub-regulation

SS - 2 OFFENCES

SS - 2.1 Any owner of any building who fails to:-

(a) Conform to the approved designs
(b) provide sufficient fire extinguishers to satisfy the requirements of sub regulation SS1.1 or who installs fire extinguishers that do not comply with the relevant KS ISO 7165:1999 of 1986 specification, or who fails to ensure that such fire extinguishers are installed, maintained and serviced in accordance with KS ISO 11601:1999 or
(c) Maintain any other provision made to satisfy the requirements of sub regulation SS1.1 shall be guilty of an offence.

SS - 2.2 Any person who causes or permits any escape route to be rendered less effective or to be obstructed in any way which may hinder or prevent the escape of any person from a building in the case of fire or any other emergency shall be guilty of an offence.

SS - 2.3 Any person occupying any building without a valid certificate of occupancy issued by the Approving Authority shall be guilty of an offence.

SS - 3 SAFETY DISTANCES

SS - 3.1 The external walls of any building shall be classified as one of the following types:-

(a) Type FR, which has a fire resistance equal to or more than that given in Table S1 for the occupancy in question;

(b) Type F, which has a fire resistance of less than that given in Table S1, but when tested in accordance with KS 02-566 of 1985 satisfies the requirements for stability and integrity for a period of not less than that given in Table S1 for the occupancy in question and such wall is constructed with non-combustible external cladding; or

(c) Type N, which has a fire resistance of less than that given in Table S1 for the occupancy in question and has:-

(i) Combustible external cladding; or

(ii) Non-combustible external cladding but such wall, when tested in accordance with KS 02-566 of 1985 has failed to satisfy the requirements for either stability or integrity, or both, for the period given in Table S1 for the occupancy in question.

Table S - 1: FIRE RESISTANCE OF EXTERNAL WALLS

Occupancy*	**Fire resistance (minutes)**
All occupancies except those mentioned below	30
B1,BB119, D1,E1,E2, E3, F1, F3, J2 and J3	60
J1	120

* refer to table A1

SS - 3.2 Where any external wall of a building is of Type FR and such wall does not contain any window or any other opening there shall be no restriction upon the safety distance for such wall.

SS - 3.3 Where any external wall of a building is of Type F and such wall does not contain any window or other opening, the safety distance required shall be not less than

the relevant figure given in column 2 of Table S2: Provided that:-

(a) for occupancy classified as J1, J2 or J3 the safety distance required shall be not less than the relevant figure given in columns 5, 4 or 3 respectively; and
(b) For any building classified H4, where the area of elevation facing any boundary is not more than 7.5 m^2, such safety distance may be reduced to 0.5 m.

SS - 3.4 Where any external wall of any building is of Type N or where any building provided with external walls containing windows or other openings, such building shall, subject to the requirements of sub-regulation SS4.10, be so sited that a circle of radius equal to the safety distance given in Table S2 for the window area and occupancy concerned, drawn from any point on any such window or other opening in such external wall shall not intersect any lateral boundary of the site; Provided that this requirement shall not apply in respect of:-

(a) any building contemplated in sub regulation SS4.6;
(b) any such wall which faces a public place, railway siding reserve or any open space secured by an approved servitude on an adjoining site;
(c) any such wall of a ground or basement storey facing a lateral boundary on which is erected a free-standing wall which:-
    (i) is constructed of non-combustible material;
    (ii) has a fire resistance of not less than that prescribed for such external wall;
    (iii) is equal in height to that of the basement or ground storey, as the case may be; and
    (iv) Extends at each end beyond any window or opening controlled by a distance of not less than the difference between the minimum safety distance given in Table S2 and the actual boundary distances.

Table S - 2: SAFETY DISTANCE (Metres)

Area of openings, sq.m in elevation	Less than 5	5	7.5	10	30	50	70	90	110	130	150	170	190	210	230	250	270	290	310	330	350	370	390	410	430	450	500 or more
Occupancy class Low fire toad in a division does not																											
Exceed 25kg/sq.M timber equivalent																											
A1 ; A2; A3; A4; A5;																											
B3;C2;D3;D4;E1;																											
E2;E3;G1;H1;H2;																											
H3; H4; J3; J4																											
	1.0	1.5	2.0	2.4	3.8	4.5	5.0	5.3	5.5	5.7	5.9	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	6.9	7.0	7.1	7.1	7.2	7.2	7.4
Moderate lire toad																											
where the fire toad in																											
a division is between																											
25kcj/sq.m. and																											
50kg/sq.m (timber																											
equivalent)																											
B2;C1;D2;F1;F2; F3;J2	1.5	2.0	2.2	2.5	4.6	5.5	6.0	6.4	6.7	7.0	7.2	7.4	7.5	7.7	7.8	8.0	8.1	8.2	8.3	8.4	8.5	8.5	8.6	8.7	8.8	8.8	9.0
High fire toad where																											
the fire toad in a																											
division exceeds																											
50kg/sq.m (timber																											
equivalent)																											
B1;D1; J1	2.0	2.7	3.5	3.7	6.2	7.3	8.0	8.6	9.0	9.3	9.6	9.9	10.1	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	12.0

Intermediate values from Column 3 to 28 may be interpolated.

The values contained in Column 4 to 28 approximate to those calculated using the following formulae:

Low fire Load: D = 2.75 x LogA	- Square Root of 1/A
Moderate fire load: D = 3.25 x Log (A - 3)	- Square Root of 1/A
High fire load: D = 2.25 x Log (A squared - 5)	- Square Root of 5/A

Where A = the total area of window or other openings on one elevation of the division
D = the safety distance

Figure S - 1: Safety distance

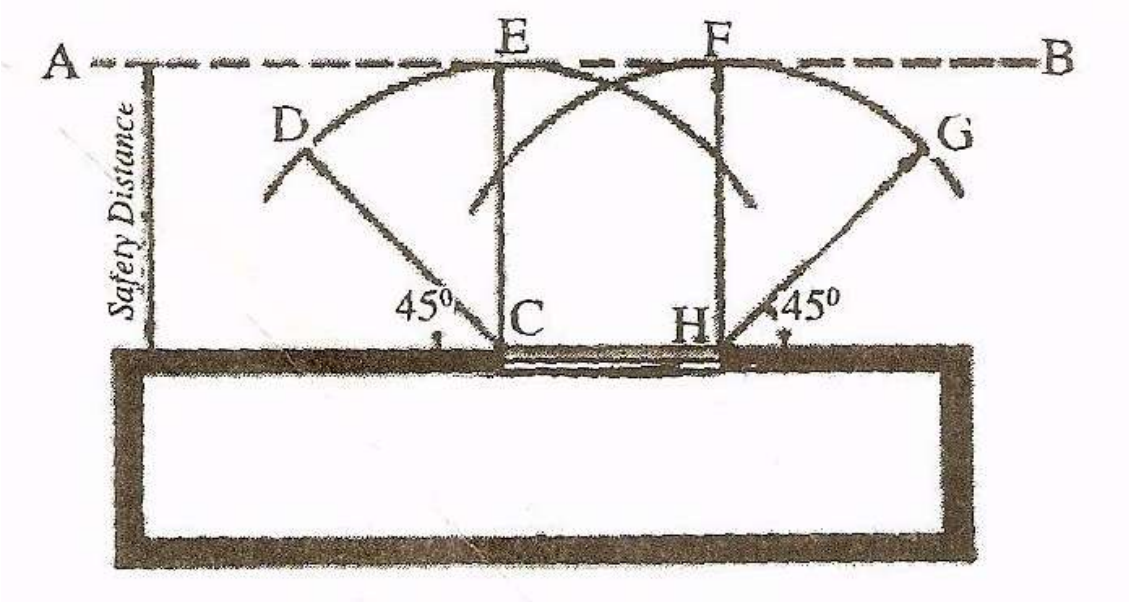


Figure S - 2: Safety distance

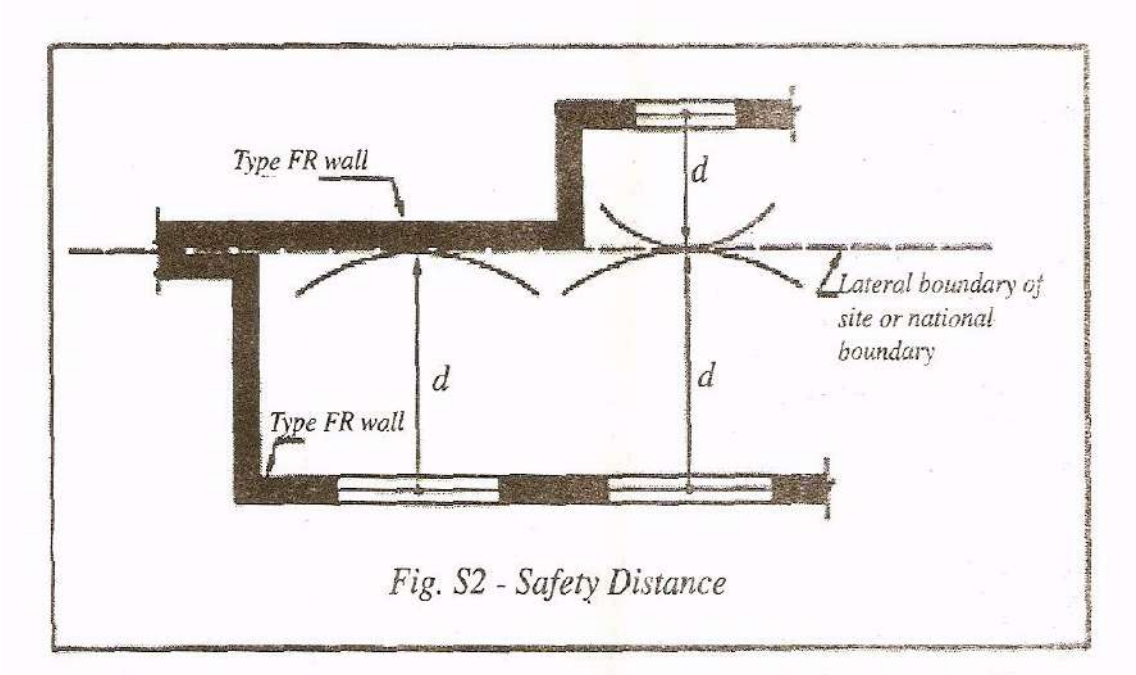


Fig. S2 - Safety Distance

Figure S - 3: Safety distance

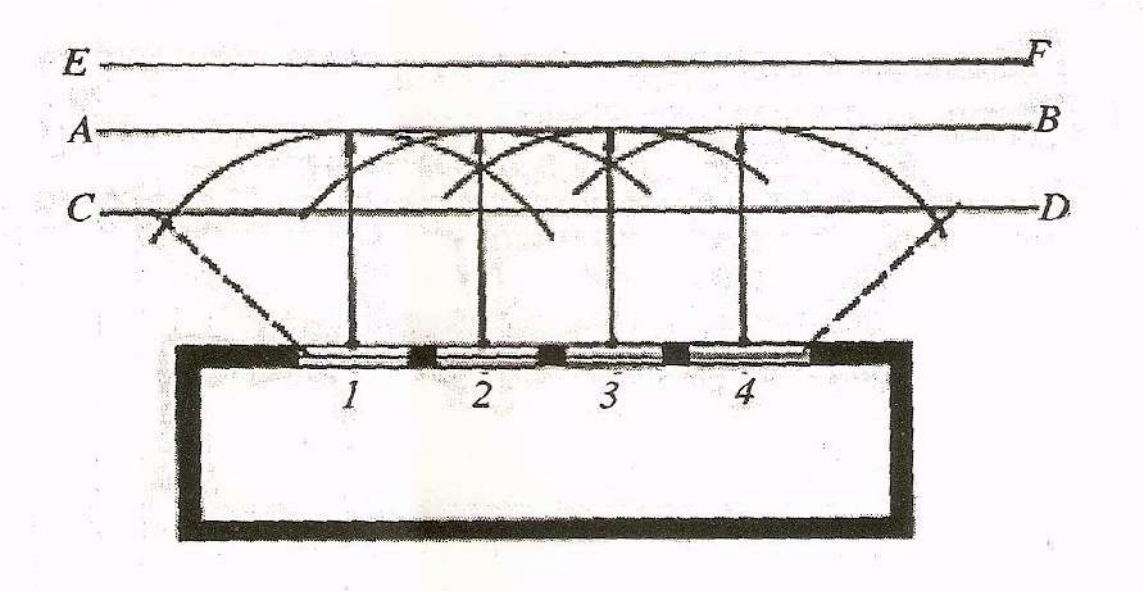


Figure S - 4: Safety distance

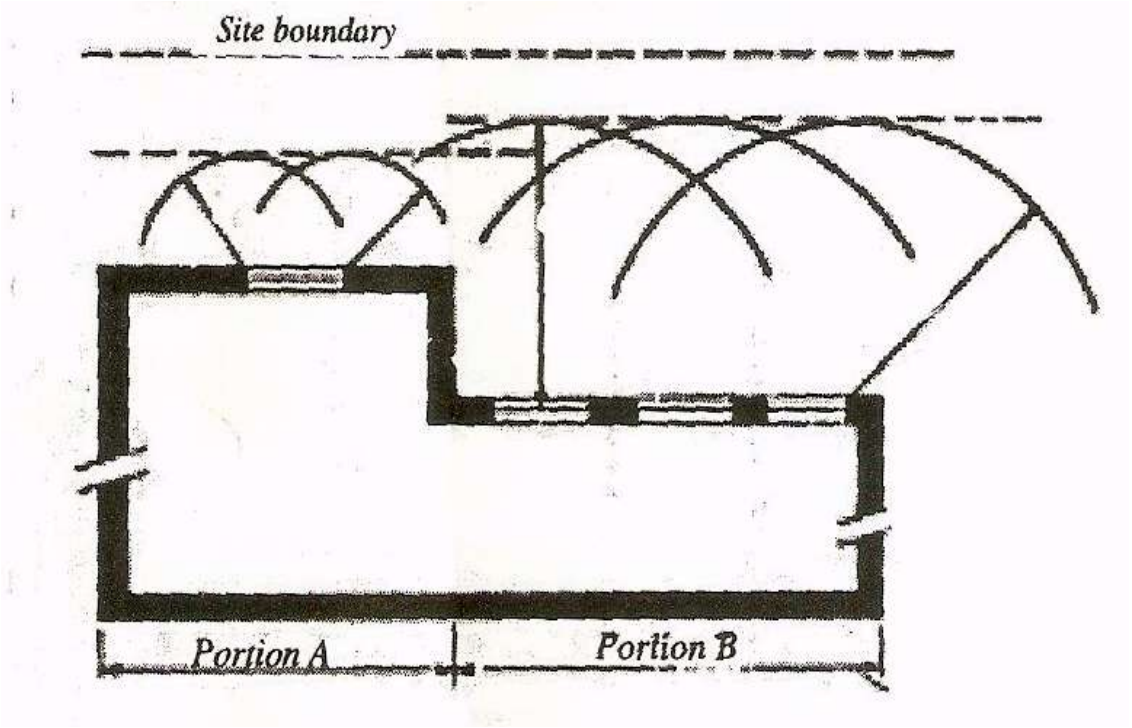
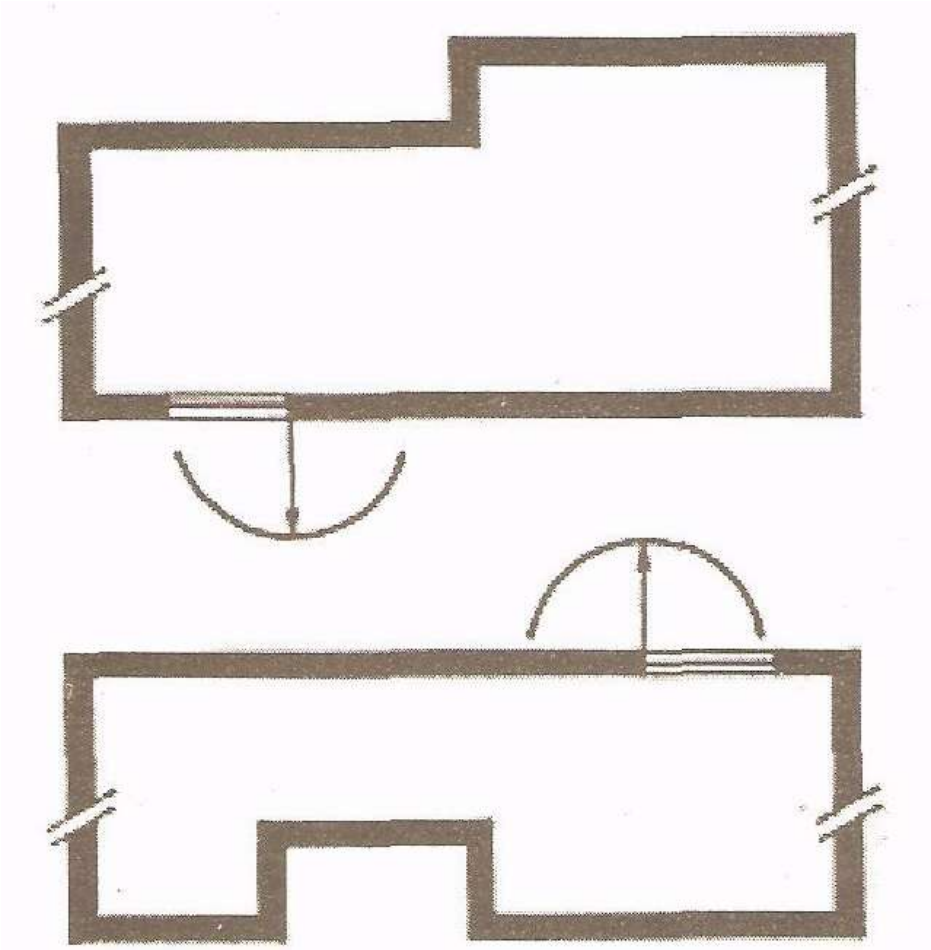


Figure S - 5: Safety distance



Circles drawn from windows do not intersect, therefore distance between buildings is acceptable.

Figure S - 6: Safety distance

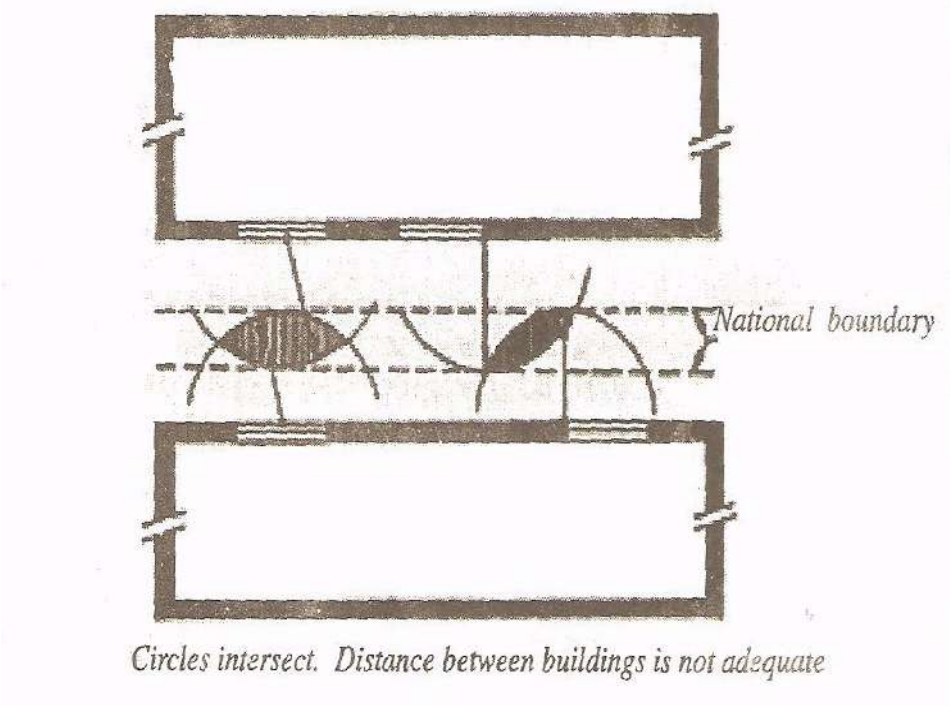


Figure S - 7: Safety distance

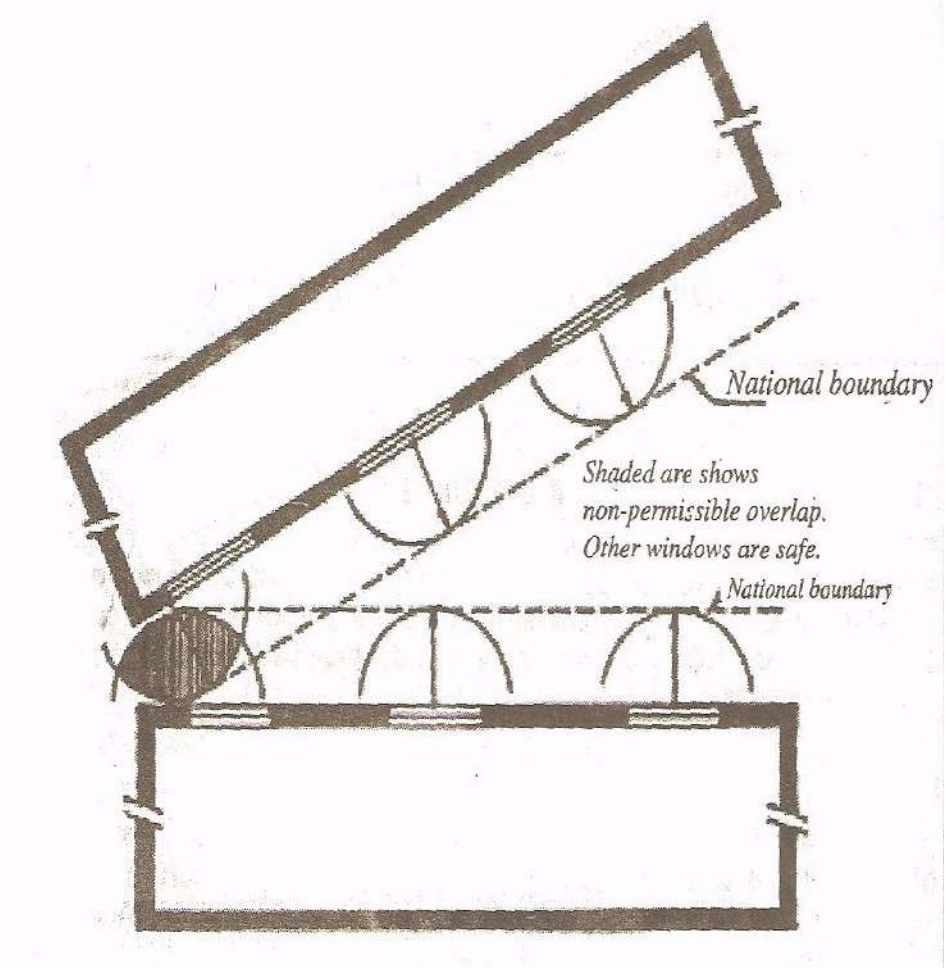
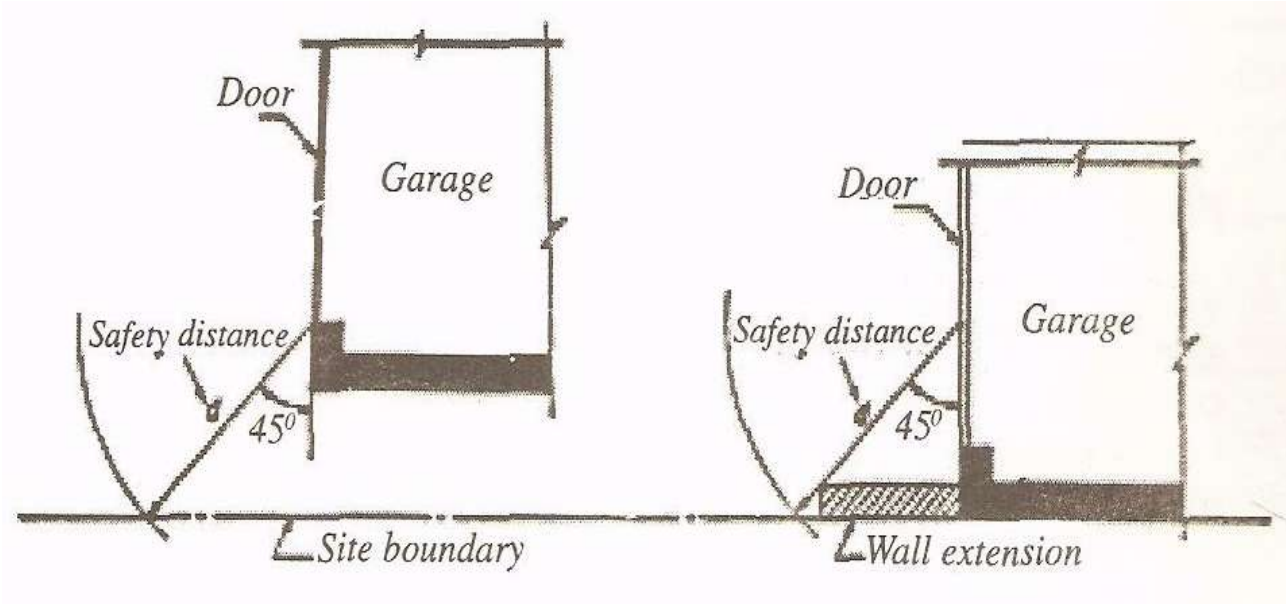


Figure S - 8: Protection of Opening in a garage



In Table S2 the terms "low fire load", "moderate fire load" are used. These refer in each case to the amount of combustible material available in a particular occupancy and thus imply the degree of intensity of any fire when fully developed and also the duration of any fire which might occur in the occupancy in question. They have nothing to do with the ease of starting a fire or the degree of danger due to smoke or poisonous fumes that would be implied by the terms low, moderate or high fire hazard.

In the definition of "fire load" the calorific values referred to can be taken from the relevant tables contained in recognized handbooks.

The unit fire load can be expressed in calorific values (MJ/sq.m.) or as timber equivalent (kg/sq.m.) The conversion factor from megajoules per square to kilograms per square metre is 0.056 and from kilograms per square metre to megajoules per square metre is 18.

SS - 3.5 Where there are two or more buildings on the same site, or where any building has two or more divisions and:-

(a) where any external wall of any such building or division does not contain any windows or other openings, the distance between such external wall and a notional boundary line between such buildings or divisions shall be not less than the relevant requirement for safety distance contained in sub regulation SS4.2 or SS4.3 as the case may be; and

(b) subject to the requirements of sub regulation SS4.10, where any external wall of such building or division is of Type N or contains windows or other openings, any circle of radius equal to the safety distance given in Table S2 for the occupancy concerned, drawn from any point on any window or opening in the external wall of one such building or division, shall not intersect any circle of radius equal to the safety distance given in Table S2

for the occupancy concerned in the external wall of such other building or division, drawn from any point in any window or opening in the external wall of such other building or division: Provided that the intersection of such-circles shall be permitted where :-

(i) the included angle between such walls is more than 135 degrees or
(ii) the included angle between such walls is more than 90 degrees and the distance between the nearest points on such windows or openings is more than 2m

SS - 3.6 Any building classified as H4 and having:-

(i) a plan area of not more than 80 m^2;
(ii) an area of any elevation facing a lateral boundary of not more than 25m^2; and
(iii) windows or other openings in such elevation;
shall be so situated that the distance between such elevation and such boundary shall be not less than 1m:

Provided that, for any building classified H4, where the area of elevation facing such boundary is not more than 7.5 m2, such boundary distance may be reduced to 0.5 m.

SS - 3.7 Notwithstanding the requirements contained in sub regulation SS4.1, any structural external wall shall when tested in accordance with KS 02-566 of 1985 satisfy the requirement for stability for a period not less than that required under Regulation SS8

SS - 3.8 Without prejudice to the foregoing requirements where any division or any building is equipped with a sprinkler system the minimum safety distances given in Table S2 may be reduced to half the distances so given:

Provided that in no case shall such reduced distance be less than 1 m.

SS - 3.9 The requirements contained in this regulation shall not apply;-

(a) to any parking shelter for vehicles where such shelter has no walls or has non-combustible walls and non-combustible roof covering;
(b) to any carport on the same site as any building classified H4.

SS - 3.10

(a) Where any building is not divided into divisions the requirements contained in this sub-regulation shall apply with the necessary changes having been carried out to the whole of the particular elevation of the building.
(b) The area of any window or opening or the sum of the areas of all windows or openings, as the case may be, in that portion of the elevation of the building between division floors and between division walls shall be calculated: Provided that:-
(i) where portions of such elevation are at different distances from the boundary, another division of the same building or from another building, each such portion and the area of window or opening contained therein may be separately considered;

(ii) no window or other opening or portion of such window or opening in any external wall of any building shall be taken into consideration in the calculation of the total area of windows or openings where the included angle between such wall and any boundary of the site, any external wall of any other division of the same building or any external wall of any other building on the same site is more than 30 degrees, and such window, opening or portion thereof is situated more than 3m from such boundary, other division or other building;

(iii) where any building has external walls of Type N, the total elevation area of such walls shall be construed as being a window or opening for the purposes of this regulation;

(iv) where any garage on the same site as any building classified H4 is situated close to any lateral boundary of the site and in such a way that the doorway is at an angle of approximately 90 degrees to such boundary:-

(aa) any circle of radius equal to the safety distance required for an occupancy classified H4 and drawn from a centre located in the plane of the garage door at a point nearest to such boundary shall intersect a cut-off line drawn from the same point and at an angle of 45 degrees to the plane of such door, at a position on or within such boundary; or

(bb) The side wall of such garage may be extended and the centre of such circle located at any point in the plane of the door that will enable such circle and the related cut-off line to intersect on or within such boundary:

Provided that such wall extension shall be of a height not less than that of such door and of a length that will ensure that such cut-off line will simultaneously intersect the extension of such wall and such circle within the boundary.

Commentary:

Radiant heat from a fire can cause the spread of fire from one building to another and this danger can be reduced by the provision of sufficient distance between buildings. It should be noted, however, that the term "safety distance" is in all cases related to a single building and its distance from some boundary. The distance required between buildings is always the sum of two such "safety distances" although one or both such distances could be zero.

The degree to which fire in any building is a danger to. any other building is influenced by the behaviour of the external walls and whether or not they contain windows or other openings. The Regulations make provision for three classes of walls. Type FR does not limit the exterior cladding and either combustible or non-combustible cladding could be used. The fact that this type of wall, has the required fire resistance is sufficient to ensure that, provided such walls contain no openings, radiant heat from a fire in any building having such walls will not present a danger to any other building provided such walls also contain no openings and that a fire will be contained for long enough to enable any necessary action to be taken.

A Type F wall does not have full fire resistance but because the requirements for stability and integrity are satisfied and only non-combustible cladding is allowed any fire will be contained for long enough to enable the same safety distances that would be required for a Type FR wall to be safely used under most circumstances. The fact that insulation requirements are not met could mean that radiant heat effects are somewhat greater than would be expected from a Type FR wall but this is not generally regarded as significant in terms of safety distance, except insofar as there are limitations placed on the minimum distance permitted between a Type F wall with no windows or other openings and a lateral boundary or another division or building.

For the purposes of these regulations a Type N wall is regarded as providing no protection against the spread of fire to any other building. In terms of safety distance this type of wall must therefore be regarded as the equivalent of a window or an opening. When a fire occurs in a building radiant heat is emitted through windows or other openings and, similarly, enters buildings mainly through windows or openings. The distance between two walls both having the required fire resistance and no openings is therefore not restricted in any way.

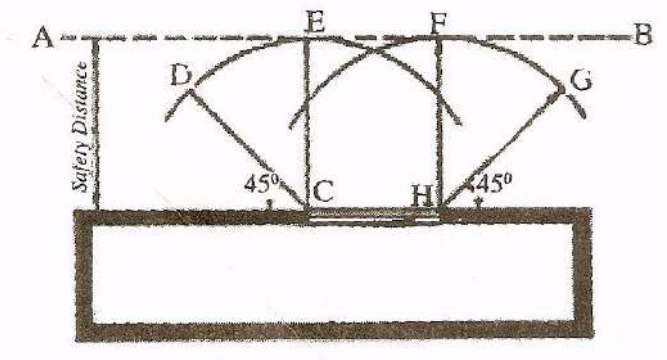
The introduction of openings of any kind, or the use of Type F or Type N walls, will lead to an increase of radiant heat outside any burning building and, in adjacent buildings, to an increased danger of ignition of the contents of such buildings. The danger of spread of fire to other buildings is thus enhanced. The safety distances given in Table S2 are calculated on the basis that at the relevant distance any wall having the required fire resistance, and containing no openings, can withstand the effects of radiant heat. At this distance, however, the degree of radiant heat will still be sufficient to constitute a danger to an adjacent building if it is able to penetrate such building through windows or other openings

In relation to the lateral boundaries of a site this means that a safety distance, as given in Table S2. must be allowed between any building and such boundaries since a building (with Type FR wall) could be permitted on the boundary of the adjoining site. Where two buildings on the same site are involved each building requires its own safety distance from a notional "boundary" line between them. This distance may be zero for either building where the building has Type FR walls with no openings. However, where either or both buildings have openings or Type F or Type N walls a danger due to radiant heat may occur. Hence, one or both buildings, as the case may be, will require a safety distance from such notional line between the two buildings.

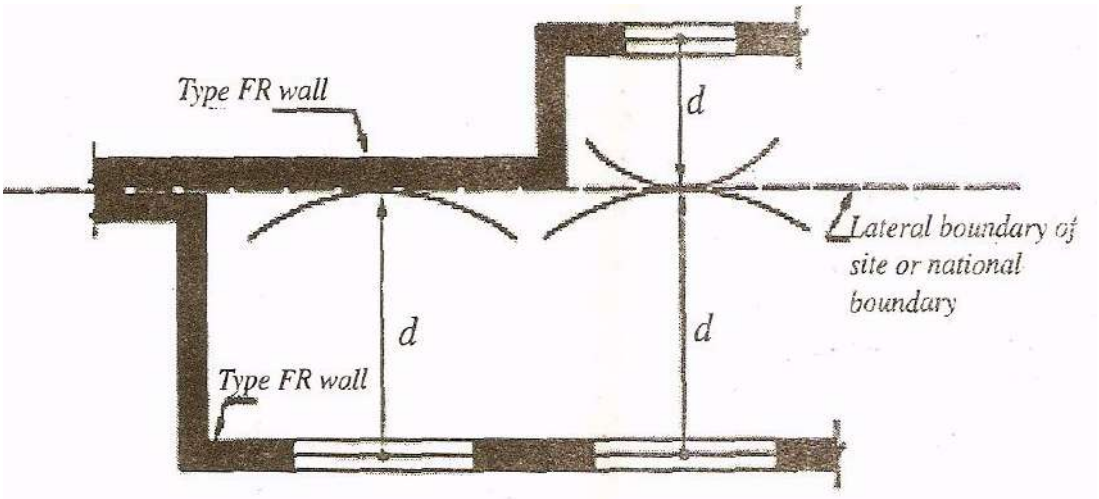
Danger due to the effects of radiant heat will occur within some zone outside any window or other opening. This zone can be assumed to be bounded by cut-off lines at approximately 45° to the wall, extending out from such wall to a "safety distance " where the degree of heat no longer constitutes a threat to any other building provided such building has Type FR walls with no openings. Radiant heat diminishes in approximately inverse ratio to the square of the distance from the source and the safety distances given in Table S2 in this part of the Regulation are calculated on this basis. The danger zone, shown in Figure S1, would thus be an area designated by points C, D, E, F,G and H where:-

CE = safety distance = HF.

The danger caused by radiant heat entering a building through windows or other openings can be assumed to occur in a similar zone, calculated in terms of the safety distance required for the occupancy concerned.

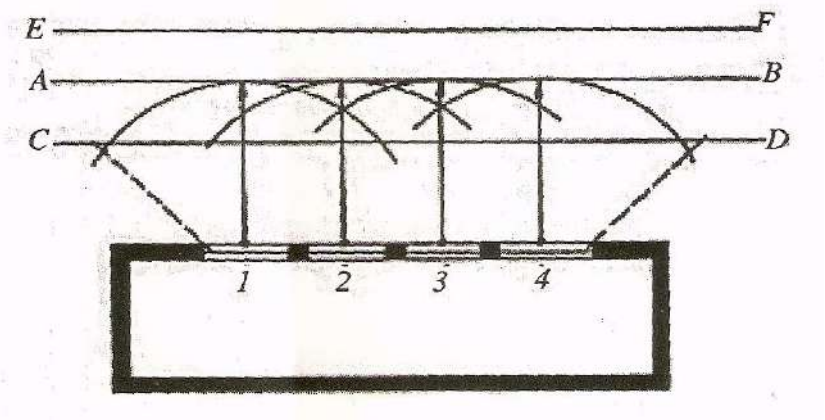


In the case where there is, on the same site, a second building with window opposite or nearly opposite those in the first building, any danger zone related to the one building would be assumed to extend to a notional boundary situated at a distance equal to the required safety distance from that building and another similar zone would exist between the second building and some notional boundary situated at an appropriate safety distance from the second building (see Figures S6 and S7). Where the two buildings are parallel to one another it may be possible to locate the buildings (or parts of the buildings) and position the windows in each building in such a way that the two notional boundaries coincide in a single line as shown in Figure S2. This would represent the minimum spacing between the two buildings. It should be noted that this notional boundary is not necessarily a straight line as its position will depend upon, the relative position of windows in the two buildings.

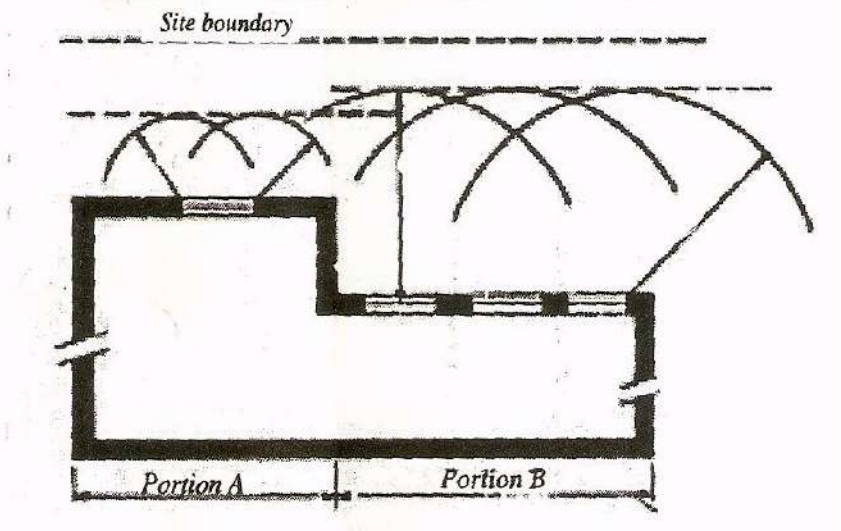


In order to determine from a plan whether the layout of buildings and the safety distance provided are satisfactory the following procedure should be adopted. From Table S2 in this part of the code read off the safety distance required for the type of occupancy and the window area of the building in question. Bear in mind that the figures in Table S2 may be modified in terms of sub-regulation SS4.6, SS4.8 and SS4.10. Using this distance as a radius, draw a sector of a circle from any point on a window such as 1 in the building shown in Figure S3.Repeat for other windows such as. 2,3 and 4. Draw the line AB which is tangent to these circles. Bear in mind that the danger area

is bounded by lines at 45° to the plane of the wall, as shown in Figure S1. The regulations will be satisfied If no boundary line or wall of any other building lies in the zone between line AB and the building shown. In Figure S3, therefore, the wall of any building or any boundary positioned on line EF would be acceptable but the wall of any building or any boundary on line CD would not. Note that where line EF represents the wall of another building the required minimum distance between lines AB and EF would be determined by the type of wall used in such building and the size of any openings in the wall

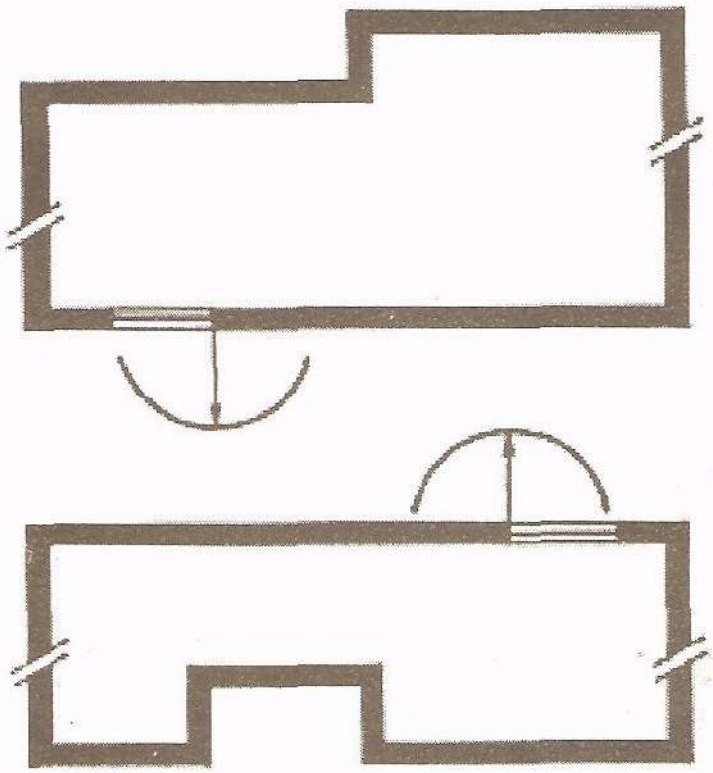


In the building illustrated in Figure S4 the two portions of the building may be considered separately for safety distance. The example given is acceptable in terms of distance from the boundary. Safety distance from portion B of the building would control the siting of the building in relation to the boundary even though B is further than A from the boundary

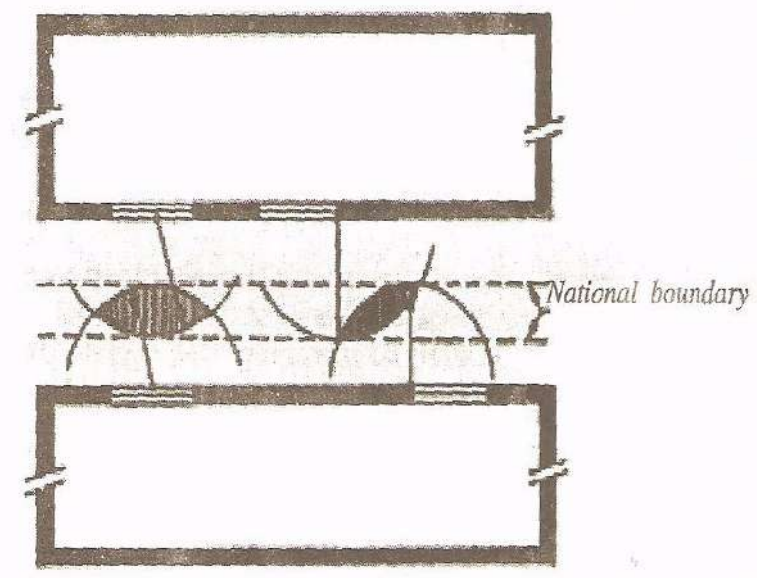


The figures that follow illustrate certain common situations but it is not possible to illustrate all cases which might occur. In general it may be said that as long as no possible circle of radius equal to the required safety distance, drawn from any point on any window or other opening, intersects any boundary, wall of a building or any circle drawn from any opening in another building or in another division of the same building, the layout is acceptable. Although the figures illustrate the general rule it must not be forgotten that this is qualified by the provisions of sub-regulation SS4.5 which allows certain exemptions from the rule subject to the limiting values given for the distance between windows and the included angle between such walls.

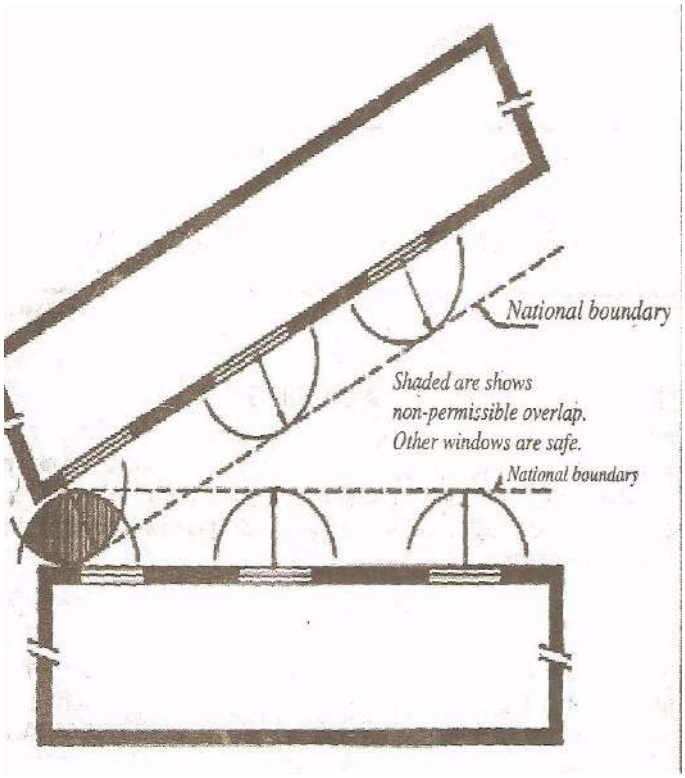
For two buildings both having windows, draw sectors of circles of the required radius from the windows in facing walls as shown in Figures S5, S6 and S7. None of the circles drawn from one building may intersect any circle drawn from the other.
Note that in many cases it will not be necessary to actually draw circles as the result will be obvious.



Circles drawn from windows do not intersect, therefore distance between buildings is acceptable.



Circles intersect. Distance between buildings is not adequate



Where a garage on the same site as a building classified H4 is situated very close to a lateral boundary of the site any fire in such garage may give rise to some danger due to radiant heat from the door opening. It should be noted, however, that in terms of sub-regulation SS4. 10(b)(ii) the area of the opening to be considered is rarely likely to be more than about 5 m² .In order to test whether the distance to the boundary is adequate the usual method of drawing a circle (of radius equal to the required safety distance) from a point on the side of the door nearest to the boundary should be applied. If the garage is found to be too close to the boundary the necessary protection may be obtained by extending the side wall as shown in Figure S8. The required length of extension maybe determined by adjusting the position of the centre of the circle so that the 45° line intersects the arc of the circle on the boundary line and touches the end of the wall.

Garages in any domestic occupancy represent a low fire load and it is therefore regarded as reasonable to treat any garage which is a component of an H3 occupancy in the same way as one on the site of an H4 occupancy provided that such garage is not large enough- to fall within the description of a parking garage (occupancy J4). Garages attached to individual dwelling units in a town-house complex should thus be considered as if each dwelling unit was an H4 occupancy.

SS - 4 DIFFERENT OCCUPANCIES IN A BUILDING

In any building there shall be permitted an area of:-

(a) not more than 100 m² of an occupancy classified J1 or not more than 300m² of an occupancy classified J2 or J3, within any other occupancy;

(b) not more than 100 m² of an occupancy not classified J1, within an occupancy so classified.

SS - 5 DIVISION AREA

SS - 5.1 Any building shall be divided into divisions of an area not more than that given in column 2, 3 or 4 of Table S3, as the case may be, and such divisions shall be separated effectively from each other by division separating elements: Provided that:-

(a) where an occupancy classified J1, used for the storage of flammable liquids, forms part of any building, such part shall be a separate division and the area of such division shall be not more than 100m^2

(b) Where storage of goods is to a height of more than 3 m in any occupancy classified J1 or J2, an approved fixed installation of automatic fire extinguishment shall be provided

Table S - 3: MAXIMUM DIVISION AREA, m^2

1	2	3	4
Occupancy	No fixed automatic fire extinguishment installation	With fixed automatic fire extinguishment installation	
		1 storey	2 storeys and over
*E1,*E2, 'E3	1250	1 250	1 250
A2, B2,BB3,C1,C2, G1	5000	No limit	10 000
A4, A5, D3, J3, J4	No limit	No limit	No limit
All other occupancies	2500	No limit	5 000

*Maximum division area on any storey and all such divisions shall be interconnected.

SS - 6 FIRE PERFORMANCE: GENERAL

SS - 6.1 Where any element or component of a building is required to have a particular fire resistance such requirement shall, in respect of the materials or method of construction of such element or component, be deemed to have been satisfied where:-

(a) such materials or methods are in accordance with the particulars set out in the Tables S11, S12, S13, S14, and S15 contained in regulation SS59;

(b) a representative specimen of such element or component has been shown to have the required fire resistance when tested by the Kenya Bureau of Standards; or

(c) an assessment, in writing, of such element or component has been made by The Approving Authority or the Kenya Bureau of Standards and such element or component has been found suitable for the particular purpose.

SS - 6.2 Where non-combustibility of any element or component is required in terms of these regulations such requirement shall be deemed to be satisfied where:-

(a) Such element or component is proved to be made only of the relevant material contemplated in Regulation SS59;
(b) When tested by the Kenya Bureau of Standards a representative specimen of such element or component has been shown to be non-combustible; or
(c) an assessment, in writing, of such element or component has been made by The Approving Authority or the Kenya Bureau of Standards and such element or component has been found to be suitable for the particular intended purpose.

SS - 6.3 In any building not being a building classified H4, any architectural or decorative feature may be constructed of combustible material where such material has been the subject of a favourable evaluation by The Approving Authority or the Kenya Bureau of Standards.

SS - 7 FIRE RESISTANCE OF OCCUPANCY AND DIVISION SEPARATING ELEMENTS

SS - 7.1 Any portion of a building having an occupancy in any one of the groups of occupancies (a) to (g) contemplated below shall, subject to the requirements contained in Regulation SS5, be separated by means of an occupancy separating element from any portion of such building used for an occupancy in any other of such groups of occupancies:

(a) A1,A2,A3,A4, C1,C2
(b) A5
(c) B1 ,D1
(d) B2,B3, D2, D3, D4, F1, F2, F3, G1, J2, J3, J4
(e) E1 ,E2, E3
(f) H1, H2, H3
(g) J1

SS - 7.2

(a) Where any occupancy separating element is required in terms of sub-regulation SS8.1 such occupancy separating element shall have a fire resistance not less than that given in Column 2 of Table S4
(b) Where, in terms of Regulation SS6, a division separating element is required, such division separating element shall have a fire resistance of not less than the relevant figure given in column 2 of Table S4.

Table S - 4: FIRE RESISTANCE OF OCCUPANCY AND DIVISION SEPARATING ELEMENTS

1	2
Occupancy	Fire resistance, minutes
All occupancies other than those referred to below	60
B1,C1,D1,E1,E2, E3, F1,F3,J1	120

SS - 8 FIRE STABILITY OF STRUCTURAL ELEMENTS OR COMPONENTS

(a) Any structural element or component directly supporting a separating element contemplated in Regulation SS8 shall, when tested in accordance with KS 02-566 : 1985 satisfy the requirement for stability for a period not less than that required for fire resistance of such separating element.

(b) Any other structural element or component (not being a component forming part of a roof assembly) which is located in an occupancy given in column 1 of Table S5 shall, when tested in accordance with KS 02-566: 1985 satisfy the requirement for stability for a period not less than that given in columns 3 to 7 for the height of the building so given.

(c) The structural elements or components used in any basement which is not naturally ventilated shall comply with the requirements contained in column 7 of Table S5.

(d) For the purposes of this regulation any basement which is naturally ventilated shall be construed as being an additional storey to the building concerned and any structural elements or components used in such basement shall comply with the requirements contained in columns 3 to 6, as the case may be, of Table S5.

(e) No unprotected steel shall be permitted in the structure in any basement.

(f) Notwithstanding the requirements contained in sub-regulation SS9(b) it shall be permissible for structural components to be of:-

(i) unprotected steel:-

(aa) In any single storey building;

(bb) in any double storey building where the occupancy is classified A3, A4, A5, B2, B3, C2, D2, D3, D4, G1, H4, J2, J3orJ4;

(cc) in the top storey of any building where the floor of such top storey is a concrete slab and such building does not exceed 15 m in height and is of an occupancy classified B3, D3, D4, G1, J3 orJ4;

(ii) timber construction complying with BS 5268 : Part 4 : 1978 and 1989 that has a fire resistance of not less than 30 minutes where the occupancy of the building is classified G1, H3 or H4: Provided that in the case of any such occupancy the timber construction shall not exceed two storeys in height.

(g) Any perforated floor type or any mezzanine floor less than 100m^2 in area shall not be considered to be a structural element or component.

Table S - 5: STABILITY OF STRUCTURAL ELEMENTS OR COMPONENT

Occupancy		**Stability, minutes**				
	Class of occupancy	Single storey building	Double storey building	3 -10 storey building	11 storey building and over	Basement in any building
Entertainment and public assembly	A1	30	60	120	120	120
Theatrical and indoor sport	A 2,	30	60	120	120	120
Places of instruction	A3,	30	30	90	120	120
Worship	A4,	30	60	90	120	120
Outdoor sport	A5	30	30	60	90	
High risk commercial service	B1	60	60	120	180	120
Moderate risk commercial service	B2	30	60	120	120	120
Low risk commercial service	B3	30	30	90	120	120
Exhibition hall	C1	60	90	120	120	120
Museum	C2	30	60	90	120	120
High risk industrial	D1	60	90	120	180	240
Moderate risk industrial	D2	30	60	90	120	180
Low risk industrial	D3	30	30	60	120	120
Plant room	D4	30	30	60	90	120
Places of detention	E1	60	60	90	120	120
Hospital	E2	60	90	120	180	120
Other institutional (residential)	E3	60	60	120	180	120
large shop	F1	60	90	120	180	120
Small shop	F2	30	60	120	180	120
Wholesalers' store	F3	30	90	120	120	120
Offices	G1	30	30	60	120	120

Hotel	H1	30		90	1 20	120
Dormitory	H2	30	60 30	90	120	120
Domestic residence	H3	30	30 30	90	120	120
Detached dwelling house	H4	30		90	N/A	120
High risk storage	J1	60	90	120	1 80	240
Moderate risk storage	J2	30	60	90	120	180
Low risk storage	J3	30	30	90	90	120
Parking garage	J4	30	30	60	90	120

NOTE: NA= Not applicable

Commentary:

The use of unprotected steel in the structural system of all single storey and certain double storey buildings is permitted in spite of the fact that in many cases such structural members would not comply with the requirements of Table S5. The practice is regarded as safe for all practical cases that are likely to occur in single storey construction but the possible consequences of early distortion or collapse should be considered in the design of two storey buildings in order to be certain that escape routes will be able to serve the purpose for the required period. Particular care needs to be exercised where thin sections are used or in "space-frame" type structures

A further problem arises in the application of Regulation SS4 Distortion or collapse of any structural member must not cause loss of integrity or stability in any external wall facing a site boundary or another building as this might lead to non-compliance with the safety distance requirement. Where such a situation occurs it would be necessary either to protect the steel to the extent required to attain the stability given in Table S5 or to regard such wall as being of type N for the purposes of Regulation SS4

SS - 9 TENANCY SEPARATING ELEMENTS

Any separating element between tenancies where the occupancy is classified H1, H2 or H3 shall have a fire resistance of not less than 30 minutes.

SS - 10 PARTITION WALLS AND PARTITIONS

SS - 10.1 Any partition wall in any occupancy classified E1, E2 or E3 shall have a fire resistance of not less than 60 minutes and any such wall in any occupancy classified G1, H2, H3 or H4 shall have a fire resistance of not less than 20 minutes.

SS - 10.2 In any building classified H3 or H4:-

(a) any wall between any garage and any habitable room shall have the same fire resistance as that specified for the internal walls of such building;
(b) any door between such garage and such room shall be a solid timber or solid timber core door not less than 40 mm in thickness; and
(c) any roof space shall be divided by the vertical extension of such wall to the underside of the roof covering.

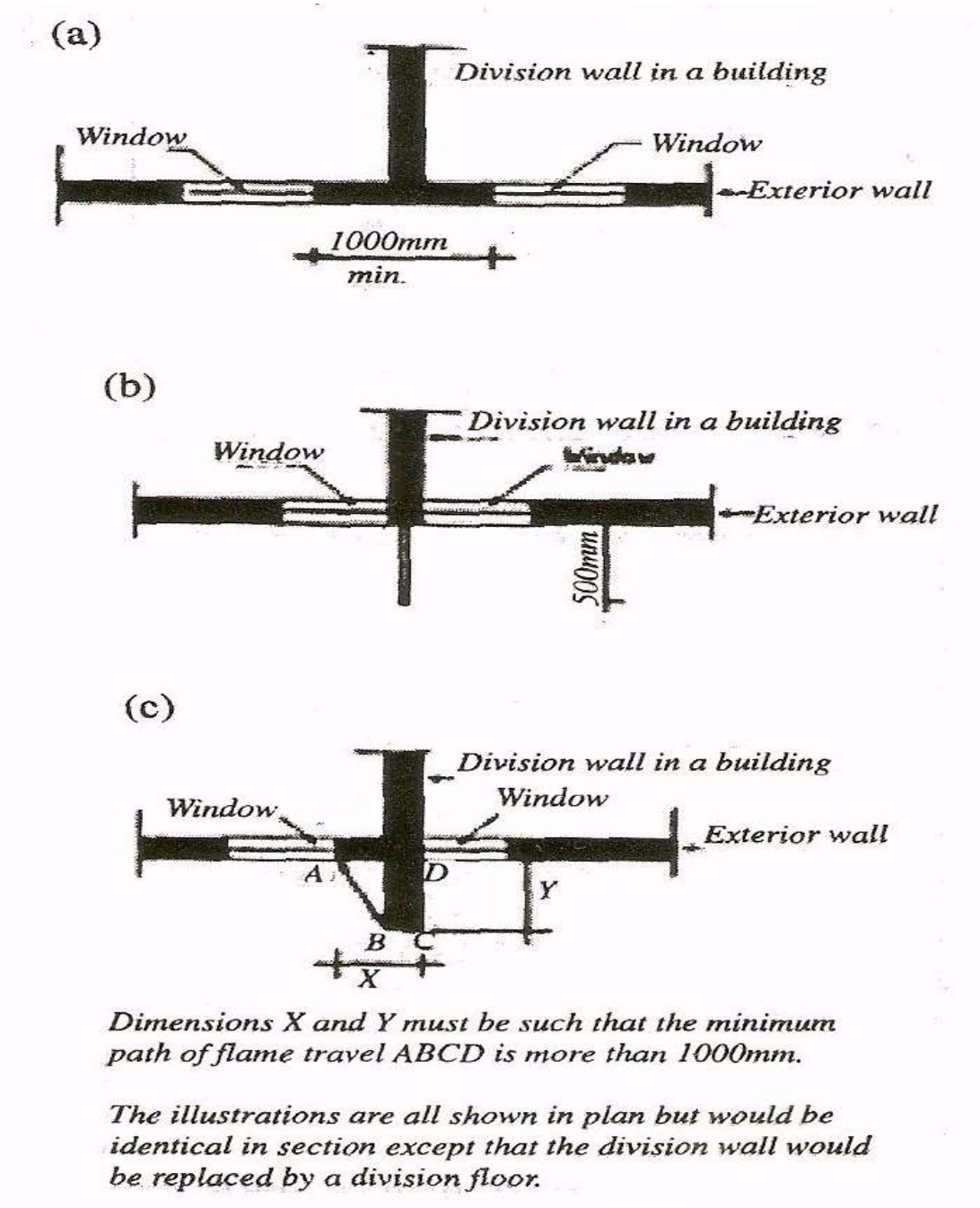
SS - 10.3 Any partition walls or partitions erected on any storey above the third storey of any building shall be non-combustible or shall not contribute a fire load of more than 5 kg/m^2 of floor area in a division.

SS - 11 PROTECTION OF OPENINGS

SS - 11.1 Where an opening in any external wall of any division is less than 1 m measured horizontally or vertically from an opening in another division, a 500 mm projection from such wall shall be constructed between such openings and such

projection shall have a fire resistance of not less than half that required for the element separating the divisions concerned, provided that any other equivalent means of fire protection which ensures that the flame travel path from one opening to another is not less than 1 m shall be permitted.

Figure S - 9: Protection of Openings



Note: Figure S9(a) and(b) illustrate the requirement of sub-regulation SS12.1 and Figure S9(c) represents a possible alternative arrangement. In the examples shown, any flame travelling from one window to the other would have to travel along some path whose shortest length would be at least 1m. The windows are shown in plan but similar forms of construction could be used in the vertical plane.

SS - 11.2 Where there is an opening in any wall required to have a fire resistance of 60 minutes or more such opening shall be provided with a fire door or fire shutter of the class given in column 3 of Table S6; Provided that this requirement shall not apply:-

(a) to any opening for the entrance to a lift;
(b) where such opening, not being an opening contemplated sub-regulation SS29.2, gives access to a safe area outside the building; or
(c) in the case of any service shaft that is fire stopped at every floor level

Table S - 6: CLASSES OF FIRE DOORS OR FIRE SHUTTERS

Type of wall	Required minimum fire resistance of wall, minutes	Class of fire door or fire shutter
Occupancy separation	60	A
	120	B
Divisional separation	60	A
	120	D (or two C doors with approval)
Emergency route	120	B

SS - 11.3 Any fire door or fire shutter shall satisfy the requirements contained in the KS 02-568:1985.

SS - 11.4 Any fire door or fire shutter shall be fitted with an approved self-closing or automatic closing device.

SS - 11.5 Any fire door which is required to have a specific fire resistance may be replaced by two separate fire doors which shall be positioned apart not less than 1.5 times the width of any leaf of such door: Provided that the sum of the fire resistance of such separate doors shall not be less than the fire resistance required for the first-mentioned door.

SS - 11.6 Any hinged fire doors installed in terms of sub-regulation SS12.5 shall open in the same direction and be hinged on the same side.

SS - 12 RAISED ACCESS AND SUSPENDED FLOORS OF COMBUSTIBLE MATERIAL

SS - 12.1 Except in the case of any building classified H3 or G1 which does not exceed 2 storeys in height or in the case of any building classified H4, no suspended floor, not being a mezzanine floor, shall be permitted to be of combustible material unless such floor has ground directly below it or is not more than 50 mm above a non-combustible slab:

Provided that where the elements used for the construction of an access floor have been approved for such use by The Approving Authority such access floor shall be permitted.

SS - 12.2

(a) The void under an access floor shall not be connected to any space in another division unless such connecting opening is protected with a fire door, fire shutter or fire damper having the same fire resistance as the division separating element.

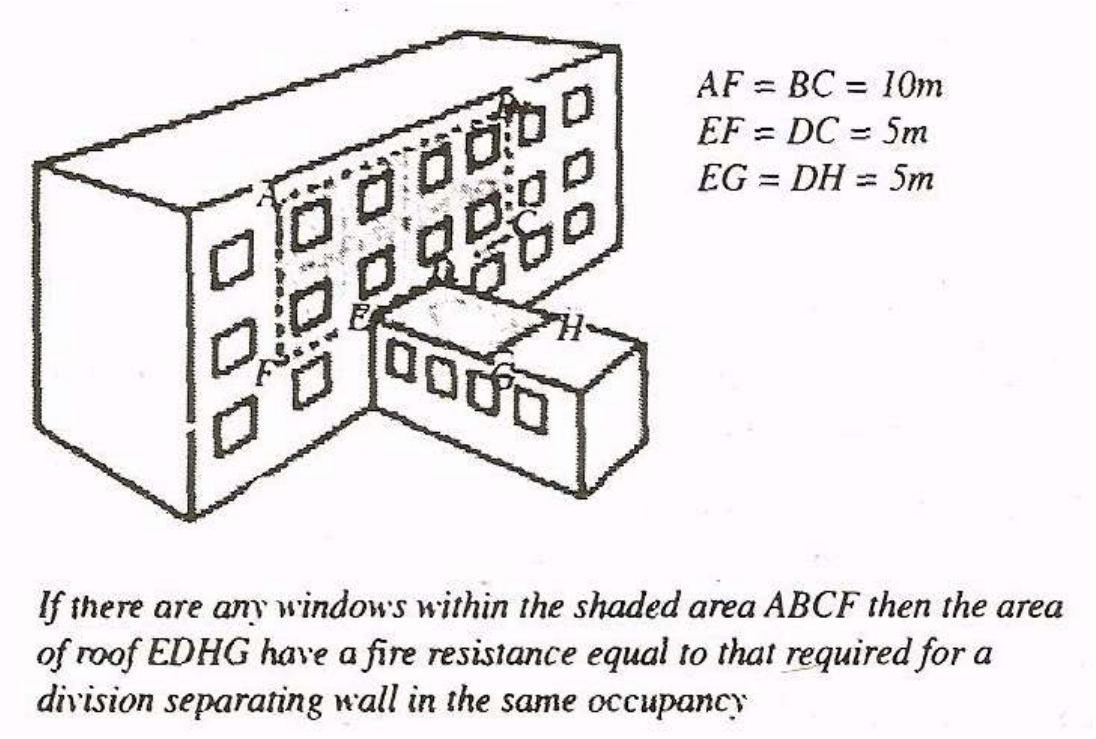
(b) Any void below a raised access floor shall be divided by fire stops into areas of not more than 300 m^2 or shall be protected by a fixed automatic fire-fighting system.

(c) Any such void used as an artificial ventilation plenum shall comply with the requirements contained in sub- regulation SS45.5

SS - 13 ROOF ASSEMBLIES AND COVERINGS

SS - 13.1 Where a roof of any part of a building meets any wall of a higher part of such building and such wall has any openings in any position within 10m above and 5m to either side of such roof, such roof shall, for a distance of not less than 5m from such wall, have the fire resistance required for a division separating wall for the occupancy in question. See figure S10.

Figure S - 10: Fire Resistance of Roof



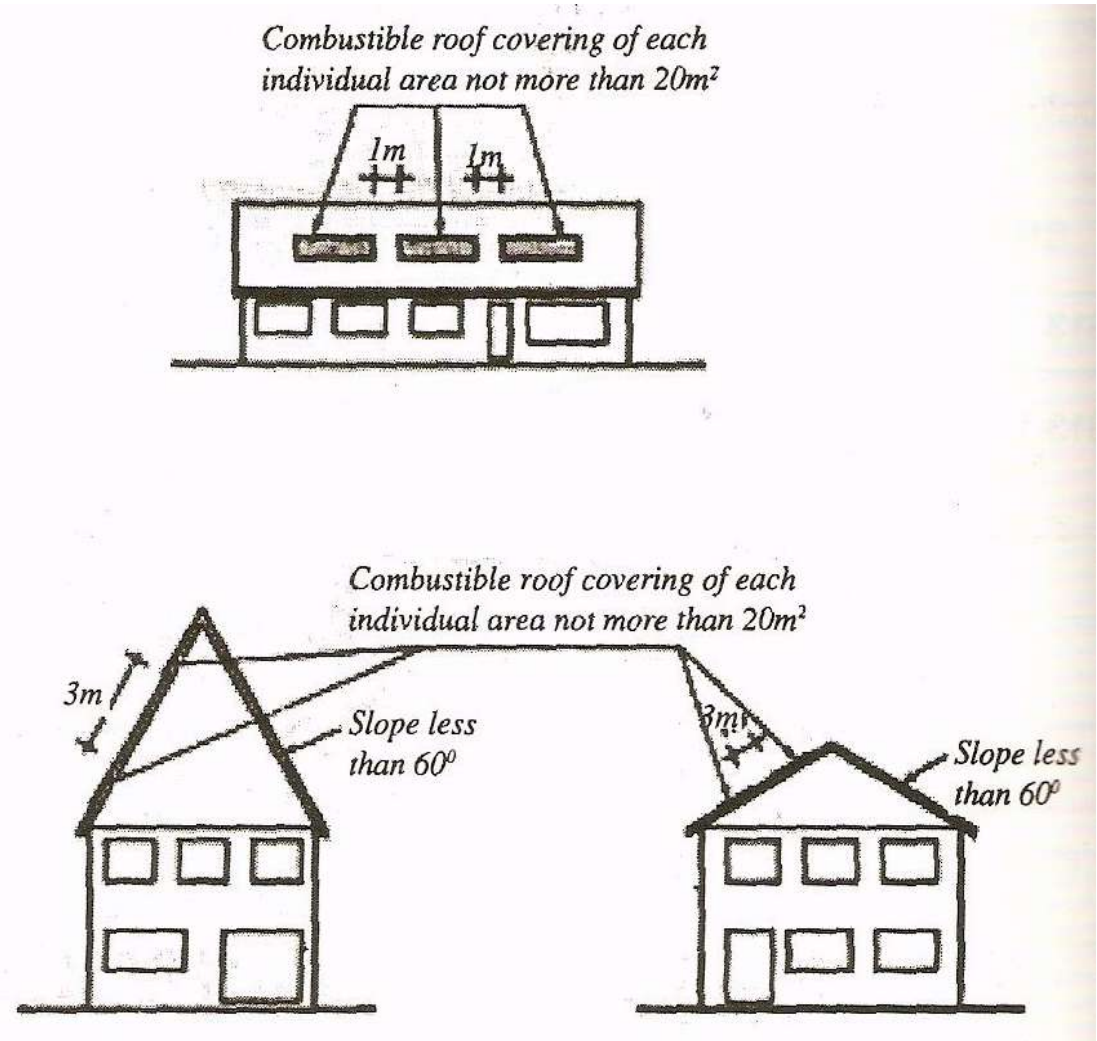
SS - 13.2 Where any combustible roof covering material including thatch, shingles and bituminized felt on boarding is used and the plan area of such roof is more than 20m2, the distance between the building so covered and any boundary of the site on which such building is situated shall be not less than 4.5m.

SS - 13.3 Where any roof covering includes individual small areas of combustible material, the total area of which is not more than 5% of the roof area, and where no such individual area is more than 20m2 such roof covering shall not be considered a combustible roof covering: Provided that:-

(a) where the slope of the roof does not exceed 60 degrees there shall be a minimum distance of 1.0m between any two such areas

(b) where the slope of the roof is in excess of 60 degrees there shall be a minimum distance of 1.0m measured horizontally and 3.0m measured along the slope of such roof between any two such areas. See figure S11

Figure S - 11: Roof coverings - illustrates the application of sub-regulation SS14.3



SS - 13.4 Any combustible waterproof membrane in contact with a concrete slab shall, for the purposes of this regulation, be considered non-combustible.

SS - 13.5

(a) Where roof space is formed between any ceiling and any roof covering such space shall be divided by means of non-combustible fire-stops into areas of not more than 300 m^2 and the distance between such fire-stops shall be not more than 30m: Provided that this requirement shall not apply where such roof space and the room below are protected by a fixed automatic fire-fighting system.

(b) Any such roof space used as an air-conditioning or artificial ventilation system plenum shall comply with the requirements contained in sub-regulation SS45.5.

(c) In the case of any occupancy classified H3 the walls separating dwelling units shall be extended and any such extension shall:

(i) have the same fire resistance as the wall supporting it;

(ii) be taken to the underside of any non-combustible roof or roof covering or any concrete slab below a combustible roof covering, as the case may be; and

(iii) be taken to not less than 300 mm above any combustible roof covering other than one laid on concrete.

SS - 14 CEILINGS

SS - 14.1 In any building not being a building classified H4, combustible material shall not be used for any suspended ceiling except:

(a) Solid timber;

(b) air supply or return air intake grilles of combustible material where the sum of the area of all such grilles forms not more than 5 % of the total area of such ceiling and the overall area of any individual grille is not more than 0.09m^2, shall permitted .

SS - 14.2 Where in terms of the proviso to sub regulation SS15.1 combustible material is used in any suspended ceiling in a building, the maximum area of any division in which such ceiling is situated shall be not more than one quarter of the relevant division area given in Table S3 for the occupancy classification in question: Provided that this requirement shall not apply where any such building is:-

(a) not more than three storey in height; or

(b) Provided with a fixed automatic fire-fighting system.

SS - 14.3 Where the space between any suspended ceiling and any structural floor above such ceiling is used as a plenum for any air-conditioning or artificial ventilation system such space shall be divided by non-combustible fire-stops into areas of not more than 300m2 and the distance between such fire-stops shall be not more than 30m: Provided that this requirement shall not apply where such space and the room below are protected by a fixed automatic fire-fighting system.

SS - 14.4 If a roof to which by-law 94 of these by-laws applies, has a ceiling, the latter shall be provided with a door or scuttle to allow access to the roof space.

SS - 15 FLOOR COVERINGS

SS - 15.1 Where any combustible material, not being a material contemplated in sub - regulation SS16.2 or SS16.3 is used as a floor covering in any building, the maximum area of any division in which such floor covering is used shall be not more than one quarter of the relevant division area given in Table S3 for the occupancy classification in question: Provided that this requirement shall not apply where any such building is:

(a) not more than three storeys in height; or
(b) provided with a fixed automatic fire-fighting system

SS - 15.2 In any building any fitted carpet shall be permitted where such carpet is of a type of which a representative specimen, when tested in accordance with KS 02 - 561 : 1984 or, BS 476 Part 4 : 1984 or, BS 4790 of 1996 or, BS 6307 of 1982, has a classification not inferior to that specified in Table S7 for the particular occupancy concerned: Provided that this requirement shall not apply in the case of a fitted carpet laid in any occupancy classified H4.

SS - 15.3 In any building, any cork, timber or any resilient floor covering shall be permitted where such covering is fully adhered to the substrate

Table S - 7: Required Classifications for Fitted Floor Covering

	Basement of building of any height	**Single and double storey buildings**		**Building exceeding two storeys**		**Building of any height**	
Class of occupancy	Any floor area except that contemplated in column 5 or 6					Feeder routes	Emergency routes
	USP or SP	USP	SP	USP	SP		
A1	2	3	3	3	3	2	1
A2	2	3	3	3	3	2	1
A3	2	3	3	3	3	2	1
A4	2	3	3	3	4	2	1
B1	2	3	4	3	4	3	1
B2	2	4	5	3	4	3	1
B3	3	4	5	4	5	3	1
C1	3	3	4	3	4	2	1
C3	3	3	4	3	4	2	1
D1	NC	NC	NC	NC	NC	NC	NC
D2	2	4	5	3	4	3	1
D3	2	4	5	4	5	3	1
D4	NC	NC	NC	NC	NC	NC	NC

E1	NC	3	3	3	3	2	1
E2	NC	3	3	3	3	2	1
E3	NC	3	3	3	3	1	1
F1	3	4	5	3	4	2	1
F2	3	4	5	3	4	2	1
F3	3	4	5	3	4	2	1
G1	3	4	5	4	5	3	1
H1	1	4	5	4	5	3	1
H2	1	4	5	2	4	3	1
H3	1	5	5	3	4	3	1
J1	NC	NC	NC	NC	NC	NC	NC
J2	NC	NC	3	NC	3	2	1
J3	2	3	4	2	3	2	1
J4	NC	NC	NC	NC	NC	NC	NC

NC = Non-combustible material only.
SP = Protected by a sprinkler system.
USP = Not protected by a sprinkler system.
NOTE: Table refers only to those areas actually used for the occupancies given.

Commentary

It must be realised that the use of a combustible material as a ceiling, a fitted floor covering or a wall finish may make a considerable contribution to the fire load in any building. Since it is neither reasonable nor practical to preclude the use of such materials it is essential to take into account both that they are combustible and that, in burning, they may help to spread a fire and may make a significant contribution to the quantity of heat, smoke and noxious fumes generated.

Where any combustible material is used for a ceiling or as a wall finish or where a non-classified combustible material is used as a fitted floor covering, it is considered that the increase in fire load could be significant. Under these circumstances therefore, the maximum area permitted for a division of any building has been reduced although concessions have been made in the case of buildings of not more than, three storeys in height and buildings that are sprinkler protected. However, it is always necessary, even within a division of reduced size, to control where and under what conditions combustible materials are used as the rate of burning will be different for each material, as will its contribution to heat and smoke.

Any material to be used for a floor covering or for a wall finish is tested in a standard manner and is classified on a scale of 1-5. In both cases the lower figures indicate better performance. These classifications are based on a "fire index" which in turn represents the effect of rate of burning and the amount of heat and smoke generated.

It should be noted that in some cases the behaviour of a floor covering in a fire may be considerably influenced by the quality of the underfelt used and it is therefore recommended that where a carpet is intended to be used with an underfelt it should be tested together with the particular underfeft. At present no classification of underfelt, equivalent to that used for carpets, is available and it is thus not possible to give any deemed-to~satisfy requirements for the underfelt

Control of the use of any combustible material as a fitted floor covering or as a wall finish is covered in Tables S7 and S8 respectively, and is based on the classification mentioned above.

The class of material required in any given circumstances is related to the occupancy classification, building height, and the provision of a fixed fire-fighting system in the building concerned and is determined from these tables. It should be stressed that this procedure must be followed whether or not it has been found necessary, in terms of Regulation SS16 or Regulation SS17, to reduce the maximum area permitted within a division.
In the case of ceilings, most combustible materials are not permitted and there is thus no need for a similar classification

SS - 16 WALL FINISHES

SS - 16.1 Where, in any building, any combustible material not being a material contemplated in the proviso to sub-regulation SS17.2 is used as a finish on any wall the maximum area of the division in which such wall is situated shall be not more than one quarter of the relevant division area given in Table S3:
Provided that this requirement shall not apply where such building is:-

(a) not more than three storeys in height; or
(b) provided with a fixed automatic fire-fighting system,

SS - 16.2 Any combustible wall lining or decorative finish, except where used in any building classified H4, shall be of a type of which a representative specimen, when tested in accordance with KS 02-566 : 1985 has a classification not inferior to that specified in Table S8 for the occupancy concerned:
Provided that this requirement shall not apply where the thickness of such finish is less than 0.5mm and such finish adheres fully to a non-combustible material.

SS - 16.3 The use of combustible material shall be permitted for any door leaf or for trim to any door frame or window frame or for any pelmet, dado rail, picture rail or skirting.

Table S - 8: Required Classifications for Wall Finishes

Class of occupancy	Basement of building of any height	Single and double storey buildings		Building exceeding two storeys		Building of any height	
	Any wall area except that contemplated in column 5 or 6					Feeder routes	Emergency routes
	SP	USP	SP	USP	SP		
A1	1	3	3	3	3	2	1
A2	1	3	3	3	3	2	1
A3	1	3	3	3	3	2	1
A4	1	4	4	3	4	2	1
B1	2	3	4	3	4	3	1
B2	2	3	4	3	4	3	1
B3	3	4	5	4	5	3	1
C1	3	3	4	3	4	2	1
C3	3	3	4	3	4	2	1
D1	NC	NC	NC	NC	NC	NC	NC
D2	2	3	4	3	4	3	1
D3	2	4	5	4	5	3	1
D4	NC	NC	NC	NC	NC	NC	NC
E1	NC	2	2	2	2	2	1
E2	NC	2	2	2	2	2	1
E3	NC	2	2	2	2	2	1
F1	3	2	3	2	3	2	1
F2	3	2	3	2	3	2	1
F3	3	2	3	2	3	2	1
G1	3	4	5	4	5	3	1
H1	NC	3	5	3	5	3	1
H2	NC	3	4	2	4	3	1
H3	NC	4	5	3	4	3	1
J1	NC	NC	NC	NC	NC	NC	NC
J2	NC	NC	3	NC	3	2	1
J3	2	3	4	2	3	2	1
J4	NC	NC	NC	NC	NC	NC	NC

NC=Non –combustible material only
SP=Protected by a sprinkler system
USP=Not protected by a sprinkler system

NOTE: Table refers only to those areas actually used for the occupancies given.

SS - 17 PROVISION OF ESCAPE ROUTES

SS - 17.1 All buildings must be provided with one or more escape routes that can be used in case of fire or other emergencies. The route should at all points, be wide enough to allow the persons using such route to move rapidly along it and it must not, at any time, be obstructed in any way.

SS - 17.2 Where the travel distance, measured to the nearest escape door, is not more than 30.0m, any such escape route:-

(a)
- (i) in any single-storey building;
- (ii) in any dwelling unit having such escape door at ground level; or
- (iii) in and from any dwelling unit at first floor level where such dwelling unit is served by an individual stairway to ground level;
- (iv) shall not be required to include any emergency route and, in the case of any dwelling unit contemplated in this sub-regulation, such escape route shall not be required to comply with the requirements of Regulations SS19 to SS32 inclusive.

(b) Any building of two storeys in height shall not be required to include any emergency route: Provided that where the population of the upper storey is more than 25 persons such building shall be provided with not less than two such escape, routes

(c) Any building of a height of more than three storeys shall be provided with not less than two such escape routes and
- (i) an emergency route shall form part of each such escape route;
- (ii) any such emergency route shall include any stairway forming part of the escape route and also that part of the escape route from the lower end of the stairway to any escape door.

SS - 17.3 Where, in any building, the travel distance measured to the nearest escape door is more than 30m, not less than two such escape routes shall be provided and an emergency route shall form part of each such escape route

SS - 17.4 Where, in terms of sub regulation SS18.2 or SS18.3, emergency routes are required in any building:-

(a) such emergency routes shall be entirely independent from one another and so situated that should any one of such routes become unusable or inaccessible not less than one other such route may reasonably be expected to remain accessible and usable;

(b) the travel distance measured to the nearest access door shall be not more than 30m;

(c) the path of travel to any access door shall be along a feeder route;

(d) any such feeder route shall lead in two different directions to two or more independent emergency routes;

(e) the exit door from any room shall lead directly into a feeder route:

Provided that:-such exit door may lead into a dead-end corridor where the total distance to be traveled from the farthest point in such room to an access door or to a feeder route is not more than 15m; or such exit door may lead into any other room, where such other room is within the same tenancy and the exit door from such other room leads into a feeder route.

Commentary

All buildings must be provided with one or more escape routes that can be used In case of fire or other emergencies The two most important aspects are that the route should at all points, be wide enough to allow the population using such route to move rapidly along it and it must not, at any time, be obstructed in any way.

The width of any escape route within a dwelling house (occupancy H4) or within an individual dwelling unit in an occupancy H3 is not critical because of the small population involved and the fact that the layout of the dwelling unit can be assumed to be well-known to the occupants. In the case of any occupancy H3 where two or more dwelling units open on to a part of the escape route which serves all of them, such common pan of the route must comply with all the requirements (including width) for escape routes.

The length of an escape route in an H3 occupancy may be controversial. The travel distance is of course always measured from the farthest point in any room in a dwelling unit to the nearest escape door or access door but it is important to note that there may be certain special circumstances that must be considered. In any dwelling unit at ground level, whether an H4 occupancy or part of an H3 occupancy, any "exit" door from the dwelling unit that leads to an approved open space may be regarded as an escape door and the travel distance measured accordingly. In the case of a dwelling unit at first floor level, such dwelling unit may be regarded as an independent unit where it is provided with its own individual stairway leading to ground level outside the building and does not share any part of an escape route with any other dwelling unit. However, because an escape door must, by definition, be at ground level the travel distance must be measured to an imaginary "escape door" at the foot of the stairway.

Where the travel distance, measured from the furthest point in any room to an escape door, is less than 30m there are no requirements (other than dimensions) for any escape route and in many cases it will suffice to provide a single escape route. Where the travel distance is more than 30m or in any building of more than three storeys in height it becomes necessary to provide emergency routes, and hence feeder routes, as part of the escape routes and in all cases it will be necessary to provide at least two escape routes. To be fully effective, feeder routes and emergency routes should supply at least the degree of protection envisaged in these regulations. This is particularly important in the case of emergency routes which have to perform the dual function of protection during evacuation of the building and during subsequent fire-fighting operations.

The essence of any escape route that requires the incorporation of emergency routes is that there should be at least two possible directions of escape. Where the exit from any room leads into a dead-end corridor this is not possible and it becomes necessary to reduce to the absolute minimum the distance to be travelled before either a feeder

route or an access door into an emergency route is reached. In this case, account must be taken of the travel distance both in the room in question and along the dead-end corridor. This is of consequence both in itself and as part of the total travel distance to a safe area.
In order to determine what provision is required for escape routes, proceed as follows:

(a) Check the travel distance from the farthest point in any room, measured along the escape route, to the nearest escape door. Where this distance is less than 30m or in any building of not more than three storeys in height no emergency routes (and hence no feeder routes) are required. With the exception of those cases contemplated in sub-regulation SS18.2(b), only one escape route need be provided but this must be dimensionally adequate for the population to be served.

(b) Where the travel distance, measured in terms of (a) above, is more than 30 m, emergency routes must form part of the two or more escape routes that must be provided and these emergency routes should be as far apart as possible subject to the limitation that the travel distance to the nearest access door to an emergency route must not be more than 30m.. ,

(c) Calculate the total population of each floor of the building. Note that in any occupancy classified H3, the population within any individual dwelling unit is not, in itself, of concern as the population figure required is used only in connection with the common part of the escape route and not that part which is provided within each such dwelling unit.

(d) Using the population figure calculated in terms of (c), calculate the number and width of the, necessary escape routes bearing in mind that:

(i) the widths of all routes should be approximately equal,
(ii) because fire may prevent the use of a particular emergency route, one such route is always discounted in determining the widths required for the remaining emergency routes, and
(iii) In the case of a stairway only the population of the most heavily populated storey need be taken into account in the calculation of width

SS - 17.5 In mixed use buildings separate means of escape shall be provided from any storey (or parts of a storey) used for residential or assembly and recreation purpose

SS - 17.6 When an escape stair forms part of the only escape route from an upper storey of the building, it should not be continued down to serve any part of a basement. The basement should be served by a different stair

SS - 18 EXIT DOORS

SS - 18.1

(a) Where the population of any room is not more than 25 persons the width of any exit door shall be not less than 900mm
(b) A room which has a capacity to hold the number of persons specified in

column one of table S9 shall have such number of exit doors as shown in the second column of the table and shall-

(i) open in the direction of travel along the escape route; and

(ii) have an aggregate width of not less than the required width for an escape route for such population, as contemplated in Regulation SS23

Table S - 9: Number of exit doors

Number of persons	Minimum number of exit doors
50 to 240	2
241 to 500	3
501 to 750	4
751 to 1000	5
Over 1000 person	6

SS - 18.2 In any room in a building where the occupancy is classified A1, A2, A3, A4, C1, C2, E2, E3, F1 or F3, any exit door shall open in the direction of travel along the escape route: Provided that in any occupancy classified A3 where the population of the room is less than 50 persons, such door may open into such room.

SS - 18.3 Panic latches or electronic switches shall be provided, as may be necessary, for opening exit doors

SS - 19 FEEDER ROUTES

SS - 19.1 Where any corridor in a building forms part of a feeder route the walls, partition walls or partitions enclosing such corridor shall be constructed of non-combustible materials or when tested in accordance with BS 476 Part 22 :1987 shall have a surface fire index of not more than 2.0.

SS - 19.2 Any door in the path of travel along any feeder route shall be of the double swing type and such door shall not be provided with any means of locking: Provided that where for security reasons it is necessary to lock such door an approved alternative means of escape shall be provided.

SS - 19.3 The requirements contained in sub-regulations SS21.6, SS21.7 and SS20.8 and in Regulations SS22 and SS23 shall apply with the necessary changes having been carried out to any feeder routes.

SS - 20 EMERGENCY ROUTES

SS - 20.1

(a) Any wall enclosing an emergency route shall have a fire resistance of not less than 120 minutes or the relevant time required for stability of structural elements or components given in Table S5, whichever is the lesser, after being subjected to two impacts with a 30kg mass sand-bag swung from a vertical height of 1.5m.

(b) Any floor or ceiling of an emergency route shall have a fire resistance of not less than 120 minutes or the relevant time required for the stability of structural elements or components as given in Table S5, whichever is the

lesser.

SS - 20.2 The finish of the floor of any escape route shall have a slip resistant surface, shall be free from any projections, indentations, hollows or covering which may cause a person to trip and such finish or any covering applied to such floor shall be of a classification not inferior to that given in Table S7.

SS - 20.3 Any emergency route shall consist of one or more of the following components so arranged that each such component discharges directly to another component:

(a) Doors;
(b) internal or external passages;
(c) internal or external stairways or ramps
(d) lobbies, foyers or vestibules

SS - 20.4 The last component of any emergency route shall discharge at ground level directly to a street or public place or to an approved open air space leading to a street or public place.

SS - 20.5 Subject to the requirements of sub-regulation SS21.6, any access door or any other door, being a component of an emergency route shall be a hinged door which shall open in the direction of egress from the building.

SS - 20.6 Any revolving or sliding door or automatically operated door or shutter may form part of an emergency route where such door or shutter is positioned at the end of such route discharging to a safe area: Provided that:-

(a) there shall be, adjacent to such door or shutter, an alternative hinged door which shall comply with all regulations relating to hinged doors in emergency routes; or
(b) any such automatically operated sliding door or shutter shall be equipped with an approved fail-safe system and any such revolving door shall be of an approved collapsible type.

SS - 20.7 No door giving access to an emergency route shall when opened obstruct the progress of persons using such route.

SS - 20.8 Any door frame, and door leaf when in the open position, shall not protrude into the width of the emergency route by more than 100 mm on either side.

SS - 20.9 Any locking devices fitted to any access door or escape door in any emergency route shall be of a type approved by The Approving Authority.

SS - 20.10 Any door fitted with a locking device as contemplated in sub regulation SS21.9 shall be clearly indicated on the fire plan.

SS - 21 DIMENSIONS OF COMPONENTS OF ESCAPE ROUTES

SS - 21.1

(a) The width of any escape route within any room having a population of more than 25 persons shall be not less than 900mm.

(b)

(c) The width of any part of an escape route or any component thereof between any exit door and the end of such route shall be not less than 1.1m.

SS - 21.2 The width of any escape route shall not decrease in the direction of emergency travel, provided that in the case of a lobby, foyer or vestibule that is wider than required for such route the exit doors there from shall have a width not less than that required for such route.

SS - 21.3 The travel distance shall be measured along the centre line of the shortest natural unobstructed path of travel within a room and along any escape route and where such route is via a ramp or staircase the measurement shall be along the plan centre line of such ramp or staircase.

SS - 21.4 Any escape route shall be provided throughout its length with a clear vertical headroom of 2m and in any lobby, foyer or vestibule the minimum room height shall be not less than 2.4m.

SS - 22 WIDTH OF ESCAPE ROUTES

SS - 22.1

(a) The population of any room or storey or portion thereof shall be the actual number of persons in such room, storey or portion thereof during normal use or shall be calculated from the criteria given in Regulation A22.

(b) Where more than one escape route discharges to a common component the width of such common component and any following components situated along the direction of egress shall be calculated by taking into account the population discharging into such common component: Provided that in the case of any stairway, only the population of the most heavily populated storey served thereby shall be deemed to discharge into such stairway.

SS - 22.2 In any building the width of any escape route to be provided in respect of any room, storey or portion thereof shall be not less than that given in Table S10 for the population concerned; Provided that:-

(a) no individual escape route shall be designed for a population of more than 200 persons;

(b) where there are two or more emergency routes one such route shall be discounted in determining the widths required for the remainder

Table S - 10: WIDTH OF ESCAPE ROUTES

Maximum number of persons	Minimum width, mm
	1100
120	1200
130	1300
140	1400
150	1 500
160	1600
170	1700
180	1800
190	1900
200	

SS - 22.3 The aggregate width of escape routes shall be so distributed that the minimum widths of individual routes serving any room, storey or portion thereof shall be as nearly equal to each other as is practicable.

Commentary

The regulations given for the siting and dimensioning of escape routes apply essentially to individual occupancies in a building. Where there are unusual circumstances such as may arise in shopping malls and sports stadia the same general principles will apply but much of the detail may have to be adapted to suit the particular situation.

In any design for fire protection measures in a shopping mall, for instance, population calculations in accordance with these regulations can only be based on the population calculated for individual shops. The total figure arrived at in this way will bear little relation to reality and must be modified by some "diversity factor" to allow for the number of shops. A further allowance will have to be made for the degree of compartmentation, if any, in the mall and the proportion of the population likely to be inside shops at any given time.

It is not unusual for the larger shops in a shopping mall to have escape routes independent of those provided for the remainder of the mall. In the case of the smaller shops, service corridors may double as escape routes but the main promenade in the mall will inevitably also be used for escape purposes although it could never satisfy the requirements for an emergency route. On the credit side, however, is the fact that in many cases the mall is wide and the fire load in any individual small shop will not be very large Where adequate fire protection measures have been installed it may be possible to confine any fire to the shop in which it originated.

The number of factors involved is thus very large and is further influenced by the presence, or lack, of adequate smoke control measures and fixed means of automatic fire-extinguishment such as a suitable sprinkler system, In such cases it is essential to consider from first principles the means of escape and to ensure that it is possible to evacuate the mall in the shortest possible time, preferably in a fully protected environment.

Large grandstands in sports stadia suffer from all the usual problems associated with

large crowds but, in addition, may present difficulties which are unique to this type of structure. In a panic situation people may climb over the rows of seats and escape routes are often not as clearly defined as they would be within a building. The resultant lack of orderly flow may lead to choking of access doors to emergency routes or of exits from the stand. However, it would rarely be the case that simultaneous evacuation from all parts of the stadium would be necessary and it may be possible to consider alternative means of escape such as allowing movement of part of the population to other stands or onto the playing field in the first instance. As in the case of shopping malls it is impossible to lay down rigid regulations for the provision of escape routes and all possibilities should be taken into account in order to ensure the safety of those using any grandstand.

SS - 23 BASEMENTS

SS - 23.1 In any building not classified as D4 or H4 any storey below the ground storey shall be served by not fewer than two separate emergency route stairways: Provided that where such storey is used for the parking of motor vehicles one such emergency route stairway may be replaced by a motor vehicle ramp.

SS - 24 STAIRWAYS AND OTHER CHANGES OF LEVEL ALONG ESCAPE ROUTES

SS - 24.1 The storey of any duplex dwelling unit may be served by a single stairway within such dwelling unit: provided that such dwelling unit shall have access to an escape route as required by these regulations

SS - 24.2 At any storey level the entrance to any stairway forming part of an emergency route shall not be closer than 5m to the entrance to any other such stairway

SS - 24.3 Any stairway forming part of an emergency route shall discharge into a corridor or foyer forming part of such emergency route or into a street, public place or approved open space.

SS - 24.4 Any stairway forming part of an emergency route from any storey above ground level shall not have direct access to any basement

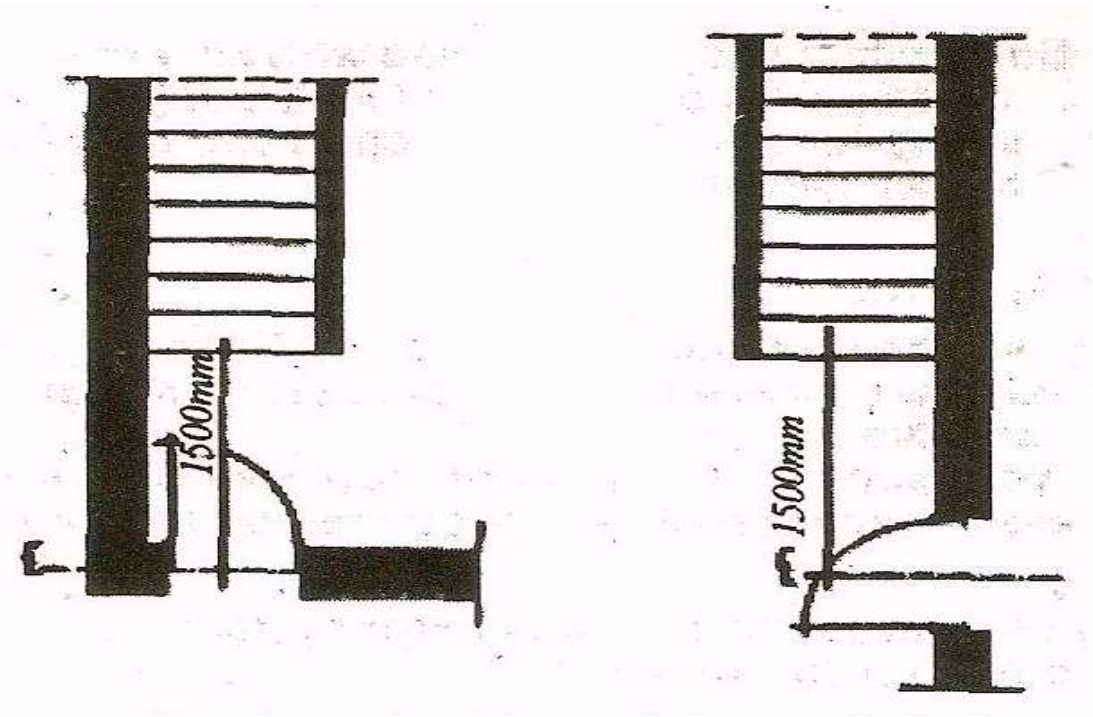
SS - 24.5 No escalator shall form a component of any emergency route.

SS - 24.6 Where any stairway forms part of an emergency route such stairway shall, throughout its length, be provided with a handrail on each side.

SS - 24.7 Notwithstanding the requirements for minimum width contained in sub-regulation SS23.2 the width of any stairway forming part of an emergency route shall be not less than that given in Table S10 for the population concerned and such width shall be not more than 1.9m: Provided that any handrail may project into such width by an amount of not more than 100mm.

SS - 24.8 The distance between any change in floor level and the centre line of a doorway in an emergency route or between two changes of floor level in such route shall be not less than 1.5m. See figure S12

Figure S - 12: Position of Doors in Relation to Change in Level



SS - 24.9 No curved or winding stairs shall form part of any emergency route.

SS - 24.10 The rise and tread of any step forming part of an emergency route shall comply with the requirements contained in sub-regulation MM5.1 and in addition such step shall have solid treads and risers: Provided that in the case of any occupancy classified D4 or in the case of any external stairway contemplated in Regulation SS29 such risers may be omitted.

SS - 24.11 Any change in the level of the floor of any emergency route other than by a stairway between levels shall be effected by means of a ramp or steps:-Provided that:-

(a) no such ramp shall have a slope exceeding 1 in 8; and
(b) in the case of steps, not fewer than three steps shall be provided.

SS - 25 VENTILATION OF STAIRWAYS IN AN EMERGENCY ROUTE

Any enclosed stairway which is a component of any emergency route in any building not exceeding 30m in height shall be:-

(a) provided with a window or other opening not less than 1m^2 in area for ventilation to the outside of the building at each storey level; or
(b) Ventilated by means of a roof ventilator having an effective area of not less than 25% of the plan area of the stairwell and such ventilator shall be

permanently open.

SS - 26 OPENINGS IN FLOORS

SS - 26.1 In any building, not being a building classified H4, any opening, including an opening occupied by a stairway or escalator not forming part of an escape route, shall not connect more than:-

(a) two storeys if such building is not protected by sprinkler system:- or
(b) four storeys if such building is protected by sprinkler system.

SS - 26.2 At any landing of such stairway or escalator system a sign shall be displayed indicating the direction of at least one of the escape routes.

SS - 27 EXTERNAL STAIRWAYS AND PASSAGES

SS - 27.1 No external stairway shall be permitted to be a component of any emergency route of any building which exceeds 18m in height unless such stairway is, subject to the requirement contained in Regulation SS26, partially enclosed through its length.

SS - 27.2 No window, door or other unprotected opening in any facade of a building shall be closer than 3m to any access door or any open stairway forming part of an escape route unless such opening is protected by a door or fire shutter having a stability rating of 30 minutes when tested in accordance with KS 02-568 :1985: Provided that this requirement shall not apply to any window not exceeding 0.3m^2 in area, serving any room containing a Water closet pan or any bathroom, cloakroom or kitchen.

Commentary

In any high building, people using a completely open external Staircase will feel insecure and some may experience vertigo. This could lead to panic and disrupt evacuation of such building. In case of fire or other emergency it is therefore regarded as essential that any external staircase to a building more than 18 m in height be provided with some form of enclosing walls of screens, particularly where these will provide some visual barrier at the ends of each flight of stairs and at any landing outside an access door. The height and extent of such walls or screens will depend upon the dimensions and layout of the stairs, the sight line in each case and the degree to which ft may be desired to provide addition protection against wind and rain

SS - 28 LOBBIES, FOYERS AND VESTIBULES

SS - 28.1 Where any lobby, foyer or vestibule (hereinafter referred to as a "lobby") is a component of one or more escape routes such lobby shall have the combined width of all escape routes discharging into it or be 33% wider than the width calculated on the basis of the population which is to pass through it, whichever is the greater.

SS - 28.2 Any display in such a lobby shall only be by means of a fixed board or fixed display case which shall not protrude more than 150 mm into such lobby and no other object shall be permitted to be placed in such lobby.

SS - 28.3 Any glass used for such display case shall be safety glass.

SS - 28.4 No trading or business activity shall be carried on in such lobby except from a fixed area.

SS - 29 MARKINGS AND SIGN POSTING

SS - 29.1

(a) Any building having emergency routes shall be clearly marked and signposted to indicate the direction to be travelled in the case of any emergency, and the size and positioning of the required marks and signs shall be subject to approval by The Approving Authority.
(b) The exit door of any room which has a population of less than 25 persons shall not be required to be so marked.
(c) Where any room has more than one exit door, any such door used for normal egress from such room shall not be required to be so marked.

SS - 29.2 Any mark or sign contemplated in this regulation shall comply with the requirements of The Approving Authority: Provided that in the case of any auditorium or hall a sign reading "EXIT" shall be displayed over any exit doors of such auditorium or hall, and such sign shall have letters not less than 150mm in height.

SS - 29.3

(a) When any building is occupied any mark or sign contemplated in sub regulation SS30.1 (a) shall be illuminated to an intensity of not less than 50 lux.
(b) In the case of occupancies classified A2, E1, E2, E3 or in any building normally occupied during the hours of darkness and having a population exceeding 100 persons, such marks or signs shall in the event of the failure of the normal mains supply be so illuminated for not less than 120 minutes.
(c) The emergency power supply to the lighting of such marks or signs shall be protected against the effects of fire for a period of not less than 120 minutes.

SS - 29.4 The Approving Authority may, where deemed necessary for the safety of occupants, require the provision of signs prohibiting exit;

Commentary

The signs contained in PD 6578 : 1995, the Guide to British European and International Graphical Symbols for use on equipment for safety and fire safety, and for public information in relation to 150 7000 and TEC417 indicate direction of travel and thus have certain limitations in regard to where they, logically, can be used. In any escape route the "running man" sign is satisfactory when used on the walls of the corridor but may be misleading when used on a surface at 90 ° to the escape route Where for information purposes it is essential to use the sign in this way it is suggested that such sign should be closely followed by confirmatory signs placed on the walls in the direction of travel and in positions where they can be easily seen in conjunction with the original sign In the opposite case, where it is desired to indicate a change in the direction of travel, the sign must be placed across rather than along the direction of travel. Where such a sign is used to Indicate the access door to an emergency route it is suggested that the confirmatory signs take the form of two of the "running man" symbols facing each other and placed on the access door.

SS - 30 LIGHTING OF FEEDER AND EMERGENCY ROUTES

SS - 30.1 Any emergency route shall be provided with artificial lighting and at any time when the building containing such route is occupied there shall be a minimum illuminance of 50 lux on a horizontal plane 100mm above the floor.

SS - 30.2 In any building having a population of more than 100 persons an adequate number of emergency light sources shall be installed in such emergency route and such light sources shall be connected to an approved emergency power supply which is:-

(a) independent of the mains supply; and
(b) Capable, in the event of any failure of the lighting contemplated in sub-regulation SS31.1, of providing power supply to such emergency light sources for not less than 60 minutes.

SS - 30.3 uch emergency light sources shall be so located that:-

(a) the horizontal illuminance at any point on the centre line of such emergency route is not less than 0.3 lux; and
(b) a uniformity ratio of not more than 40:1 is obtained along such emergency route.

SS - 30.4 Any feeder route in any basement or in any building classified A1, A2, A3, A4, C1, C2, E2, E3, F1, F3 or H2, shall be provided with emergency lighting as contemplated in sub-regulation SS31.2: Provided that in any occupancy classified A3 having a population of less than 50 persons, such feeder route shall not be required to be provided with such lighting.

SS - 31 FIRE DETECTION AND ALARM SYSTEMS

SS - 31.1 Any building containing an occupancy classified:-

(a) E2 or E3, irrespective of height or floor area;
(b) F1, with a floor area of more than 500 m^2; or
(c) H1 or H2, with a height of more than 8m; shall be equipped with a fire detection system.

SS - 31.2 All occupied areas within any building which exceeds 30m in height or contains any storey exceeding 5 000m^2 in floor area, other than a building contemplated in sub-regulation 32.1, shall be equipped with a fire detection and manually activated fire alarm system and an emergency evacuation communication system.

SS - 31.3 Any building classified A1, A2, C1, C2 or F1shall have a manually activated audible alarm system.

SS - 31.4 Each building except that classified as H3 and H4 shall install an alarm system for those with hearing impairments.

SS - 32 PROVISION OF FIRE-FIGHTING EQUIPMENT

SS - 32.1 Any fire-fighting equipment in any building shall be so installed as to be ready at all times for its purpose and its access shall not be obstructed by any object.

SS - 32.2 The disposition of such fire-fighting equipment shall be clearly visible or shall be indicated by symbolic signs which shall comply with the requirements set by The Approving Authority.

SS - 32.3 The owner of any building shall keep available for inspection by The Approving Authority a record of the maintenance of fire-fighting and protection equipment.

SS - 33 WATER RETICULATION FOR FIRE-FIGHTING PURPOSES

SS - 33.1 Any rational design of a fire installation shall make provision for water to be supplied in the quantity and at the pressure and rate of flow in accordance with BS 5306 : Part 0 to 7.

SS - 33.2 Where such fire installation is not the subject of a rational design it shall comply with the requirements contained in Regulation SS66.

SS - 34 HOSE REELS

SS - 34.1 Hose reels for the purposes of fire fighting shall be installed in any building of two or more storeys in height or in any single-storey building of more than 250m^2 in floor area at a rate of 1 hose reel for every 500m^2 or part thereof of floor area of any storey: Provided that such, hose reels shall not be required in any building classified H4 or in any dwelling unit provided with independent access to ground level.

SS - 34.2 Any hose reel installed in such building shall comply with the requirements contained in KS 2003:2006.

SS - 34.3 Any hose reel so installed shall be positioned to ensure that the end of the hose will reach any point in the area to be protected.

SS - 34.4 Any hose reel installed in any building shall bear, in a prominent position on the reel disc facing the user, the mark of standardisation relative to the requirements contained in the Kenyan Bureau of Standards.

SS - 34.5 Where a satisfactory water supply and pressure are not available, two fire extinguishers complying with the requirements contained in Regulation SS38

SS - 35 HYDRANTS

SS - 35.1 Hydrants in positions subject to direction by The Approving Authority shall be provided in:

(a) any building exceeding 12 m in height; and
(b) any occupancy classified B1, B2, C1, C2, D1, D2, E1, E2, E3, F1, F3, H1, J1, J2, J3 or J4 of any height and of a total floor area exceeding 1 000 m^2.

SS - 35.2 Any hydrants required in terms of sub-regulation SS36.1 shall be provided at the rate of not less than one per 1,000m^2 or part thereof of total floor area and not less than one per storey of such building or occupancy, as the case may be, and shall be distributed in such a manner that the fire hose contemplated in sub-regulation SS36.3 will reach every part of the relevant area.

SS - 35.3

(a) Any hydrant shall, where required by The Approving Authority, be provided with a length of appropriate fire hose 24m or 30m in length together with couplings and a 16mm internal diameter nozzle, all of which shall comply with the requirements contained in BS 5041 : Part 1 : 1987.
(b) Such hose and nozzle shall when positioned in the open air or in any factory building be suitably housed in a cupboard: Provided that this requirement shall not apply in any occupancy classified J4.

SS - 35.4 In any permanent amusement park or exhibition ground, shopping centre or group housing, cluster housing, or town house complex there shall be installed ground or raised hydrants so placed that no point in such amusement park or exhibition ground or shopping centre or in any building in such housing complex shall be at a greater distance than 90m from any hydrant.

SS - 35.5 Any hydrant required in terms of this regulation shall comply with the requirements contained in BS 5041.

SS - 35.6 Hydrants shall not be used for any other purpose other than fire protection without express permission of the local Water authority.

Commentary

In cities and major towns the Approving Authority shall install, and maintain those fire hydrants which it and the Fire Services authority jointly deem necessary for public fire protection. These fire hydrants shall be installed in public rights-of-way, City-owned property, or City-approved easement and connected to local authority water mains.

Elsewhere public fire hydrants shall be located in streets or roads dedicated to public use. Locations of public fire hydrants shall be approved by the local Water authority prior to installation. Any applicant wishing to use fire hydrants shall pay the appropriate monthly charge. All right, title, and interest to public fire hydrants will vest in the local authority through the local Water authority, which shall maintain hydrants without charge to the customers, except the monthly charge.

SS - 35.7 Anyone who operates or attempts to operate a fire hydrant without permission of the local Water authority shall be guilty of an offence, except in the event of an emergency as defined in these regulations.

SS - 35.8 No development shall interfere with existing public fire hydrants. Where such development occurs the property shall be demolished/relocated at the owners' expense.

SS - 35.9 Where the gradient of an existing street or property is changed at the request of the property owner, such that an existing public fire hydrant will not be at the proper elevation with respect to the ground, the hydrant will be raised or lowered at the expense of the property owner.

SS - 35.10 Nothing shall be erected or planted which shall interfere with the use of a fire hydrant. Sufficient clearance shall be maintained around the hydrant to permit easy connection of hoses and full circle operation of the hydrant using regular hydrant wrenches and hose spanners.

SS - 35.11 Shrubs, trees, flowers or weeds shall not be planted nor permitted to grow so as to prevent full view of a fire hydrant from the street.

SS - 35.12 The water authority shall maintain reservoirs of at least 100,000litres within a radius of 5 km.

SS - 35.13 Painting of fire hydrants shall be done by the local water authority only. The hydrant bonnets are color coded in accordance with Kenya Bureau of Standards to show the amount of water that can be discharged out of them as follows:

Bonnet Colour	Litres per Minute
Green	4,000 or greater
Orange	2,000 - 4,000
Red	less than 2,000

SS - 35.14 Red banding on hydrants will be done by local Water authority personnel only to show that they are out of service.

SS - 36 SPRINKLER SYSTEMS

SS - 36.1

(a) In addition to the requirements contained in regulation SS6 and sub-regulation SS27.1(b) an approved sprinkler system shall be installed:-
  (i) in any building exceeding 30m in height except where such building is exclusively of an occupancy classified G1 where the division size is not greater than 500m^2, or of an occupancy classified H3;
  (ii) in any basement storey which exceeds 500m^2 in floor area and such storey is not naturally ventilated; and
  (iii) in any other storey which exceeds 500 m^2 in total floor area and such storey is not provided with breakable or openable panels as contemplated in sub-regulation SS43.1, suitable for smoke-ventilation.

(b) Any other approved fixed means of automatic fire extinguishment may be substituted for an approved system required in terms of Regulation SS35.1.

(c) In the case of any strong room, record room or security vault such a system need not be provided.

SS - 36.2 Any concealed space, not being a roof space contemplated in sub-regulation SS14.5, which has a clear height exceeding 800 mm and a total area of compartment of more than 100m^2 above any ceiling or a total area of compartment of more than 300m^2 below any raised floor shall be equipped with a sprinkler system.

SS - 36.3 Any sprinkler system shall be fitted with a twin coupling for the attachment of a fire-pump in accordance with KS6182;1-5:2004: Provided that:-

  (i) such coupling shall be painted lime yellow;
  (ii) the pressure exerted by such pump shall not be more than 1000Pa; and
  (iii) such pressure limitation shall be clearly marked on such coupling

SS - 37 PORTABLE FIRE EXTINGUISHERS

SS - 37.1 Any building containing an occupancy given in Table S11 shall, for the relevant occupancy and floor area, be provided with portable fire extinguishers, as prescribed in such table, in approved positions.

SS - 37.2 The Approving Authority may specify the type of portable fire extinguisher to be provided and may require that a number of fire extinguishers shall be -Installed in excess of the number indicated in Table S11 if in its opinion any particular hazards or risks warrant such increase.

SS - 37.3 Any approved portable fire extinguisher installed in a building shall comply with

the requirements contained in KS ISO: 11011602:2006 and KS ISO11602.1999, shall be installed, maintained and serviced in accordance with Kenya Bureau of Standards.

SS - 37.4 Such portable fire extinguisher shall bear the mark of standardisation as contemplated in these Regulations or where it cannot so bear such mark be clearly marked by the Kenya Bureau of Standards to indicate that it has been evaluated by and is acceptable to the Kenya Bureau of Standards.

Table S - 11: Provision of Portable Extinguishers

Classification of occupancies	Number of portable fire extinguishers relative to floor area
A1 B1,D1,D2 , H2, J1,J2,J3	1 per 100m^2
A2,A3, A4, B2, C1, C2, D3, E1,E2, E3, F1,F2, F3,G1,H1,	1per 200m^2
A5, B3 D4, H3, J4	1 per 400m^2

SS - 37.5 **SS38.5** The type of fire extinguisher shall, for the occupancy in which it is installed, have a capacity or mass rating as follows:

(a) For an occupancy classified A1, A2, A3, A4, A5, E1, E2, E3, F1, F2, F3, G1,H1, H2 or H3:

(i) Water type 9 litres
(ii) Foam type 9 litres
(iii) Carbon dioxide type 4.5kg
(iv) Dry chemical type 9 kg
(v) Inergen/argonite

(b) For an occupancy classified B1, B2 , B3, C1,C2, D1, D2, D3, D4, J1, J2, J3 or J4

(i) Water type 9 litres
(ii) Foam type 9 litres
(iii) Carbon dioxide type 5 kg
(iv) Dry chemical type 9 kg
(v) Inergen/argonite

SS - 38 MOBILE FIRE EXTINGUISHERS

SS - 38.1 Any fire extinguisher exceeding the capacities prescribed in the relevant Kenya Bureau of Standards specification and fitted with suitable wheels for transportation shall be deemed to be a mobile fire extinguisher.

SS - 38.2 An approved mobile fire extinguisher may replace half the portable fire extinguishers:
Provided that:-

(a) the cap acity of any such mobile fire extinguisher shall be at least equal to the

combined capacity of the number of portable fire extinguishers it replaces;

(b) it contains the same extinguishing medium as required for such portable extinguishers;

(c) it replaces such portable extinguishers only on the floor and within the division concerned;

(d) the floor area to be served by it does not exceed 500% of that given in Table S11 or 1,000 m^2 on a single level, whichever is the lesser;

(e) the extinguishing medium complies with the appropriate requirements of Kenya Bureau of Standards and

(f) Such mobile fire extinguisher is kept in a readily accessible position.

SS - 39 FIRE STOPPING OF INACCESSIBLE CONCEALED SPACES

SS - 39.1 Where in any building there is any inaccessible concealed space with a maximum dimension of more than 5m such space shall:-

(a) be fire stopped whether it contains combustible material or not;

(b) where it is within any non-combustible building element, be fire stopped not less than every 5m measured horizontally or vertically: Provided that this requirement shall not apply to the cavity of any masonry cavity wall;

(c) where it is within any combustible building element be fire stopped not less than every 3 m measured in both directions.

Commentary

An inaccessible concealed space could be any space in a building to which there is no ready access. It could, for instance, include the space above a false ceiling or under a false floor or that behind panelling fixed to a wall. Since, by definition, the space is concealed, any fire starting in such space or reaching such space from elsewhere could spread rapidly without anyone being aware of it before it is fully developed. It is for this reason that it is important that firestops should be provided at regular intervals in both the vertical and horizontal directions to prevent such spread

SS - 40 PROTECTION IN SERVICE SHAFTS

SS - 40.1 The walls of any internal service shaft shall have a fire resistance of not less than the requirements for structural stability given in table S5, subject to a maximum requirement of 120 minutes.

SS - 40.2 Where any vertical service shaft is provided in any building and such shaft does not contain any combustible material it shall be fire stopped at the level of every fifth storey above the bottom of such shaft.

SS - 40.3 Where such a shaft is so provided and it contains any combustible material it shall be fire stopped at the level of every storey above the bottom of such shaft.

SS - 40.4 Where any vertical service shaft is used for ventilation or it contains non-combustible plumbing or drainage services or is a non-combustible rubbish

chute no fire stop shall be required within such shaft.

SS - 40.5 Where any horizontal service shaft passes through any separating element and such element is required to have a fire resistance, such shaft shall be fire stopped where it passes through such element.

SS - 40.6 Where any service penetrates a separating element such separating element shall be completely sealed around such service.

SS - 41 SERVICES IN STRUCTURAL OR SEPARATING ELEMENTS

SS - 41.1 Any service pipe, conduit, duct, sleeve, cable or other equipment recessed into any structural or separating element which is required to have a fire resistance shall be set into such element in such manner that such fire resistance is not reduced to below the required fire resistance.

SS - 41.2 Any service that penetrates through any wall or floor where such wall or floor is required to have afire resistance shall be sealed in such a manner that the fire hall not penetrate such wall or floor.

SS - 42 SMOKE CONTROL

SS - 42.1 Notwithstanding the requirements of sub- regulation NN10.3 any room of which the floor area is more than 500 m^2 shall be provided with:-

(a) a system of mechanical smoke ventilation; or
(b) roof ventilators or openable windows or panels to permit smoke ventilation and such roof ventilators or openable windows or panels shall:-
  (i) have an aggregate area of not less than 3% of the floor area of such room or, in the case of any single storey building where such room has an occupancy classified D2 or D3, not less than 1.5% of the floor area of such room;
  (ii) be located in the roof or in the upper third of the walls, as the case may be, and be distributed in such a way that smoke will be evenly extracted from all parts of the room;
  (iii) be designed to open automatically when activated by heat or smoke detectors or, where not so designed, shall be capable of being manually operated, without the use of special tools, from the floor of such room: Provided that where such room is so situated that neither a roof space nor an external wall of the building form part of such room, such room shall be equipped with a system of mechanical smoke ventilation.

SS - 42.2 Where openable panels are provided on any building elevation for the purpose of smoke ventilation, the position of such panels shall be suitably marked on the outside of the building to permit easy identification by the fire services.

SS - 43 COMPARTMENTATION

SS - 43.1 Buildings to be constructed in accordance with Regulation SS6, SS8, SS10 and SS11 for effective compartmentation.

Commentary

The spread of fire within a building shall be restricted by sub-dividing it in to compartments separated from one another by walls and/or floors of fire resisting construction.

The appropriate degree of compartmentation depends on;

1. *the use of and fire load in the building, which affects the potential for fires and the severity of fires as well as the ease of evacuation.*
2. *the height to the floor of the top storey which is an indication of the ease of evacuation and the ability of the fire and rescue service to intervene effectively.*
3. *the availability of a sprinkler system which affects the growth rate of fire and may suppress it altogether.*

In determining the compartmentation of a building, the following will be taken into account-

1. *the use of and fire load in the building, which affects the potential for fires and the severity of fires as well as the ease of evacuation.*
2. *the height to the floor of the top storey which is an indication of the ease of evacuation and the ability of the fire and rescue service to intervene effectively.*
3. *the availability of a sprinkler system which affects the growth rate of fire and may suppress it altogether.*

SS - 4 AIR-CONDITIONING AND VENTILATION SYSTEMS

SS - 4.1 Any air-conditioning system or artificial ventilation system in any building shall be so designed to prevent the distribution of products of combustion in the event of a fire in such building.

SS - 4.2 Any-air shaft or duct used for air-conditioning or artificial ventilation, including any internal or external insulation thereto and any flexible joint, shall be constructed of non-combustible material or material which has been favourably evaluated by The Approving Authority as being suitable for such shaft, duct, joint or insulation: Provided that:-

(a) Approved combustible flexible connections may be used where the length of such connection does not exceed 1.5m and such connection does not pass through any wall or floor which is required to have a specified fire resistance;

(b) Approved combustible flexible joints not more than 250mm in length may be used in any plant room where such plant room is protected by a smoke detection system.

SS - 4.3 A fire damper, which shall comply with BS EN 1751:1999 shall be provided in any air duct in any position where such duct passes through any required division or occupancy separating element or any element required for the enclosure of an emergency route or passes into any duct.

SS - 4.4 Any such fire damper shall:-

(a) Close automatically upon the operation of a suitably located sensing device actuated by an abnormal rise in the temperature or by the presence of smoke or combustion gases in the air duct;
(b) Be provided with adequate access, the position of which shall be clearly marked, for inspection, maintenance and resetting of the mechanism;
(c) Be so installed as to remain in position at the protected opening even if the air duct distorts during a fire; and
(d) Be provided with an overriding fusible link.

SS - 4.5

(a) Any plenum, excluding return air intakes, forming part of an air-conditioning or artificial ventilation system shall be constructed of non-combustible material or of a material which has been favourably evaluated by The Approving Authority as being suitable for such construction: Provided that where the sum of the areas of all air supply and return air intake grilles in such plenum is not more than 5% of the area of surface of such plenum exposed to the room below and no individual grille has an overall area of more than 0.09 m^2, such grilles may be of combustible material.
(b) The supports of any plenum shall be non-combustible.
(c) In any plenum system the fire stops, as contemplated in sub-regulations SS14.5 and SS15.3, shall be constructed of steel baffle plates which shall close automatically upon the operation of approved sensing devices actuated when the temperature of the air in such space reaches 15 °C above its design temperature or 45 °C, whichever is the lesser.
(d) No plenum system shall be used for storage or for the accommodation of people

SS - 5 NO SMOKING SIGNS

"No smoking" signs of approved size shall be prominently displayed in suitable positions in any division, occupancy, room or any other part of a building where flammable substances are dealt with, used or stored and on the outside of any door leading thereto.

SS - 6 LIFT SHAFTS

SS - 6.1 In any building of more than 10 m in height:-

Any lift or bank of lifts shall be provided with a lift lobby at every level of discharge which shall be free of combustible material; such lobby shall be divided from the remainder of the floor area by means of walls having a fire resistance of not less than 30 minutes and any door in such walls shall be of an automatic or self-closing type which shall have all edges fitted with flexible seals to prevent the passage of smoke and air when in the closed position and which shall have, when tested in accordance with BS 7255 : 1989 and KS ISO :4190:1-6 a stability

and integrity rating of not less than 30 minutes.

SS - 6.2 No access doors shall be within a lift lobby.

SS - 6.3 Any lift shaft shall have a fire resistance of not less than the requirements for structural stability given in Table S5, subject to a maximum requirement of 120 minutes, and shall be so designed that not more than four lifts are accommodated in any one subdivision of such shaft.

SS - 6.4 Where on any storey of a building any lift in a bank of lifts discharges into a division different from that into which the other lifts discharge such lift shall be accommodated in a separate shaft.

SS - 7 LIFTS

SS - 7.1 No decorative finish or floor covering of lifts shall have a fire index of more than 2 when tested in accordance with KS ISO: 4190: 1-6

SS - 7.2

(a) In any building the controls of any lift shall be so designed that in the event of fire such lift shall be brought automatically to the main entrance storey without stopping and shall remain there with its doors open.
(b) The requirements of this sub-regulation shall not apply to any building with classification of occupancy H3 or H4.

SS - 8 FIRE FIGHTING LIFTS

SS - 8.1 In any building exceeding 18 m in height there shall be provided at least one firefighting lift to serve any storey including any basement.

SS - 8.2 Such firefighting lift shall be in a separate shaft and have on each storey a lobby separated from any other lobby or space by walls and doors which shall have a fire resistance of not less than 120 minutes.

SS - 8.3 Such firefighting lift shall:-

(a) Have internal dimensions of not less than 1.1 m wide by 2.1 m deep and have a clear door width of not less than 800mm;
(b) Be clearly identified as a firefighting lift on every storey;
(c) Be capable of being stopped at any storey and have access to all such storeys;
(d) Be kept available for use at all times;
(e) Be subject to independent control during an emergency;
(f) Continue to be workable during an emergency when all other lifts have been brought to the main entrance storey as contemplated in Regulation SS48;
(g) Be provided with a source of emergency power which will enable such lift to operate together with its lights and extract fan for not less than 120 minutes in the event of failure of the mains supply; and

(h) Be provided with means of oral communication to a control point or to a control room where such a room is provided.

SS - 9 STRETCHER LIFTS

SS - 9.1 In any building exceeding six storeys in height where one or more lifts are installed at least one lift shall have dimensions 1.1m wide by 2.1m deep and the entrance to the lift shall be not less than 800 mm in width.

SS - 9.2 Where such building exceeds 30 m in height the power supply to the motor operating such stretcher lift shall be protected against the effect of fire for at least 120 minutes.

SS - 10 STAGE AND BACKSTAGE AREAS

SS - 10.1 The requirements contained in this regulation shall apply to any stage or backstage area, including any area beneath any stage that communicates directly with such stage, in any theatre or other occupancy in which plays, operas or other productions necessitating the use of scenery take place:
Provided that the requirements contained in sub-regulations SS51.2, SS51.4, SS51.5 and SS51.6 shall not apply in the case of a stage in any school or church hall or other similar place used solely for the presentation of amateur productions, and shall not apply to any stage not having a fly gallery.

SS - 10.2

(a) Any area contemplated in sub-regulation SS51.1 shall be separated from any dressing room, auditorium, workshops, stores or any other area within the occupancy, by walls and floors which shall have a fire resistance of not less than 120 minutes, and any opening, other than the proscenium opening, in such wall or floor shall be protected by a Class B fire door or fire shutter.
(b) No dressing room shall be at any level lower than the first basement storey.

SS - 10.3 Any proscenium opening shall be protected by a fire curtain which shall be:-

(a) of rigid non-combustible construction Capable of withstanding a lateral pressure of 500 Pa and such that a representative specimen of such fire curtain, when tested in accordance with the requirements contained in Kenya Bureau of Standards, shall meet the requirements of a Class D door;
(b) Constructed to slide freely in non-combustible guide rails on both sides of the proscenium opening;
(c) so arranged that when fully closed it overlaps the proscenium wall, on the stage side, by not less than 450 mm at each side of such opening and 600 mm at the top and is closed at the bottom onto the stage floor which, if of combustible material, shall be not more than 38 mm thick over a non-combustible slab or wall;
(d) so arranged that in the case of a fire it will descend automatically and close

such opening;

(e) so arranged and controlled that it can descend completely within 30 seconds and be so regulated that for the last 2 m of its descent it does not travel faster than 0.5 m/s; and

(f) capable of being both manually and operated by remote control: Provided that in the case of a stage in any school or church hall or other similar place seating not more than 300 persons and which is used solely for the presentation of amateur productions, a heavy woolen or non-combustible fibre cloth curtain may be-substituted for such fire curtain.

SS - 10.4 Any area contemplated in sub-regulation SS51.1 shall comply with the following requirements:

(a) Any structure and any wall, partition, horizontal slab, roofing and ceiling material therein shall be of non-combustible material.

(b) Any fitted decorative material therein shall be non-combustible.

(c) Any stage floor may be of timber where the supports of such timber floor are supported by a non-combustible floor slab.

SS - 10.5 In any area contemplated in sub-regulation SS51.1 the following fire protection equipment shall be provided with:

(a) An automatic sprinkler system and an automatic drencher system to the stage side of the fire curtain so designed as to give adequate protection in the event of a fire.

(b) At the highest point of the roof over such area, an acceptable automatic roof ventilation system the effective aggregate area of opening of which shall be not less than 10% of such area and which shall also be capable of being manually operated.

(c) A direct communication with the local authority's fire services.

(d) Manual alarms in the backstage area in suitable and easily accessible positions.

SS - 10.6 Any dressing room area shall have direct access to an emergency route.

SS - 11 SEATING ARRANGEMENTS IN AUDITORIA OR HALLS AND ON GRANDSTANDS

SS - 11.1 In any auditorium or hall or on any grandstand containing any seating:-

(a) the seating and any aisles serving such seating shall be so arranged as to allow unobstructed movement to the escape routes from such auditorium, hall or grandstand;

(b) notwithstanding the requirements contained in Regulation SS18 no seat shall be more than 21 m from an escape door or an access door to an emergency route as measured along the route which a person occupying such seat may be expected to travel to arrive at such escape door or access door.

SS - 11.2 All seating on any grandstand or in any auditorium or hall not used for more than one purpose shall be fixed to the building: Provided that seating need not be so fixed in any auditorium or hall, or a box therein, which accommodates not more than 25 persons.

SS - 11.3

(a) Notwithstanding the requirements contained in Regulation SS22 :-
  (i) clearance between rows of seats means the distance as measured between plumblines from the rearmost part of any seat to the nearest part, including armrests if any, of the seat behind it:
  (ii) Provided that in the case of gravity-operated automatic tip-up seats such distance may be measured with the seats in the tipped-up position; and
  (iii) where individual seats are not provided every 450mm of seating shall be deemed to be a seat.

(b) The clearance between rows of seats in any auditorium or hall shall be not less than:-
  (i) 300 mm where any person is not required to pass more than 14 seats to leave the row;
  (ii) 400 mm where any person is required to pass more than 14 seats but not more than 24 seats to leave the row; or
  (iii) 500 mm where any person is required to pass more than 24 seats to leave the row.

(c) The clearance between rows of seats in outdoor grandstands, where backrests are provided to such seats, shall be not less than:-
  (i) 300 mm where any person is required to pass not more than 20 seats to leave the row;
  (ii) 400 mm where any person is required to pass more than 20 seats but not more than 40 seats to leave the row; or
  (iii) 500 mm where any person is required to pass more than 40 seats to leave the row; and where backrests are not so provided, or on terraced seating, the minimum distance from the front edge of any seat to the front edge of the seat immediately in front of or behind such seat shall be not less than 675 mm.

SS - 11.4

(a) Any aisle in any auditorium, hall or grandstand shall have a clear width of not less than 1.1m or such greater width as contemplated for an emergency route in terms of Regulation SS23 for the population served, and the surface of the floor and any steps of such aisle shall be rendered suitably slip resistant and shall at all times be maintained in such slip-resistant condition,

(b) Any cross-aisle shall discharge at both ends directly to an emergency route.

SS - 11.5

(a) The gradient of any such aisle which is not level shall not exceed 1 in 8 and any stepped aisle shall not exceed an overall gradient of 1 in 3.

(b) Steps along any such aisle shall be the full width of such aisle and shall be illuminated to a level of not less than 2 lux at tread level when normal lighting has been lowered and shall have uniform tread widths and risers so designed as to reduce the likelihood of any person stumbling.

SS - 11.6 Where any aisle crosses parallel to the rows of seats and the floor level of such

aisle is higher than the adjacent floor level of any row of seats the edge of such aisle shall be provided with railings not less than 800mm in height above the floor level of the aisle immediately behind such row, and where the floor level of any row of seats is higher than the floor level of any adjacent cross-aisle the edge of the floor level of such row shall likewise be provided, at the relevant clearance contemplated in sub-regulation SS52.3, with railings in front of all such seats, which shall be not less than 800 mm in height above the floor level of such row.

SS - 11.7 Any exit door from any auditorium or hall shall be provided with approved panic bolts, and at no time during occupancy of such auditorium or hall by the public shall such door be locked, obscured, obstructed, covered or hidden.

SS - 11.8 Any floor covering in any auditorium or hall shall be securely fixed and maintained in a safe condition

SS - 11.9 An approved standby system for emergency lighting independent of the normal mains supply shall be provided in any theatre complex or any individual auditorium, hall or grandstand where the total number of seats exceeds 240 or the floor area exceeds 240 m^2, in order to afford a level of illumination of not less than 2 lux to enable persons to leave all parts of such theatre complex, auditorium, hall or grandstand in the event of failure of the normal mains supply: Provided that this requirement shall not apply in the case of any hall contemplated in the proviso to sub-regulation SS51.1.

SS - 11.10 The power supply to such emergency lighting shall be safe-guarded against the effects of a fire for at least 30 minutes.

SS - 12 PARKING GARAGES

SS - 12.1 The floor of any occupancy classified J4 shall be of non-combustible material and shall be not less than 25mm lower than the threshold of any door leading to any adjoining occupancy.

SS - 13 OPERATING THEATRES AND INTENSIVE CARE UNITS

SS - 13.1 Where within any building there is a suite of room used for the purposes of operating theatres, maternity delivery rooms or intensive care units such area shall comply with the following requirements:

(a) The walls, floor and ceiling separating such suite from any other suite or from any other part of the building shall have a fire resistance of not less than 120 minutes.
(b) There shall be not fewer than two means of exit from such suite.
(c) Such suite shall be provided with an approved emergency power supply independent of the normal mains supply and capable of operating for not less than 120 minutes in the event of failure of the mains, supply.
(d) Any lift used for the transport of patients from such suite shall be provided

with an approved emergency power supply independent of the normal mains supply and capable of operating for not less than 120 minutes in the event of failure of the mains supply.

SS - 14 INSTALLATION OF LIQUID FUEL DISPENSING PUMPS AND TANKS

SS - 14.1

(a) No liquid fuel dispensing pump or storage tank shall be situated less than 3.5 m from any lateral boundary or street boundary of any site except where there is a boundary wall and such wail has a fire resistance of 120 minutes, is not less than 1.8m in height and extends not less than 2 m on each side of such pump.

(b) No part of such tank shall be situated within 500 mm of any building except in the case of any tank contemplated in sub-regulation SS56.3.

(c) No such tank shall be situated within 500 mm of any other tank except where each tank is located in its own concrete lined pit.

SS - 14.2 No part of any building, other than a canopy or similar projection, to which the occupants of such building do not have access, shall be erected over such dispenser or tank except where:-

(a) the underside of such part is at least 3.5 m above ground level;

(b) such part has a fire resistance of at least 240 minutes and extends at least 2 m in every direction beyond the sides of the dispenser and tank concerned; and

(c) The floor below such dispenser, where such dispenser is erected over a basement storey, has a fire resistance of at least 240 minutes and extends at least 2m in every direction beyond the sides of the dispenser and tank concerned.

SS - 14.3 Any petrol dispenser shall, where it may be approached by any vehicle, be erected on a raised plinth not less than 150mm above the surrounding ground level and such plinth shall extend not less than 300mm beyond the perimeter of the base of such dispenser.

SS - 14.4 Any such tank and associated equipment shall be constructed and installed in accordance with KS1969;2006,KS1967:2006 (SABS 0131 and SABS089)

SS - 14.5 The filler pipe of any fuel tank shall be positioned in a masonry or concrete lined chamber not less than 300mm deep and such pipe shall be clearly identified to indicate its purpose.

SS - 14.6 No fuel tank shall have more than one filler pipe, one ventilating pipe and one dipping hole pipe, and such filler and dipping hole pipe shall extend to as near to the bottom of the tank as is practicable.

SS - 15 INSTALLATION OF OTHER TANKS

SS - 15.1 Where on any site liquid petroleum gas is stored in bulk in any vessel which has a water capacity in excess of 500 litres the design, erection and protection of such storage facilities shall be in accordance with KS1938-4:2005. .

SS - 15.2 Where any small container is filled with liquid petroleum gas on any site:-

(a) The location, design and control of the area on such site in which such filling is carried out shall be in accordance with Kenya Bureau of standards approved standard;
(b) The filling equipment shall be in accordance with Kenya Bureau of standards approved standard;
(c) The filling of containers shall be in accordance with Kenya Bureau of standards approved standard;
(d) The storage facilities for such gas shall be in accordance with Kenya Bureau of standards approved standard; and
(e) Bulk vehicle discharge of such gas shall be in accordance with Kenya Bureau of standards approved standard;
(f) Bulk vehicle discharge of such gas shall be in accordance with KS1969;2006,KS1967:2006, KS1938-4:2005

SS - 15.3

(a) In the case of any tank installed inside any building and intended to contain diesel fuel such installation shall be in accordance with KS1969;2006, KS1967:2006, KS1938-4:2005 .
(b) Any such tank shall not be installed on any storey above the ground storey of any building.

SS - 16 ACCESS TO BUILDINGS FOR FIRE-FIGHTING AND RESCUE PURPOSES

SS - 16.1 No building shall be erected on any site unless such site is provided with suitable access for the purposes of fire-fighting in and rescue from such building by the Fire Services of the local authority.

SS - 16.2 Any building shall be provided with suitable access to its interior for rescue purposes by such services and be provided, in terms of Regulation SS43, with a means of smoke ventilation from each storey.

SS - 16.3 The requirements contained in sub-regulation SS57.2 shall not apply to any portion of any building which is to be used for the purposes of a strong room, record room, security vault, non-habitable computer room or specific technical areas to which The Approving Authority agrees.

SS - 16.4 Any escape door shall be clearly identified from the exterior of the building.

SS - 16.5 The number of any storey shall be indicated inside any emergency route on any access door.

SS - 17 PRESUMED FIRE RESISTANCE OF BUILDING MATERIALS AND COMPONENTS

SS - 17.1 In this Regulation:-

(a) "Class 1 Aggregate" means coarse aggregate of foamed slag, blast furnace slag, pumice, burnt clinker, crushed limestone, crushed dolomite, crushed brick or crushed burnt clay product;

(b) "Class 2 Aggregate" means coarse aggregate of gravel or crushed natural stone other than limestone or dolomite; and

(c) "Plaster" means a layer of plaster not less than 12mm thick applied to both faces of a wall.

SS - 17.2 The building materials and components contemplated in Tables S12 to S16 of this Regulation shall be deemed to satisfy the performance requirements, under fire conditions, provided that such materials and components comply with the relevant detailed descriptions given in such tables.

SS - 17.3 Any monolithic unreinforced concrete element or any concrete masonry constructed of solid concrete masonry units in accordance with the requirements contained in KS 02 - 566:1990 shall be considered to be a solid concrete unit and shall be deemed to have the fire resistance given in Table S13.

SS - 17.4 Only such building materials, components, and methods of construction for which sufficient test data is available are listed in Tables S12 to S17.

The fact that a material or method of construction is not mentioned in this Regulation should not be construed to mean that such material or method cannot be used but it shall mean that the fire resistance shall be ascertained by test or be assessed to be suitable for a particular application.

Table S - 12: Walls and Partitions

Construction	**Minimum thickness in mm (excluding plaster) for period of hours**				
SOLID CONSTRUCTION:-.Stone, bonded and coursed; bricks of clay, concrete or sand lime: No plaster	6hrs	4 hrs	2 hrs	1 hr	1/2 hr
	216	216*	21 6¥	102	102
Concrete blocks: **Class 1 Aggregate**: No plaster			102	76	64
Plastered at least 13mm thick on each side ……..			102	64	64
. **Class 2 Aggregate**: No plaster				1o2	76

Plastered at least 13mm thick on each side			1o2	76	51
Gypsum blocks: No plaster			102	76	52
Plastered at least 13mm thick on each side			76	51	51
Wood wool slabs: Plastered at least 13mm thick on each side			76	51	51
Reinforced concrete: Aggregate with reinforcement (in two layers in walls over 127mm in thickness) in two different spaced not further apart than 153mm centres, the volume of which is not less than 0.2 per cent of the volume of the concrete with minimum cover of 25mm	229	178	102	76	76
Plaster board: Supported at top and bottom edges in steel channels and plastered on each side at least 16mm thickness with gypsum plaster				19	
Glass bricks: In panels not exceeding 4sq.m. in area with expansion joints not less than 2.5mm per metre width of the panel at each side of the panel, and not less than 2.5mm per metre of the height of the panel at the top of the panel				102	
* Where plastered at least 25mm thick on each side with gypsum/vermiculite plaster not leaner than 1:2 and where the wall does not exceed 3 metres either in height or length, the thickness for this period may be 102mm. ¥ Where plastered at least 13mm thick on each side and where the wall does not exceed 3 metres either in .height or length, the thickness for this period may be 102mm.					

HOLLOW BLOCK CONSTRUCTION:-Clay Blocks: Plastered at least 12mm thick on each side and shells not less than 19mm thick: 1 cell in each block and each block not less than 50 per cent solid …….				102	76
1 cell in each block and each block not less than 30 per cent solid ……..				152	
2 cells in each block and each block not less than 50 per cent solid ……..			216	102	
2 cells in each block and each block not less than 30 per cent solid ……				152	
Concrete blocks: Plastered at least 13mm thick on each side and 1 cell in wall thickness: Class 1 Aggregate.....		222	114	76	64
Class 2 Aggregate				222	76
Gypsum blocks: Not less than 70 per cent solid: No plaster			76	51	51

Table S - 13: Non-Structural Hollow and Partitions

Construction	*Minimum thickness in mm on each face for period of hours*			
	4 hrs	2hrs	1 hr	1/2 hr
STEEL OR TIMBER STUDDING:-Plaster on metal or timber lathing: Portland cement plaster, Portland cement lime plaster or gypsum plaster			19	13
Plaster board with or without gypsum plaster; 10mm thick plaster board on each side				5(Neat single coat)
10mm thick perforated plaster board on each side .. Two 10mm thick plaster boards on each side			13	
13mm thick plaster board on each side			Nil	
19mm thick plaster board on each side			10	Nil

HOLLOW BLOCK CONSTRUCTION:-Clay Blocks: Plastered at least 12mm thick on each side and shells not less than 19mm thick: 1 cell in each block and each block not less than 50 per cent solid				102	76
1 cell in each block and each block not less than 30 per cent solid				152	
2 cells in each block and each block not less than 50 per cent solid			216	102	
2 cells in each block and each block not less than 30 per cent solid				152	
Concrete blocks: Plastered at least 13mm thick on each side and1 cell in wall thickness: Class 1 Aggregate.....		222	114	76	64
Class 2 Aggregate				222	76
Gypsum blocks: Not less than 70 per cent solid: No plaster			76	51	51

Table S - 14: HOLLOW STUD CONSTRUCTION OF STEEL AND TIMBER

Construction	***Minimum thickness In mm on each face for period of hours***			
	4 hrs	2 hrs	1 hr	1/2 hr
STEEL OR TIMBER STUDDING:-Plaster on metal or timber lathing: Portland cement plaster, Portland cement lime plaster or gypsum plaster			19	13
Plaster board with or without gypsum plaster: 10mm thick plaster board on each side				5 (Neat single coat)
10mm thick perforated plaster board on each side ..			13	
Two 10mm thick plaster boards on each side			Nil	
13mm thick plaster board on each side			10	
19mm thick plaster board on each side			Nil	

Table S - 15: FLOORS

Construction	*Minimum thickness in mm for period of*				
	4 hrs	2 hrs	1 hr	1/2 hr	Periods specified for small houses (by-law 75 of the Kenya Building Codes)
FILLER JOIST CONSTRUCTION:-Thickness of concrete	152	127	76	89	
Concrete cover on bottom of joist .	76	25	13	13	
SOLID REINFORCED CONCRETE CONSTRUCTION:- (Including flat slab construction and floors constructed on pre-cast inverted "U" channel or T-sections, without a ceiling or soffit): Thickness of concrete	152		1O2	89	
Concrete cover to reinforcement	25	13	13	13	
HOLLOW BLOCK FLOOR CONSTRUCT! ON :-(Including floors constructed of precast concrete units of box-section or 1 -section): Aggregate thickness of non-combustible material (excluding ceiling fishes (if any)	127	89	76	63	
Concrete cover to reinforcement	25	13	13	13	

STRUCTURAL TIMBER CONSTRUCTION:-(a) Plan edge boarding on timber joists not less than 38mm wide with ceiling of: (i) Timber lath and plaster-Thickness of plaster ..,_.....					16
(ii) Timber lath and plaster with plaster of minimum thickness of 15mm covered on underside with plaster, board of thickness ...			13		
(iii) Metal lath and plaster-Thickness of plaster			19		
(iv) One layer of plaster-board of thickness					13
(v) One layer of plaster-board of minimum thickness of ,10mm finished with gypsum plaster of thickness					13
(vi) One layer of plaster-board of minimum thickness of 13mm finished with gypsum plaster of thickness				13	
(vii) Two layers of plaster-board of total thickness					19
(viii) One layer of insulating board of minimum thickness of 13mm finished with gypsum plaster of thickness					13
(ix) Wood-wool slab 25mm thick finished with gypsum plaster of thickness				5	

(b) Tongued and grooved boarding not less than 19mm (nominal) thickness on timber joists not less than 38mm wide with ceiling of: (i) Timber lath and plaster-Thickness of plaster ..				10 10	16
ii)Timber lath and plaster with plaster of minimum thickness of 19mm covered on underside with plaster-board of thickness				5 22	10
(iii) Metal lath and plaster:-Thickness of plaster					
(iv) One layer of plaster-board of thickness					
(v) One layer of plaster-board of minimum thickness of 13mm finished with gypsum plaster of thickness .				5	
vi) Two layers of plaster-board of total thickness					5
vii) One layer of insulating board of minimum thickness of 13mm finished with gypsum plaster of thickness					
(viii) Wood-wool slab 25mm thick finished with gypsum plaster of thickness				16 16	
(c) Tongued and grooved boarding not less than 25mm (nominal) thickness on timber joists not less than 178mm deep by 51mm wide with ceiling of:				13	10
(i) Timber lath a.nd plaster thickness of plaster ...					
ii) Metal lath and plaster thickness of plaster ...				5	

(iii) One layer of plaster-board of thickness ..				19	
(iv) One layer of plaster board of minimum thickness of 10mm finished with gypsum plaster of thickness					
(v) One layer of plaster-board of minimum thickness of 13mm finished with gypsum plaster of thickness				13	13
(vi) Two layers of plaster board of total thickness (vii) One layer of insulating board of thickness ... (viii) One layer of insulating board of minimum thickness of 13mm finished with gypsum plaster of thickness				5	
(ix) Wood-wool slab 25mm thick finished with gypsum plaster of thickness					

Table S - 16: STEEL COLUMNS AND BEAMS

In this Table:-
SOLID PROTECTION means casing which is bedded close up to the steel without any intervening cavities and with all joints in that casing made full and solid.
HOLLOW PROTECTION means that there is a void between the protective material and the steel. All hollow protection to columns shall be effectively sealed at each floor level.
REINFORCEMENT. Where reinforcement is required in this Table, that reinforcement shall consist of steel binding wire not less than No. 13 S.W.G. in thickness, or a steel mesh weighing not less than 544 grammes per sq. metre. In concrete protection the spacing of that reinforcement shall not exceed 3048mm in any direction.

Construction	Minimum **thickness of protection in mm for period of hours**			
	4 hrs	2 hrs	1 hr	1/2 hr
SOLID PROTECTION:-Columns: Reinforced concrete .	64	51	25	25
Solid bricks of burnt clay of sand lime Solid blocks reinforced in every horizontal joint	76	51	51	51
: (i) Foamed slag or pumice concrete	64	51	51	51
ii) Gypsum blocks	51	51	51	51
Beams: Reinforced concrete	64	51	25	25

HOLLOWED PROTECTION:- Columns; Solid bricks or burnt clay or sand lime reinforced in every horizontal joint	114	76	51	51
Solid bricks of foamed slag or pumice concrete or gypsum reinforced in every horizontal joint	76	51	51	51
Portland cement plaster or Portland cement-lime plaster on metal lathing				19
Portland cement plaster or Portland cement-lime plaster on metal lathing with reinforcement over rendering coat			25	
Gypsum plaster on metal lathing			22	16
Gypsum plaster on 10mm gypsum plaster boards with No. 16 S.W.G. wire binding at 102mm pitch			13	
Two layers of metal lathing plastered With gypsum plaster on each layer, each 19	19			
Precast concrete consisting of 4 volumes of vermiculite to 1 volume of Portland cement, reinforced with expanded metal, wire mesh of with No. 15 S.W.G. wire binding at 102mm pitch			25	
Portland cement plaster or Portland cement-lime plaster on metal lathing				19
Portland cement plaster or Portland cement-lime plaster on metal lathing with reinforcement over the rendering coat				
Gypsum plaster on metal lathing				
Gypsum plaster on 10mm gypsum board supported on wood battens .				
Gypsum plaster on 19mm gypsum, plastered board with No. 16 S.W.G. wire binding at 102mm pitch				
Precast concrete consisting of 4 volumes of vermiculite mesh or with No. 16 S.W.G. wire binding at 102mm pitch		22 13	25 16 25	5(neat single coat)
The thickness of protection or any projecting cleat, projecting rivet head and the like need not exceed 25mm. The thickness of protection on the super surface of the upper flange of an internal mean, and on any projecting cleat, projecting rivet head and the like need not exceed 25mm.				

Table S - 17: Reinforced Concrete Columns and Beams

Construction and materials	***Minimum thickness of protection in mm for period of hours***			
	4 hrs	**2 hrs**	**1 hr**	**1/2 hr**
Reinforced concrete columns	**450**	**300**	**203**	**152**
Reinforced concrete columns with light 51mm mesh reinforcement placed centrally in the concrete cover to longitudinal reinforcement .	**300**	**225**		
Reinforcement concrete beams	***Minimum concrete to reinforcement in mm for period of hours***			
	4 hrs	**2 hrs**	**1 hr**	**1/2 hr**
	64	**51**	**38**	**25**
NOTE:- This Table is not to be applied in the case of post- or pre-stressed concrete. Special approval of The Approving Authority will be required in the case of this special form of construction.				

SS - 17.5 Where concrete structural elements and components are constructed in accordance with the relevant requirements contained in these Regulations, such elements and components may be presumed to have the fire resistance assumed for the purposes of the design in accordance with BS8100.

SS - 18 NON-COMBUSTIBLE BUILDING MATERIALS

SS - 18.1 The building materials listed in sub-regulation SS59.2 are deemed to satisfy the requirements for non-combustibility as prescribed in BS 476 Parts 4: 1970 singly or in combination with each other. Any addition of organic or other combustible material may render the listed material combustible in terms of BS 476 Part 4 : 1970 and materials not listed are presumed to be combustible except where proved otherwise when tested in accordance with such code of

practice.

SS - 19 NON-COMBUSTIBLE BUILDING MATERIALS

Aluminium (extrusions or castings)
Fibre-cement
Fibre-cement products with less than 7.5 % combustible additives
Brass
Bricks (burnt clay, lime/sand, cement/sand)
Cement (Portland and blastfurnace, .)
Clay (burnt or unburnt)
Concrete
Furnace slag
Glass (solid)
Glass fibres (spun, woven or wool, with less than 5% resin content)
Gypsum (with less than 7.5% paper or other combustibles)
Lime
Metals (other than the alkaline metals)
Mineral wool (with less than 5% resin content)
Mortar (lime, cement, gypsum)
Perlite
Porcelain
Pumice
Sand
Steel (cast or rolled)
Stone, natural
Vermiculite

NOTE

a) The metals listed may only be considered to be non-combustible when in their solid form and not when in the form of a powder or shavings.
b) The percentages given are by mass.

SS - 3 SURFACE FIRE INDEX OF MATERIALS

Samples of finishing materials to be used on vertical and overhead horizontal surfaces shall be tested in accordance with BS 476 Part 4: 1970 and the values obtained from such test shall be used to calculate the class to the limiting values given in Table S18, and for a given class of material the requirements given in columns 2, 3, 4 and 5 of such table shall be individually satisfied.

Table S - 18: Classification of Finishing Materials

1	2	3 4	5
Class	Maximum values		

	Spread of flame index, If	Heat contributed Index, Ih	Smoke emitted Index, Is	Surface fire Index, F
1	0.1	0.1	0.2	0.1
2	0.7	0.8	1.0	0.6
3	1.5	1.7	2.0	1.2
4	3.5	3.8	4.0	2.9
5	5.5	5.8	6.0	4.5

SS - 4 FIRE INDEX OF FLOOR COVERINGS

Samples of covering shall be tested in accordance with subsections 6.1 to 6.4 of Kenya Bureau of Standards and the values obtained from such test shall be used to calculate the class to the limiting values given in Table S19, and for a given class of floor covering the requirements given in columns 2, 3, 4 and 5 of such table shall be individually satisfied.

Table S - 19: Classification Of Floor Coverings

1	2	3	4	5
Class	Maximum values			
	Spread of flame index, If	Heat contributed Index, Ih	Smoke emitted Index, Is	Surface fire Index, F
1	0.2	0.2	0.15	0.1
2	1.0	0.9	0.9	0.7
3	2.1	2.1	2.1	1.7
4	3.9	3.9	3.9	3.3
5	5.0	5.0	5.0	4.5

Commentary: Atrium Buildings and Shopping Malls

In the application of Regulation SS1 to unusual buildings the accent on and importance of the different requirements may vary but there are two relatively common types of buildings that may require special consideration in view of the unique problems they present in the provision of fire protection measures. Atrium buildings and shopping malls are not adequately covered by the deemed-to-satisfy regulations and should in most cases be the subject of a rational design. It is not possible, within the limitations of this commentary, to cover all the problems which may be encountered but certain parameters should be taken into account in any design, In any atrium building, special problems of life-safety are created in that smoke, hot gases and even flames may travel from one or more rooms into the atrium and thence affect areas which would not be affected in the absence of an atrium. If escape routes can be entirely segregated from the atrium the increase in hazard to life safety due to the atrium may not be serious but this segregation normally is difficult to achieve.

The major danger in any fire is that of smoke and hot gases accumulating in the atrium and spreading throughout the building since in most cases the atrium is open to rooms on each

floor or, at best, separated from them by glass walls, It is therefore essential to provide a properly designed smoke control system but unfortunately little guidance on the subject exists.

Much will depend upon whether the atrium area is used only as a transit area or whether it serves some other functional purpose. Design will also be influenced by whether the atrium is open to surrounding areas or not.

The use of fire-resistant glass to close the atrium may be considered but this will not be effective if the glass shatters due to heat effects, if the glazing seals are poor or if a fire should occur on the atrium floor.

The methods of smoke control that may be considered include direct ventilation of the rooms around the atrium, throughflow ventilation of the atrium space, depressurization ventilation of the atrium space and hybrid ventilation of the atrium space.

The direct ventilation of rooms may be achieved either by a dedicated smoke exhaust system or by adapting the normal ventilation system. Where a room is open to the atrium it must be provided with a downstand barrier to create a reservoir within the room or a powerful exhaust intake must be provided at the boundary to prevent hot smoke and gases from entering the atrium. Where the room is separated from the atrium an inlet air supply must be provided which can be via roof vents and through the atrium.

Throughflow ventilation of the atrium is the most common system but is restricted in use because the smoke layer must be above the highest open level. This restricts to between 2 and 5 storeys the height of atrium which can be used. Depressurization ventilation is used in closed atria or in those where rooms are separated from the atrium by fire-resistant glass, its use presumes knowledge of the temperature of the gas layers and of the rate of heat loss to the atrium facade. The hybrid ventilation technique employs throughflow ventilation to create a distinct smoke layer and the depressurization concept to raise the building's neutral pressure plane to a level high enough to protect smoke-sensitive storeys.

It should be noted that whatever method of smoke control is adopted, the most difficult part of any rational design is the assumed fire size on which the design is based and the justification for the assumption made,

In the case of a shopping mall the main problems are smoke control and control of the spread of any fire, combined with safe means of escape for occupants. Since the width of the mall may be restricted by economic considerations the possibility of fire, spreading across the mall is a problem and full compartmentation is usually not possible. Sprinkler protection, in individual shops and in any concealed spaces will slow the spread of fire and, particularly in the case where there are many small shops, may enable fire to be restricted to the area in which it originates. Where high-ceilinged sections of the promenade areas are to be used as smoke reservoirs care must be taken that smoke is not unnecessarily cooled by sprinklers set at too great a height to be effective.

Smoke control can often be achieved by natural ventilation methods but it is important that adequate smoke reservoirs be created, In this context it is imperative that a smoke-free zone at least 2.1m high be maintained to allow people to escape. Where smoke and hot gases are exhausted from a building these must be replaced by fresh air but the interaction between air inlets (such as doors) and the smoke reservoir can be a matter for concern. If the smoke base in the reservoir is not sufficiently far above the inlet, turbulence at the air-smoke interface will cause smoke to mix with the incoming air and thus to be carried through the mall.

Escape from a mall should be-reasonably safe provided that no point is further than the usually accepted distance of 30m from an escape door. Where higher portions of the building are approached through the mall every effort should be made to provide entirely separate escape routes which will lead directly from such portions of the building to the open air all without going through the mall.

SS - 5 APPROVED FIRE INSTALLATIONS

SS - 5.1 Any approved fire installation shall be connected to a communication pipe supplied by the local authority:
Provided that The Approving Authority may, subject to any conditions it may consider necessary, allow such fire installation to be connected to:-

(a) Any approved alternative source of supply, or
(b) Any source of non-potable water, where such water is not to be used for domestic or any other purpose which, in the opinion of the local authority, might give rise to a health hazard.

SS - 6 SUPPLY OF WATER

SS - 6.1 Water shall not be taken from a supply system for use in any fire installation, unless:-

(a) An Application has been made to the local authority for the supply of such water and such application has been granted; and
(b) The use of such water and fire installation complies with any conditions imposed by The Approving Authority.

SS - 7 DESIGN OF FIRE INSTALLATIONS

SS - 7.1 In any fire installation:-

(a) Adequate pumping connections and means of measuring water pressure shall be provided;
(b) Isolating valves shall be provided to control the flow of water to the installation, and to points within the installation, as The Approving Authority may require; and
(c) The quantity, pressure and rate of flow of water shall be adequate for the supply of any hose reel, hydrant or sprinkler system connected thereto.

SS - 8 COMMUNICATION PIPE

SS - 8.1 Any fire installation shall be connected to a communication pipe provided by the local water authority and located at a position and depth to be determined by The Approving Authority.

SS - 9 WATER METER

SS - 9.1 Where so required by The Approving Authority provision shall be made in any fire installation for the supply and installation by the local water authority of a water meter.

SS - 10 ISOLATING VALVES

SS - 10.1 An isolating valve shall be fitted in any fire installation at a position not more than 1.5m inside the boundary of the site.

SS - 11 FIRE INSTALLATIONS

SS - 11.1 Any fire installation shall be so constructed as to provide:-

(a) A quantity of water sufficient for the effective operation of that number of hose reels, hydrants and sprinkler heads which may be operated or come into operation simultaneously in any division.

(b) A flow pressure, at any hose reel or hydrant, of not less than 300kN/m^2 and a flow rate of not less than:-
  (i) 0.5 litres per hose reel; and
  (ii) 20 litres per hydrant.

(c) A flow pressure and flow rate at the control valve of any sprinkler system appropriate to the hazard rating of such system.

SS - 11.2 In any fire installation:-

(a) The nominal diameter of;-
  (i) Any communication pipe serving such installation shall be not less than 75 mm.
  (ii) Any pipe supplying water to any fire hydrant shall be not less than 75 mm: Provided that where the length of such pipe is more than 50 m the nominal diameter of such pipe and of the communication pipe to which the installation is connected shall be not less than 100mm.
  (iii) any service pipe supplying water to any hose reel on any one storey of a building shall be not less than:-
    (aa) 25 mm, if it serves 1 or 2 hose reels;
    (bb) 32 mm, if it. serves 3 hose reels;
    (cc) 40 mm, if it serves 4 or 5 hose reels; and
    (dd) 50 mm, if it serves more than 5 hose reels.

(b) Any pipe which serves any hydrant and hose reel installation or an automatic sprinkler installation, shall be provided with a twin pumping connection.

(c) Any pipe serving only hose reels shall be provided with a single pumping connection.

(d) Any pipe fitted with one or more fire-pump connections shall be fitted with a pressure gauge reading up to 2 500 kN/m^2 and a reflux valve so located as to shut off automatically the direct supply of water from the local authority system to such installation whenever and for so long as any such fire pump

connection is In use.

SS - 11.3 No reflux valve in any fire installation shall be so positioned as to prevent or hinder the flow of water from any fire-pump connection to any hose reel or hydrant connected to such installation.

SS - 11.4 Any fire installation shall be connected:-

(a) Directly to the communication pipe where the local water supply *is* capable of providing the pressure and rate of flow required for hose reels contemplated in sub-regulation SS66.1; or

(b) to a storage tank of adequate capacity where so required by The Approving Authority or where the local authority 's water supply is not capable of providing such pressure and rate of flow: Provided that where any fire installation is connected to such storage tank a pump shall be fitted between such tank and any hose reel and provided further that such pump shall be capable of supplying water at the topmost hose reel at a pressure of 300 kN/m^2 and a rate of 0.5 litres and shall function automatically with the opening of any hose reel nozzle.

Commentary

The storage tank contemplated in sub-regulation SS66.4 Is essentially to provide a supply of water for "first-aid" fire-fighting purposes and is not Intended to be the total quantity of water needed to extinguish a full scale fire .The quantity of water required will be determined by a number of factors, the most important being:-

a) The occupancy classification of the building,
b) The size and location of the building,
c) Capability (and perhaps availability) of the fire brigade,
d) Average response time of the fire brigade.
e) Training and knowledge of persons who might be expected to operate hoses, and,
f) Availability and use of alternative "first aid" fire fighting methods.

It is unlikely that there will be need to provide for the use of more than two hoses and in the majority of cases only one hose will be operated.

The water may be stored In a separate tank or, in a combined system. In a tank with two outlets arranged In such a way that a certain quantity of water Is reserved for the fire installation. Where such quantity of water has not been determined on the basis of a rational design It is recommended that a quantity of 9,000 litres be stored,

SS - f.1 Such storage tank shall be connected, supplied with water and controlled in accordance with the following requirements:-

(a) The point of connection between such storage tank and any supply pipe shall be above the level of the outlet of the topmost hose reel.

(b) Such storage tank shall be supplied with water in a manner adequate to fill and to maintain it automatically to its required capacity except when any hose reel connected to it is in use, and where the supply of water is controlled by a ball valve, such valve shall have a diameter of not less than 20 mm and

shall be fitted with a manually operated shut-off Valve.

(c) A reflux valve shall be provided on any pipe.at a position between the topmost hose reel and the point of connection of such pipe to such storage tank and so arranged as to cut off the flow of water from the lank whenever and for so long as any associated fire-pump connection is in use.

(d) A manually operated shut-off valve shall be provided on any pipe at a position between such fire-pump connection and any hose reel supplied by such fire-pump connection and so arranged that the flow of water direct to such hose reel may be cut off when the fire-pump connection is not in use.

SS - f.2 Where in any fire installation any hydrant valve or hose reel is installed at a height greater than that at which the authority is capable of maintaining an adequate water supply from its water supply system, or through the equipment of its Fire Department, such installation shall:-

(a) Be capable of maintaining a flow rate of not less than 20 litres at a gauge pressure of not less than 300 kPa at any hydrant valve connected to such fire installation; and

(b) Be provided with:-

(i) A tank located at or below ground level which shall:-

(aa) have a capacity of not less than 25,000 litres;

(bb) be supplied by a service pipe which has a diameter of not less than 20 mm and is connected to a communication pipe and provided with a pressure gauge reading up to 2,500 kPa, controlled at its outlet by a high pressure automatic shut-off valve;

(cc) be connected to a supplementary service pipe which has a diameter of not less than 100 mm, a twin fire-pump connection fitted at its inlet and an outlet so positioned as to discharge into the top of the tank;

(dd) be provided with a gauge to indicate the level of water contained in the tank, and

(i) Not less than two interconnected pump units individually capable of producing, and maintaining the pressure and the flow rate contemplated in sub-regulation SS66.1 and each of which shall:-

(ii) (aa) be fitted with either a manual starting mechanism or an automatic starting mechanism that will start such pump units automatically withanyreductionofthestaticpressureinthefireinstallation: Provided that such automatic starting mechanism shall be fitted with a manual override control;

(bb) be driven by an electric motor connected to the normal electric power supply and also to a diesel-electric unit which shall start automatically and immediately in the event of failure of the normal electric power supply; and

(cc) be connected to a delivery pipe having a diameter of not less than 100 mm, or not less than 150 mm in the case of any delivery pipe which exceeds a height of 50 m above the pump;

(iii) Devices limiting the gauge pressure at any hydrant valve to 700 kPa under full flow conditions.

SS - f.3 Any fire installation equipped with automatic pump starting mechanisms shall be fitted with an alarm system designed to emit a continuous audible warning whenever and for so long as any pump installed in the installation is set in motion.

SS - f.4 Any fire installation equipped with manual pump starting mechanisms shall be kept constantly charged with water and shall at all times be under-the supervision and control of a person who is fully conversant with all the technical details of the installation and its warning devices.

SS - f.5 Any alarm system shall be provided with an alarm cancel button.

SS - f.6 Any pump unit and its starting and driving mechanisms shall be installed in a ventilated compartment constructed to have a fire resistance rating of not less than 120 minutes and where any such compartment is located at or below ground level, the entrance or other means of access thereto shall abut on a street, public place or an open area on the site: Provided that where any such compartment is located in any basement, the means of access thereto shall be enclosed by walls having a fire resistance rating of not less than 120 minutes and shall not be used as a means of access to any other part of the building.

SS - f.7 In any building in which pumps form part of the required fire installation, an intercommunication telephone system shall be provided for the use of the Fire Department of the local authority and such telephone system shall include the following:

(a) Wall-hung hand-sets or standard type connections for portable hand-sets that permit intercommunication between the main entrance to the building and all storeys and all pump and tank rooms.
(b) Where portable hand-sets are installed, not less than three such hand-sets shall be kept in a cabinet at the main entrance to the building and each connecting point for a portable hand-set shall be housed in a box with a transparent and easily breakable glass panel.
(c) Any telephone in a pump room shall be fitted with loudspeaker equipment of sufficient strength and clarity to transmit a voice distinctly over a distance of not less than 5 m from the loudspeaker when the pumps are in operation.

SS - 7 EVACUATION PROCEDURES

SS - 7.1 Every owner or occupier of a building shall have emergency evacuation coordination procedures posted along all floor exits to be used in the event of fire or other hazardous materials emergency.

SS - 7.2 Every owner or occupier of a building shall have an emergency evacuation diagram displayed in a form that would be easily understood by a person who

would be likely to be reading the diagram, if the person were reading the diagram in the event of a fire or other hazardous materials emergency.

SS - 7.3 Every owner or occupier of a building shall have Evacuation signs and evacuation diagrams for a building appropriately located on each evacuation route of the building having regard to the number and location of exits in the building. Each evacuation sign and evacuation diagram must be —

(a) Displayed in a conspicuous position; and
(b) Securely attached to a wall or the internal side of a door.

SS - 7.4 Every owner or occupier of a building shall have shall have arrangements for the evacuation of persons with special needs from a building in the event of a fire or other hazardous materials emergency.

This shall conform to details contained in Schedule 1 of these regulations.

SS - 8 FIRE AND EVACUATION PLANS

SS - 8.1 Any owner or occupier of a building shall ensure the fire and evacuation plan for the building Is kept in written form; and includes—

(a) The evacuation diagram of the building; and
(b) If an evacuation diagram has been made for a part of the building the evacuation diagram of the part of the building

SS - 8.2 The managing entity shall ensure the fire and evacuation plan takes into account the evacuation coordination procedures stated in the fire and evacuation plans for all parts of the building occupied by secondary occupiers.

SS - 8.3 The occupier shall ensure the fire and evacuation plan for the part of the building complements the evacuation coordination procedures under the fire and evacuation plan kept by the managing entity for the building.

SS - 8.4 The owner or occupier of a building shall take reasonable steps to obtain the relevant approval documents for the building i.e. asking the relevant local government, building certifier, building owner or manager for a copy of the relevant approval documents.

SS - 8.5 The owner or occupier of a building shall keep a relevant approval document for the building, or a copy of the document, with the building's fire and evacuation plan.

SS - 8.6 The owner or occupier of a building shall—

(a) Ensure the fire and evacuation plan for the building is made available for inspection in the building during its normal business hours; and

(b) Allow a person to inspect the fire and evacuation plan free of charge.

SS - 8.7 The occupier of a high occupancy building must allow the fire safety adviser for the building to—

(a) Inspect the fire and evacuation plan for the building at any reasonable time; and
(b) Copy the plan

SS - 8.8 The owner or occupier of a building shall carry out a review of the fire and evacuation plan for the building at intervals of not more than 1 year.

SS - 8.9 The owner or occupier shall—

(a) Keep a written record of the review; and
(b) If the building is a high occupancy building—give a copy of the record to the fire safety adviser for the building within 1 month after the review.

This shall conform to details contained in Schedule 1 of these regulations

SS - 9 FIRE AND EVACUATION INSTRUCTIONS—BUILDINGS USED FOR TEMPORARY EVENTS

SS - 9.1 Before any person starts to work in the building, the occupier shall give the person general evacuation instructions and first-response evacuation instructions for the building.

SS - 9.2 Before the building is used for conducting the event, the occupier shall give the evacuation coordination instructions for the building to—

(a) The evacuation coordinator for the building; and
(b) The persons responsible for carrying out the evacuation coordination procedures under the fire and evacuation plan for the building.

This shall conform to details contained in Schedule 1 of these regulations

SS - 10 FIRE AND EVACUATION INSTRUCTIONS—HIGH OCCUPANCY BUILDINGS

SS - 10.1 The owner/occupier of a high occupancy building shall appoint a person who holds a current building fire safety qualification as the fire safety adviser for the building.

SS - 10.2 The owner/ occupier shall give general evacuation instructions for the building to a person who starts working in the building, as soon as practicable but no later than 2 days after the person starts working in the building.

SS - 10.3 The owner/occupier shall give first-response evacuation instructions for the building to a person who starts working in the building, as soon as practicable but no later than 1 month after the person starts working in the building.

SS - 10.4 The owner/occupier shall ensure—

(a) The instructions are given by a registered training organization; or
(b) The fire safety adviser for the building gives the instructions or arranges for the instructions to be given**.**

This shall conform to details contained in Schedule 1 of these regulations

SS - 11 EVACUATION COORDINATION INSTRUCTIONS

SS - 11.1 The owner or occupier of a building shall give the evacuation coordination instructions for the building, at intervals of not more than 1 year, to—

(a) the evacuation coordinator for the building; and
(b) the persons responsible for carrying out the evacuation coordination procedures under the building's fire and evacuation plan.

SS - 11.2 The owner or occupier shall give the evacuation coordination instructions, as changed, to the evacuation coordinator and responsible persons as soon as practicable but no later than 1month after the change.

SS - 11.3 The owner or occupier shall give the evacuation coordination instructions to the person within 1 month before the person becomes the evacuation coordinator or responsible for carrying out the evacuation coordination procedure.

SS - 11.4 The owner or occupier shall ensure the fire safety adviser for the building—

(a) is familiar with the evacuation coordination procedures for the building; and
(b) gives the evacuation coordination instructions or arranges for the instructions to be given.

This shall conform to details contained in Schedule 1 of these regulations.

SS - 12 EVACUATION PRACTICE

SS - 12.1 The owner/ occupier of any building shall ensure that an evacuation of the building is carried out in accordance with the building's fire and evacuation plan at intervals of not more than 1 year.

SS - 12.2 This section applies to the owner/occupier of a building other than an accommodation building. The owner/ occupier of the building shall ensure that an evacuation of the building is carried out—

(a) By an appropriate number of persons; and
(b) In an appropriate way; and
(c) At intervals of not more than 1 year.

This shall conform to details contained in Schedule 1 of these regulations

SS - 13 RECORDS

SS - 13.1 The owner/ occupier of a building shall keep a record (a fire and evacuation instruction record), for each occasion fire and evacuation instructions for the building are given to a person.

SS - 13.2 The fire and evacuation instruction record shall state the following—

(a) The name of each person who was given the instructions;
(b) The name of the person who gave the instructions;
(c) The date the instructions were given;
(d) A brief description of the instructions given.

SS - 13.3 The owner/ occupier of a building shall keep a record (an evacuation practice record), of each evacuation of the building carried out.

SS - 13.4 The evacuation practice record shall state the following—

(a) The date of the evacuation;
(b) The times when the evacuation started and ended;
(c) any action to be taken as a result of the evacuation, including, for example, carrying out a review of the building's fire and evacuation plan or giving additional fire and evacuation instructions.

This shall conform to details contained in Schedule 1 of these regulations

SS - 14 OBLIGATION OF OWNERS OF ACCOMMODATION UNITS

SS - 14.1 The owner of an accommodation unit in a building shall display in the unit a sign that—

(a) Shows the location of—
  (i) Each route from the unit to a place of safety outside the building; and
  (ii) Fire fighting equipment and manually operated fire alarms in and near to the unit; and
(b) States the procedures for safely evacuating the building in the event of a fire or hazardous materials emergency.

SS - 14.2 The sign shall be—

(a) Displayed in a conspicuous place in the accommodation unit; and
(b) Securely attached to a wall or the internal side of a door in the unit

This shall conform to details contained in Schedule 1 of these regulations

SS - 15 FIRE SAFETY INSTALLATIONS

SS - 15.1 The owner /occupier of a building shall ensure that maintenance of each fire safety installation for the building is carried out by an appropriately qualified person.

SS - 15.2 The owner of a building shall ensure each fire safety installation for the building is inspected and tested at intervals in compliance with **KS-1960**

SS - 15.3 Any person who is carrying out, or has carried out, maintenance of a fire safety installation for a building and becomes aware, or ought reasonably to be aware, of a critical defect in the installation shall give the occupier of the building a notice about the defect in the approved form (a critical defect notice) within 24 hours after the person carries out the maintenance of the installation.

SS - 15.4 If the record of maintenance for a fire safety installation for a building shows that repair or other corrective action is required for the installation, the owner/occupier of the building shall ensure the repair is carried out or the corrective action is taken no later than 1 month after the maintenance of the installation was carried out, unless the occupier has a reasonable excuse.

SS - 15.5 The owner or occupier of a building shall prepare a statement (an occupier statement) that complies with the part about the maintenance of each prescribed fire safety installation for the building.

SS - 15.6 The owner/occupier shall, within 10 business days after the occupier is required to prepare an occupier statement, give the Approving Authority a copy of the statement.

SS - 15.7 The owner/occupier shall keep a copy of each occupier statement with the record of maintenance for two years after the statement is prepared.

SS - 15.8 The owner/ occupier of an accommodation building for which a fire safety management plan is required shall keep:-

(a) The record of maintenance for the building; and
(b) The occupier statements prepared for the building.

SS - 16 OFFENCES AND PENALTIES

Any person who contravenes these Regulations shall be guilty of an offence and shall be liable to a fine not less than KShs 3,000,000.00 (Kenya Shillings three million only) or imprisonment for a period not less than twelve (12) months or both.

SCHEDULE 1

EVACUATION COORDINATION PROCEDURES

Emergency ***evacuation coordination procedures*** for a building in the event of fire or hazardous materials emergency are the procedures for:

(a) Alerting, and communicating with, persons in the building; and
Examples of procedures for paragraph (a)—procedures for using intercommunication devices, public address systems and messengers to alert and communicate with persons
(b) Alerting the service, including using manually operated fire alarms; and
(c) Arranging the evacuation of persons with special needs, members of the public and other persons in the building, to a designated assembly area for the building; and
(d) Checking whether all persons have been evacuated from the building; and
Examples of procedures for paragraph (d)—
- taking a roll call of known occupants of the building or a part of the building
- asking members of the public evacuated from a building about the number and identity of persons who were in the building and have not been accounted for

(e) Informing the evacuation coordinator for the building
(i) The number of persons evacuated; and
(ii) The number and identity of any persons not accounted for; and
(f) Meeting the fire officers attending the building in response to the fire or emergency at a suitable place stated in the fire and evacuation plan for the building.

Meaning of Evacuation Diagram

(1) An ***evacuation diagram***, for a building, means a diagram, in an understandable form, of the building showing the following (the ***fire safety reference points***)-
(a) The place that corresponds to the place in the building where the diagram is
(b) displayed;
Example for paragraph (a)—An evacuation diagram in a building shows an arrow pointing to a red spot that corresponds to the place in the building where the diagram is displayed. The words 'You are here' are stated in bold text near the arrow.
(c) The route from the place mentioned in paragraph (a) to the nearest exit of the building;
(d) Each exit of the building;
(e) Any intercommunication devices in the common areas of the building;
(f) The manually operated fire alarms in the building;
(g) The fire fighting equipment in the building;
(h) Each designated assembly area for the building;
(i) The route from each exit shown on the diagram to a designated assembly area.

(2) For subsection (1), the fire safety reference points under subsection (1) (a) to (f) and (1) (g) and (h) may be shown on separate diagrams.

(3) An ***evacuation diagram***, for a part of a building, means a diagram, in an understandable form, of the part of the building showing the following (also the ***fire safety reference points***)—
(a) The place that corresponds to the place in the part of the building where the diagram is

displayed;
(b) Each exit that is reasonably accessible from the part of the building;
(c) The route from the part of the building to each exit shown on the diagram;
(d) Any intercommunication device in the common areas that is reasonably accessible from the part of the building;
(e) The manually operated fire alarm that is reasonably accessible from the part of the building;
(f) The firefighting equipment that is reasonably accessible from the part of the building;
(g) A designated assembly area for the part of the building;
(h) The route from each exit shown on the diagram to a designated assembly area.

(4) For subsection (3), the fire safety reference points under subsection (3) (a) to (f) and (3) (g) and (h) may be shown on separate diagrams.
(5) In this section— ***understandable form***, for an evacuation diagram, means a form that would be easily understood by a person who would be likely to be reading the diagram, if the person were reading the diagram in the event of a fire or hazardous materials emergency.

Examples of matters that may be relevant for understanding a diagram—
- Whether the diagram is in a reasonable scale
- Whether the diagram includes a legend clearly showing different parts of a building

Meaning of Person with Special Needs

For arranging the evacuation of persons from a building, a ***person with special needs*** is a because of—
(g) A characteristic of the person; or

Examples of a characteristic of a person—
- The person has a disability.
- The person is a child.
- The person is affected by liquor.

(h) A matter relating to the person's presence in the building.

Examples of a matter for paragraph (b)—
- The person is in lawful custody in the building.
- The person works in an area of a building in which access or egress is restricted, including, for example, a basement.

The person works in a hazardous area of a building, including, for person for whom it is reasonable to make different arrangements from other person's example, an area in which there are hazardous materials.

FIRE AND EVACUATION PLANS

General Requirements

(1) The occupier of a building must ensure the fire and evacuation plan for the building—
- (a) Is kept in written form; and
- (b) States the matters mentioned in subsection (2) below; and
- (c) Includes—
  - (i) The evacuation diagram of the building; and
  - (ii) If an evacuation diagram has been made for a part of the building—the evacuation diagram of the part of the building.

(2) A fire and evacuation plan for a building must state each of the following—
- (a) The name, if any, and address of the building;
- (b) The name, address, telephone number and electronic contact details of the owner and occupier of the building;
- (c) The evacuation coordination procedures for the building;
- (d) Instructions for evacuating the building safely in accordance with the evacuation coordination procedures for the building in the event of a fire or hazardous emergency;
- (e) The method of operation of fire fighting equipment and manually operated fire alarms in the building;

- (f) The procedures for giving fire and evacuation instructions under this part to persons working in the building and ensuring the instructions are given;

  Examples of procedures for paragraph (f)—
  - Procedures for giving general and first-response evacuation instructions to new workers during their induction
  - Procedures for giving general evacuation instructions to workers in written and or an electronic form and confirming the workers receive the instructions
- (g) If the building is a high occupancy building—
  - (i) The name, telephone number and electronic contact details of the fire safety adviser appointed for the building; and
  - (ii) a description of the building fire safety qualification held by the fire safety adviser; and
  - (iii) the name of the registered training organization that issued the qualification; and
  - (iv) the date the qualification was issued;
  - (v) the name, telephone number and electronic contact details of the person in charge of evacuating the building (the ***evacuation coordinator***) and the date the person became the evacuation coordinator;
  - (vi) the name, telephone number and electronic contact details of each person responsible for carrying out the evacuation coordination procedures and the date each person became responsible for carrying out the procedures;
  - (vii) The names, telephone numbers and electronic contact details of the persons responsible for the following matters—
    - (i) Giving the fire and evacuation instructions under paragraph (f);
    - (ii) Developing, changing and reviewing the plan.

(3) If a fire safety adviser has not been appointed because of section 34(3) and (4), subsection (3) (g) does not apply until the appointment.

Requirements for Managing Entities

(1) This section applies to the managing entity of a multi-occupancy building for keeping the fire and evacuation plan for the building under this subdivision.
(2) The managing entity must ensure the fire and evacuation plan takes into account the evacuation coordination procedures stated in the fire and evacuation plans for all parts of the building occupied by secondary occupiers.

Example of operation of subsection (2)—
The fire and evacuation plan for a shop in a shopping centre provides for persons in the shop to assemble at a point (***point 'A'***) outside an exit of the shop in the general access area to await further instructions. The fire and evacuation plan kept by centre management for the shopping centre provides for evacuating persons from point 'A'.

Requirements for Secondary Occupiers

(1) This section applies to the secondary occupier of a part of a multi-occupancy building for keeping the fire and evacuation plan for the part of the building under this subdivision.
(2) The occupier must ensure the fire and evacuation plan for the part of the building complements the evacuation coordination procedures under the fire and evacuation plan kept by the managing entity for the building.

Example of operation of subsection (2)—
The fire and evacuation plan for part of an office block provides for a person to report the number and identities of persons not accounted for after an evacuation to the evacuation coordinator mentioned in the fire and evacuation plan kept by the managing entity of the building.

Fire and Evacuation Plan to include and reflect Fire Safety Management Procedure

(1) The owner/occupier of the building must ensure that—
  (a) a record of the fire safety management procedure is included in the building's fire and evacuation plan; and
  (b) the plan adequately reflects the procedure.

Examples of fire safety management procedures—
- a limitation on the use of finishes with fire hazard properties
- a prohibition on storing hazardous materials above a stated height
- a limitation on storing or using stated materials
- a requirement that all of a building's final exit doors be unlocked before it is occupied on the start of any day
- a requirement to implement stated evacuation strategies or procedures
- a restriction on the number and the distribution of a building's occupants
- a requirement that evacuation routes be kept clear of fittings and furnishings or be kept sterile
- a prohibition on carrying out any hazardous processes or storage

Relevant Approval Documents to be obtained and kept with Fire and Evacuation Plan

(1) The owner /occupier of a building must take reasonable steps to obtain the relevant approval documents for the building.

Examples of a reasonable step for subsection (1)—asking the relevant local government, building certifier, building owner or manager for a copy of the relevant approval documents

(2) The occupier of a building must keep a relevant approval document for the building, or a copy of the document, with the building's fire and evacuation plan.

(3) Despite subsections (1) and (2), the secondary occupier of apart of a multi-occupancy building is not required to take reasonable steps to obtain, or keep, a relevant approval document for the part of the building if the managing entity of the building has obtained the document.

(4) In this section—***relevant approval document***, for a building, means an approval document for a building development application for the building that is relevant to a matter included in the fire and evacuation plan for the building.

Examples of relevant approval documents for a building—

- a list of required fire safety installations for the building and required special fire services applying to the building work
- other supporting document for a building development application, about an alternative solution that includes a condition for occupation and use of the building

OTHER MATTERS RELATING TO KEEPING FIRE AND EVACUATION PLANS

Accessing a Fire and Evacuation Plan

(1) The owner /occupier of a building must—
   (a) Ensure the fire and evacuation plan for the building is made available for inspection in the building during its normal business hours; and
   (b) Allow a person to inspect the fire and evacuation plan free of charge.

(2) The occupier of a high occupancy building must allow the fire safety adviser for the building to—
   (a) Inspect the fire and evacuation plan for the building at any reasonable time; and
   (b) Copy the plan.

Changing a Fire and Evacuation Plan

(1) The owner/ occupier of a building must change the fire and evacuation plan for the building as soon as practicable but no later as 1 month after a change in circumstances affecting—
   (a) The plan's compliance with the fire safety requirements; or
   (b) The implementation of the plan.

Examples of a change in circumstances—

- a person becoming or ceasing to be the evacuation coordinator for the building or starting or ceasing to be responsible for carrying out evacuation coordination procedures in the building
- Refurbishment or a change in the use of the building

(2) If the managing entity of a multi-occupancy building changes the fire and evacuation plan for the building under subsection(1), the entity must, as soon as practicable, but no later than 1month after the change, give a written notice about the change to—
(a) Each secondary occupier in the building; and
(b) If the building is a high occupancy building—the fire safety adviser for the building.

(3) For subsection (2) (a), if 2 or more secondary occupiers jointly occupy a part of a building, the managing entity complies with the requirement to give the notice to the occupiers by giving the notice to 1 of the occupiers.

(4) If the secondary occupier of a part of a multi-occupancy building changes the fire and evacuation plan for the part of the building under subsection (1), the occupier must, as soon as practicable, but no later than 1 month after the change, give a written notice about the change to—
(a) The managing entity of the building; and
(b) If the building is a high occupancy building—the fire safety adviser for the building.

Reviewing a Fire and Evacuation Plan

(1) The owner /occupier of a building must carry out a review of the fire and evacuation plan for the building at intervals of not more than 1 year.
(2) The occupier must—
(a) Keep a written record of the review; and
(b) If the building is a high occupancy building—give a copy of the record to the fire safety adviser for the building within 1 month after the review.

EVACUATION SIGNS AND DIAGRAMS

References to an *Evacuation Sign*

(1) An ***evacuation sign***, for a building, means a sign stating the procedures for safely evacuating the building, or the part of the building in which the sign is displayed, in the event of a fire or hazardous materials emergency.
(2) A reference to an ***evacuation sign*** includes a reference to an evacuation sign on which an evacuation diagram is shown.

Evacuation Signs and Diagrams to be displayed

(1) The occupier of a building must display evacuation signs and evacuation diagrams for the building in compliance with subsections (2) and (3).
(2) Evacuation signs and evacuation diagrams for a building must be appropriately located on each evacuation route of the building having regard to the number and location of exits in the building.
(3) Each evacuation sign and evacuation diagram must be—

(a) Displayed in a conspicuous position; and
(b) Securely attached to a wall or the internal side of a door.

Instructions for Relevant Persons—

Relevant time and period for relevant persons
At any given time, a person is a ***relevant person*** for section if, during the previous 3 months, there have been at least 2 weeks in which the person worked or resided in or visited the building for a total period, in each week, of at least 10 hours.

FIRE AND EVACUATION INSTRUCTIONS—BUILDINGS USED FOR TEMPORARY EVENTS

Fire and Evacuation Instructions

(1) This section applies to the owner/ occupier of a building if—
  (a) The occupier intends to use the building mainly for conducting an event that the occupier reasonably expects members of the public to attend; and
  (b) The event is to be conducted for no longer than 3 months.
(2) Before a person starts to work in the building, the occupier must give the person general evacuation instructions and first-response evacuation instructions for the building.
(3) Before the building is used for conducting the event, the occupier must give the evacuation coordination instructions for the building to—
  (a) The evacuation coordinator for the building; and
  (b) The persons responsible for carrying out the evacuation coordination procedures under the fire and evacuation plan for the building.

FIRE AND EVACUATION INSTRUCTIONS—OTHER BUILDINGS

This division applies to buildings other than buildings used for temporary events

Appointment of fire safety advisers for high occupancy buildings

(1) Subject to subsections (3) and (4), the owner/occupier of a high occupancy building must appoint a person who holds a current building fire safety qualification as the fire safety adviser for the building.
(2) If the owner/ occupier is the occupier of 2 or higher occupancy buildings, the occupier may appoint the same person as the fire safety adviser for 2 or more of the buildings.
(3) Subsection (4) applies if an entity (also the ***occupier***) starts to occupy a high occupancy building.
(4) The owner/ occupier is not required to appoint a fire safety adviser for the building until 1 month after the occupier starts to occupy the building.
(5) A person's appointment as a fire safety adviser ends if the person no longer holds a current building fire safety qualification.
(6) In this section—***current building fire safety qualification*** means a building fire safety qualification issued within the last 3 years.

General Evacuation Instructions

(1) Subject to subsections (2) to (4), the owner/occupier of a building must give general evacuation instructions for the building to each person working in the building at intervals of not more than 1 year.
(2) The occupier must give general evacuation instructions for the building to a person who

starts working in the building, as soon as practicable but no later than 2 days after the person starts working in the building.

(3) Subsection (4) applies if there is a material change to—
   (a) the location of a fire safety reference point for the building; or
   (b) the procedures for evacuating the building safely in the event of a fire or hazardous materials emergency.
(4) The occupier must give the general evacuation instructions for the building, as changed, to each person working in the building as soon as practicable but no later than 1 month after the change.

FIRST-RESPONSE EVACUATION INSTRUCTIONS

General requirements

(1) Subject to subsections (2) to (4) below, the occupier of a building must give first-response evacuation instructions or drills for evacuation of the building to each person working in the building at intervals of not more than two years.
(2) The occupier must give first-response evacuation instructions for the building to a person who starts working in the building, as soon as practicable but no later than 1 month after the person starts working in the building.
(3) Subsection (4) applies if there is a material change to the method of operation of a manually operated fire alarm or firefighting equipment in the building.
(4) The occupier of the building must give the first-response evacuation instructions for the building, as changed, to each person working in the building as soon as practicable but no later than 1 month after the change.

Additional Requirements for High Occupancy Buildings

(1) This section applies to the owner/ occupier of a high occupancy building for giving first-response evacuation instructions for the building under D above.
(2) The owner/occupier must ensure—
   (a) The instructions are given by a registered training organization; or
   (b) the fire safety adviser for the building gives the instructions or arranges for the instructions to be given.

EVACUATION COORDINATION INSTRUCTIONS

General Requirements

(1) The owner/ occupier of a building must give the evacuation coordination instructions for the building, at intervals of not more than 1 year, to—
   (a) (a) the evacuation coordinator for the building; and
   (b) (b) the persons responsible for carrying out the evacuation coordination procedures under the building's fire and evacuation plan (the ***relevant persons***).
(2) Subsection (1) is subject to subsections (3) and (4).
(3) Subsection (4) applies if there is a material change to an evacuation coordination procedure.
(4) The occupier must give the evacuation coordination instructions, as changed, to the evacuation coordinator and responsible persons as soon as practicable but no later than 1month after the change.

Requirements for Instructing New Persons

(1) This section applies if a person is to become—
  (a) the evacuation coordinator for the building; or
  (b) responsible for carrying out an evacuation coordination procedure under the building's fire and evacuation plan.
(2) The owner/ occupier must give the evacuation coordination instructions to the person within 1 month before the person becomes the evacuation coordinator or responsible for carrying out the evacuation coordination procedure.

Requirements for New Occupiers

(1) This section applies if an entity starts to occupy a building.
(2) The entity must, within two months after starting to occupy the building, give the evacuation coordination instructions for the building to—
  (a) the evacuation coordinator for the building; and
  (b) the persons responsible for carrying out the evacuation coordination procedures under the building's fire and evacuation plan.

Additional Requirements for High Occupancy Buildings

(1) This section applies to the owner/ occupier of a high occupancy building for giving evacuation coordination instructions for the building under this subdivision.
(2) The owner/occupier must ensure the fire safety adviser for the building—
  (a) is familiar with the evacuation coordination procedures for the building; and
  (b) gives the evacuation coordination instructions or arranges for the instructions to be given.

Compliance by Occupiers of Particular Low Occupancy Buildings

(1) This section applies to the owner/occupier of a low occupancy building if the evacuation coordinator for the building is the only person responsible for carrying out the evacuation coordination procedures under the building's fire and evacuation plan.
(2) If the owner/ occupier is also the evacuation coordinator, the occupier may comply with this requirement by reviewing the evacuation coordination procedures for the building, but only if the occupier can competently carry out the procedures.
(3) If subsection (2) does not apply, the owner/occupier may comply with this requirement by ensuring the evacuation coordinator reviews the evacuation coordination procedures, but only if the occupier is reasonably satisfied the evacuation coordinator can competently carry out the procedures.

EVACUATION PRACTICE

Evacuation Practice—Accommodation Buildings

(1) This section applies to the owner/ occupier of an accommodation building.
(2) The owner/ occupier must ensure that an evacuation of the building is carried out in accordance with the building's fire and evacuation plan at intervals of not more than 1 year.

Evacuation Practice—Other Buildings

(1) This section applies to the owner/ occupier of a building other than an accommodation building.

(2) The owner/ occupier of the building must ensure that an evacuation of the building is carried out—

(a) By an appropriate number of persons; and

(b) In an appropriate way; and

(c) At intervals of not more than 1 year.

Examples of operation of subsection (2)—

1 . A public hospital administrator responsible for the hospital's fire and evacuation plan considers that an evacuation practice for staff and patients of the hospital's intensive care unit would adversely affect the patients' health. For carrying out an evacuation of the intensive care unit for this section, the administrator arranges to run a computer program that simulates evacuation of the staff and patients from the unit.

2 . The managing agent for an apartment block has made reasonable efforts to contact residents of the building to organize a practice evacuation but some residents are absent and others are sick. The agent arranges an evacuation at a time when most of the residents are present. The agent also arranges for some residents to evacuate from different parts of the building's general access area to simulate evacuation of the residents who live near those parts.

(3) In this section—***appropriate number of persons***, for carrying out an evacuation of a building, means the number of persons that is appropriate for effectively implementing the building's fire and evacuation plan, having regard to the number, mobility and other relevant characteristics of persons who would be likely to need to be evacuated from the building in the event of a fire or hazardous materials emergency.

Appropriate way, for carrying out an evacuation of a building, means a way that is appropriate for effectively implementing the building's fire and evacuation plan, having regard to the number, mobility and other relevant characteristics of persons who would be likely to need to be evacuated from the building in the event of a fire or hazardous materials emergency.

RECORDS

Fire and Evacuation Instruction Record

(1) The owner/ occupier of a building must keep a record (a ***fire and evacuation instruction record***), complying with subsection (2), for each occasion fire and evacuation instructions for the building are given to a person.

(2) The fire and evacuation instruction record must state the following—

(a) The name of each person who was given the instructions;

(b) The name of the person who gave the instructions;

(c) The date the instructions were given;

(d) A brief description of the instructions given.

Evacuation Practice Record

(1) The owner/ occupier of a building must keep a record (an ***evacuation practice record***), complying with subsection (2), of each evacuation of the building carried out

(2) The evacuation practice record must state the following—

(a) The date of the evacuation;

(b) The times when the evacuation started and ended;
(c) any action to be taken as a result of the evacuation, including, for example, carrying out a review of the building's fire and evacuation plan or giving additional fire and evacuation instructions.

OBLIGATION OF OWNERS OF ACCOMMODATION UNITS

Meaning of *Accommodation Unit*

(1) In this division, an ***accommodation unit*** means an apartment, room or other part of a building, used for providing accommodation to a person.

Examples of an accommodation unit—
- An apartment used by holiday makers
- A serviced apartment
- A room in a guest house, hotel or motel used for accommodating guests

(2) However, an ***accommodation unit*** does not include a part of a building occupied by a person who owns, or is a tenant of, the part of the building.

Signs to be displayed in Accommodation Units

(1) The owner of an accommodation unit in a building must display in the unit a sign that—
(a) Shows the location of—
(i) Each route from the unit to a place of safety outside the building; and
(ii) Fire fighting equipment and manually operated fire alarms in and near to the unit; and
(b) States the procedures for safely evacuating the building in the event of a fire or hazardous materials emergency.

(2) The sign must be—
(a) Displayed in a conspicuous place in the accommodation unit; and
(b) Securely attached to a wall or the internal side of a door in the unit.

FIRE SAFETY INSTALLATIONS

Meaning of *Critical Defect*

A defect in a fire safety installation for a building is a ***critical defect*** if—
(a) The defect is likely to render the installation inoperable; and
(b) The defect is reasonably likely to have a significant adverse impact on the safety of occupants of part or all of the building if a fire or hazardous materials emergency happens.

Examples of critical defects—
- A defect making a fire detection and alarm system inoperable
- A defect in a pump making the fire hydrants for a building inoperable

Example of a defect that is not a critical defect—a defect that makes inoperable only 1 of several standard fire extinguishers in a part of a building

Obligations of persons maintaining fire safety installations

(1) This section applies to a person carrying out maintenance of a fire safety installation.
(2) The person must carry out the maintenance of the installation in compliance with **KS-1960**

Notifying Critical Defects

(1) This section applies if a person who is carrying out, or has carried out, maintenance of a fire safety installation for a building, becomes aware, or ought reasonably to be aware, of a critical defect in the installation.
(2) The person must give the occupier of the building a notice about the defect in the approved form (a ***critical defect notice***) within 24 hours after the person carries out the maintenance of the installation.

Obligations of Occupiers in Maintenance of Fire Safety Installations

(1) The owner of a building must ensure that maintenance of each fire safety installation for the building is carried out by an appropriately qualified person.
(2) The owner of a building must ensure each fire safety installation for the building is inspected and tested at intervals in compliance with **KS-1960**
(3) Subsection (4) applies if the record of maintenance for a fire safety installation for a building shows that repair or other corrective action is required for the installation.
(4) The owner/occupier of the building must ensure the repair is carried out or the corrective action is taken no later than 1 month after the maintenance of the installation was carried out, unless the occupier has a reasonable excuse.

Examples of a reasonable excuse—

- No appropriately qualified person was available to attend the occupier's premises to carry out the repair or take the corrective action because of the remoteness of the building's location.
- The repair or corrective action was not able to be finished because of the complexity of the work involved or delay in obtaining parts required for the repair or corrective action.

Keeping Record of Maintenance

(1) The occupier of a building must keep a record of maintenance, in compliance with subsections (2) and (3), for the maintenance of each fire safety installation for the building.
(2) The record of maintenance must state each of the following—
  (a) A description of the fire safety installation on which the maintenance was carried out;
  (b) If the maintenance was carried out by an appropriately qualified person—the name and license number of the person who carried out the maintenance;
  (c) If the maintenance was not carried out personally by an appropriately qualified person—the name and license number of the appropriately qualified person under whose personal supervision the maintenance was carried out;
  (d) The date the maintenance was carried out (the ***maintenance date***);
  (e) A brief description of the maintenance carried out;
  (f) That the maintenance was carried out in compliance with **KS-1960**
  (g) The results of the maintenance of the installation, including—
    (i) Whether or not the person carrying out the maintenance considered the installation was in proper working order; and
    (ii) The details of any repair or other corrective action the person considered was required for the installation; and

(iii) The details, including the date, of any repairs made to the installation or any other corrective action taken.

(3) Also, the record of maintenance must include—

(a) A statement, signed by the person who carried out the maintenance, certifying that the matters stated in the record of maintenance under subsection (2) are correct; and

(b) If the owner/occupier has been given a critical defect notice relating to a prescribed fire safety installation mentioned in the record of maintenance—the notice.

Owner/Occupier Statements

(1) The owner/occupier of a building must, at intervals in compliance with **KS-1960**, prepare a statement (an ***occupier statement***) that complies with the part about the maintenance of each prescribed fire safety installation for the building.

(2) The owner/occupier must keep a copy of each occupier statement with the record of maintenance for 2 years after the statement is prepared.

(3) The owner/occupier must, within 10 business days after the occupier is required to prepare an occupier statement, give the commissioner a copy of the statement.

Record Keeping Requirements for Occupiers of Particular Buildings

(1) This section applies to the following—

(a) The owner/ occupier of an accommodation building for which a fire safety management plan is required

(b) The owner/occupier of a building used for conducting a residential service for which a fire safety management plan is required

(2) The owner/ occupier must keep with the fire safety management plan for the building—

(a) The record of maintenance for the building; and

(b) The occupier statements prepared for the building.

APPENDIX I

FIRE and EVACUATION PLAN

For High Occupancy Buildings

Building Information	
Building Name:	
Building Address:	
Building Owner:	
Owner Address:	
Owner Phone Number:	
Email :	
Building Occupier:	
Occupier Address:	
Occupier Phone Number:	
Email:	
Body Corporate:	
Address:	
Building Classification:	
Building Construction:	
Floor Area:	

Persons responsible for administering the Building's Fire and Evacuation Plan

Fire Safety Adviser	
Name:	
Phone Number:	
Email :	
Brief description of qualification held:	
Registered training organisation that issued the above qualification:	
Date qualification issued:	

Person responsible for giving General & First Response Evacuation Instruction		
	Fire and Evacuation Instructors	Dates for Instruction
Name:		
Phone Number:		
Email:		

Evacuation Coordinator	
Commencement Date:	
Name:	
Phone Number:	
Email:	

Persons responsible for carrying out the Evacuation Coordination procedures (*Responsible Persons*)			
Name:	Phone Number:	Email:	Commencement Date:

Fire & Evacuation Plan annual review		
Reviewed By	Date of Review	Changes made

Review of Managing Entities & Secondary Occupiers' Fire & Evacuation Plans				
Evacuation Coordination procedures* (checked against each plan?)	Date of Review	Name of Reviewer	Changes made?	Workers advised

Evacuation Coordination procedures	
Commencement Date:	
Procedure for using communication devices.	In the event of a fire or other emergency the duty manager will put a message over the public address system advising people to evacuate through the nearest exit.
Procedure for contacting fire service	Using the phone in the duty managers office dial **999** and ask for the fire service. Provide details of the fire or other emergency and the building address: .....
Persons with special needs	Staff to assist any persons with special needs to evacuate.
Checking that all persons have been evacuated	Duty manage is to take a copy of the daily staff roster to the assembly area.
Inform the evacuation coordinator for the building.	Inform the evacuation coordinator of number of persons evacuated, or persons not accounted for. Meet the fire service on arrival; provide as much information as possible.

APPENDIX II

FIRE AND EVACUATION INSTRUCTION RECORD

Instruction Guidelines

- **General evacuation instructions** must be given to staff within 2 days of a person commencing work in the building (Points 1-5) and repeated annually.
- **First response evacuation instructions** must be given to staff within one month of a person commencing work in the building (Points 1-7) and repeated two-yearly.
- **Evacuation coordination procedures** must be given to nominated responsible staff within the month prior to that person taking on those responsibilities (All Points) and repeated annually.
- Instructions on **any change to the Fire Evacuation Plan** must be given to all persons within one month of the change taking effect.

The instructions given take into account the following components:

(1) The location of the buildings' escape routes (fire exits and pathways to an exit).
(2) A procedure for conducting members of the public to an exit and then to the designated assembly area (safe place).
(3) Checking of all rooms (including toilets) for people (after assessing the risk from smoke or fire).
(4) The location of fire-fighting equipment (fire extinguishers, fire blankets & fire hose reels).
(5) The location of fire alarms or equipment for warning of fire (if applicable).
(6) The method of operation of fire-fighting equipment (fire extinguishers, blankets & hose reels).
(7) The method used to activate fire alarms or equipment for warning of fire (if applicable).
(8) Making the announcement for occupants of the building to evacuate. This can be delivered via messengers or a public address system (if applicable)
(9) Contacting the Fire Service using '999' telephone number passing on details of the emergency.
(10) Assessing the effectiveness of the building evacuation, with consideration as to who may be missing and where they may still be within the building. (Conducting a head count)
(11) Meeting the attending Fire Service Officer to pass on updated details of the emergency.

BUILDING NAME: _____

ADDRESS: _____

PART OF BUILDING: _____

Date	**Name of Person Trained**	**Instruction Given (Use numbers listed in the above points as indication)**											**Instructors Name**
12/12/2010		1	2	3	4	5	6	7	8	9	10	11	

APPENDIX III

FIRE AND EVACUATION PRACTICE RECORD

Practice Evacuations Guidelines

- Evacuation practices must be conducted **annually for all buildings**.
- The practice must be carried out with an **appropriate number of persons**.
- The practice must be carried out in an **appropriate way**.
- The practice must be **recorded**.

The Practice Record must include the following:

(1) The date of the evacuation
(2) The times the evacuation started and ended
(3) Any action taken as a result of the evacuation.
(4) Name of person in charge of practice evacuation.

BUILDING NAME: _____

ADDRESS: _____

PART OF BUILDING: _____

Date	Time evacuation commenced	Time evacuation completed	Action required	Name of person conducting evacuation

APPENDIX IV

FIRE SAFETY INSTALLATION CHECKLIST

This list may be used, if following a written request, relevant approval documents cannot be obtained from your Local Government, building certifier or other approval agency.
If these documents cannot be obtained this list can be used to document the fire safety installations in the building. This list must then be kept with the other approval documents.

Fire Safety Installation	**Installed?**	
	YES	NO
Air Handling Systems		
Emergency lifts		
Emergency lighting		
Emergency power supply		
Emergency Warning & Intercommunication System (EWIS)		
Exit Signage		
Fire detection/ Alarm system		
Fire doors		
Fire extinguishers		
Fire hose reels		
Fire hydrants		
Fire Mains		
Fire pumps		
Fire hydrant booster assembly		
Fire sprinklers		
Fire sprinkler booster assembly		
Fire shutters		
Fire control centres		
Other features *		
Smoke and heat venting systems		
Smoke exhaust system		
Smoke door sets		
Solid core doors		
Special Automatic Suppression Systems (Gas, Powder etc)		
Stairwell pressurisation systems		

Other features – Includes additional fire safety installations or conditions that are required under the buildings alternative solution

SECTION T

INSPECTION AND MAINTENANCE OF BUILDINGS

CONTENTS

SECTION T

INSPECTION AND MAINTENANCE OF BUILDINGS

TT - 1 BACKGROUND

TT - 1.1 The requirements for mandatory periodical inspection of buildings are stipulated under these Regulations.

TT - 2 MANNER OF INSPECTION OF BUILDINGS

TT - 2.1 The inspection of a building shall consist of one or more of the following:-

(i) Visual inspection as specified in TT5
(ii) Full structural or civil investigation as specified in TT6

TT - 2.2 Full building condition Survey as specified in TT7

(iii) Full building services (Electrical and Mechanical) investigation as specified in TT8
(iv) Special building investigation as specified in TT9

TT - 2.3 In all inspections under this section, a registered professional shall carry out the visual inspection as the first stage. The necessity of the full structural or civil investigation, full building Condition Survey or full Building Services investigation will depend on the type, extent and seriousness of the defects, deformation and deterioration in the structure found by the registered professional in the visual inspection.

TT - 2.4 The registered professional carrying out an inspection under Regulation TT7 shall inspect the building in the manner prescribed in Regulation TT7, which shall take into consideration the following:-

(a) A visual inspection of the building, including a visual survey of the condition of the building, its structural elements and any addition or alteration to the building and its structural elements;
(b) A visual inspection of the surrounding areas including the slopes and drainage system and any alteration to the slope structures;
(c) The preparation and submission to The Approving Authority of a report of the result of the visual inspection under sub regulation TT7.1 (a).
(d) If, having regard to the results of the visual inspection under sub regulation TT7.1(a), The Registered professional reasonably suspects or is of the opinion that there are defects, deformations or deterioration in the building and its structural elements that will or are likely to endanger or reduce the structural stability or integrity of any part of the building, he shall inform The Approving Authority of the need to carry out a full structural or civil investigation, full building Condition Survey or full Building Services investigation, including

investigation in respect of its structural elements.

(e) The Approving Authority may after considering the report of The Registered professional ; authorize The Registered professional to arrange for a full structural/civil investigation, full building Condition Survey or full Building Services investigation which shall include the following:

(i) Taking all reasonable steps in obtaining information relating to the design, construction, maintenance and history of the building.
(ii) With reasonable diligence checking the structural plans of the building and the calculation therein or if the plans are not available reconstruct such structural plans where the Approving Authority so requires, with a view to determining any inadequacy in the structural elements of the building.
(iii) Carrying out or causing to be carried out tests on the structural elements of the building with reasonable care so as not to damage any part thereof.
(iv) Carrying out or causing to be carried out tests on the material in the construction of the buildings; and
(v) Carrying out or causing to be carried out tests on such part of the building as the registered professional considers necessary.

(f) The Registered professional shall then prepare and submit to the Approving Authority a report of the results of the full structural or civil investigation, full building Condition Survey or full Building Services investigation carried out under regulation TT12, TT15 or TT16 respectively together with his recommendations.

TT - 3 REPORT OF THE RESULTS OF AN INSPECTION

TT - 3.1 A report of the results of an inspection shall comprise:-

(a) Detailed description of the visual inspection and any full structural / civil investigation, full building Condition Survey or full building services investigation of the building conducted by the registered professionals;
(b) Analysis of observations and tests conducted in the course of any full structural/ civil investigation, full building Condition Survey or full Building services investigation Recommendations by the registered professionals as to such remedial works as are necessary to ensure the structural /civil, building services, Condition, stability or integrity of the building.

TT - 3.2 The Approving Authority may, if it is satisfied after evaluating the inspection report submitted under sub regulation TT3.1(a) or full structural /civil investigation, full building Condition Survey or full building services investigation report and recommendations of the registered professional submitted under sub regulation TT3.1 (b) as the case may be:-

(a) Accept it in full;
(b) Reject it
(c) Accept part of it
(d) Obtain a second opinion on it

TT - 3.3 The Approving Authority shall thereafter:-

(a) Issue a compliance certificate to the owner of the building
(b) may issue an order to the owner of the building to take the appropriate measures to rectify or remedy any defect, deformation or deterioration as recommended by the registered professional within such period as The Approving Authority may specify or
(c) upon an inquiry issue closure or demolition order to the owner of the building if The Approving Authority is satisfied that the structure cannot be repaired to a safe condition for either the occupier or the surroundings

TT - 4 IMPLEMENTATION OF REPAIR WORK

TT - 4.1 Major repair and strengthening work, where necessary, shall be treated as building works. Examples includes replacement of corroded reinforcement bars, reconstruction of main water tank, rewiring and underpinning works are considered as major works. As such, all relevant application for approval of plans, permit to carry out building works and supervision of building works shall apply.

TT - 4.2 Minor repairs can be treated as routine maintenance and will not require plan submission or permit application.

TT - 4.3 In case of doubt, the interpretation of major and minor work may be referred to The Approving Authority.

TT - 4.4 The registered professionals undertaking the inspection shall prepare and submit the report according to schedule T1.

TT - 5 OFFENCES AND PENALTIES

Any person who fails to comply with or contravenes or any of these Regulations shall be guilty of an offence and shall be liable on conviction to a fine not less than Ksh.3,000,000 (Kenya Shillings three million Only) or (12) months imprisonment of both.

SCHEDULE T1:

GUIDELINES ON VISUAL INSPECTION AND THE SUBMISSION OF THE REPORT

The guidelines are only a general guidance on the scope of the visual inspection as well as the content of the report to be submitted to The Approving Authority. It is only for consistency in approach and reporting. The Registered professional should therefore exercise his own professional judgment and diligence in the conduct of the inspection and reporting of his findings appropriate to the particular building inspected.

OBJECTIVE OF VISUAL INSPECTION

The inspection is not only the architectural aspects, but also the structural elements of the buildings and the surrounding so that any misuse, abuse, defect, sign of structural distress, deformation and deterioration can be identified. The owner will get the professional advise from a registered professional so as to initiate further investigations or to take appropriate remedial action.

The Registered professional is expected to carry out, with reasonable diligence, visual inspection of:-

(a) The condition of the structure of the building
  (i) to identify the type of structural defects
  (ii) to identify any sign of structural distress and deformation
  (iii) to identify any sign of material deterioration.

(b) The loading on the structure of the building to identify any misuse, abuse and change of use which can result in overloading.

(c) Any addition or alteration affecting the structure of the building; to identify any addition or alteration which can result in overloading or adverse effect on the structure.

(d) other conditions that may affect the safety of the occupant including but not limited to: the assessment of the stability of the surrounding areas. The condition of slopes and drainages within the same catchment area which has stability effect on the buildings should be checked against overall stability and functionality. Earth and water retaining structures, water and soil retaining structures, stabilization within the building plot and immediately outside the boundary should be inspected against possible failure.

EXTENT OF INSPECTION

(a) Due to difficulty of access and other practical problems, it is sometimes not possible to inspect 100 % of all areas in a building. The Registered professional should therefore identify critical areas of the building and pay special attention to them.

(b) However, in a building where the loading is light, the usage fairly uniform and where it is unlikely to subject to overloading, a reasonable sampling of a

certain percentage of inspection may well suffice. However if the Registered professional detects the possibility of abuse or overloading and detect signs of structural or other defects and possible deterioration, he should consider inspection of the structure or particular aspect, in full.

(c) In a building where loading is high, the usage varied and where it is subject to likely abuse and overloading, the registered professional should carry out an inspection of all units or parts of the building.

(d) All exposed common areas in any building shall be inspected fully.

(e) All parts of a building with special and critical structural elements shall be inspected fully.

(f) All drain components shall be inspected fully.

(g) All slopes should be inspected for signs of lateral movement and instability if there are any changes in the condition of the slope.

(h) All retaining structures should be checked against stability, alteration of loading pattern and possibility of weakening of the toe due to other construction activities.

THE SCOPE AND STANDARD OF VISUAL INSPECTION

(a) In general, a report on the results of a visual inspection of a building shall comprise:-

  (i) A detailed record and description of the visual inspection

  (ii) Assessment of the observations in regard to the condition of the building in general, the structure of the building, the loading on the structure of the building, and any addition or alteration affecting the structure of the building. The seriousness of any structural or other problems detected should be assessed.

  (iii) Recommendation by the registered professional on such remedial actions or full structural/civil investigation, full building Condition Survey or full Building Services investigation to ensure safety and health.

(b) A report should therefore reflect that the registered professional has in fact carried out inspection in a professional manner with reasonable diligence expected of him as a registered professional.

THE MAIN CONTENTS OF THE VISUAL INSPECTION REPORT

(a) General information on the building.

  (i) Name and address of the building

  (ii) Ownership details

  (iii) Land Reference Number.

  (iv) Location

  (v) Sketch site plan showing the number of blocks of buildings at the site indicating clearly the block inspected

  (vi) Number of storeys and units in each block of building

  (vii) Description of main usage of building, indicating approximately the percentage of areas for each usage.

  (viii) Date of completion.

(ix) Maintenance history of the building
(x) Name of Architect, Engineer and Builder.

(b) Structural System of the Building

(i) Description of the structural forms, systems and materials used in the different parts of the building.
(ii) Description of the soil condition and the foundation system, if known.
(iii) Identification of the key structural elements and the critical areas for special investigation.

(c) Conditions of Surrounding Areas

(i) Description of the condition of the drainage system of the surrounding areas.
(ii) Description of the condition of the slope protection system.
(iii) Description of earth retaining and liquid containing structures.
(iv) Description of any other hazards.
(v) Usage of surrounding areas

(d) Extent of Inspection

(i) Extent of inspection carried out, indicating clearly the number of and percentage of areas inspected as well as the areas not inspected and the reasons for not inspecting them.
(ii) Indicate clearly the conditions of the drains and the slope protection system of the surrounding areas inspected as well as the areas not inspected and the reasons for not inspecting them.
(iii) Limitation of access for inspection

(e) Diary of the Survey

(i) Record of observation indicating clearly the locations, the extent and seriousness of any observations in respect of loading conditions, addition/alteration and sign of structural defects,distress,deformation.
(ii) Record of observations of the drains, indicating clearly the cracks, infiltration, and adequacy of capacity, blockages and the condition of the concrete surface.
(iii) Record of observation of the slope protection system, indicating clearly any tilt or lateral movement, cracks of the walls, tension, cracks of the soils, sink holes, condition of ground anchors and minor slip.
(iv) Building Services
(v) Building Condition Survey

(f) Survey of Loadings on the Building Structure

(i) Records and comments on the observations on the loading conditions, indicating the usage at different parts of the building and identifying any misuse, abuse or change of use.
(ii) State whether the existing usage and loading condition is compatible with the intended purpose of the structure.
(iii) State whether any misuse, abuse or change of use has given rise to excessive loading which can adversely affect the building structure.

(g) Survey of Addition/Alteration to the Building Structure and the Surroundings

(i) State whether any addition and or alterations have given rise to excessive loading or other adverse effects on the building structure.
(ii) State whether any addition and alterations have given rise to excessive loading or other adverse effects on the slope protection system.
(iii) State whether any addition and alterations have affected building services
(iv) State whether any addition and alterations have affected Infrastructural Services and other land uses.

(h) Survey of Signs of Structural Defects, Damage, Distress, Deformation or Deterioration

(1) Records of observations of any signs of structural defects, damage, distress, deformation or deterioration.
(2) Comments on the extent, possible causes and assess, the seriousness of these problems identified
(3) Report whether the identified problems are:-

i. Defects of no structural significance,
ii. Defects requiring monitoring and remedial action, or
iii. Suspected defects of structural significance requiring full structural investigation and immediate action.
iv. Recommendations on any monitoring or remedial actions necessary to ensure the structural stability and integrity of the building or for a further full structural investigation.

(i) Other Surveys or Checks Carried Out

(i) Report and comment on any previous rectification carried out on the building structure.
(ii) Report and comment on any construction work on adjacent site which may affect the building under inspection.
(iii) Report and comment on any other surveys or checks carried on the conditions of the water retaining structures and other building services.
(iv) Report and comment on any other surveys or checks carried out by the registered professional.

(j) Conclusions

(1) Conclusion on the condition shall include conclusions on loading, additions and alteration, structural defects, damage, distress, deformation, deterioration, overall structural integrity and stability.
(2) Conclusion on the condition of the surrounding areas shall include:
(i) Conclusions on the flow capacity, structural integrity and extent of maintenance of the drains and;
(ii) Loading, additions and alteration, structural defects, damage,

distress, deformation, deterioration, overall structural integrity and stability of the slope protection system.

(iii) State whether any addition and alterations have affected Infrastructural Services and other land uses,

(k) Recommendations

Recommendation for follow-up actions shall include, measures on restriction of loading; action on additions/alterations affecting the building structure and slope protection system; monitoring; repair; strengthening and the need for a full structural/civil investigation, full Building Services investigation or full building Condition Survey where necessary.

(l) Sketches, Plans and Photographs

(i) Sketches, plans and photographs are useful to give an idea of the building under inspection and its environs.

(ii) They can clearly illustrate the structural system of the building, the usage, loading addition/alterations in various parts of the building, as well as record all major problems and show the condition of key structural elements.

(iii) They can clearly illustrate the drainage system of the areas addition/ alterations in various parts of the surrounding areas, as well as record all major problems and show the condition of slope protection system.

(iv) All sketches, plans and photographs should have proper title explanations, legend and cross-reference to the main report. They can be attached as appendices as the need be.

(m) Registered professional's Endorsement and Standard Certification

(i) The report shall be signed and endorsed by the registered professional appointed to carry out the inspection.

(ii) The Registered professional shall submit standard certification Form T3.

SCHEDULE T2:

GUIDELINES ON THE SUBMISSION OF FULL STRUCTURAL/CIVIL INVESTIGATION REPORT

The guidelines listed below contain a standard list of check items to be carried out by the Structural engineer in full structural investigation. It is by no means exhaustive; the Structural Engineer should therefore exercise his own professional judgment and diligence in the conduct of the investigation and may include further details to support his findings.

General Information on the Building

(a) Name and address of the owner/s
(b) Name and address of the building
(c) Location plan showing the location of the building
(d) Sketch site plan showing the number of blocks of buildings at the site indicating clearly the block inspected.
(e) Number of storeys and units in each block of building
(f) Description of main usage of building, indicating approximately the percentage of areas for each usage.
(g) Date of completion.
(h) History of the building
(i) Name of original architects, engineers and builders.

Source of Information on Design, Construction and Maintenance

(a) Calculations and as built drawings - the report shall indicate the source and provide a listing of the original calculations and drawings available for checking purpose. The registered professional shall ensure that only appropriate drawings are used in the structural appraisal
(b) Soil investigation report, including records on the foundation system used.
(c) Any construction records
(d) Routine maintenance information, including previous visual inspection report

Design Check or Reconstruction of Structural Plans

(1) Where structural Plans are not available:

  (a) Conduct the necessary survey, investigations and test to ascertain type, sizes and reinforcement detail of key structural elements, including foundation system.
  (b) Reconstruct the structural plans, where possible, including tests done on structural appraisal
  (c) Prepare a set of drawings showing structural layouts and details for each floor including member sizes and reinforcement details of key elements.

(2) Where structural plans and calculations are available:

(a) Summary of report stating the conclusion and overall evaluation
(b) Evaluation and detailed comments on the design and comments based on the following criteria:-
  (i) Codes of Practice adopted in the design,
  (ii) Design Loading (including wind load If applicable)
  (iii) Standard and Specification of materials,
  (iv) Structural design concept and identification of key structural elements; to evaluate the structural, design concept and whether any simplified design process takes into account the actual behaviour of the structural system; and identification and classification of key structural elements
  (v) Structural analysis of all key structural elements, including foundation systems; to evaluate designers' analysis and design of key structural elements and compare with own independent calculations.
  (vi) Stability of structural frame; stability under various load combinations including wind and other dynamic loads in relation to height:width ratio.
  (vii) Structural detailing; to be consistent with design concept in accordance with recommendation in codes of practice.
  (viii) Other design aspects; which are peculiar to the building and essential to structural integrity and stability of the slope protection works under current condition.

Tests Carried Out

(a) Laboratory tests on mechanical and chemical properties of materials.
  (i) In-situ testing by non-destructive methods.
  (ii) Test for presence of deteriorated or deleterious materials.
  (iii) Description of test methods and their limitations.
  (iv) Interpretation of test results,
(b) Loading Test
  (i) Load testing of the relevant parts or the whole of the structure if deemed necessary by the Structural engineer.
  (ii) Description of test procedure and its Limitation
  (iii) Interpretation of load test results.

Survey of the Condition and Assessment of the Load Carrying Capacity of the existing Structure

(a) Identification of areas of existing potential defects and structural deficiencies. Ascertain the extent, nature, causes and seriousness of these defects and deficiencies.
(b) Survey of dimensions of existing structural elements and survey of type, size and number of steel reinforcement. Comparison with as built drawings is to be made.
(c) Assessment of actual loading and load carrying capacity of the existing structure.
  (i) Assessment of actual loads and their distribution.

(ii) Assessment of in-situ strength of materials.
(iii) Assessment of the effect due to deterioration and damage.
(iv) Assessment of the load carrying capacity of the structure.

Recommendation for Remedial Works

(a) When remedial work is required subsequently to the full structural investigation, the engineer shall recommend the appropriate remedial measure, including suitable strengthening, rectification, and modification or replacement measures.
(b) The Structural Engineer shall make conclusion on his inspection and recommend any monitoring, repairs, limitation on usage and loadings.
(c) In submitting the report, the Structural Engineer will categorize the remedial works to be undertaken as major or minor.

Sketches, Plans and Photographs

In general, the report should be accompanied by sketches, plans and photos to illustrate, the findings of the investigation.

Structural Engineers' Endorsement and Standard Certification
(a) The report shall be signed by the Engineer appointed to carry out the inspection
(b) The Structural Engineer shall submit standard certification form T4

SCHEDULE T3:

GUIDELINES ON THE SUBMISSION OF FULL BUILDING CONDITION SURVEY

The guidelines listed below contain a standard list of check items to be carried out by the registered professional in Full building Condition Survey. It is by no means exhaustive; the registered professional should therefore exercise his/her own professional judgment and diligence in the conduct of the investigation and may include further details to support his findings.

General Information on the Building

(a) Name and address of the owner
(b) Proprietorship/ Ownership/Tenure details.
(c) Land Reference Number
(d) Name and address of the building
(e) Location plan showing the location of the building
(f) Sketch site plan showing the number of blocks of buildings at the site indicating clearly the block inspected.
(g) Number of storeys and units in each block of building
(h) Description of main usage of building, indicating approximately the percentage of areas for each usage.
(i) Date of completion.
(j) History of the building
(k) Name of original architect, engineer and builder or contractor.

Identification of the Maintenance Needs/Requirements

This involves collecting and assimilating information from:

(a) Regular conditional Surveys of the building Stock: Determining the condition of existing buildings, identifying and analyzing defects, including proposals for repair or further investigation
(b) Existing planned Maintenance programme/profile
(c) Defects and repairs notified by the Building users
(d) Feedback from works of servicing, Repairs and improvements in progress
(e) Relevant legal requirements from statute law or from lease and repair covenants
(f) Existing Building and Service Records

Presentation of the Maintenance Requirements

This should be presented to the clients (Building Owners or Occupiers) and should be in a format which can be understood by Non-technical Persons

Identification of Resources and Prioritization

The registered professional should use his expertise to generate clear and accurate information when carrying out Identification of Resources, Prioritization and presentation findings to the clients on the issues that affect safety and comfort of buildings and users.

Responsibility of Owners

The owner of any building or common property shall ensure that the ground is kept in a clean and tidy condition at all times, and shall in particular ensure that:-

(a) The garden, whether paved or turfed, is regularly swept and kept reasonably clean;
(b) The grass is not overgrown and is cut regularly
(c) The trees, shrubs and hedges are well maintained, by regular pruning, trimming, fertilizing and application of insecticides, and dead plants are replaced;
(d) Access and exit to the properties should be smooth. The courtyard, driveway and car park are kept in good order and in a proper state of repair and all potholes and ruts are filled and resurfaced, if necessary;
(e) Parking lots are properly demarcated in white lines (to be repainted when necessary) to ensure the parking of vehicles in an orderly manner and vehicles are not parked otherwise than in the parking lots;
(f) The drains, cover slabs and culverts are kept in a proper state of repair and are swept regularly and are free from odour, litter, debris and stagnant water;
(g) A proper and adequate refuse bin centre is provided which is kept clean, free from odour, flies and vermin, and in a proper state of repair, and arrangement is made with the proper authorities to empty the refuse regularly and to replace any refuse bins when damaged;
(h) The recreational area and playground, pergolas, benches, play equipment and all recreational facilities are kept in a clean condition and good order;
(i) Gates and fences (including wall fences and railings) are repaired when damaged and are painted to the satisfaction of The Approving Authority.
(j) The external walls of the building are neat and tidy in appearance and exterior painting is done at least once in 5 years to the satisfaction of The Approving Authority or such shorter period as The Approving Authority may require;
(k) The windows and doors (including panels, grilles, louvers panes, ventilators and awnings) are regularly painted and are kept in good order and repair.
(l) All fixtures, fittings and services including sewers, septic tanks, lights, gas, hot and cold water, air conditioning, lifts, escalators, tanks, pumps, generators, motor fans, compressors, incinerators, ducts, cables, wires, pipes, switches, meters, gauges and all apparatus and installation existing for common use are kept in a proper working condition and serviced regularly.
(m) Roofing and gutters (including rain water pipes) when damaged are repaired as soon as possible;
(n) The corridors, passages, landings, staircases, escalators, air wells, walls, ceilings, fire escapes, entrances and exits of buildings, basements, car parks, roof and roof gardens, recreational or community facilities, refuse chutes, common storage spaces, common, toilets and latrines are kept clean and properly maintained, repaired, redecorated and if necessary renewed;
(o) Adequate ventilation and lighting, whether natural or artificial, are provided to the entire building in general and in particular all passages, landings, staircases, lifts and hallways and any blown fuses, bulbs or defective wires and switches are immediately replaced;

(p) Boxes, bottles and any other articles are not stacked along any passage of the building or in any part of the ground or on the roof of the building; and
(q) The building is kept dean and free from mutilation, scribbling, grafitti or drawing on walls, floor and ceilings.

The Registered professional shall carry out a Full Building Condition Survey and thereafter make recommendations to the Approving Authority for any remedial measures to be undertaken or issuance of certificate of occupation. The inspection by the registered professional to be submitted to the Approving Authority shall be carried out in the manner and format prescribed in FORM T6 and shall where necessary include comments and consultations from any other relevant registered professionals.

SCHEDULE T4:

FULL BUILDING SERVICES (ELECTRICAL AND MECHANICAL) INVESTIGATIONS

Electrical Services

The requirements for the mandatory periodical inspection of buildings and building services are stipulated under these Regulations.

The Electrical Services that require periodic inspection include but not limited to the following:

(i) Electrical Installation
(ii) Fire detection and Alarm Systems
(iii) Hoists and Escalators
(iv) Access Control Systems

Period of Inspection

The frequency of the periodic inspection and testing shall be determined by the type of installation, its use and operation, the frequency of maintenance and to the external influences to which it is subjected to.

The Approving Authority shall by notice in writing serve the owner of the building the requirement for the Electrical installation of the building to be inspected.

Initial Inspection

(a) In order to satisfy part (a) above, every installation shall, during erection and/or on completion before being put into service be inspected and tested to verify, so far as reasonably practicable, that the requirements of the Kenya Wiring Regulations and any other relevant regulations have been met.
(b) The method of test shall be such that no danger to persons, livestock or property or damage to equipment can occur even if the circuit tested is defective.
(c) The initial inspection on the electrical installation before occupation shall be carried out by a Registered professional and the inspection report filed for reference during subsequent inspections.
(d) Detailed inspection shall precede Testing and shall normally be done with part of the installation under inspection disconnected from the supply.
(e) The detailed inspection shall include at least the checking of the following items, where relevant and where necessary during erection:

    (i) Connection of conductors
    (ii) Identification of conductors
    (iii) Routing of cables in safe zones or mechanical protection
    (iv) Selection of conductors for current carrying capacity and the voltage drop, in accordance with the design

(v) Connection of single pole devices for protection or switching in phase conductors only
(vi) Correct connection of socket outlets and lamp holders
(vii) Presence of fire barriers and protection against thermal effects
(viii) Methods of protection against direct contact
(ix) Methods of protection against indirect contact
(x) Prevention of mutual detriment influence
(xi) Presence of the appropriate devices for isolation and switching
(xii) Presence of under voltage protective devices
(xiii) Choice and setting of protective and monitoring devices
(xiv) Labeling of circuits, fuses, switches and terminals
(xv) Selection of Equipment and protective measures appropriate to external influences
(xvi) Adequacy of access to switch gear and equipment
(xvii) Presence of danger notices and other warning devices
(xviii) Presence of diagrams, instructions and similar information
(xix) Erection methods
(xx) Environmental Soak test

If, having regard to the results of the visual inspection above, the qualified person reasonably suspects or is of the opinion that there are defects, deformations or deteriorations in the installation and that the questionable aspects of the installation are likely to endanger or reduce the electrical integrity/soundness of the installation, he shall inform the Approving Authority for the need to carry out full electrical installation tests.

The Approving Authority may after considering the report of the registered professional, arrange for full and detailed tests and investigations on the electrical installation in the building.

The test and investigations shall include the following:

(i) Continuity of protective conductors
(ii) Continuity of ring final circuit conductors
(iii) Insulation resistance
(iv) Site applied insulation
(v) Protection of separation of circuits
(vi) Protection against direct contact, by a barrier or enclosure provided during erection
(vii) Insulation of non conducting floors
(viii) Polarity
(ix) Earth fault loop impedance
(x) Earth electrode resistance
(xi) Operation of residual current operated devices

Report on the Results of the Inspection and Tests

A report of the findings of the inspection and the tests on the electrical installation shall comprise

(i) Detailed description of the visual inspection and full presentation of the test results conducted by the Registered professional
(ii) Analysis of the observations and test results
(iii) Recommendations by the Registered professional as to such remedial measures to be undertaken to ensure soundness of the electrical integrity of the installation.
(iv) The registered professional shall then prepare and submit to the Approving Authority a report of the results of the full building services investigation carried out under this regulation together with his recommendations.

Maintenance of Lifts and hoists and Certificates of Inspection

(a) The owner of any lift in a building shall ensure that the lift is kept in a clean and proper working condition at all times and the lift is under periodic maintenance and examination in accordance with the requirements specified in the schedule.T2
(b) Subject to (a) above, no lift or hoist shall be allowed to operate unless a certificate of inspection in respect thereof has been issued.
    (i) The fees payable for each Certificate of Maintenance issued by The Approving Authority shall be as prescribed by The Approving Authority from time to time.
    (ii) The Certificate of Inspection for each lift or hoist shall be valid for one year from the date of issue of the certificate

Periodic Maintenance and Examination of Lifts and Hoists

The owner of every lift or hoist shall cause the lift, all machinery and equipment connected therewith and the safety equipment provided therefore to be cleaned, oiled and adjusted by a registered lift contractor at intervals not exceeding one month.

Periodic Examination, Test and Inspection

(a) The owner of every lift or hoist shall, at intervals not exceeding one year, cause the lift to be thoroughly examined and inspected in order to determine whether the lift and all machinery and equipment connected therewith is in safe working order.
(b) The owner of every lift shall, at intervals not exceeding one year, cause the safety equipment provided thereof to be tested without any load in the lift.
(c) The owner of every lift shall, at intervals not exceeding five years cause the safety equipment provided therefore to be tested with full rated load in the car.
(d) Where such examination, test and inspection show any lift to be defective, the lift shall not be permitted to be operated until proper repairs have been carried out.
(e) A proper record of all notices, certificates of inspection, permits and documents issued in connection with any lift shall be kept and produced to the Approving Authority when required.

(f) The certificates of inspection shall be issued by registered lifts and hoists contractors on behalf of the Approving Authority at a fee to be prescribed by the Approving Authority.

Maintenance of Boilers

The owner of the building shall ensure that the boiler installation is periodically inspected as per the statutory requirements under the Occupational Health and Safety Act, 2007.

Special building investigation

This will be as per the terms of reference by the Approving Authority and depending on the circumstances at hand.

SCHEDULE T4:

GUIDELINES ON THE SUBMISSION OF DESIGN AND SPECIFICATIONS ON REMEDIAL WORKS

These are guidelines for the submission of designs and specifications on remedial works to The Approving Authority. However, they should include, if deemed necessary, additional considerations and comments depending on the actual building condition.

Recommendations in the Inspection Report shall be submitted.

Methods of Remedial Works
Identify the types of remedial works necessary and indicate on the drawings where such repairs are to be carried out.

Analysis of methods of Remedial Works.
(a) method statement of remedial works
(b) materials to be used - to include catalogues where appropriate
(c) recommendations from specialist contractors
(d) analysis and design of the strengthening and replacement works.
(e) any defects on existing structure requiring further analysis.

Assessment of Remedial Works carried out.

(a) recommendation on testing of materials
(b) recommendation on quality control of remedial work
(c) materials to be used - to include catalogues where appropriate
(d) recommendations on tests to determine the effectiveness of remedial works.

SCHEDULE T5:

GUIDELINES ON THE SUBMISSION OF REPORT AFTER COMPLETION OF MEDIAL WORKS

This is a guidelines for the submission of the report after the completion the remedial work to The Approving Authority.

(a) Diary of Remedial Works.

(b) Type and Location of Remedial Works; To indicate on drawings and sketches the locations and type of remedial works carried out at these locations.

(c) Methods of Remedial Works.

- (i) to comment on any deviations in the extent of remedial work.
- (ii) to comment on any changes in the methods used.
- (iii) to comment on any changes in the material used.

(d) Assessment of Remedial Works carried out.

- (i) reports of tests on materials carried out during the work
- (ii) reports of tests on completed structure
- (iii) reports of any other test.

(e) Registered professional's Endorsement and Standard Certification

- (i) The report shall be signed and endorsed by the Registered professional appointed to carry out the investigations
- (ii) The registered professional shall submit standard certification Form T5

FORM T1A

PLANNING AND BUILDING APPROVING AUTHORITY

(Address of The Approving Authority)

NOTICE OF INSPECTION

Ref no. _____

Date _____

The owner

_____

_____

_____

REGISTRATION NO: _____

BUILDING NAME: _____

PLOT NO. L.R.: _____

STREET/ROAD: _____

TOWN _____

DISTRICT: _____

(1) Under Regulation TT1 of the Regulations, it is mandatory for buildings to be inspected at regular intervals by Registered professionals to detect any deterioration or defects in the buildings and the surrounding areas.

(2) The Regulations require you to appoint a Registered professional within 30 days from the date of this notice and to notify The Approving Authority of such appointment within 14 days thereof.

(3) This shall also be accompanied by a confirmation signed by the Registered professional of her/his appointment to inspect the building and the surrounding areas. For your convenience, Form T2 is attached for your completion and return by.....Date

FORM T1B

NATIONAL BUILDING REGULATIONS

(Address of The Approving Authority)

NOTICE FOR SPECIAL INSPECTION

Ref no. _____

Date _____

The owner

_____

_____

_____

REGISTRATION NO: _____

BUILDING NAME: _____

PLOT NO. L.R.: _____

STREET/ROAD: _____

TOWN _____

COUNTY: _____

(1) Under sub regulation TT1 of the Regulations, it is mandatory for buildings to be inspected at regular intervals by Registered professionals to detect any deterioration or defects in the buildings and the surrounding areas.

(2) The Regulations requires you to. appoint a Registered professional within …….. days of the date of this notice and to notify the Approving Authority of such appointment within ..... days thereof.

(3) This shall also be accompanied by a confirmation signed by the Registered professional of his appointment to inspect the building and the surrounding areas. For your convenience, Form T2 is attached for your completion and return by.....(date)

FORM T2

NATIONAL BUILDING REGULATIONS

(Address of The Approving Authority)

INSPECTION OF BUILDINGS

APPOINTMENT OF REGISTERED PROFESSIONAL

1. Particulars of the building to be inspected:
   Notification Ref. No. : .....
   Registration No. : .....
   Plot No. L.R. : .....
   Road/Street :…….....
   Description of Building : .....
   Name of Building (if applicable) : ….....
   Name of Original Developer/Owner : .....
   Name of Architect : .....
   Name of Structural Engineer : .....
   Name of Original Builder/Contractor : .....

2. I wish to inform you that I have appointed the following Registered professional to carry out an inspection of the above building as required under Section TTI of the Regulations
   Name of Registered professional: .....
   Registration No. : .....

   Name of Owner:
   Address:…….
   Telephone:…….
   Signature:…….. Date……

3. I..... (Registered professional) hereby:
   (a) confirm that I have been appointed by
   ..... (Owner)
   to carry out an inspection of the above building and the surroundings,

   (b) declare that I have no professional or financial interest in the above

   Address of Registered professional: Signature :
   Tel:.....
   Date:……

FORM T3

NATIONAL BUILDING REGULATIONS

(Address of The Approving Authority)

VISUAL INSPECTION CERTIFICATION

REGISTRATION NO:_____
BUILDING NAME:_____
PLOT NO. L.R:_____
STREET/ROAD:_____
TOWN:_____
COUNTY:_____

1. As required under Section ..... of the National Building Regulations, I .....(Registered professional) have carried out a visual inspection of the above building and the surrounding areas from .... to..... (date).

2. I hereby certify that:
   (a) No sign of defects of structural significance were observed.
   (b) Defects requiring monitoring but not structural investigation and remedial action (if any) were visible to me in the building and the surrounding areas during my inspection.

(c) That signs of possible defects of structural significance are detected in the building and the surrounding areas during my inspection. A full and immediate investigation to ascertain their effects on the structure is necessary.

(d) That the defects are serious and immediate action to prevent danger is necessary.

3. I submit herewith my report on the visual inspection of the above building and the surrounding areas, duly prepared and signed as required under the Planning and Building Regulations.

(Registered professional Signature)
Registration No.
CC Building Owner/Management Corporation

* Delete whichever is not applicable

FORM T4

NATIONAL BUILDING REGULATIONS

(Address of The Approving Authority)

STRUCTURAL INSPECTION CERTIFICATION

REGISTRATION NO: _____
BUILDING NAME: _____
PLOT NO. L.R.: _____
STREET/ROAD: _____
TOWN _____
COUNTY: _____

1. As required under Section TT11 of the Regulations, I …… (Qualified Structural Engineer)
have carried out a visual inspection of the above building and the surrounding areas from ……to……. (date)
2. I hereby certify that the sign of possible defects as identified earlier in the visual inspection report dated ..... were of no structural significance

In arriving at my conclusion, I confirm that:-

*(a) I have checked the structural plans and calculations relating to the above building and the surrounding area system and am satisfied that are no inadequacies in the key structural elements.
*(b) I have reconstructed the structural plans and I am satisfied that no inadequacies in the key structural elements as would be reasonably discoverable by such structural appraisal were present.
3. I hereby notify that the investigation has structural significance.
In arriving at my conclusion, I confirm that:-
(a) I have checked the structural plans and calculations relating to the above building and the slope protection system.
(b) I have reconstructed the structural plans where possible and carried out a structural appraisal.
The report as attached has been submitted to the owner of the building and he has been advised to rectify the defects immediately.

I submit herewith my report on the full structural investigation as well as my own analysis and design calculations relating to the above building and the surrounding areas including recommendation for remedial works (if any).
Building Owner/Management Corporation
I .....
(Qualified Structural Engineer Signature)
Registration No.
Date: ……
Cc Building Owner/Management Corporation
* Delete whichever is not applicable

FORM T5

NATIONAL BUILDING REGULATIONS

(Address of The Approving Authority)

COMPLETION OF REMEDIAL WORK CERTIFICATION

REGISTRATION NO: _____
BUILDING NAME: _____
PLOT NO. L.R.: _____
STREET/ROAD: _____
TOWN: _____
COUNTY: _____

1. I …….. (Registered professional) have supervised work carried out on the above building surrounding areas as set out in the attached report.

2. I hereby certify that defects as identified in the report dated ……. Have been fully and satisfactory remedied at the date of my inspection on……..

_____

(Registered professional Signature)

Registration No.

Date: _____

c c Building Owner/Management Corporation

FORM T6

GENERAL INFORMATION ON THE BUILDING

1. Name and Address of the owner(s).....
2. Proprietorship/Ownership/Tenure details.....
3. L.R Number.....
4. Name and Address of building.....
5. Location plan(attached).....
6. Sketch site plan (attached).....
7. Number of levels/floors.....
8. Description of main usage of building.....
9. Date of completion.....
10. History of the building.....
11. Name of original architect/engineer and contractor.....
12. Tenancy Status.....Expiration Date of Tenancy.....

BUILDING AGE AND GROSS SQUARE METRES

13. Year of occupation of Original Building.....
14. Gross area of Building as Currently Configured.....
15. Number of Floors.....

BUILDING OWNERSHIP AND OCCUPANCY STATUS

16. Building Ownership (check one):

- ☐ Owned and used by government
- ☐ Owned by government and leased to private entity
- ☐ Owned by government, part used by government, part leased to private entity
- ☐ Owned by private entity and leased to government
- ☐ Owned and used by private entity
- ☐ Owned and used by quasi government entity
- ☐ Owned by quasi government entity and leased out

17. For which of the following purposes is the building currently used? (check all that apply)

- ☐ Used for educational/training purposes
- ☐ Commercial
- ☐ Used for other government purposes
- ☐ Used by other organization(s)
- ☐ Residential
- ☐ Industrial
- ☐ Medical
- ☐ Other (Specify)

BUILDING USERS

17. How many tenants are registered as users of the building ☐
18. Of the above, how many are:
    a. Permanent ☐
    b. Occasional ☐
19. For how many days during the last year was the building closed due to facilities failures, system malfunctions and structural problems? ☐
20. Have there been renovations or construction in the building during the past 12 months? ☐ Yes ☐ No

PROGRAM SPACES

21. Number of general purpose rooms:
22. Gross area of all general purpose rooms (combined):
23. Other spaces provided (check all that apply):

☐ a. N/A (none)	☐ h. Guidance	☐ o. Multipurpose Rooms	☐ v. Swimming Pool
☐ b. Administration	☐ i. Gymnasium	☐ p. Music	☐ w. theatre
☐ c. displays	☐ j. Health Suite	☐ q. Pre-K	☐ x. washrooms
☐ d. Audio Visual	☐ k. conference	☐ r. Remedial Rooms	☐ y. Other (describe)
☐ e. Auditorium	☐ l. Kitchen	☐ s. Resource Rooms	
☐ f. Cafeteria	☐ m. private offices	☐ t. Science Labs	
☐ g. Computer Room	☐ n. Library	☐ u. shops	

SPACE ADEQUACY

24. Rating of space adequacy ☐ Good ☐ Fair ☐ Poor

Comments:

Overall building rating (to be answered after the building inspection is complete)

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Poor

OVERALL BUILDING RATING DEFINITIONS:

E	Excellent	All systems classified as health and safety or structural rated "excellent," no systems rated below "satisfactory," preventive maintenance plan in place.
S	Satisfactory	All systems categorized as health and safety or structural rated "satisfactory" or better. No system rates "non-functioning" or "critical failure."
U	Unsatisfactory	Any system categorized as health and safety or structural rated "unsatisfactory." No health and safety or structural system rated "non-functioning" or "critical failure."

F	Failing	Any system categorized as health and safety or structural rated "non-functioning" or "critical failure." Building Certificate of Occupancy may be rescinded.

BUILDING SYSTEM CONDITION RATINGS AND DEFINITIONS:

E	Excellent	System is in new or like-new condition and functioning optimally; only routine maintenance and repair is needed.
S	Satisfactory	System functioning reliably; routine maintenance and repair is needed.
U	Unsatisfactory	System is functioning unreliably or has exceeded its useful life. Repair or replacement of some or all components is needed.
NF	Non-Functioning	System is non-functioning, not functioning as designed, or is unreliable in ways that could endanger occupant health and/or safety. Repair or replacement of some or all components is needed.
CF	Critical Failure	Same as "NF" with the addition that the condition of at least one component is so poor that at least part of the building or grounds should not be occupied pending needed repairs/replacement or some or all components is needed.

SITE UTILITIES

26. Water

a. Type of service: ☐ Municipal or Utility provided ☐ Well ☐ Other

b. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Year of last major reconstruction/ replacement

d. Expected Remaining Useful life (years)

e. Comments

27. Site Sanitation

a. Type of service: ☐ Municipal or Utility sewer ☐ Site septic ☐ Other

b. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Year of last major reconstruction/ replacement

d. Expected Remaining Useful life (years)

e. Comments

28. Site Gas

a. Does the building have gas service or use liquid petroleum gas? Yes No (skip to next section)

b. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Year of last major reconstruction/ replacement

d. Expected Remaining Useful life (years)

e. Comments

29 Site Fuel Oil

a. Type of service: ☐ Fuel Tanks ☐ other (specify)

b. If the building has fuel tanks:

1. Above Ground: ☐ a. Capacity of above ground tanks (gallons)

2. Below Ground: ☐ b. Capacity of below ground tanks (gallons)

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of last major reconstruction/ replacement

e. Expected Remaining Useful life (years)

f. Comments

30. Site Storm Drainage

a. Quality of Drainage: ☐ Good ☐ Fair ☐ Poor ☐ Unknown

b. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Year of last major reconstruction/replacement

d. Expected Remaining Useful life (years)

e Comments

SITE UTILITIES

31. Electrical, Including Exterior Distribution

a. Service Provider (check all that apply): ☐ Utility Provided ☐ Self-Generated ☐ Other

b. Type of Service: ☐ Above Ground ☐ Below Ground

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement

e. Expected Remaining Useful Life (Years):

f Comments:

OTHER SITE FEATURES

32. Pavement (Roadways and Parking Lots)

a. Type (check all that apply) ☐ concrete ☐ asphalt ☐ gravel ☐ other ☐ none

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Year of Last Major Reconstruction/Replacement

d. Expected Remaining Useful Life (Years):

e. Comments:

33. Sidewalks

a. Type (check all that apply) ☐ concrete ☐ asphalt ☐ other

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Year of Last Major Reconstruction/Replacement

d. Expected Remaining Useful Life (Years):

e. Comments:

☐ **34. Recreational Facilities**

a. Condition:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

c. Year of Last Major Reconstruction/Replacement

d. Expected Remaining Useful Life (Years):

d. Comments:

35. Sport/Games facilities

a. Condition:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

c. Year of Last Major Reconstruction/Replacement

d. Expected Remaining Useful Life (Years):

d. Comments:

SUBSTRUCTURE

36.a. Type (check all that apply):

☐ Reinforced Concrete ☐ Masonry on Concrete Footing ☐ Other

b. Evidence of Structural Concerns:

i. Structural Cracks ☐ Yes ☐ No iv. Water Penetration ☐ Yes ☐ No

ii. Heaving/Jacking ☐ Yes ☐ No v. Unsupported Areas ☐ Yes ☐ No

iii. Decay/Corrosion ☐ Yes ☐ No vi. Other ☐ Yes ☐ No

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

f. Comments:

BUILDING ENVELOPE

37. Structural Floor(s)

a. Type (check all that apply):

☐ i. Reinforced Concrete slab on Grade ☐ iv. Wood Deck on Wood Trusses ☐ vii. Other (specify)

☐ ii. Concrete/Metal Deck/Metal Joists ☐ v. Wood Deck on Wood Joists ☐

☐ iii. Precast Concrete Structural System ☐ vi. Concrete Deck on Wood Structure ☐

b. Evidence of structural Concerns with Floor Support System (Beams/Joists/Trusses, etc.):

i. Structural Cracks ☐ Yes ☐ No iv. Deflection ☐ Yes ☐ No

ii. Unsupported Ends ☐ Yes ☐ No v. Seriously Damaged/Missing Components ☐ Yes ☐ No

ii. Rot/Decay/Corrosion ☐ Yes ☐ No vi. Other Problems ☐ ☐

c. Evidence of Structural Concerns with Structural Floor Deck:

i. Cracks ☐ Yes ☐ No

ii. Deflection ☐ Yes ☐ No

iii. Rot/Decay/Corrosion ☐ Yes ☐ No

d. Overall Condition of Structural Floors:

Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

f. Comments:

38. Exterior Walls/Columns

a. Material (check all that apply: ☐ Concrete ☐ Masonry ☐ Steel ☐ Wood Other

b. Evidence of Structural Concerns with Support System (columns, base plates and connections):

i. Structural Cracks ☐ Yes ☐ No

ii. Rot/Decay/Corrosion ☐ Yes ☐ No

iii. Other Problems:

c. Evidence of Concerns with Exterior Cladding:

i. Cracks/Gaps ☐ Yes ☐ No iv. Moisture Penetration ☐ Yes ☐ No

ii. Inadequate Flashing ☐ Yes ☐ No 5. Rot/Decay/Corrosion ☐ Yes ☐ No

iii. Efforescence ☐ Yes ☐ No 6. Other Problems

d. Overall Condition of Exterior Walls/Columns::

Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

e. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

g Comments:

39. Chimneys

a. Material (check all that apply): ☐ Masonry ☐ Concrete ☐ Metal ☐ Other ☐ N/A

b. Overall condition of chimneys:

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

40. Parapets

a. Construction Type (check all that apply): ☐ Masonry ☐ Concrete ☐ Metal ☐ Other ☐ N/A

b. Overall condition of parapets:

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

41. Exterior Doors

a. Overall condition of Exterior Door Units:

b. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Overall condition of Exterior Door Hardware:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Do any exit doors have magnetic locking devices? Yes No

d. Safety/Security Features are adequate: ☐ Yes ☐ No ☐ Unable to Determine

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

42. Exterior Steps, Stairs, and Ramps

a. Overall condition of exterior steps, stairs, and ramps

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

b. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

c. Comments:

43. Fire Escapes

a. Does the building have one or more fire escapes? ☐ Yes ☐ No (skip to next question)

b. Overall condition of fire escapes:

c. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Safety features are adequate ☐ Yes ☐ No ☐ Unable to determine

e. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

f. Comments:

44. Windows

a. Type of windows (check all that apply):

☐ Aluminum ☐ Steel ☐ Vinyl ☐ Solid Wood ☐ Wood w/ External Cladding System ☐ Other

b. Overall condition of windows:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. All rescue windows are operable: ☐ Yes ☐ No ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

45. Roof and Skylights

a. Type of roof construction (check all that apply):

☐ i. Metal deck on metal trusses/joists
☐ ii. Wood deck on wood trusses/joists
☐ iii. Wood deck on metal trusses/joists
☐ iv. Concrete on metal deck on metal trusses/joists
☐ v. Other

b. Type of roofing material (check all that apply):

☐ i. Single-ply membrane ☐ iii. Asphalt Single ☐ v. GCI ☐ vii. Tiles
☐ ii. Built up/slab ☐ iv. Pre-Formed metal ☐ vi. Slate ☐ viii. Other

c. Evidence of structural Concerns with Support System (Beams/Joists/Trusses):

i. Structural Cracks ☐ Yes ☐ No iv. Deflection ☐ Yes ☐ No
ii. Unsupported Ends ☐ Yes ☐ No v. Seriously Damaged/Missing Components ☐ Yes ☐ No
iii. Rot/Decay/Corrosion ☐ Yes ☐ No vi. Other Problems ☐ ☐

d. Evidence of Structural Concerns with Structural Floor Deck:

i. Cracks ☐ Yes ☐ No
ii. Deflection ☐ Yes ☐ No
iii. Rot/Decay/Corrosion ☐ Yes ☐ No

e. Does the building have skylights? ☐ Yes ☐ No

f. If yes, what material are the skylights made? ☐ i. Plastic ☐ ii. Glass ☐ ii. Other

g. Condition of skylights:

Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

h. Evidence of concerns with roofing, skylights, flashing, and drains:

i. Failures/Splits/Cracks ☐ Yes ☐ No ☐ N/A
ii. Rot/Decay/Corrosion ☐ Yes ☐ No ☐ N/A
iii. Inadequate Flashing/curbs/pitch pockets ☐ Yes ☐ No ☐ N/A
iv. Inadequate or poorly functioning roof drains ☐ Yes ☐ No ☐ N/A
v. Evidence of water penetration/active leaks ☐ Yes ☐ No ☐ N/A
Other concerns (specify):

i. Overall Condition of roof:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

INTERIOR SPACES

46. Interior bearing walls and fire walls

a. Overall Condition of interior walls:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

47. Other Interior Walls

a. Overall Condition of interior walls:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

48. Floor Finishes

a. Types of floor finishes (check all that apply):

☐ i. Carpet ☐ ii. Resilient tiles or sheet flooring ☐ iii.Wood

☐ iv. Hard flooring (concrete, ceramic tile, stone, etc.) ☐ v. Other

b. Types of floor finishes in common areas (check all that apply):

☐ i. Carpet ☐ ii. Resilient tiles or sheet flooring ☐ iii.Wood
☐ iv. Hard flooring (concrete, ceramic tile and stone) ☐ v. Other

c. Overall Condition of floor finishes:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

49. Ceilings

a. Overall Condition of ceilings:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

50. Lockers/wardrobes

a. Overall Condition of lockers:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

51. Interior Doors

a. Overall Condition of interior door units:

Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

c. Overall Condition of interior door hardware:

Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

52. Interior Stairs

a. Overall condition of interior stairs:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

53. Elevators, lifts and escalators

a. Overall condition of elevators, lifts and escalators:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

54. Interior Electrical Distribution

a. Interior electrical supply meets current needs: Yes No

b. Condition of interior electrical distribution:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

55. Lighting Fixtures

a. Condition of interior lighting fixtures:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

56. Communications Systems

a. Communication systems are adequate ☐ Yes ☐ No ☐ Unable to determine ☐ N/A

b. Condition of communications system:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

57. Swimming pool and swimming pool systems

a. Overall condition of swimming pool and pool systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

PLUMBING, EXCLUDING HEATING VENTILATION AND AIR CONDITIONING (HVAC) SYSTEMS

58. Water Distribution System

a. Types of pipes (check all that apply):

☐ i. Iron ☐ ii. Galvanized ☐ iii. Copper ☐ iv. Lead ☐ v. PVC ☐ vi. Other ☐ vii. N/A

b. Overall condition of water distribution system:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

59. Plumbing Drainage System

a. Types of pipes (check all that apply):

☐ i. Iron ☐ ii. Galvanized ☐ iii. Copper ☐ iv. Lead ☐ v. PVC ☐ vi. Other ☐ vii. N/A

b. Overall condition of drainage system:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

60. Hot Water Heaters

a. Type of fuel (check all that apply)::

☐ i. Oil ☐ ii. Natural Gas ☐ iii. Electricity ☐ iv. Other ☐ v. N/A

b. Overall condition of water heaters:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

61. Plumbing Fixtures

a. Overall condition of plumbing fixtures (including toilets, urinals and lavatories.):

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

HVAC SYSTEMS

62. HVAC Systems Type

a. Does this building have a central HVAC system? ☐ Yes ☐ No (skip to next section)

b. If yes, what type of technology does it use (check all that apply):

☐ i. Constant volume (CV) ☐ ii. Variable Air Volume (VAV) ☐ iii. Dual-Duct or Multi-Zone ☐ iv. Other

63. H**eat Generating Systems**

a. Heat generation source (check all that apply):

☐ i. Boiler/ Hot Water ☐ ii. Boiler/Steam ☐ iii. Furnace/Forced Air ☐ iv. Solar

b. Overall condition of heat generating systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

64. Heating Fuel/Energy Systems

a. Overall condition of heating fuel/energy systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

65. Cooling/Air Conditioning Generating Systems

a. Overall condition of cooling/air conditioning generating systems:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

66.. Air Handling and Ventilation Equipment: Supply Units, Exhaust Units and Relief/Return Unit

a. Overall condition of air handling and ventilation systems:

d. Condition ☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical failure

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

67. Cooling Distribution Systems: Pumps, Radiators, Convectors, traps and Insulation

a. Overall condition of piped heating and cooling distribution systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

68. Cooling Distribution Systems: Control Dampers, Fire/Smoke Dampers, Variable Air Volumes (VAVs) and Insulation

a. Overall condition of ducted heating and cooling distribution systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

69. HVAC Control Systems

a. Overall condition of control systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

FIRE SAFETY SYSTEMS

70. Fire Alarm Systems

a. Overall condition of fire alarms:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

71. Smoke Detection Systems

a. Overall condition of smoke detection systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

72. Fire Suppression Systems: Sprinklers, Standpipes and Kitchen Hoods.

a. Overall condition of fire suppression systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

73. Emergency/Exit Lighting Systems

a. Overall condition of emergency/exit lighting systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

74. Emergency/Standby Power Systems

a. Does the building have an emergency or standby power system? ☐ Yes ☐ No (skip to next section)

b. Overall condition of emergency/standby power systems:

☐ Excellent ☐ Satisfactory ☐ Unsatisfactory ☐ Non-Functioning ☐ Critical Failure ☐ N/A

d. Year of Last Major Reconstruction/Replacement e. Expected Remaining Useful Life (Years):

e. Comments:

ACCESSIBILITY

75. Exterior Route

Physically challenged people should be able to arrive on site, approach the building, and enter as freely as everyone else. At least one route of travel should be safe and accessible for everyone, including people with disabilities. This route must include handicapped parking, curb cuts, ramps, and automatic door operators as necessary to enter the building.

Is there an accessible exterior route as specified above? ☐ Yes ☐ No

76. Interior Route, Access to Goods and Services, and Rest room Facilities

The layout of the building should allow Physically challenged people to obtain materials or services and use the facilities without assistance. This should include access to general purpose and specialized classrooms, public assembly spaces (such as libraries, gymnasiums, and auditoriums), nurse's office, main office, and restroom facilities. Services include drinking fountains, telephones, and other amenities.

77. Additional Information on Accessibility

If the building lacks accessible interior or exterior routes:

Comments:

ENVIRONMENT/COMFORT/HEALTH

78. General Appearance

a. Overall rating: ☐ Good ☐ Fair ☐ Poor

b. Comments:

79. Cleanliness

a. Overall rating: ☐ Good ☐ Fair ☐ Poor

b. Comments:

80. Acoustics

a. Overall rating: ☐ Good ☐ Fair ☐ Poor

b. Comments: .....

.....

81. Lighting Quality

a. Types of lighting in general purpose classrooms (check all that apply):

☐ i. Daylight ☐ ii. Fluorescent-NOT full spectrum ☐ iii. Fluorescent Full Spectrum

☐ iv. Incandescent ☐ v. Other ☐ vi. N/A

b. Overall rating: ☐ Good ☐ Fair ☐ Poor

c. Comments: .....

.....

82. Evidence of Vermin

Is there evidence of active infestations of vermin?

a.	Rodents	☐ Yes	☐ No
b.	Wood-boring or wood-eating insects	☐	☐
c.	Cockroaches	☐	☐
d.	Other vermin	☐	☐

INDOOR AIR QUALITY

83. Mould

a. Is mould visible in or around any of the following areas?

i.	Rooms	☐ Yes	☐ No	☐ N/A
ii.	Common areas	☐	☐ No	☐ N/A
iii.	Supply/return grilles	☐	☐ No	☐ N/A
iv.	Other Areas	☐	☐ No	☐ Specify

Comments:

84. Humidity/moisture

Are any of the following found in or around the following areas?

	a. In Rooms			b. In other areas		
i. Visible water damage	☐ Yes	☐ No	☐ Unable to determine	☐ Yes	☐ No	☐ Unable to determine
ii. Active leaks in roof	☐ Yes	☐ No	☐ Unable to determine	☐ Yes	☐ No	☐ Unable to determine
iii. Active leaks in plumbing	☐ Yes	☐ No	☐ Unable to determine	☐ Yes	☐ No	☐ Unable to determine
iv. Moisture Condensation	☐ Yes	☐ No	☐ Unable to determine	☐ Yes	☐ No	☐ Unable to determine

c. Rating of humidity/moisture condition in building: ☐ Good ☐ Fair ☐ Poor

85. Ventilation: fresh air intake locations and air filters.

a. Are there fresh air intakes near the following?

i.	Near the loading area	☐ Yes	☐ No	☐ N/A
ii.	Near delivery areas	☐ Yes	☐ No	☐ N/A
iii.	Near garbage storage/disposal areas	☐ Yes	☐ No	☐ N/A

b. Is there accumulated dirt, dust, or debris around fresh air intakes? ☐ Yes ☐ No ☐ N/A

c. Are fresh air intakes free of blockage? ☐ Yes ☐ No ☐ N/A

d. Is accumulated dirt, dust, or debris in ductwork? ☐ Yes ☐ No ☐ N/A

e. Are dampers functioning as designed? ☐ Yes ☐ No ☐ N/A

f. Condition of air filters: ☐ Good ☐ Fair ☐ Poor ☐ N/A

g. Outside air is adequate for occupant load: ☐ Yes ☐ No ☐ Unable to determine

h. Rating of Ventilation/Indoor air quality: ☐ Good ☐ Fair ☐ Poor ☐ Unable to determine

i. Comments

86. Indoor Air Quality (IAQ) Plan

a. Are there any air extractors in the building? ☐ Yes ☐ No

b. If not, is some other IAQ management plan used? ☐ Yes ☐ No

RECOMMENDATIONS

SECTION U

DISASTER RISKS MANAGEMENT

(On Construction Sites and the Built Environment)

CONTENTS

SECTION U

DISASTER RISKS MANAGEMENT
(On Construction Sites and the Built Environment)

PART 1: INTRODUCTION

UU - 1 INTERPRETATION

In these Regulations, unless the context otherwise requires—

Business means a trade, business or other undertaking (whether for profit or not);

Client means a person who in the course or furtherance of a business—
(a) seeks or accepts the services of another which may be used in the carrying out of a project for him; or
(b) carries out a project himself;

Construction Project Manager means the person assisting the client in relation to the coordination of health, safety and welfare measures on a construction site.

Construction Site includes any place where construction work is being carried out or to which the workers have access, but does not include a workplace within it which is set aside for purposes other than construction work;

Construction Phase means the period of time starting when construction work in any project starts and ending when construction work in that project is completed;

Construction Phase Plan means a document recording the health and safety arrangements, site rules and any special measures for construction work;

Construction Work means the carrying out of any building, civil engineering or engineering construction work and includes—
(a) the construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance (including cleaning which involves the use of water or an abrasive at high pressure or the use of corrosive or toxic substances), decommissioning, demolition or dismantling of a structure;
(b) the preparation for an intended structure, including site clearance, exploration, investigation (but not site survey) and excavation, and the clearance or preparation of the site or structure for use or occupation at its conclusion;
(c) the assembly on site of prefabricated elements to form a structure or the disassembly on site of prefabricated elements which, immediately before such disassembly, formed a structure;
(d) the removal of a structure or of any product or waste resulting from demolition or dismantling of a structure or from disassembly of prefabricated elements which immediately before such disassembly formed such a structure; and
(e) the installation, commissioning, maintenance, repair or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunications, computer or similar services which are normally fixed within or to a structure, but does not include the exploration for or extraction of mineral resources or activities preparatory thereto

carried out at a place where such exploration or extraction is carried out;

Contractor means any person (including a client, principal contractor or other person referred to in these Regulations) who, in the course or furtherance of a business, carries out or manages construction work;

Design includes drawings, design details, specification and bill of quantities (including specification of articles or substances) relating to a structure, and calculations prepared for the purpose of a design;
Designer means any person (including a client, contractor or other person referred to in these Regulations) who in the course or furtherance of a business—

(a) prepares or modifies a design; or
(b) arranges for or instructs any person under his control to do so, relating to a structure or to a product or mechanical or electrical system intended for a particular structure, and a person is deemed to prepare a design where a design is prepared by a person under his control;

Excavation includes any earthwork, trench, well, shaft, tunnel or underground working;

The 1General Principles of Prevention means the general principles of prevention specified **in Schedule 1**

Health and safety file—

(a) means the record referred to in regulation 20(2)(e); and
(b) Includes a health and safety file prepared under regulation 14(d).

Loading Bay means any facility for loading or unloading;

Place of Work means any place which is used by any person at work for the purposes of construction work or for the purposes of any activity arising out of or in connection with construction work;

Pre-Construction Information means the information described in **Regulation 10** and, where the project is notifiable as described in **Regulation 15.**
Main contractor means the person appointed as the Main contractor under regulation **14(2);**

Project means a project which includes or is intended to include construction work and includes all planning, design, management or other work involved in a project until the end of the construction phase;

Site Rules means the rules described in regulation **22(1)(d);**

Structure means—

(a) any building, timber, masonry, metal or reinforced concrete structure, railway line or siding, tramway line, dock, harbour, inland navigation, tunnel, shaft, bridge, viaduct, waterworks, reservoir, pipe or pipe-line, cable, aqueduct, sewer, sewage works, gasholder, road, airfield, sea defence works, river works, drainage works, earthworks, lagoon, dam, wall, caisson, mast, tower, pylon, underground tank, earth

retaining structure or structure designed to preserve or alter any natural feature, fixed plant and any structure similar to the foregoing; or

(b) any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work, and any reference to a structure includes a part of a structure.

Traffic Route means a route for pedestrian traffic or for vehicles and includes any doorway, gateway, loading bay or ramp;

Vehicle includes any mobile work equipment;

Work Equipment means any machinery, appliance, apparatus, tool or installation for use at work (whether exclusively or not);

Workplace means a place of work within the construction site other than the construction itself.

Writing includes writing which is kept in electronic form and which can be printed.

UU - 2 APPLICATION

Any reference in these Regulations to a plan, rules, document, report or copy includes a plan, rules, document, report or copy which is kept in a form—

(a) in which it is capable of being reproduced as a printed or electronic copy when required; and

(b) which is secure from loss or un authorised interference.

UU - 3 NOTIFIABLE PROJECT

(1) For the purposes of these Regulations, a project is notifiable if the construction phase is likely to involve more than—

(a) 30 days; or

(b) 500 person days, of construction work.

(2) This shall not apply to a detached single dwelling unit of not more than two storeys.

(a) Subject to the following paragraphs of this regulation, these Regulations shall apply to and in relation to construction work.

(b) The duties under Part 3 shall apply only where a project—

(i) is notifiable; and

(ii) is carried out for or on behalf of, or by, a client.

(c) Part 4 shall apply only in relation to a construction site.

(d) Regulations 9(1)(b), 13(7), 22(1)(c), and Schedule 2 shall apply only in relation to persons at work who are carrying out construction work.

PART 2: GENERAL MANAGEMENT DUTIES APPLYING TO CONSTRUCTION PROJECTS

UU - 4 COMPETENCE

No person on whom these Regulations place a duty shall—

(a) appoint or engage a Consturction Project Manager, Qualified person, Contractor(s) unless he has taken reasonable steps to ensure that the person to be appointed or engaged is competent;

(b) accept such an appointment or engagement unless he is competent;

(c) arrange for or instruct a worker to carry out or manage design or construction work unless the worker is competent, or under the supervision of a competent person.

Any reference in this regulation to a person being competent shall extend only to his being competent to—

(a) perform any requirement; and

(b) avoid contravening any prohibition, imposed on him by or under any of the relevant statutory provisions.

UU - 5 CO-OPERATION

1. Every person concerned in a project on whom a duty is placed by these Regulations, including regulation (5) (2), shall co-operate with any other person concerned in any project involving construction work at the same or an adjoining site so far as is necessary to enable that person to perform any duty or function under these Regulations.
2. Every person concerned in a project who is working under the control of another person shall report to that person anything which he is aware is likely to endanger the health or safety of himself or others.

UU - 6 CO-ORDINATION

All persons concerned in a project on whom a duty is placed by these Regulations shall coordinate their activities with one another in a manner which ensures, so far as is reasonably practicable, the health and safety of persons—

(a) Carrying out the construction work; and

(b) Affected by the construction work.

UU - 7 GENERAL PRINCIPLES OF PREVENTION

(a) Every person on whom a duty is placed by these Regulations in relation to the design, planning and preparation of a project shall take account of the general principles of prevention in the performance of those duties during all the stages of the project.

(b) Every person on whom a duty is placed by these Regulations in relation to the construction phase of a project shall ensure so far as is reasonably practicable that the general principles of prevention are applied in the carrying out of the construction work.

UU - 8 CLIENT'S REPRESENTATIVE

Where there is more than one client in relation to a project, if one or more of such clients elect in writing to be treated for the purposes of these Regulations as the only client or

clients, no other client who has agreed in writing to such election shall be subject after such election and consent to any duty owed by a client under these Regulations save the duties in regulations 5(1)(b), 10(1), 15 and 17(1) insofar as those duties relate to information in his possession.

UU - 9 CLIENT'S DUTY IN RELATION TO ARRANGEMENTS FOR MANAGING PROJECTS

(1) Every client shall take reasonable steps to ensure that the arrangements made for managing the project (including the allocation of sufficient time and other resources) by persons with a duty under these Regulations (including the client himself) are suitable to ensure that—

(a) The construction work can be carried out so far as is reasonably practicable without risk to the health and safety of any person;
(b) The requirements of Schedule 2 are complied with in respect of any person carrying out the construction work; and
(c) Any structure designed for use as a workplace has been designed taking account of the provisions as The Approving Authority shall determine.

(2) The client shall take reasonable steps to ensure that the arrangements referred to in regulation (9) (1) are maintained and reviewed throughout the project.

UU - 10 CLIENT'S DUTY IN RELATION TO INFORMATION

(1) Every client shall ensure that
(a) every person designing the structure; and
(b) every contractor who has been or may be appointed by the client, is promptly provided with pre-construction information in accordance with regulation (10)(2).

(2) The pre-construction information shall consist of all the information in the client's possession (or which is reasonably obtainable), including—
(a) any information about or affecting the site or the construction work;
(b) any information concerning the proposed use of the structure as a workplace;
(c) the minimum amount of time before the construction phase which will be allowed to the contractors appointed by the client for planning and preparation for construction work; and
(d) any information in any existing health and safety file, which is relevant to the person to whom the client provides it for the purposes specified in regulation (10) (3).

(3) The purposes referred to in regulation (10)(2) are—
(a) to ensure so far as is reasonably practicable the health and safety of persons—
(i) engaged in the construction work,
(ii) liable to be affected by the way in which it is carried out, and
(iii) who will use the structure as a workplace; and
(b) without prejudice to regulation (10)(3)(a) to assist the persons to whom information is provided under this regulation—
(i) to perform their duties under these Regulations, and
(ii) to determine the resources referred to in regulation 9(1) which they are to allocate for managing the project.

UU - 11 DUTIES OF DESIGNERS

(1) No designer shall commence work in relation to a project unless the client for the project is aware of his duties under these Regulations.

(2) The duties in regulation (11) (3) and (11) (4) shall be performed so far as is reasonably practicable, taking due account of other relevant design considerations.

(3) Every designer shall in preparing or modifying a design which may be used in construction work avoid foreseeable risks to the health and safety of any person—
- (a) carrying out construction work;
- (b) liable to be affected by such construction work;
- (c) cleaning any window or any transparent or translucent wall, ceiling or roof in or on a structure;
- (d) maintaining the permanent fixtures and fittings of a structure; or
- (e) using a structure designed as a workplace.

(4) In discharging the duty in regulation (11) (3), the designer shall—
- (a) eliminate hazards which may give rise to risks; and
- (b) reduce risks from any remaining hazards, and in so doing shall give collective measures priority over individual measures.

(5) In designing any structure for use as a workplace the designer shall take account of the provisions of the Workplace (Health, safety and welfare) as determined by The Approving Authority which relate to the design of, and materials used in, the structure.

(6) The designer shall take all reasonable steps to provide with his design sufficient information about aspects of the design of the structure or its construction or maintenance as will adequately assist—
- (a) clients;
- (b) other designers; and
- (c) contractors, to comply with their duties under these Regulations.

UU - 12 DESIGNS PREPARED OR MODIFIED OUTSIDE KENYA

Where a design is prepared or modified outside Kenya for use in construction work to which these Regulations apply—

(a) the person who commissions it, if he is established within Kenya; or

(b) if that person is not so established, any client for the project, shall ensure that regulation 11 is complied with.

UU - 13 DUTIES OF CONTRACTORS

(1) No contractor shall carry out construction work in relation to a project unless any client for the project is aware of his duties under these Regulations.

(2) Every contractor shall plan, manage and monitor construction work carried out by him or under his control in a way which ensures that, so far as is reasonably practicable, it is carried out with minimal risks to health and safety.

(3) Every contractor shall ensure that any contractor whom he appoints or engages in his turn in connection with a project is informed of the minimum amount of time which will be allowed to him for planning and preparation before he begins construction work.

(4) Every contractor shall provide every worker carrying out the construction work under his control with any information and training which he needs for the particular work to be carried out safely and without risk to health, including—

(a) suitable site induction, where not provided by any main contractor;

(b) information on the risks to their health and safety:

(i) identified by his risk assessment report approved by The Approving Authority and done according to schedule 4.

(ii) arising out of the conduct by another contractor of his undertaking and of which he is or ought reasonably to be aware;

(c) the measures which have been identified by the contractor in consequence of the risk assessment as the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions;

(d) any site rules;

(e) the procedures to be followed in the event of serious and imminent danger to such workers; and

(f) the identity of the persons nominated to implement those procedures.

(5) Without prejudice to regulation 13(4), every contractor shall in the case of any of his employees provide those employees with any health and safety training including personal protective equipment which he is required to provide to them in respect of the construction work.

(6) No contractor shall begin work on a construction site unless reasonable steps have been taken to prevent access by un-authorised persons to that site.

(7) Every contractor shall ensure, so far as is reasonably practicable, that the requirements of UU48 are complied with throughout the construction phase in respect of any person at work which is under his control.

PART 3: ADDITIONAL DUTIES WHERE PROJECT IS NOTIFIABLE

UU - 14 APPOINTMENTS BY CLIENT WHERE A PROJECT IS NOTIFIABLE

(1) Where a project is notifiable, the client shall appoint a person ("the Construction Project Manager") to perform the duties specified in regulations 20 and 21 as soon as is practicable after initial design work or other preparation for construction work has begun.

(2) After appointing a Construction Project Manager under paragraph (1), the client shall appoint a person ("the main contractor") to perform the duties specified in regulations 22 to 24 as soon as is practicable after the client knows enough about the project to be able to select a suitable person for such appointment.

(3) The client shall ensure that appointments under regulation(14)(1) and(14) (2) are changed or renewed as necessary to ensure that there is at all times until the end of the construction phase a Construction Project Manager and main contractor.

(4) The client shall—

(a) be deemed for the purposes of these Regulations, save regulations (14)(1) and (14)(2) and regulations 18(1) and 19(1)(a) to have been appointed as the Construction Project Manager or main contractor, or both, for any period for which no person (including himself) has been so appointed and;

(b) accordingly be subject to the duties imposed by regulations 20 and 21 on a Construction Project Manager or, as the case may be, the duties imposed by regulations 22 to 24 on a main contractor, or both sets of duties.

(5) Any reference in this regulation to appointment is to appointment in writing.

UU - 15 CLIENT'S DUTY IN RELATION TO INFORMATION WHERE A PROJECT IS NOTIFIABLE

Where the project is notifiable, the client shall promptly provide the Construction Project Manager with pre-construction information consisting of—

(a) all the information described in regulation 10(2) to be provided to any person in pursuance of regulation 10(1);

(b) any further information as described in regulation 10(2) in the client's possession (or which is reasonably obtainable) which is relevant to the Construction Project Manager for the purposes specified in regulation 10(3), including the minimum amount of time before the construction phase which will be allowed to the main contractor for planning and preparation for construction work.

UU - 16 THE CLIENT'S DUTY IN RELATION TO THE START OF THE CONSTRUCTION PHASE WHERE A PROJECT IS NOTIFIABLE

Where the project is notifiable, the client shall ensure that the construction phase does not start unless—

(a) the main contractor has prepared a construction phase plan which complies with regulations 23(1)(a) and 23(2); and

(b) he is satisfied that the requirements of regulation 22(1)(c) will be complied with during the construction phase.

UU - 17 THE CLIENT'S DUTY IN RELATION TO THE HEALTH AND SAFETY FILE

(1) The client shall ensure that the Construction Project Manager is provided with all

the health and safety information in the client's possession (or which is reasonably obtainable) relating to the project which is likely to be needed for inclusion in the health and safety file.

(2) Where a single health and safety file relates to more than one project, site or structure, or where it includes other related information, the client shall ensure that the information relating to each site or structure can be easily identified.

(3) The client shall take reasonable steps to ensure that after the construction phase the information in the health and safety file—

(a) is kept available for inspection by any person who may need it to comply with the relevant statutory provisions; and

(b) is revised as often as may be appropriate to incorporate any relevant new information.

(4) It shall be sufficient compliance with regulation(17) (3)(a) by a client who disposes of his entire interest in the structure if he delivers the health and safety file to the person who acquires his interest in it and ensures that he is aware of the nature and purpose of the file.

UU - 18 ADDITIONAL DUTIES OF DESIGNERS

(1) Where a project is notifiable, no designer shall commence work (other than initial design work) in relation to the project unless a Construction Project Manager has been appointed for the project.

(2) The designer shall take all reasonable steps to provide with his design sufficient information about aspects of the design of the structure or its construction or maintenance as will adequately assist the Construction Project Manager to comply with his duties under these Regulations, including his duties in relation to the health and safety file.

UU - 19 ADDITIONAL DUTIES OF CONTRACTORS

(1) Where a project is notifiable, no contractor shall carry out construction work in relation to the project unless—

(a) he has been provided with the names of the Construction Project Managerand main contractor;

(b) he has been given access to such part of the construction phase plan as is relevant to the work to be performed by him, containing sufficient detail in relation to such work; and

(c) notice of the project has been given to the The Approving Authority.

(2) Every contractor shall—

(a) promptly provide the main contractor with any information (including any relevant part of any risk assessment in his possession or control) which–

(i) might affect the health or safety of any person carrying out the construction work or of any person who may be affected by it.

(ii) might justify a review of the construction phase plan; or

(iii) has been identified for inclusion in the health and safety file in pursuance of regulation 22(1)(j);

(b) promptly identify any contractor whom he appoints or engages in his turn in connection with the project to the main contractor;

(c) comply with—

(i) any directions of the main contractor given to him under regulation 22(1)(e), and

(ii) any site rules;

(d) promptly provide the main contractor with the information in relation to any death, injury, condition or dangerous occurrence which the contractor is required to notify or report.

(3) Every contractor shall—

(a) in complying with his duty under regulation 13(2) take all reasonable steps to ensure that the construction work is carried out in accordance with the construction phase plan;

(b) take appropriate action to ensure health and safety where it is not possible to comply with the construction phase plan in any particular case; and

(c) notify the main contractor of any significant finding which requires the construction phase plan to be altered or added to.

UU - 20 GENERAL DUTIES OF CONSTRUCTION PROJECT MANAGER

(1) The Construction Project Manager shall—

(a) give suitable and sufficient advice and assistance to the client on undertaking the measures he needs to take to comply with these Regulations during the project (including, in particular, assisting the client in complying with regulations 9 and 16);

(b) ensure that suitable arrangements are made and implemented for the co-ordination of health and safety measures during planning and preparation for the construction phase, including facilitating—

(i) co-operation and co-ordination between persons concerned in the project in pursuance of regulations 5 and 6, and

(ii) the application of the general principles of prevention in pursuance of regulation 7; and

(c) liaise with the main contractor regarding—

(i) the contents of the health and safety file.

(ii) the information which the main contractor needs to prepare the construction phase plan, and

(iii) any design development which may affect planning and management of the construction work.

(2) Without prejudice to regulation (20) (1) the Construction Project Manager shall—

(a) take all reasonable steps to identify and collect the pre-construction information;

(b) promptly provide in a convenient form to—

(i) every person designing the structure, and

(ii) every contractor who has been or may be appointed by the client (including the main contractor),

(iii) such of the pre-construction information in his possession as is relevant to each;

(c) take all reasonable steps to ensure that designers comply with their duties under regulations 11 and 18(2);

(d) take all reasonable steps to ensure co-operation between designers and the main contractor during the construction phase in relation to any design or change to a design;

(e) prepare, where none exists, and otherwise review and update a record ("the health and safety file") containing information relating to the project which is likely to be needed during any subsequent construction work to ensure the health and safety of any person, including the information provided in pursuance of regulations 17(1), 18(2) and 22(1)(j); and

(f) at the end of the construction phase, pass the health and safety file to the client.

UU - 21 NOTIFICATION OF PROJECT BY CONSTRUCTION PROJECT MANAGER

(1) The CDM coordinator shall as soon as is practicable after his appointment ensure that notice is given to The Approving Authority containing such of the particulars specified in Schedule 1 as are available.

(2) Where any particulars specified in Schedule 1 have not been notified under regulation (21)(1) because a main contractor has not yet been appointed, notice of such particulars shall be given to The Approving Authority as soon as is practicable after the appointment of the main contractor, and in any event before the start of the construction work.

(3) Any notice under regulation (21) (1) or (21) (2) shall be signed by or on behalf of the client or, if sent by electronic means, shall otherwise show that he has approved it.

UU - 22 DUTIES OF MAIN CONTRACTOR

(1) The main contractor for a project shall—

(a) plan, manage and monitor the construction phase in a way which ensures that, so far as is reasonably practicable, it is carried out without risks to health or safety, including facilitating—

(i) co-operation and coordination between persons concerned in the project in pursuance of regulations 5 and 6, and

(ii) the application of the general principles of prevention in pursuance of regulation 7;

(b) liaise with the CDM coordinator in performing his duties in regulation 20(2)(d) during the construction phase in relation to any design or change to a design;

(c) ensure that welfare facilities sufficient to comply with the requirements of Schedule 2 are provided throughout the construction phase;

(d) where necessary for health and safety, draw up rules which are appropriate to the construction site and the activities on it (referred to in these Regulations as "site rules");

(e) give reasonable directions to any contractor so far as is necessary to enable the main contractor to comply with his duties under these Regulations;

(f) ensure that every contractor is informed of the minimum amount of time which will be allowed to him for planning and preparation before he begins construction work;

(g) where necessary, consult a contractor before finalising such part of the construction phase plan as is relevant to the work to be performed by him;

(h) ensure that every contractor is given, before he begins construction work and in sufficient time to enable him to prepare properly for that work, access to such part of the construction phase plan as is relevant to the work to be performed by him;

(i) ensure that every contractor is given, before he begins construction work and in sufficient time to enable him to prepare properly for that work, such further information as he needs—

(i) to comply punctually with the duty under regulation 13(7), and

(ii) to carry out the work to be performed by him without risk, so far as is reasonably practicable, to the health and safety of any person;

(j) identify to each contractor the information relating to the contractor's activity which is likely to be required by the Construction Project Manager for inclusion in the health and safety file in pursuance of regulation 20(2)(e) and ensure that such information is promptly provided to the Construction Project Manager;

(k) ensure that the particulars required to be in the notice given under regulation 21 are displayed in a legible condition in a position where they can be read by any worker engaged in the construction work; and

(l) take reasonable steps to prevent access by un-authorised persons to the construction site.

(2) The Main contractor shall take all reasonable steps to ensure that every worker carrying out the construction work is provided with—

(a) a suitable site induction;

(b) the information and training referred to in regulation 13(4) by a contractor on whom a duty is placed by that regulation; and

(c) any further information and training which he needs for the particular work to be carried out without undue risk to health or safety.

UU - 23 MAIN CONTRACTOR'S DUTY IN RELATION TO CONSTRUCTION PHASE PLAN

(1) The main contractor shall—

(a) before the start of the construction phase, prepare a construction phase plan which is sufficient to ensure that the construction phase is planned, managed and monitored in a way which enables the construction work to be started so far as is reasonably practicable without risk to health or safety, paying adequate regard to the information provided by the designer under regulations 11(6) and 18(2) and the pre-construction information provided under regulation 20(2)(b);

(b) from time to time and as often as may be appropriate throughout the project update, review, revise and refine the construction phase plan so that it continues to be sufficient to ensure that the construction phase is planned, managed and monitored in a way which enables the construction work to be carried out so far as is reasonably practicable without risk to health or safety; and

(c) arrange for the construction phase plan to be implemented in a way which will ensure so far as is reasonably practicable the health and safety of all persons carrying out the construction work and all persons who may be affected by the work.

(2) The main contractor shall take all reasonable steps to ensure that the construction phase plan identifies the risks to health and safety arising from the construction work (including the risks specific to the particular type of construction work concerned) and includes suitable and sufficient measures to address such risks, including any site rules.

UU - 24 MAIN CONTRACTOR'S DUTY IN RELATION TO CO-OPERATION AND CONSULTATION WITH WORKERS

The Main contractor shall—

(a) make and maintain arrangements which will enable him and the workers engaged in the construction work to co-operate effectively in promoting and developing measures to ensure the health, safety and welfare of the workers and in checking the effectiveness of such measures;

(b) consult those workers or their representatives in good time on matters connected with the project which may affect their health, safety or welfare, so far as they or their representatives are not so consulted on those matters by any employer of theirs;

(c) ensure that such workers or their representatives can inspect and take copies of any information which the main contractor has, or which these Regulations require to be provided to him, which relates to the planning and management of the project, or which otherwise may affect their health, safety or welfare at the site, except any information—

(i) the disclosure of which would be against the interests of national security,

(ii) which he could not disclose without contravening a prohibition imposed by or under an enactment,

(iii) relating specifically to an individual, unless he has consented to its being disclosed,

(iv) the disclosure of which would, for reasons other than its effect on health, safety or welfare at work, cause substantial injury to his undertaking or, where the information was supplied to him by some other person, to the

undertaking of that other person, or

(v) obtained by him for the purpose of bringing, prosecuting or defending any legal proceedings.

PART 4: DUTIES RELATING TO HEALTH AND SAFETY ON CONSTRUCTION SITES

UU - 25 APPLICATION OF REGULATIONS 26 TO 44

(1) Every contractor carrying out construction work shall comply with the requirements of regulations 26 to 44 in so far as they affect him or any person carrying out construction work under his control or relate to matters within his control.

(2) Every person (other than a contractor carrying out construction work) who controls the way in which any construction work is carried out by a person at work shall comply with the requirements of regulations 26 to 44 in so far as they relate to matters which are within his control.

(3) Every person at work on construction work under the control of another person shall report to that person any defect which he is aware may endanger the health and safety of himself or another person.

(4) Regulations (25) (1) and (25) (2) shall not apply to regulation 33, which expressly says on whom the duties in that regulation are imposed.

UU - 26 SAFE PLACES OF WORK

(1) There shall, so far as is reasonably practicable, be suitable and sufficient safe access to and egress from every place of work and to and from every other place provided for the use of any person while at work, which access and egress shall be properly maintained.

(2) Every place of work shall, so far as is reasonably practicable, be made and kept safe for, and without risks to health to, any person at work.

(3) Suitable and sufficient steps shall be taken to ensure, so far as is reasonably practicable, that no person uses access or egress, or gains access to any place, which does not comply with the requirements of regulations (26)(1) or (26)(2) respectively.

(4) Every place of work shall, so far as is reasonably practicable, have sufficient working space and be so arranged that it is suitable for any person who is working or who is likely to work there, taking account of any necessary work equipment present.

UU - 27 GOOD ORDER AND SITE SECURITY

(1) Every part of a construction site shall, so far as is reasonably practicable, be kept in good order and every part of a construction site which is used as a place of work shall be kept in a reasonable state of cleanliness.

(2) Where necessary in the interests of health and safety, a construction site shall, so far as is reasonably practicable and in accordance with the level of risk posed, either—

(a) have its perimeter identified by suitable signs and be so arranged that its extent is readily identifiable; or

(b) be fenced off, or both.

(3) No timber or other material with projecting nails (or similar sharp object) shall—

(a) be used in any work; or

(b) be allowed to remain in any place, if the nails (or similar sharp object) could cause physical harm to an individual.

UU - 28 STABILITY OF STRUCTURES

(1) All practicable steps shall be taken, where necessary to prevent danger to any person, to ensure that any new or existing structure or any part of such structure which may become unstable or in a temporary state of weakness or instability due

to the carrying out of construction work does not collapse.

(2) Any buttress, temporary support or temporary structure must be of such design and so installed and maintained as to withstand any foreseeable loads which may be imposed on it, and must only be used for the purposes for which it is so designed, installed and maintained.

(3) No part of a structure shall be so loaded as to render it unsafe to any person.

(4) Where work cannot safely be done on or from the ground or from part of a building, or other permanent structure, there shall be provided and maintained either scaffolds or, where appropriate, ladders or other means of support, each of which shall be suitable and sufficient for the purpose:

(5) Provided that, for the purpose of this Regulation, a wall which is less than 600mm wide shall not be deemed to be a permanent structure.

(1) Scaffolds

(a) No scaffold shall be erected or be substantially added to or altered or be dismantled except under the immediate supervision of a structural engineer and, so far as possible, by competent workmen possessing adequate experience of such work.

(b) All material for any scaffold shall be inspected by a structural engineer on each occasion before being used.

(2) Quality and Treatment of Materials for Scaffolds

(a) Every scaffold and every part thereof shall be of good construction, of suitable and sound material and of adequate strength for the purpose for which it is used.

(b) Sufficient material shall be provided for and shall be used in the construction of scaffolds.

(c) Timber used for scaffolds shall not be painted or treated in any way in such a manner that defects might not be easily seen.

(d) Metal parts used for scaffolds shall be free from corrosion or other patent defects which might materially affect their strength.

(3) Working Platform

(a) Every working platform from which a person is liable to fall a distance of more than 2m shall:-

(i) if used as a footing only and not for the deposit of any material, be at least 635mm wide;

(ii) if used for the deposit of material, be at least 865mm wide and have a clear passageway between one side of the working platform and the deposited material adequate in width for the passage of persons, which passageway shall in no case be less than 430mm wide;

(iii) if used for the passage of materials, afford a clear passageway adequate in width for the passage of the materials without removal of the guard-rails and toe-boards, which passageway shall in no case be less than 635mm wide;

(iv) if used for the support of any higher platform, be at least 1065mm wide;

(v) if used to dress or roughly shape stone, be at least 1295mm wide;

(vi) if used for the support of any higher platform and is one upon which stone is dressed or roughly shaped, be at least 1.5m wide;

(vii) and, in every case, it shall be of sufficient width to afford adequate working space at every part of it.

(b) Subject to the provisions of regulation 28 (7) (d) of this Regulation, the following working platforms shall be at least 430mm wide:-

(i) a platform of a ladder scaffold or a platform supported directly by folding trestles or folding step ladders or a platform under a roof used for work on or in the vicinity of the roof, being a platform which is supported by or suspended from roof members or the roof, where in any such case the work thereon is of light nature and of short duration in any one position and a platform less than 635mm or 865mm wide (as the case may be) can be used with safety; and

(ii) a platform which is used for work in connection with cylindrical or spherical metal structures.

(c) Where work at the face of a building or other structure is done from a working platform to which this Regulation applies, the space between such face and the working platform shall be as small as practicable, provided that, where workmen sit at the edge of the platform to work, such space may be up to a maximum of 305mm

(d) The provisions of Regulations 28 (7) (a) and (b) of this regulations shall not apply to a working platform to which this Regulation applies where it is impracticable, by reason of limitations of space, to provide a platform of the width required by the said Regulations provided that, in any such case, the platform shall be as wide as is reasonably practicable.

(4) Guard Rails

(a) Every side of a working platform or working place, being a side thereof from which a person is liable to fall a distance of more than 2m, shall, subject to the provisions of regulations 28 (8) (a) to (f) of this regulation be provided with a suitable guard-rail or guard-rails of adequate strength to a height of between 915mm and 1145mm above the platform or place and above any raised standing place on the platform, and with toe-boards or other barriers up to a sufficient height which shall in no case be less than 150mm, such guard-rails and toe-boards or other barriers shall be so placed as to prevent as far as possible the fall of persons, materails or articles from such platform or place.

(b) The outward movement of guard-rails and toe-boards or other barriers shall (unless they are so designed and used as to prevent such movement) be prevented by placing them on the inside of the uprights or by other equally effective means.

(c) Where guard-rails are required to be provided, the distance between any toe-boards or other barrier and the lowest guard-rail above it shall not exceed 765mm.

(d) Guard-rails, toe-boards and barriers required by regulation 28(8) (a) of this regulation may be removed or remain unerected for the time and to the extent necessary for the access of persons or the movement of materials or other purposes of the work; but guard-rails, toe-boards and barriers removed or remaining unerected for any of these purposes shall be replaced or erected as soon as practicable.

(e) On the side of a suspended scaffold next to the wall or working face –

(i) guard-rails where required by this Regulation, need not extend to a height of more than 685mm above the platform if the work is impracticable with a guard-rail at a greater height; and

(ii) guard-rails and toe-boards or other barriers shall not be required if the

workers sit at the edge of the platform to work and ropes or chains affording all the workers safe and secure handhold are provided.

(f) None of the requirements of regulations 28 (8) (a) and (b) of this regulation shall apply to –

(i) the platform of a ladder scaffold if a secure handhold is provided along the full length of such platform;

(ii) the platform of a trestle scaffold when the platform is supported on folding trestle, split heads or similar devices or folding step ladders;

(iii) a platform which is used only in the course of erecting any framework or prefabricated unit forming part of a building or other permanent structure for the purpose of jointing, bolting up, riveting or welding work and which is used for such a short period as to make the provision of guard-rails and toe-boards or barriers unreasonable if –

(iv) the platform is at least 865mm wide; there is adequate handhold; and the platform is not used for the deposit of rail or articles on the platform.

(5) Preventing falling

(a) In the case of any opening, corner, break or edge through or from which any person is liable to fall a distance of more than 2m, or to fall into any liquid or material so as to involve risk of drowning or serious injury, there shall be provided either:-

(i) a suitable guard-rail or guard-rails of adequate strength to a height of between 915mm and 1145mm above the surface across which persons are liable to pass, together with toe-boards or other barriers up to a sufficient height which shall in no case be less than 155mm, so placed as to prevent as far as possible the fall of persons, materials or articles and so that the space between any toe-board or other barrier and the lowest guard-rail above it shall not exceed 765mm; or

(ii) a covering so constructed as to prevent the fall of persons, materials or articles, which covering shall either be clearly and boldly marked to show its purpose or be securely fixed in position.

(b) In the case of any opening, corner, break or edge (not being an opening, corner, break or edge to which the provisions of Regulation 28 (9) (a) of this regulation apply) through or from which materials or articles are liable to fall so as to endanger persons below, suitable precautions by way of the erection of toe-boards, secure covering or otherwise shall be taken to prevent materials or articles from falling.

(c) When work is done on or immediately above any open joisting through which a person is liable to fall a distance of more than 2m, such joisting shall be securely covered by boards or other temporary covering to the extent necessary to afford safe access to or foothold for the work; safety nets shall moreover be provided when necessary, and other effective measures shall be taken to prevent persons from falling.

(d) Guard-rails, toe-boards, barriers and coverings required by this regulation may be removed or remain unerected

(i) where and when this is necessary in order to proceed with any permanent filling in, covering or enclosure or;

(ii) for the time and to the extent necessary for the access of persons or the movement of materials or other purposes of the work;

(iii) but guard-rails, toe-boards, barriers and coverings removed or remaining un-erected for any of those purposes shall be replaced or erected as soon

as practicable.

(6) Suitable Planks

(a) Where roofing is carried out by laying stone slabs on steel joists or on beams, workmen shall in no case make use of naked slabs as a means of support.

(b) Suitable planks be provided for such workmen and the planks shall be supported by the joists or beams.

(7) Ladders

(a) Every ladder used shall be of good construction, sound material and adequate strength for the purpose for which it is used, with rungs evenly spaced.

(b) Ladders shall not stand on loose stones or other loose packing, but shall have a level and firm footing.

(c) Where a ladder is used as a means of communication, adequate handhold shall be provided to a height of at least 915mm above the place of landing.

(d) No ladder shall be used which has –

(i) a missing or defective rung; or

(ii) any rung which depends for its support solely on nails, spikes, or other similar fixing.

(e) No wooden ladder shall be used unless it is constructed with

(i) uprights of adequate strength made of straight-grained wood free from defects and having the grain of the wood running lengthwise; and

(ii) rungs made of straight-grained wood free from defects and mortised or securely notched into the uprights.

(f) In appropriate cases, the following provisions relating to ladders shall also apply –

(i) if a ladder is 635mm or more in length it shall be secure at the top;

(ii) ladders reaching to a platform or roof shall rise at least 915mm above the landing place; and where a ladder is used as a means of connection and is 3.05m or more in length, a person shall be stationed at the foot of its lower end to prevent it from slipping; alternatively, the ladder shall be secured to the ground where possible, or to a solid anchorage, in a way to prevent the ladder from slipping.

(g) In other cases, the following provisions relating to ladders shall also apply

(i) A ladder used by stone carriers shall be so constructed that the distance between the upper edge of one rung and the upper edge of the next rung shall not exceed 180mm.

(ii) Any such ladder shall not be less than 765mm wide at the base

(h) An adequate supply of timber of suitable quality or other suitable material shall, where necessary, be provided and used to prevent, so far as is reasonably practicable and as early as is reasonably practicable in the course of the work, danger to any person employed from a fall or dislodgement of earth, rock or other material forming the side of, or is adjacent to, any excavation or earthwork:

Provided that this regulation shall not apply where, having regard to the nature and slope of the side of the excavation or earthwork other circumstances, no fall or dislodgement of earth or other material likely to bury or trap such a person, or likely to strike such a person from a height of more than 1220mm is liable to occur.

(i) Positioning of materials

(i) No material shall be placed or stacked near the edge of any excavation, pit or opening in the ground so as to endanger persons employed below.

(ii) No load shall be placed or moved near the edge of any excavation where it is likely to cause a collapse of the side of the excavation and thereby endanger any person.

(j) Securing and ventilation of working places

(i) Effective steps shall be taken to secure and maintain the adequate ventilation of every working place in any excavation, pit, hole, adit, tunnel shaft, caisson or other enclosed or confined space and of every approach to any such working place so as –

i. to maintain an atmosphere which is fit for respiration; and

ii. to render harmless, so far as is reasonably practicable, all fumes, dust or other impurities which may be dangerous or injurious to health and which may be generated, produced or released by explosives or by any other means in such working place or approach thereto.

(ii) Where there is reason to apprehend that the atmosphere in any of the working places or approaches thereto mentioned in regulation 28 (20) (a) of this regulation is poisonous or asphyxiating, then, without prejudice to the requirements of the said regulation, no person shall be employed in or allowed to enter such working place or approach until the atmosphere has been suitably tested by, or under the immediate supervision of a competent person and such person is satisfied that the working place or approach is, for the time being, free from the danger of any person being overcome by poisoning or asphyxiation.

(k) No stationery internal combustion engine shall be used in any enclosed or confined space unless specific provision is made for conducting the exhaust gases from the engine into the open air or the place is adequately ventilated so as to prevent danger to health from such exhaust gases.

(l) No person shall be held not to have complied with any requirement of the foregoing Regulations because of physical conditions over which he had no control and against which it was not reasonably practicable for him to make provision.

(m) Every flywheel and every moving part of any prime mover, every part of transmission machinery and every dangerous part of other machinery (whether or not driven by mechanical power) shall be securely fenced unless it is in such position or of such construction as to be as safe to every person employed or working on the site of the operations as it would be if it were securely fenced.

(n) Every crane, crab and winch shall be provided with an efficient brake or brakes or other safety device which will prevent the fall of the load when suspended, and by which the load can be effectively controlled whilst being lowered.

(o) Skips and buckets

(i) Skips and buckets are to be at least 765mm deep and constructed of metal.

(ii) Skips and buckets, suspension ropes and chains or other means of support shall be free from defect.

(iii) Persons loading the skip below shall stand clear when the skip is being raised, and enough space shall be provided for the person binding the skip below to stand clear when the skip is being raised.

(p) Explosives shall not be handled or used except by or under the control of

competent persons with adequate knowledge of the dangers connected with their use and steps shall be taken to see that, when a charge is fired, persons employed are in positions in which, so far as can reasonably be anticipated, they are not exposed to risk of injury from the explosion or from any flying material.

(q) All persons employed in any operations to which these regulations apply shall wear suitable boots of strong material which will completely enclose all the toes when engaged in processes involving the use of cement.

(r) Every person engaged in plastering or whitewashing in such a manner that the application of the plaster or lime to the object being treated is made at a level higher than the eyes of such person shall wear suitable eye shields to protect his eyes.

UU - 29 DEMOLITION OR DISMANTLING

(1) The demolition or dismantling of a structure, or part of a structure, shall be planned and carried out in such a manner as to prevent danger or, where it is not practicable to prevent it, to reduce danger to as low a level as is reasonably practicable.

(2) The arrangements for carrying out such demolition or dismantling shall be recorded in writing before the demolition or dismantling work begins.

UU - 30 EXPLOSIVES

(1) So far as is reasonably practicable, explosives shall be stored, transported and used safely and securely.

(2) Without prejudice to regulation (30) (1), an explosive charge shall be used or fired only if suitable and sufficient steps have been taken to ensure that no person is exposed to risk of injury from the explosion or from projected or flying material caused thereby, provided that the main contractor has obtained the necessary permit from the relevant Approving Authority.

UU - 31 EXCAVATIONS

(1) All practicable steps shall be taken, where necessary to prevent danger to any person, including, where necessary, the provision of supports or battering, to ensure that—

(a) any excavation or part of an excavation does not collapse;

(b) no material from a side or roof of, or adjacent to, any excavation is dislodged or falls; and

(c) no person is buried or trapped in an excavation by material which is dislodged or falls.

(2) Suitable and sufficient steps shall be taken to prevent any person, work equipment, or any accumulation of material from falling into any excavation

(3) Without prejudice to regulations (31) (1) and (31) (2), suitable and sufficient steps shall be taken, where necessary, to prevent any part of an excavation or ground adjacent to it from being overloaded by work equipment or material;

(4) Construction work shall not be carried out in an excavation where any supports or battering have been provided pursuant to regulation (31) (1) unless—

(a) the excavation and any work equipment and materials which affect its safety, have been inspected by acivil/structural engineer—

(i) at the start of the shift in which the work is to be carried out,

(ii) after any event likely to have affected the strength or stability of the excavation, and

(iii) after any material unintentionally falls or is dislodged; and

(b) the person who carried out the inspection is satisfied that the work can be carried out there safely.

(5) Where the civil/structural engineer who carried out the inspection has under regulation 33(1)(a) informed the person on whose behalf the inspection was carried out of any matter about which he is not satisfied, work shall not be carried out in the excavation until the matters have been satisfactorily remedied.

UU - 32 COFFERDAMS AND CAISSONS

(1) Every cofferdam or caisson shall be—

(a) of suitable design and construction;

(b) appropriately equipped so that workers can gain shelter or escape if water or materials enter it; and

(c) properly maintained.

(2) A cofferdam or caisson shall be used to carry out construction work only if—

(a) the cofferdam or caisson, and any work equipment and materials which affect its safety, have been inspected by a competent person—

(i) at the start of the shift in which the work is to be carried out, and

(ii) after any event likely to have affected the strength or stability of the cofferdam or caisson; and

(b) the person who carried out the inspection is satisfied that the work can be safely carried out there.

(3) Where the civil/structural engineer who carried out the inspection has under regulation 33(1)(a) informed the person on whose behalf the inspection was carried out of any matter about which he is not satisfied, work shall not be carried out in the cofferdam or caisson until the matters have been satisfactorily remedied.

UU - 33 REPORTS OF INSPECTIONS

(1) Subject to regulation (33)(5), civil/structural engineer who carries out an inspection under regulation 31 or 32 shall, before the end of the shift within which the inspection is completed—

(a) where he is not satisfied that the construction work can be carried out safely at the place inspected, inform the civil/structural engineer for whom the inspection was carried out of any matters about which he is not satisfied; and

(b) prepare a report which shall include the particulars set out in Schedule 3.

(2) A civil/structural engineer who prepares a report under regulation (33) (1) shall, within 24 hours of completing the inspection to which the report relates, provide the report or a copy of it to the person on whose behalf the inspection was carried out.

(3) Where the person owing a duty under regulation (33) (1) or (33)(2) is an employee or works under the control of another, his employer or, as the case may be, the person under whose control he works shall ensure that he performs the duty.

(4) The person on whose behalf the inspection was carried out shall keep the report or a copy of it available for inspection by The Approving Authority.

(a) at the site of the place of work in respect of which the inspection was carried out until that work is completed, and

(b) after that for 3 months,

(c) and send to The Approving Authority such extracts from or copies of it as The Approving Authority may from time to time require.

(5) Nothing in this regulation shall require as regards an inspection carried out on a place of work for the purposes of regulations 31(4)(a)(i) and 32(2)(a)(i), the preparation of more than one report within a period of 7 days

UU - 34 ENERGY DISTRIBUTION INSTALLATIONS

(1) Where necessary to prevent danger, energy distribution installations shall be suitably located, checked, secured and clearly indicated.

(2) Where there is a risk from electric power cables—
- (a) they shall be directed away from the area of risk; or
- (b) the power shall be isolated and, where necessary, earthed; or
- (c) if it is not reasonably practicable to comply with regulations (34)(2) (a) or(34) (2) (b), suitable warning notices and—
  - (i) barriers suitable for excluding work equipment which is not needed, or
  - (ii) where vehicles need to pass beneath the cables, suspended protections, or
  - (iii) in either case, measures providing an equivalent level of safety, shall be provided or (in the case of measures) taken.

(3) No construction work which is liable to create a risk to health or safety from an underground service, or from damage to or disturbance of it, shall be carried out unless suitable and sufficient steps (including any steps required by this regulation) have been taken to prevent such risk, so far as is reasonably practicable.

UU - 35 PREVENTION OF DROWNING

(1) Where in the course of construction work any person is liable to fall into water or other liquid with a risk of drowning, suitable and sufficient steps shall be taken—
- (a) to prevent, so far as is reasonably practicable, such person from so falling;
- (b) to minimize the risk of drowning in the event of such a fall; and
- (c) to ensure that suitable rescue equipment is provided, maintained and, when necessary, used so that such person may be promptly rescued in the event of such a fall.

(2) Suitable and sufficient steps shall be taken to ensure the safe transport of any person conveyed by water to or from any place of work.

(3) Any vessel used to convey any person by water to or from a place of work shall not be overcrowded or overloaded.

UU - 36 TRAFFIC ROUTES

(1) Every construction site shall be organized in such a way that, so far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health.

(2) Traffic routes shall be suitable for the persons or vehicles using them, sufficient in number, in suitable positions and of sufficient size.

(3) A traffic route shall not satisfy regulation (36) (2) unless suitable and sufficient steps are taken to ensure that—
- (a) pedestrians or vehicles may use it without causing danger to the health or safety of persons near it;
- (b) any door or gate for pedestrians which leads onto a traffic route is sufficiently separated from that traffic route to enable pedestrians to see any approaching vehicle or plant from a place of safety;

(c) there is sufficient separation between vehicles and pedestrians to ensure safety or, where this is not reasonably practicable —
  (i) there are provided other means for the protection of pedestrians, and
  (ii) there are effective arrangements for warning any person liable to be crushed or trapped by any vehicle of its approach;
(d) any loading bay has at least one exit point for the exclusive use of pedestrians; and
(e) where it is unsafe for pedestrians to use a gate intended primarily for vehicles, one or more doors for pedestrians is provided in the immediate vicinity of the gate, is clearly marked and is kept free from obstruction.

(4) Every traffic route shall be—
  (a) indicated by suitable signs where necessary for reasons of health or safety;
  (b) regularly checked; and
  (c) properly maintained.

(5) No vehicle shall be driven on a traffic route unless, so far as is reasonably practicable, that traffic route is free from obstruction and permits sufficient clearance.

UU - 37 VEHICLES

(1) Suitable and sufficient steps shall be taken to prevent or control the unintended movement of any vehicle.

(2) Suitable and sufficient steps shall be taken to ensure that, where any person may be endangered by the movement of any vehicle, the person having effective control of the vehicle shall give warning to any person who is liable to be at risk from the movement of the vehicle.

(3) Any vehicle being used for the purposes of construction work shall when being driven, operated or towed—
  (a) be driven, operated or towed in such a manner as is safe in the circumstances; and
  (b) be loaded in such a way that it can be driven, operated or towed safely.

(4) No person shall ride or be required or permitted to ride on any vehicle being used for the purposes of construction work otherwise than in a safe place thereon provided for that purpose.

(5) No person shall remain or be required or permitted to remain on any vehicle during the loading or unloading of any loose material unless a safe place of work is provided and maintained for such person.

(6) Suitable and sufficient measures shall be taken so as to prevent any vehicle from falling into any excavation or pit, or into water, or overrunning the edge of any embankment or earthwork.

UU - 38 PREVENTION OF RISK FROM FIRE AND OTHER HAZARDS

Suitable and sufficient steps shall be taken to prevent, so far as is reasonably practicable, the risk of injury to any person during the carrying out of construction work arising from—
(a) fire or explosion;
(b) flooding; or
(c) any substance liable to cause asphyxiation.

UU - 39 EMERGENCY PROCEDURES

(1) Where necessary in the interests of the health and safety of any person on a

construction site, there shall be prepared and, where necessary, implemented suitable and sufficient arrangements for dealing with any foreseeable emergency, which arrangements shall include procedures for any necessary evacuation of the site or any part thereof.

(2) In making arrangements under regulation (39) (1), account shall be taken of—
- (a) the type of work for which the construction site is being used;
- (b) the characteristics and size of the construction site and the number and location of places of work on that site;
- (c) the work equipment being used;
- (d) the number of persons likely to be present on the site at any one time; and
- (e) the physical and chemical properties of any substances or materials on or likely to be on the site.

(3) Where arrangements are prepared pursuant to regulation(39) (1), suitable and sufficient steps shall be taken to ensure that—
- (a) every person to whom the arrangements extend is familiar with those arrangements; and
- (b) the arrangements are tested by being put into effect at suitable intervals.

UU - 40 EMERGENCY ROUTES AND EXITS

(1) Where necessary in the interests of the health and safety of any person on a construction site, a sufficient number of suitable emergency routes and exits shall be provided to enable any person to reach a place of safety quickly in the event of danger.

(2) An emergency route or exit provided pursuant to regulations (40) (1) shall lead as directly as possible to an identified safe area.

(3) Any emergency route or exit provided in accordance with regulation (40) (1), and any traffic route giving access thereto, shall be kept clear and free from obstruction and, where necessary, provided with emergency lighting so that such emergency route or exit may be used at any time.

(4) In making provision under regulation (40)(1), account shall be taken of the matters in regulation 39(2).

(5) All emergency routes or exits shall be indicated by suitable signs.

UU - 41 FIRE DETECTION AND FIRE-FIGHTING

(1) Where necessary, in the interest of the health and safety of any person at work on a construction site, there shall be provided suitable and sufficient—
- (a) fire-fighting equipment; and
- (b) fire detection and alarm systems, which shall be suitably located and secured

(2) In making provision under regulation (41)(1), account shall be taken of the matters in regulation 39(2).

(3) Any fire-fighting equipment and any fire detection and alarm system provided under regulation (41)(1) shall be examined and tested at suitable intervals and properly maintained.

(4) Any fire-fighting equipment which is not designed to come into use automatically shall be easily accessible.

(5) Every person at work on a construction site shall, so far as is reasonably practicable, be instructed in the correct use of any fire-fighting equipment which it may be necessary for him to use.

(6) Where a work activity may give rise to a particular risk of fire, a person shall not carry out such work unless he is suitably instructed.

(7) Fire-fighting equipment shall be indicated by suitable signs.

UU - 42 FRESH AIR

(1) Suitable and sufficient steps shall be taken to ensure, so far as is reasonably practicable, that every place of work or approach thereto has sufficient fresh or purified air to ensure that the place or approach is safe and without risks to health.

(2) Any plant used for the purpose of complying with regulation (42) (1) shall, where necessary for reasons of health or safety, include an effective device to give visible or audible warning of any failure of the plant.

UU - 43 TEMPERATURE AND WEATHER PROTECTION

(1) Suitable and sufficient steps shall be taken to ensure, so far as is reasonably practicable, that during working hours the temperature at any place of work indoors is reasonable having regard to the purpose for which that place is used.

(2) Every place of work outdoors shall, where necessary to ensure the health and safety of persons at work there, be so arranged that, so far as is reasonably practicable and having regard to the purpose for which that place is used and any protective clothing or work equipment provided for the use of any person at work there, it provides protection from adverse weather.

UU - 44 LIGHTING

(1) Every place of work and approach thereto and every traffic route shall be provided with suitable and sufficient lighting, which shall be, so far as is reasonably practicable, by natural light.

(2) The colour of any artificial lighting provided shall not adversely affect or change the perception of any sign or signal provided for the purposes of health and safety.

(3) Without prejudice to regulation (44) (1), suitable and sufficient secondary lighting shall be provided in any place where there would be a risk to the health or safety of any person in the event of failure of primary artificial lighting.

PART 5: GENERAL

UU - 45 CIVIL LIABILITY

Breach of a duty imposed by the preceding provisions of these Regulations, other than those imposed by regulations 9(1)(b), 13(6) and (7), 16, 22(1)(c) and (l), 25(1), (2) and (4), 26 to 44 and Schedule 2, shall not confer a right of action in any civil proceeding insofar as that duty applies for the protection of a person who is not an employee of the person on whom the duty is placed.

UU - 46 ENFORCEMENT IN RESPECT OF FIRE

The Approving Authority shall be the enforcing authority in respect of a construction site which is contained within, or forms part of, premises which are occupied by persons other than those carrying out the construction work or any activity arising from such work as regards regulations 39 and 40, in so far as those regulations relate to fire, and regulation 41.

OFFENCES AND PENALTIES

UU - 47 SCHEDULE 1: PARTICULARS OF NOTIFICATION TO THE APPROVING AUTHORITY

(1) Date of forwarding.
(2) Exact address of the construction site.
(3) The name of the local Authority where the site is located.
(4) A brief description of the project and the construction work.
(5) Contact details of the client (name, address, telephone number and any e-mail address).
(6) Contact details of the CDM Coordinator (name, address, telephone number and any e-mail address).
(7) Contact details of the Main contractor (name, address, telephone number and any e-mail address).
(8) Date planned for the start of the construction phase.
(9) The time allowed by the client to the main contractor referred to in regulation 15(b) for planning and preparation for construction work.
(10) Planned duration of the construction phase.
(11) Estimated maximum number of people at work on the construction site.
(12) Planned number of contractors on the construction site.
(13) Name and address of any contractor already appointed.
(14) Name and address of any designer already engaged.
(15) A declaration signed by or on behalf of the client that he is aware of his duties under these Regulations.
(16) Procedures in the event of an emergency
(17) Risk Assessment Report

UU - 48 SCHEDULE 2: WELFARE FACILITIES

Sanitary conveniences

(1) Suitable and sufficient sanitary conveniences shall be provided or made available at readily accessible places. So far as is reasonably practicable, rooms containing sanitary conveniences shall be adequately ventilated and lit.

(2) So far as is reasonably practicable, sanitary conveniences and the rooms containing them shall be kept in a clean and orderly condition.

(3) Separate rooms containing sanitary conveniences shall be provided for men and women, except where and so far as each convenience is in a separate room, the door of which is capable of being secured from the inside.

Washing facilities

(4) Suitable and sufficient washing facilities, including showers shall so far as is reasonably practicable be provided or made available at readily accessible places if required by the nature of the work or for health reasons.

(5) Washing facilities shall be provided:

(a) in the immediate vicinity of every sanitary convenience, whether or not provided elsewhere; and

(b) in the vicinity of any changing rooms required by paragraph 14 whether or not provided elsewhere.

(6) Washing facilities shall include;

(a) a supply of clean water (which shall be running water so far as is reasonably practicable);

(b) soap or other suitable means of cleaning; and

(c) towels or other suitable means of drying.

(7) Rooms containing washing facilities shall be sufficiently ventilated and lit.

(8) Washing facilities and the rooms containing them shall be kept in a clean and orderly condition.

(9) Subject to ***paragraph 10*** below, separate washing facilities shall be provided for men and women, except where and so far as they are provided in a room the door of which is capable of being secured from inside and the facilities in each such room are intended to be used by only one person at a time.

(10) ***Paragraph 9*** above shall not apply to facilities which are provided for washing hands, forearms and face only.

Drinking water

(11) An adequate supply of wholesome drinking water shall be provided or made available at readily accessible and suitable places.

(12) Every supply of drinking water shall be conspicuously marked by an appropriate sign where necessary for reasons of health and safety.

(13) Where a supply of drinking water is provided, there shall also be provided a sufficient number of suitable cups or other drinking vessels unless the supply of drinking water is in a jet from which persons can drink easily.

Changing Rooms and Lockers

(14) (1) Suitable and sufficient changing rooms shall be provided or made available at readily accessible places if:

(a) a worker has to wear special clothing for the purposes of his work; and
(b) he cannot, for reasons of health or propriety, be expected to change elsewhere, being separate rooms for, or separate use of rooms by, men and women where necessary for reasons of propriety.

(2) Changing rooms shall:
(a) be provided with seating; and
(b) include, where necessary, facilities to enable a person to dry any such special clothing and his own clothing and personal effects.

(3) Suitable and sufficient facilities shall, where necessary, be provided or made available at readily accessible places to enable persons to lock away—
(a) any such special clothing which is not taken home;
(b) their own clothing which is not worn during working hours; and
(c) their personal effects.

Facilities for rest

(15) (1) Suitable and sufficient rest rooms or rest areas shall be provided or made available at readily accessible places.

(2) Rest rooms and rest areas shall—
(a) include suitable arrangements to protect non-smokers from discomfort caused by tobacco smoke;
(b) be equipped with an adequate number of tables and adequate seating with backs for the number of persons at work likely to use them at any one time;
(c) where necessary, include suitable facilities for any person at work who is a pregnant woman or nursing mother to rest lying down;
(d) include suitable arrangements to ensure that meals can be prepared and eaten;
(e) include the means for boiling water; and
(f) be maintained at an appropriate temperature.

UU - 49 SCHEDULE 3: PARTICULARS TO BE INCLUDED IN A REPORT OF INSPECTION

(1) Name and address of the person on whose behalf the inspection was carried out.
(2) Location of the place of work inspected.
(3) Description of the place of work or part of that place inspected (including any work equipment and materials).
(4) Date and time of the inspection.
(5) Details of any matter identified that could give rise to a risk to the health or safety of any person.
(6) Details of any action taken as a result of any matter identified in paragraph 5 above.
(7) Details of any further action considered necessary.
(8) Name and position of the person making the report.

UU - 50 SCHEDULE 4: STEPS TO RISK ASSESSMENT

Definitions

A Risk Assessment is simply a careful examination of what, in your work, could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures

Accidents and ill health can ruin lives and affect your business too if output is lost machinery is damaged, insurance costs increase or you have to go to court. You are legally required to assess the risks in your workplace so that you put in place plan to control the risks.

Hazard is anything that may cause harm, such as chemicals, electricity, working from ladders, an open drawer etc;

Risk is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.

Key Steps

Step 1: Identify the hazards

First you need to work out how people could be harmed. When you work in a place every day it is easy to overlook some hazards, so here are some tips to help you identify the ones that matter:

(a) ***Walk around*** your workplace and look at what could reasonably be expected
(b) To cause harm.
(c) ***Ask your employees*** or their representatives what they think. They may have
(d) Noticed things that are not immediately obvious to you.
(e) ***Check manufacturers' instructions*** or data sheets for chemicals and
(f) Equipment as they can be very helpful in spelling out the hazards and putting
(g) Them in their true perspective.
(h) Have a look back at your ***accident and ill-health records*** – these often help
(i) To identify the less obvious hazards.
(j) ***Remember to think about long-term hazards to health*** (eg high levels of
(k) Noise or exposure to harmful substances) as well as safety hazards.

Step 2: Decide who might be harmed and how

For each hazard you need to be clear about who might be harmed; it will help you identify the best way of managing the risk. That doesn't mean listing everyone by name, but rather identifying groups of people.

In each case, identify how they might be harmed, i.e. what type of injury or ill health might occur.

Remember:

(a) Some workers have particular requirements, eg new and young workers, new or expectant mothers and people with disabilities may be at particular risk.

(b) Cleaners, visitors, contractors and maintenance workers who may not be in the workplace all the time;
(c) Members of the public, if they could be hurt by your activities;
(d) If you share your workplace, you will need to think about how your work affects others present, as well as how their work affects your staff – talk to them; and
(e) Ask your staff if they can think of anyone you may have missed.

Step 3: Evaluate the Risks and Decide On Precautions

Having spotted the hazards, you then have to decide what to do about them. The law requires you to do everything 'reasonably practicable' to protect people from harm. You can work this out for yourself, but the easiest way is to compare what you are doing with good practice.

So first, look at what you're already doing, think about what controls you have in place and how the work is organised. Then compare this with the good practice and see if there's more you should be doing to bring yourself up to standard. In asking yourself this, consider:

(a) Can I get rid of the hazard altogether?
(b) If not, how can I control the risks so that harm is unlikely?

When controlling risks, apply the principles below, if possible in the following order:

(a) try a less risky option (eg switch to using a less hazardous chemical);
(b) prevent access to the hazard (eg by guarding);
(c) organise work to reduce exposure to the hazard (eg put barriers between pedestrians and traffic);
(d) issue personal protective equipment (eg clothing, footwear, goggles etc); and
(e) provide welfare facilities (eg first aid and washing facilities for removal of contamination).

Involve staff, so that you can be sure that what you propose to do will work in practice and won't introduce any new hazards.

Step 4: Record Your Findings and Implement Them

Putting the results of your risk assessment into practice will make a difference when looking after people and your business.

Writing down the results of your risk assessment, and sharing them with your staff, encourages you to do this. If you have fewer than five employees you do not have to write anything down, though it is useful so that you can review it at a later date if, for example, something changes.

When writing down your results, keep it simple, for example 'Tripping over rubbish: bins provided, staff instructed, weekly housekeeping checks', or 'Fume from welding: local exhaust ventilation used and regularly checked'.

We do not expect a risk assessment to be perfect, but it must be suitable and sufficient. You need to be able to show that:

(a) a proper check was made;
(b) you asked who might be affected;
(c) you dealt with all the significant hazards, taking into account the number of
(d) people who could be involved;
(e) the precautions are reasonable, and the remaining risk is low; and
(f) you involved your staff or their representatives in the process.

If, like many businesses, you find that there are quite a lot of improvements that you could make, big and small, don't try to do everything at once. Make a plan of action to deal with the most important things first. Health and safety inspectors acknowledge the efforts of businesses that are clearly trying to make improvements.
A good plan of action often includes a mixture of different things such as:

(a) a few cheap or easy improvements that can be done quickly, perhaps as a
(b) temporary solution until more reliable controls are in place;
(c) long-term solutions to those risks most likely to cause accidents or ill health;
(d) long-term solutions to those risks with the worst potential consequences;
(e) arrangements for training employees on the main risks that remain and how
(f) they are to be controlled;
(g) regular checks to make sure that the control measures stay in place; and
(h) clear responsibilities – who will lead on what action, and by when.

Remember, prioritise and tackle the most important things first. As you complete each action, tick it off your plan.

Step 5: Review your risk assessment and update if necessary

Few workplaces stay the same. Sooner or later, you will bring in new equipment, substances and procedures that could lead to new hazards. It makes sense, therefore, to review what you are doing on an ongoing basis. Every year or so formally review where you are, to make sure you are still improving, or at least not sliding back.

Look at your risk assessment again. Have there been any changes? Are there improvements you still need to make? Have your workers spotted a problem?
Have you learnt anything from accidents or near misses? Make sure your risk assessment stays up to date.

When you are running a business it's all too easy to forget about reviewing your risk assessment – until something has gone wrong and it's too late. Why not set a review date for this risk assessment now? Write it down and note it in your diary as an annual event.

During the year, if there is a significant change, don't wait. Check your risk assessment and, where necessary, amend it. If possible, it is best to think about the risk assessment when you're planning your change – that way you leave yourself more flexibility.

Risk Assessment Report

Company name: *Date of risk assessment:*

Step 1: What are the hazards?
Spot hazards by:
- walking around your workplace;…….....
- asking your employees what they think;…….....

Don't forget long-term health hazards……..

Step 2: Who might be harmed and how?
Identify groups of people. Remember:
- Some workers have particular needs…….....
- people who may not be in the workplace all the time;
- Members of the public…….....
- if you share your workplace think about how your work affects others present…….....

Say how the hazard could cause harm.

Step 3: What are you already doing?

List what is already in place to reduce the likelihood of harm or make any harm less serious…….

What further action is necessary?
You need to make sure that you have reduced risks 'so far as is reasonably practicable'. An easy way of doing this is to compare what you are already doing with good practice. If there is a difference, list what needs to be done ……
……

Step 4: How will you put the assessment into action?
Remember to prioritise. Deal with those hazards that are high-risk and have serious consequences first.

Action	Action	Done
by	whom	by when
……..	……..	……

Step 5: Review date:
- Review your assessment to make sure you are still improving, or at least not sliding back.
- If there is a significant change in your workplace, remember to check your risk assessment