

**REPUBLIC OF RWANDA**



**MINISTRY OF INFRASTRUCTURE**

**RWANDA HOUSING AUTHORITY**

**RWANDA BUILDING  
CONTROL REGULATIONS**

**May 2012**

**2<sup>nd</sup> Edition**

## FOREWORD

The overall mission of Rwanda Housing Authority is to implement the national housing and construction policies through coordination, conception, development, monitoring and evaluation of actions and programs so as to improve the overall living conditions of Rwandan citizen and contribute to the development of the country.

In order to carry out this important mission, the Agency has undertaken an ambitious program aimed at availing all necessary legal planning tools that are prerequisites for the organization of the construction and urban planning industries.

This exercise starts with the elaboration of laws, codes of standards, specifications, design manuals; guidelines of which the present edition of the Rwanda Building Control Regulations is an integral part.

In publishing this second edition, Rwanda Housing Authority wanted to have an up to date document that reflects the needs of the moment as well as being in harmony with other major legal tools that came into existence after its first inception.

As demonstrated in its past three years of existence, the regulations will go a long way in helping professionals in the construction and urban planning industries as well as all other stakeholders and partners by providing a baseline from which to operate and in doing so, contribute significantly to the development of the entire housing sector in the country.

The second edition of Rwanda Building Control Regulations will be reviewed in the next two years time so as to insure that it goes with its time and captures the reality the country faces in real time.

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**PART 1 PRELIMINARY****SECTION 1.1 GENERAL****1.1.1 Citation**

These Regulations may be cited as the Building Control Regulations, 2009.

**1.1.2 Definitions**

In these Regulations, unless the context otherwise requires:

**1.1.2.1. 'Acceptable'**

Means acceptable, adequate or suitable buildings;

**1.1.2.2. 'Access door'**

Means an entrance to an escape or emergency route;

**1.1.2.3. 'Applicant'**

Means any person who intends to carry out building operations and who makes an application;

**1.1.2.4. 'Application'**

Shall have the meaning assigned to it in the Act;

**1.1.2.5. 'Approval'**

Means

- a) Approval by the one stop center office, including approval contemplated by section 35 of the Act; or
- b) Approval authorized by the Review Board on appeal in accordance with the Act;

**1.1.2.6. 'Approved'**

Means

- a) Approved by the one stop center office or Minister; or
- b) Authorised by the Review Board on appeal made in accordance with the Act;

**1.1.2.7. 'Approved plan'**

Means a plan or plans retained by the one stop center office being a true copy of the plan or plans approved;

**1.1.2.8. 'Artificial ventilation' or 'artificial ventilation system'**

Means a system in which air is caused to circulate through a room by means of mechanical apparatus which forces air into or extracts air from such room;

**1.1.2.9. 'Automatic'**

Means fitted with an approved device which is activated by a predetermined amount of heat, smoke, combustion gases or flame for any manual operation;

**1.1.2.10. 'Balustrade'**

Means a row of posts helping to support a rail or coping as an ornamental parapet to a staircase, terrace or balcony;

**1.1.2.11. 'Basement'**

Means any storey of a building, which is under the first storey and any portion, which is below the level of the adjoining pavement or the surrounding ground;

**1.1.2.12. 'Block'**

Means a walling unit, which exceeds the size of a brick in overall dimensions;

**1.1.2.13. 'Brickwork'**

Means an assemblage of bricks solidly bonded together with mortar or grout or by any other approved methods, which are structurally acceptable to form a wall, pier or column;

**1.1.2.14. 'Building control officer'**

Shall have the meaning assigned to it in the Act;

**1.1.2.15. 'Building committee'**

Shall have the meaning assigned to it in the Act;

**1.1.2.16. 'Canopy'**

Means a covering over a street at or below first floor level, which extends beyond plot boundary;

**1.1.2.17. 'Cesspool'**

Means a settlement tank or other tank for reception or disposal of foul matter from the sanitary installation of a building;

**1.1.2.18. 'Chimney'**

Means that part of a building, which forms part of a flue other than a flue pipe;

**1.1.2.19. 'Class'**

Means the classification of a fire door, or shutter, as shall be defined in approved Standards or Codes of Practice for Fire Protection; Also means the classification of a material as defined in the Standard Specifications for Building Works or the British Standards.

**1.1.2.20. 'Combustible'**

Means capable of igniting or burning;

**1.1.2.21. 'Column'**

Means a vertical member of a structure carrying axial loads and moments and whose width is not more than four times its thickness;

**1.1.2.22. 'Concrete'**

Means a material formed from a mixture of cement, aggregates and water;

**1.1.2.23. 'Competent person'**

Means a person who is qualified by virtue of experience, training, authority, and registered with the appropriate professional body;

**1.1.2.24. 'Currency point'**

Means the amount in Rwanda francs (RWF) prescribed in the 1<sup>st</sup> Schedule of the Act;

**1.1.2.25. 'Dead load'**

Mean the gravitational force caused by the static mass of all permanent parts of a building;

**1.1.2.26. 'Deemed satisfied'**

Means a prescriptive non-mandatory provision, which describes a method of design or of construction, which will be deemed to comply with a particular functional regulation;

**1.1.2.27. 'Division'**

Means a portion of a building separated from the remainder of such building by one or more separating elements;

**1.1.2.28. 'Domestic building'**

Means any building, which consists of two or more dwelling units, or a detached dwelling house;

**1.1.2.29. 'Drain'**

Means a conduit or channel used for the drainage of a building or premises within the same curtilage;

**1.1.2.30. 'Drainage work'**

Means the construction or installation, laying, connecting, fixing, repair or removal of any pipe, drain, gully, cesspool, septic tank, soil pipe, trap,

urinal, water closet, waste pipe or any other item connected with sewerage work;

**1.1.2.31. 'Dwelling house'**

Means a building designed for use exclusively as one self-contained dwelling unit by a single family, together with such out-buildings as are ordinarily used therewith;

**1.1.2.32. 'Dwelling Unit'**

Means a unit containing one or more habitable rooms and provided with adequate and safe sanitary and cooking facilities and is lawfully, used or constructed, adapted or designed to be used as a residence for one family;

**1.1.2.33. 'Emergency Route'**

Means the entire path of travel from the farthest point in any room in a building to the nearest escape door;

**1.1.2.34. 'Escape Door'**

Means a door in an escape route that leads directly to a street or to any approved open space leading to a street or public place;

**1.1.2.35. 'Escape Route'**

Means the entire path of travel from the farthest point in any room in a building to the nearest escape door and may include an emergency route;

**1.1.2.36. 'Exit Door'**

Means any door that is a component of an escape route from any room in a building;

**1.1.2.37. 'External Wall'**

Means an outer wall of a building, but does not include a party wall or separating wall;

**1.1.2.38. 'Feeder Route'**

Means that part of an escape route, which allows travel in two different directions to the access doors of not less than two emergency outlets;

**1.1.2.39. 'Fire shutter'**

Means an automatic or self-closing door, or shutter assembly especially constructed to prevent the passage of fire for a specified duration;

**1.1.2.40. 'Fire Resistance'**

Means the shortest period for which a building element or component shall comply with the requirements for stability, integrity and insulation when tested to the fire requirements of an approved standards institution;

**1.1.2.41. 'Fire-stop'**

Means a draught tight barrier or seal constructed of non-combustible material and placed within or between building elements in shafts, voids and other concealed spaces to retard the spread of flame, heat or smoke;

**1.1.2.42. 'Flight'**

Means a series of consecutive stairs that go from one level of a building to another;

**1.1.2.43. 'Floor area'**

Means the net area measured on a plan enclosed within the internal surfaces of external walls without finishes;

**1.1.2.44. 'Flue'**

Means a passage for conveying the discharge of a heat generating appliance to the external air;

**1.1.2.45. 'Flue pipe'**

Means a pipe that forms a flue, but does not include a pipe built as a lining to a chimney;

**1.1.2.46. 'Foul water'**

Means soiled water or wastewater,

**1.1.2.47. 'Foundation'**

Means the members of a structure, the function of which is to distribute loads directly to the ground or that part of a building, which is in direct contact with and is intended to transmit loads to the ground;

**1.1.2.48. 'Foundation wall'**

Means that portion of a wall between the foundation and the lowest floor above the foundation;

**1.1.2.49. 'Garage'**

Means an enclosed area, which is used or intended to be used for the parking, storing, servicing or repairing of motor vehicles;

**1.1.2.50. 'Habitable room'**

Means a room constructed or adapted to be used as a living or sleeping room or as a place for habitual employment of any person;

**1.1.2.51. 'Hoarding'**

Means a temporary fence made of lightweight, approved material erected around a building site;

**1.1.2.52. 'Imposed load'**

Means any force assumed in the design of a building, caused by the intended occupancy, earth pressure, hail, ground water or the ponding of rainwater;

**1.1.2.53. 'Incremental house'**

Means any dwelling 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 a specified period of time necessary to complete it;

**1.1.2.54. 'Industrial effluent'**

Means any liquid whether or not containing matter in solution or suspension which is given off in the course of or as a result of any industrial, trade, manufacturing, mining or chemical process or any laboratory, research or agricultural activity and includes any liquid other than soiled water or storm water;

**1.1.2.55. 'Kitchen'**

Means a room designed, adopted or used solely for the purpose of preparing or cooking food and washing utensils;

**1.1.2.56. 'Landing'**

Means a platform between two consecutive series stairs between a floor of a building;

**1.1.2.57. 'Lateral boundary'**

Means a boundary of a site other than a boundary between such site and any street or public space with a width in excess of six meters measured at right angles to such boundary;

**1.1.2.58. 'Latrine'**

Means a place or receptacle for the collection and decomposition of human excrement and includes pit privy, urinal, chemical or water closet;

**1.1.2.59. 'Load'**

Means any force to which a building is or may be subjected and includes dead, imposed, wind, seismic and other loads and forces caused by dimensional changes of materials;

**1.1.2.60. 'Load bearing'**

Means a wall primarily designed to carry an imposed vertical load in addition to its own weight.

**1.1.2.61. 'Manhole'**

Means 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 inspection of a drain or sewer;

**1.1.2.62. 'Member'**

Means a structural component such as a beam, joist, column, slab, or foundation;

**1.1.2.63. 'Minor building work'**

Shall have the meaning assigned to it in the Act;

**1.1.2.64. 'Non-combustible'**

Means a material is incapable of burning or adding heat to a fire and classified as not combustible when tested in accordance with approved standards or codes of practice for fire protection;

**1.1.2.65. 'Nosing'**

Means the front edge of a tread of a stairway and includes the front edge of the top surface of any landing that is situated at the top of a flight;

**1.1.2.66. 'Obstruction'**

Means any building or other object which partially or completely intersects any space serving a window, but does not include a slender object such as a pole or railing, which does not materially obstruct the entry of light and or air to the opening concerned;

**1.1.2.67. 'Occupancy'**

Means the particular use or the type of use to which a building or portion of a building is normally put or intended to be put;

**1.1.2.68. 'Partition'**

Means a non-structural interior construction not more than one storey in height, and generally of lightweight materials, and may or may not be demountable;

**1.1.2.69. 'Partition wall'**

Means a non-structural internal wall extending to the ceiling and constructed for the purpose of subdividing a space;

**1.1.2.70. 'Party wall or separating wall'**

Means:

- a) a wall forming part of a building and used or constructed to be used for the separation of adjoining buildings belonging to different owners or constructed or adapted to be occupied by different tenants; or
- b) a wall forming part of a building, and standing on land of different owners;

**1.1.2.71. 'Pit latrine'**

Means a pit together with a superstructure housing a seat or squat plate, for the deposition of human excrement;

**1.1.2.72. 'Pitch line'**

Means a notional line that connects the nosings of all the treads in a series of stairs;

**1.1.2.73. 'Plot'**

Means a parcel of land demarcated by definite boundaries, and includes all land within the curtilage of the building, out-buildings, yards, courts, open spaces and gardens attached or intended to be occupied, other than the land used, allotted or set apart for any street, lane, passage or pathway;

**1.1.2.74. 'Pressurization'**

Means the creating of a positive air pressure differential between one area of any building and the remainder of such building;

**1.1.2.75. 'Pressurized'**

Means having a pressure differential between one area of any building and the remainder of such building;

**1.1.2.76. 'Public building'**

Means a building to which the public have a right of access during all reasonable times for reasons that the building is used in accordance with its prescribed occupancy;

**1.1.2.77. 'Public place'**

Means any square, park, recreation ground or open space which:

- a) is vested in the one stop center office; or
- b) the public have the right to use; or
- c) is designated and shown as such on any development or general plan of any area;

**1.1.2.78. 'Public sewer'**

Means any sewer vested in the control of a public body;

**1.1.2.79. 'Reinforced concrete'**

Means concrete containing at least the specified minimum quantities of steel reinforcement as defined in approved design standards;

**1.1.2.80. 'Repairs'**

Means operations on a building to restore it to an identical condition as to appearance, structure, and occupancy that existed before such operations became necessary whether caused by fair wear and tear or by accident; except that repairs shall not include the complete replacement of a building previously destroyed;

**1.1.2.81. 'Retaining wall'**

Means a wall intended to resist the lateral displacement of earth materials;

**1.1.2.82. 'Roof assembly'**

Means a building cover and its supporting structure including any ceiling attached to such structure;

**1.1.2.83. 'Safety glazing material'**

Mean any material, which complies with the requirements for the performance of safety glazing materials contained in approved standards;

**1.1.2.84. 'Scaffolding'**

Means a temporary frame constructed to provide means of access to working areas as well as providing a safe platform from which to work;

**1.1.2.85. 'Separating element'**

Means a wall or floor, which shall have a specific fire resistance, used between division occupancies or tenancies in a building;

**1.1.2.86. 'Septic tank'**

Means a watertight tank designed to receive sewage and to retain it for such a period as to secure adequate decomposition of sewage;

**1.1.2.87. 'Sewage'**

Means wastewater, soil water, industrial effluent and other liquid waste flowing in separate or combined sewer, but shall not include storm water;

**1.1.2.88. 'Sewer'**

Means a pipe, conduit or drain, which is used for the conveyance of sewage;

**1.1.2.89. 'Sprinkler system'**

Means approved system of piping and sprinklers connected to a water supply, which when actuated by the effect of fire automatically releases water;

**1.1.2.90. 'Stability'**

Means resistance of a structure or part of a structure to overturning or overall failure;

**1.1.2.91. 'Stairway'**

Means any part of a building that provides ascending or descending route of travel formed by a single flight or by a combination of two or more flights and one or more intervening landings;

**1.1.2.92. 'Standards'**

Means, in addition to the meaning assigned to it in Section 2 of the Act, any standards or codes of practice endorsed by the Rwanda National Bureau of Standards or their successors and assignees;

**1.1.2.93. 'Standards institution'**

Means any body that publishes standards within the meaning ascribed herein;

**1.1.2.94. 'Storey'**

Means part of a building which is situated between the floor level directly below it and the floor level above it or, if there is no floor above it, the ceiling or roof;

**1.1.2.95. 'Storm water drain'**

Means a pipe, conduit or surface channel, which is used solely to convey storm water;

**1.1.2.96. 'Storm water'**

Means water resulting from natural precipitation and includes rainwater, surface water, sub-soil water or spring water;

**1.1.2.97. 'Street'**

Means any highway, road or service lane, or any land reserved for a highway, road or service lane, and includes any bridge, footway, square, court, alley or passage, whether a thoroughfare intended for use by the public or not;

**1.1.2.98. 'Strength'**

Means, in relation to a member of a structure, resistance to failure by yielding or buckling;

**1.1.2.99. 'Structural'**

Means relating to or forming part of any structural system;

**1.1.2.100. 'Structural system'**

Means the system of constructional elements and components of any building that is provided to resist the loads acting upon it and to transfer such loads to the ground upon which such building is founded;

**1.1.2.101. 'Temporary building'**

Means any building not being a builder's shed that is so designated by the owner and that is being used or is to be used for a specific purpose for a specified period of time not exceeding 3 years, but renewable upon application for a further period not exceeding one year;

**1.1.2.102. 'Tile field'**

Means a system of short butted pipes laid underground and surrounded with broken stone; or gravel, or other similar material, into which effluent from the septic tank is discharged;

**1.1.2.103. 'Travel distance'**

Means:

- a) the distance in any building where emergency routes are required, from the farthest point in any room in such building to an access door; or
- b) where no emergency routes are required, the distance from the farthest point in any room in a building to an escape door;

**1.1.2.104. 'Tread'**

Means the upper surface of a step;

**1.1.2.105. 'Type plans'**

Means a drawing of a simple single storey residential building of not more than 100m<sup>2</sup> prepared by an architect and registered by the Rwanda Society of Architects;

**1.1.2.106. 'Ventilated improved pit latrine' (VIP)**

Means a pit latrine fitted with a vent pipe, which is screened to prevent both ingress and egress of insects;

**1.1.2.107. 'Wall'**

Means a vertical load-bearing or non-load-bearing member of a structure whose length exceeds four times its thickness;

**1.1.2.108. 'Water closet'**

Means latrine accommodation used with waterborne system of excreta disposal;

**1.1.2.109. 'Width'**

Means the distance between opposite plot boundaries, measured at right angles to the direction of the street;

**1.1.2.110. 'Wind load'**

Means the force exerted by the action of wind, whether pressure or suction;

## SECTION 1.2 SCOPE

### 1.2.1 Buildings and Utilities

- 1.2.1.1 On any site, water supply, drainage, storm water disposal, electrical or other services connected to used or provided in connection with any building, shall be regarded as part of the building.
- 1.2.1.2 No building operation, including buildings for which a permit has been issued or for a demolition operation, shall be permitted if it connects to an existing building except where an engineer certifies to the one stop center office that the new building operations shall not affect the structural stability of the existing building.
- 1.2.1.3 Where an application is made to make alterations or additions to any building, approval for the erection of which was granted before the commencement of these Regulations in the relevant area:
- a) The alterations shall comply with the requirements of these Regulations and shall require the whole building to comply with the requirements of these Regulations where such deviations exist; and, or
  - b) The additions shall comply with the requirements of these Regulations and the original building shall be brought into compliance as far as practicable, with the requirements of these Regulations where deviations exist.

### 1.2.2 Temporary and Minor Buildings

- 1.2.2.1 No application is necessary to the one stop center office for any repair works.
- 1.2.2.2 Any building operation defined as minor building work shall comply with those parts of these Regulations specified officially by the one stop center officer in charge of housing and issued upon prior request.
- 1.2.2.3 Any incremental house shall in any intermediate stage of erection be regarded as a temporary building for the purpose of assessing compliance with these Regulations.
- 1.2.2.4 Any building intended to be used for experimental, demonstration, testing or assessment purposes shall be regarded as a temporary building except that:
- a) Authorization for the erection of such building shall be granted where testing or assessment of the completed building is the only way to demonstrate compliance with the requirements or these regulations; and
  - b) The one stop center office shall grant such authorization for a period of time as applied for the erection of the building and for the performance of any experiment or for the demonstration, testing or assessment of such building.
- 1.2.2.5 Any stall or other similar building to be erected as part of an exhibition shall be regarded as a temporary building, except that where such stall is to be erected inside an exhibition hall, the owner of the hall shall not be required to submit to the one stop center office any details of the stall, but shall submit a layout plan of all such stalls within the hall showing the location of each individual stall, all escape doors, and all firefighting equipment.

## **PART 2 ADMINISTRATION**

### **SECTION 2.1 APPLICATIONS FOR APPROVAL OF PLANS**

#### **2.1.1 Submittals**

- 2.1.1.1 Any person intending to construct or modify a building or to alter its use shall submit an application for a building permit to the one stop center office in the District in Which the project is to take place, hereinafter called the one stop center office.
- 2.1.1.2 A person who intends to carry out building operations shall submit a written application to do so in such form as the one stop center office may require, completing all details required so far as they apply to the proposals.
- 2.1.1.3 The application form shall be signed by the owner or by his or her duly authorized agent and shall state the name of the person on whose behalf it has been submitted.
- 2.1.1.4 The form, in duplicate, shall be attached to any plans or documents submitted in accordance with these Regulations.
- 2.1.1.5 Building permits will be issued with due regards to all approved zoning regulations
- 2.1.1.6 An applicant shall submit to the one stop center office, in addition to the written application letter and a duly completed application form, the following plans and particulars as may be required by public notice issued with regard to certain areas or major urban design schemes:
  - a) site plan;
  - b) layout drawings;
  - c) services drawings showing locations of any existing services and proposed points of connection;
  - d) site drainage plan.

#### **2.1.2 Type Plans**

- 2.1.2.1 The one stop center office may give approval to type plans prepared by an architect and submitted with other drawings in order to be issued with a building permit.
- 2.1.2.2 An applicant may submit only a site plan, and services plans as necessary, and refer to the building type plan by its drawing number and reference, if given one by the one stop center office.

#### **2.1.3 Preliminary Plans and Enquiries**

- 2.1.3.1 Any person who intends to carry out major public building operations may before submitting a formal application request the one stop center office:
  - a) to examine a preliminary sketch or plans of the proposed building operation and furnish in writing its comments on the plans or on any particular features of the plans specified by the 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 the building complies with these Regulations.

- 2.1.3.2 Where the one stop center office is unable to comply with any such request it shall state, in writing, its reasons for its inability to do so.

#### **2.1.4 Application for Minor Building Works**

- 2.1.4.1 Any person intending to carry out a minor building work shall make a written application to the one stop center officer in charge of housing in accordance with these Regulations.
- 2.1.4.2 The one stop center officer in charge of housing shall, thirty days after the receipt of the application in sub-article 2.1.4.1, give his decision whether to approve, refuse or give notice for extension of time.
- 2.1.4.3 If the one stop center officer in charge of housing deems any application to be of such character or magnitude as to have a substantial impact on the neighborhood or community, he or she shall inform the person making the application of the need to disseminate this information to the public, inviting representations from the public in writing to the one stop center officer in charge of housing before a specified closing date.
- 2.1.4.4 The one stop center officer in charge of housing shall make copies of the representations available to the person making the application within fourteen days and that person shall then have fourteen days to make a written reply to these representations.
- 2.1.4.5 The one stop center officer in charge of housing shall within thirty days gives his or her decision on the application or the matter shall be referred to Rwanda Housing Authority headquarters for a final decision within thirty days from the day of receipt.

#### **2.1.5 Enforcement Personnel**

- 2.1.5.1 The minimum qualification for a Building Inspection Officer shall be:
- a) A bachelor's degree, or its equivalent in one or more of the following disciplines:
    - i. Architecture
    - ii. Civil Engineering or Equivalent
  - b) A minimum of two (2) years continuous employment in the construction industry.
- 2.1.5.2 The minimum qualification for an Assistant Inspection Officer who will be assisting the Building Inspection Officer and carrying out building inspection work shall be:
- a) Ordinary diploma, or its equivalent, in one or more of the following disciplines:
    - i. Architecture
    - ii. Civil Engineering or equivalent
    - iv. Structural Engineering
  - b) A minimum of one (1) year continuous employment in the construction industry.

### 2.1.6 Standardization of Interpretation

- 2.1.6.1 Where so requested in writing by the one stop center office or by the owner of any building or any person having an interest therein, Rwanda Housing Authority at central level shall examine the plans, specifications and other documents accompanying or intended to accompany any building application to the one stop center office, perform any tests considered to be necessary and inspect the site on which such building is to be erected, and shall issue a report in connection therewith.
- 2.1.6.2 Where Rwanda Housing Authority at central level has found the proposed building to comply with all the relevant requirements of these Regulations it shall make its findings known accordingly, and any application for approval to erect such building accompanied by the report from the agency, shall be deemed to satisfactory.

### 2.1.7 Construction Work in Progress

- 2.1.7.1 Owners of building operations undertaken before the existence of these regulations have the obligation to comply with them prior to proceeding with further construction works remaining in their projects.
- 2.1.7.2 In the event the instruction given is not strictly followed, the one stop center office shall issue a notice to the owner asking for the immediate cessation of any activity on the site until compliance with the present regulations could be verified.

## SECTION 2.2 PROFESSIONAL ENGAGEMENT

### 2.2.1 Design by Professionals

- 2.2.1.1 Where the owner appoints an architect to design a building or a part of a building and an engineer to design the structure and the services ancillary to such building, the designs shall be deemed to satisfy the requirements of these Regulations, provided also that the owner retains the services of a registered architect or engineer until an occupation permit is issued.
- 2.2.1.2 The architect and engineer shall be deemed competent to execute all necessary inspections and he or she shall certify to the one stop center office the satisfactory completion of the building before the one stop center office issues an occupation permit. All inspections are deemed to have been made by the one stop center office with respect to these Regulations.
- 2.2.1.3 If the owner terminates the agreement with his or her appointed architect or engineer at any time before the occupation permit is issued, the owner shall immediately notify the one stop center office concerned, in which case it may:
- a) serve a notice on the owner to stop any further building operations until the owner appoints another registered architect or engineer or re-appoints the original architect or engineer who shall inform the one stop center office that they have commenced or re-commenced their appointment, or
  - b) Serve a notice on the owner that all inspections shall be carried out by the one stop center office and require the owner to give the notices for inspections as required by these Regulations.

- 2.2.1.4 Upon termination under sub-article 2.2.1.3 or termination of the agreement by the architect or engineer, the architect or engineer shall immediately notify the one stop center office of such termination with copies to their respective professional bodies.

## 2.2.2 Non-compliant Professionals

- 2.2.2.1 Where it becomes apparent to the one stop center office that any architect or engineer has failed to apply any or all of the provisions of these Regulations, the following courses of action may be adopted:

- a) a warning may be issued to the engineer or architect specifying the provisions in noncompliance;
- b) the architect or engineer may be reported to their respective professional bodies for appropriate action;
- c) a request may be made to have a report submitted by the professional bodies on any action taken pursuant to item (b) above;
- d) all exemptions applicable under sub-articles 2.2.1.1, 2.2.1.2 or 2.2.1.3 of these Regulations may be withdrawn on receipt of a report indicating disciplinary action pursuant to item (c) above.

- 2.2.2.2 Where any matter is brought before the one stop center office at the District level of Rwanda Housing Authority at central level with regards to professional misconduct, the following measures may be taken against the professional:

- i) censure the person as to his or her future conduct;
- ii) withdraw any privileges nationwide conferred by these Regulations on the engineer or architect;
- iii) bring a formal complaint of professional misconduct to the primary professional body of which the engineer or architect is a member.

## 2.2.3 Commissioning of Professionals

- 2.2.3.1 The owner of a building other than a minor building shall employ an architect for purposes of architectural design, and for a building of two or more stories or any building with a height to eaves and a roof span of 6.0 meters or greater, or any building with suspended structural floor panel exceeding 4.0 meters in span, and employ an engineer for the purposes of structural design, and shall retain the services of the architect and the engineer for the purpose of supervising the construction of the building.

- 2.2.3.2 On completion of the building operations with respect to the buildings specified in sub-article 2.2.3.1, the architect or the engineer, as the case may be, shall provide the one stop center office with a certificate confirming that the work has been carried out in accordance with the design and the specifications and complies with the relevant approved standards and codes of practice.

- 2.2.3.3 An owner of buildings specified in sub-article 2.2.3.1 shall employ on the site, throughout the period of construction, a competent person capable of reading and interpreting the working drawings, or enter into a contract with a registered contractor, to ensure that the work is carried out in accordance with all designs and specifications.

- 2.2.3.4 All architectural drawings and design calculations shall be signed by the architect and all structural drawings and design calculations shall be signed by the engineer.
- 2.2.3.5 The requirements of these Regulations with regard to provisions dealing with architectural or structural design shall be satisfied where the designer satisfies the requirements of the respective registration statutes.
- 2.2.3.6 For the purpose of these Regulations, the one stop center office shall keep a register of qualified architects and structural/civil designers and other engineers as provided by their respective bodies.

## **PART 3 DESIGN**

### **SECTION 3.1 GENERAL REQUIREMENTS**

#### **3.1.1 Requirements for Building Applications**

3.1.1.1 A person intending to carry out any building operation shall make a written application to the one stop center office for approval and shall, with such application submit the following plans, calculations and other particulars as may be required:

- a) A completed application form
- b) A copy of the Title deed of Land Lease Contract
- c) A copy of the soil report with soil classifications
- d) Copies of environmental impact assessment certificate if applicable
- e) Location plan;
- f) Site plan;
- g) Architectural layout drawings and details;
- h) Structural drawings, layouts and details, including bar bending schedules and structural calculations;
- i) Topographic maps
- j) Water, plumbing and drainage drawings and details;
- k) General arrangement of artificial ventilation;
- l) Electrical or mechanical installation layout details; and
- m) Bill of quantities
- h) Any other particulars, which the applicant feels, would be of assistance to the one stop center office.

3.1.1.2 The requirements of sub-article 3.1.1.1 of these Regulations shall not apply to minor building works.

3.1.1.3 With respect to the drawings referred to in sub-article 3.1.1.1 (d) of these Regulations, information may be amalgamated into one drawing provided the overall intent and content shall be legible and understandable.

3.1.1.4 The one stop center office shall, upon receipt of an application, give its decision or give notice or extension of time as provided by law.

3.1.1.5 The validity of a building permit shall be deemed to have lapsed where the building operations have not commenced on the site within the time prescribed by law after the issuance of a building permit by the one stop center office.

#### **3.1.2 Additional Documents and Information**

3.1.2.1 The one stop center office may require, if deemed necessary, that the person making an application under sub-articles 2.1.1.1 and 3.1.1.1 of these Regulations supply additional information.

3.1.2.2 The one stop center office may request any person making an application to provide a detailed description of submittals made under sub-article 3.1.1.1 of these Regulations regarding:

- a) Sufficient description of the occupancy class in accordance with the First Schedule of these Regulations, the materials with which the building is to be constructed; the mode of drainage and sewage disposal, the source of water; and landscaping proposals;
- b) Details of structural designs calculations, details of artificial ventilation design calculations, details of plumbing and drainage design calculations.

### 3.1.3 Presentation of Plans

3.1.3.1 An application, signed and dated by the owner, shall be accompanied by at least one set of plans, drawings and diagrams which shall be clear and legible, on suitable durable material, and shall contain the name of the owner of the plot and shall be signed, stamped and dated by the architect, and every alteration thereafter shall likewise be dated, stamped and signed.

3.1.3.2 The plans, drawings and diagrams shall be drawn to suitable scales but not smaller than the scales indicated in the following paragraphs:

- a) Site Plans:  
1:2500 or 1:1250 or 1:1000 or 1:500 or 1:250 or 1:200 or 1:100;
- b) Drainage installation drawings:  
1:200 or 1:100 or 1: 50;
- c) Layout drawings (including demolition drawings, if any)  
1:100 or 1:50 or 1:20;
- d) Sections & Elevations:  
1:100 or 1:50;
- e) General structural arrangements and details:  
1:100 or 1:50 or 1:20 or 1:10 or 1:5 or 1:2 or 1:1;
- f) Fire protection plans:  
1:200 or 1:100 or 1:50 or 1:20.

3.1.3.3 In all cases the scales used shall be stated on the plans, drawings or diagrams and the letters and symbols adopted shall be not less than 2.5mm.

3.1.3.4 The North point shall be indicated at the top right hand corner of all the site or location plans.

### 3.1.4 Site Plans

3.1.4.1 A site plan referred to in sub-articles 2.1.1.7 and 3.1.1.1 of these regulations shall contain the following information, where applicable:

- a) dimensions of the site on which the building is to be erected, the boundaries of such site, the dimensioned position of any building line and the position and width of any servitude or right of way to which such site is subject;
- b) registered number or other designation of the site;

- c) direction of true north and, if required by the one stop center office, the natural ground contours at suitable vertical intervals or spot levels at each corner of the site;
- d) name of the street upon which the site adjoins, where applicable;
- e) position of any service main and any connection point to the service main and of any sewer, storm water drain existing upon such site;
- f) position of the proposed building, existing building to be demolished; and
- g) any existing and intended point of access from any street, and any tree, street furniture, apparatus or equipment relative to the access.

### 3.1.5 Layout Drawings

- 3.1.5.1 Any layout drawing prepared in accordance with sub-articles 2.1.5.1 and 3.1.1.1 of these Regulations shall consist of as many plans, sections and elevations as may be necessary to indicate, where relevant, the position, form, dimensions and materials of the building proposed to be erected.
- 3.1.5.2 The foundations, floors, walls, damp-proofing material, windows that are fixed or can be opened, fanlights, louvers and other ventilating devices, artificial ventilation systems, doors, stairs, roofs and chimneys shall be clearly shown on the plans, drawings or diagrams.
- 3.1.5.3 The layout drawings shall also indicate sanitary fixtures, structural members, the intended use of rooms and other spaces as well as the horizontal and vertical dimensions of the rooms and other spaces.
- 3.1.5.4 Where fixed seating is provided, the layout of all rows, seats and aisles, the position of all exit doors, and the total number of seats shall be shown on the plans.
- 3.1.5.5 The location, levels and size of any paved areas adjacent to the building shall be marked on the layout drawings.
- 3.1.5.6 Where required by the one stop center office, the layout drawings shall include the levels of any adjoining verge or roadway, together with a section along the length of any driveway, which shall show the relative levels and gradients of the driveway, and storm water drainage.
- 3.1.5.7 The one stop center office may require the levels of the floors relative to one another and to the existing ground surface, the proposed finished ground surface or the surface of any public place or public street to be marked on the layout drawings.
- 3.1.5.8 Where applicable, the details of any special provisions for persons with disabilities shall be given on all plans, drawings and diagrams.

### 3.1.6 Drainage Installation Drawings and Particulars

- 3.1.6.1 A drawing of the drainage installation as required by sub-article 3.1.1.1. of these regulations shall contain as many plans, sections and elevations as shall be necessary to show, where relevant:
  - a) position, size, gradient and any connecting point to the drain in relation to a datum established on the site and the level of the ground relative thereto;
  - b) position of any point of access to the interior of any drain;
  - c) position of any trapped gully;

- d) position and details of any septic tank, cesspool, soakage pit, conservancy tank, private sewage treatment plant or sewage pump;
- e) Position of any percolation test hole excavated on the site and any French drain;
- f) Position and arrangement of any sanitary fixture served by the drainage installation;
- g) Position and size of any soil pipe, waste pipe and ventilating pipe or device;
- h) Positions of all openings in the building, such as chimneys, skylights, doors, windows, ventilation openings and air intakes that could permit the entry of foul air or gas into such building from any ventilating pipe or device; and
- i) Position of any well, borehole or watercourse on the site which may be affected by any proposed soakage pit or French drain.

3.1.6.2 The one stop center office may require the owner to submit the following:

- a) Drainage design calculations, which shall clearly indicate the basis for such design;
- b) An estimate of the composition and quantity of any industrial effluent proposed to be discharged into any sewer, and
- c) Where approval has been given for the industrial effluent to be discharged into any sewer, plans and particulars of any drainage works and installations as required by the relevant water, sewerage and environmental bodies in terms of the conditions of approval for such discharge.

3.1.6.3 Where abbreviations are to be used to signify details on drainage installation drawings, they shall conform to abbreviations prescribed in the appropriate Code of Practice and additionally submitted as a separate sheet of symbols and abbreviations.

### **3.1.7 Fire Protection Plans**

3.1.7.1 Where required by the one stop center office, a fire protection plan shall be submitted by the owner for approval with respect to the erection of any building not being a dwelling unit, and shall clearly show the requirements for fire protection and classification of buildings.

3.1.7.2 The Regulations shall not contain anything that could be construed as preventing details of such requirements from being clearly indicated on a layout drawing required under sub-article 3.1.1.1 of these Regulations.

### **3.1.8 Symbols on Fire Protection Plans**

3.1.8.1 Where symbols are to be used to signify details on fire protection plans, they shall conform to symbols prescribed in the appropriate Code of Practice and additionally submitted as a separate sheet of symbols and abbreviations.

### **3.1.9 Boundary Beacons**

3.1.9.1 Where in the opinion of the one stop center office the position of any boundary of a site has not been accurately determined, it may, before granting approval in respect of any application, require the owner, at his own cost, to engage the services of a licensed land surveyor:

- a) to submit to the one stop center office any other approved document identifying the boundary pegs or beacons of the site; and
- b) to submit a block plan showing the nearest streets and the distances of the boundaries of the plot from the reference streets.

3.1.9.2 Where the owner fails to engage the services of a licensed land surveyor, the one stop center office shall engage the services at the cost of such owner, to establish and mark out the pegs or beacons.

3.1.9.3 Where a plot is required to be protected by a boundary wall for a public building, the height of the external walls, if built in brick or blockwork, shall not exceed three courses. The material to be utilised above this level may be any approved material that does not obstruct the frontage of the building.

3.1.9.4 In the case of residential dwellings, any boundary wall may not be over-topped with barbed wire fencing material or broken glass or any material that would cause a safety hazard to persons.

### **3.1.10 Street Levels**

3.1.10.1 Where any building is to be erected on a site abutting a made street the owner of the building shall, subject to the requirements of sub-article 3.1.10.3, erect the building in accordance with the levels of such street.

3.1.10.2 Where any portion of a street abutting the site on which any building is to be erected has not been made, the owner of the building shall obtain the proposed road levels from the one stop center office.

3.1.10.3 The one stop center office shall provide the levels of unmade street within fourteen days after the receipt of the request by the owner of the building.

3.1.10.4 Where the one stop center office fails to provide the levels of unmade street, it shall notify the owner in writing to that effect, and the owner of the building shall determine the finished ground floor level of the building.

3.1.10.5 Where the floor levels of any building have been fixed under sub-article 3.1.10.3 the one stop center office shall, at its own cost, provide adequate storm water drainage around the site at the time of making the street.

### **3.1.11 Application for Temporary Buildings**

3.1.11.1 For any application to erect a building that qualifies to be classified as a temporary building, the one stop center office may grant authorization for the applicant to proceed with the erection of the building subject to compliance with any conditions or directions specified in the authorization.

3.1.11.2 The one stop center office shall, before granting the authorization, require the owner of the temporary building to state the period for which authorization is required.

3.1.11.3 The applicant shall submit a site plan with the application to erect a temporary building.

- 3.1.11.4 The application shall be accompanied by layout drawings in sufficient detail to enable the one stop center office to determine the general size, form, materials of construction and use of the proposed temporary building.
- 3.1.11.5 The owner of a temporary building shall also submit for approval the structural details as may be necessary for the one stop center office to determine the structural safety of the proposed building where it is intended that the public shall have access to the building.
- 3.1.11.6 The one stop center office shall grant authorization for a limited period not exceeding three (3) years having regard to the use of a temporary building.
- 3.1.11.7 The one stop center office may at the request of the owner grant approval for extensions of the period of authorization not exceeding one (1) year
- 3.1.11.8 Where it is intended that the public shall have access to the building, the request shall be accompanied by a certificate signed by an engineer, indicating that the condition of the structural system is satisfactory for the period of extension.
- 3.1.11.9 Where the owner of the building wishes to apply for a building permit not later than the last day of the period of authorization, he may submit to the one stop center office such additional plans and details as may be required in order to consider the application.
- 3.1.11.10 Where approval has been granted with respect to the application, the owner of the building shall produce an affidavit certifying that all parts of the building erected under the terms of the authorization have been erected in accordance with the plans and details approved by the one stop center office.
- 3.1.11.11 Where plans and details have not been submitted to the one stop center office or where the one stop center office has refused to grant approval of the plans and details, the owner shall demolish and remove the building.

### **3.1.12 Classification and Designation of Occupancies**

- 3.1.12.1 Any occupancy in any building or any building containing a single occupancy shall be classified and designated according to the appropriate occupancy class given in the First Schedule of these Regulations. The classification shall also be shown on the fire plan as required under Article 3.1.7.
- 3.1.12.2 Any building or any area within a building shall be classified as being of a single occupancy provided that any room or space of any other occupancy within the building or area is used for the purpose ancillary to the single occupancy.

### **3.1.13 Design Population**

- 3.1.13.1 Any reference in these Regulations to the term population shall be construed as the design population determined in accordance with the Second Schedule to these Regulations.

### **3.1.14 Unstable Soils or Slopes**

- 3.1.14.1 Where the one stop center office has reason to believe that there are unstable soils or an unstable slope under a building site, it shall advise the applicant accordingly.
- 3.1.14.2 Where unstable soils or an unstable slope is evident within the boundaries of the site, the applicant shall submit to the one stop center office particulars of the measure considered necessary to make provision for any differential movements or other effects that may be detrimental to the building irrespective of whether or not the one stop center office informed the applicant about the unstable soils or slopes in addition to the requirements of sub-article 3.1.1.1 (d).
- 3.1.14.3 No structure shall be built on slopes exceeding 20% unless explicit approval is obtained from the land bureau and the design for construction of such a structure has been made by a qualified structural engineer, indicating the stability of the aforesaid structure. The construction of structures may be allowed on slopes exceeding 20% if the land is excavated to level and approved retaining structures are so constructed to stabilize the excavated slopes, which should include adequate drainage facilities.

### 3.1.15 Excavations Designed by Engineers

- 3.1.15.1 Any excavation exceeding 3 meters below the original ground level or in situations where special geotechnical considerations exist shall be designed by an engineer.
- 3.1.15.2 An excavation for a foundation shall be taken down to a firm natural ground and the bottom made horizontal. This shall be indicated on the plans submitted under sub-article 3.1.1.1 (d).
- 3.1.15.3 Where an excavation for a foundation is in solid rock, the bottom of the excavation shall be taken into the rock to a depth not less than 300mm or the depth equal to the thickness of the foundation footing, whichever is greater. The engineer shall submit a technical solution equivalent to the provisions of this sub-article in special circumstances where excavating into the solid bedrock is not practicable.

### 3.1.16 Landscaping and Parking

- 3.1.16.1 A building application shall, for certain building types or localities prescribed by prior public notice by the one stop center office, include proposals for landscaping of the plot as part of the building operations.
- 3.1.16.2 The landscaping proposal shall be designed to achieve one or more of the following objectives:
- a) to enhance the aesthetics of the plot and the adjacent area;
  - b) to provide a screen against environmental hazards, and
  - c) to contain hazardous substances or activities within the building curtilage.
- 3.1.16.3 The proposal for landscaping shall include indigenous flora and local materials wherever practicable.
- 3.1.16.4 Parking for automobiles, vans, buses and trucks shall be provided within the boundary of the site in accordance with the Third Schedule.

## SECTION 3.2 STRUCTURAL DESIGN

### 3.2.1 Dead and Imposed Loads

- 3.2.1.1 For the purpose of calculating the dead load of a building or any part of a building, the weights of all building material shall conform to the approved standard specifications and design guidelines. In the case of materials not mentioned in the required documents, the weights shall be determined by tests to be carried out by an approved laboratory.
- 3.2.1.2 Where the positions of permanent partitions are shown on the plans furnished to the one stop center office, the weight of the partitions shall be included as dead load.
- 3.2.1.3 Where it is intended to erect partitions which are not shown on the plan, the beams and the floor slabs, where they are capable of distributing the load effectively over the area of floor, shall be designed to carry, in addition to other loads, a uniformly distributed load per square meter of not less than 30% of the weight per meter run of the finished partitions, or in the case of a floor being used as an office, the design shall be based on the calculated load or a load of  $1 \text{ kN/m}^2$ , whichever is greater.
- 3.2.1.4 The imposed loads on the floors, stairs, landings, corridors, balconies, beams, columns, piers, walls, structural frames or any other parts of the building shall be derived from the imposed loads specified in the approved Construction Code of Standards, and where it is known that the actual imposed loads shall exceed those derived, the higher loads shall be adopted in the design.
- 3.2.1.5 In the design of columns, piers or walls supporting two or more floors in any building other than a warehouse, garage or building to be used wholly or predominantly for storage, the total imposed floor loads calculated in sub-article 3.2.1.4 may be reduced by the percentage specified in the Fourth Schedule for a factory or a workshop. The minimum total imposed floor load for any column, pier or wall shall not be less than  $5 \text{ kN/m}^2$  on all floors supported.
- 3.2.1.6 For the purpose of Article 3.2.1, a roof shall have the same meaning as a floor.
- 3.2.1.7 Where a single span of a beam supports not less than  $50 \text{ m}^2$  of floor area at one general level and the floor is not to be used for storage purposes, the imposed loads as calculated in sub-article 3.2.1.3 for the design of the beam may be reduced by 5% for each  $50 \text{ m}^2$  of supported floor, subject to a maximum reduction of 25%; a similar reduction may be taken into account in the design of any column, pier or wall supporting the beam.
- 3.2.1.8 Any load specifically allowed for plant or machinery shall not be reduced in order to comply with these Regulations.
- 3.2.1.9 For the design of roofs, the following imposed loads shall be allowed in addition to wind and dead loads:
- a) on roofs where access is provided, an imposed load of  $1.5 \text{ kN/m}^2$  shall be taken subject to a minimum load of  $3.5 \text{ kN}$  uniformly distributed over the span in the case of all beams; and

- b) on roofs where access is not provided other than for maintenance, an imposed load of  $0.5 \text{ kN/m}^2$  shall be taken.
- 3.2.1.10 For sloping roofs with slopes greater than  $10^\circ$  where access has not been provided, the following shall apply:
- a) on roofs with slopes shallower than, or equal to  $30^\circ$ ;  $0.5 \text{ kN/m}^2$  imposed load shall be taken;
  - b) on roofs with slopes greater than  $30^\circ$  but less than  $75^\circ$ ; imposed loads shall be interpolated linearly between  $0.0 \text{ kN/m}^2$  and  $0.5 \text{ kN/m}^2$ ; and
  - c) on roofs with slopes steeper than or equal to  $75^\circ$ , zero imposed load shall be taken.
- 3.2.1.11 All roof covering and purlons shall be capable of carrying a minimum load of  $1 \text{ kN}$  concentrated on an area of  $100 \text{ mm}^2$  at any point except that where the roof slope exceeds  $45^\circ$ , a concentrated load of  $0.5 \text{ kN}$  shall be provided for.
- 3.2.1.12 Wind loading on a building shall be calculated on the basis of the recommendations in the approved Construction Code of Standards.
- 3.2.1.13 The grades of exposure to wind shall be in accordance with the terrain categories specified in the Fifth Schedule.
- 3.2.1.14 The design of all building structures shall conform to the seismic loading and design requirements in the approved Construction Code of Standards.

### 3.2.2 Foundations

- 3.2.2.1 The foundation of every building shall satisfy the following conditions:
- a) It shall be designed and constructed so 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 settlement to impair the stability of the building or of adjoining works or structures.
  - b) It shall be taken down to a minimum depth of  $1.0$  meter below the level of the adjoining ground except where sub-article 3.1.15.3 of these Regulations applies.
  - c) In the case of a building with two or more floors, or a building with a clear span of or exceeding  $6.0$  meters, or a building with heavily loaded foundations, the one stop center office shall require a soil investigation report to be submitted by the engineer in addition to the requirements set out in sub-article 3.1.1.1 (d).
  - d) Where eccentric loading of foundation to a wall, column or pier occurs, the member shall be designed so that the resulting force passes through the middle third of the foundation, where practicable.
  - e) The foundation for a load bearing member of a building, where constructed as a strip foundation in plain concrete and situated centrally under a wall or pier, shall be deemed to satisfy the requirements of item (a) of this sub article except that:
    - i) there should be no wide variation in the type of soil over the loaded area and no weak soil types should exist below that on which the

- foundation rests within a depth equal to the foundation height as it may impair the stability of the structure;
- ii) the foundation shall be designed so that the maximum pressure according to the type and condition of soil specified in the Sixth Schedule is not exceeded. The presumed allowable bearing capacities for the different types of ground should enable a preliminary foundation design to be carried out, which can be adjusted up or downwards after further testing, geotechnical investigation and analysis;
  - iii) the concrete shall be of a grade with characteristic strength of not less than  $15\text{N/mm}^2$  at the age of 28 days; and
  - iv) the foundation concrete shall be of a thickness not less than its projection from the base of the wall, buttress or pier forming part of a wall, and in no case less than 200mm.
- f) Where the strip foundation is laid at more than one level, at each change of level, the higher foundation shall extend over and combine with the lower foundation for a distance not less than the thickness of the foundation, and in no case less than 300mm.
  - g) Any floor slab forming a foundation shall be thickened so that the width below the floor slab, or the combined depth of the floor slab and the thickened portion, shall not be less than that required for a continuous strip foundation.
  - h) Foundations constructed wholly or in part of reinforced concrete shall satisfy the requirements of item (i) of this sub-article as far as the strength of these parts of the foundation are concerned, where as the design and construction of the reinforced concrete parts is based on the recommendations in the approved Construction Code of Standards.
  - i) All foundations for buildings shall be designed per the requirements in Article 3.2.1.14. Approval for such structure shall not be granted without the explicit scrutiny of the design and signature of a registered geo-technical engineer or a structural engineer,

### 3.2.3 Load-Bearing Superstructures

- 3.2.3.1 A building or any member of the building shall be designed to provide strength, stability, serviceability and durability in accordance with accepted structural design principles, and in the event of accidental overloading, the structural system shall not suffer disastrous or progressive collapse, and shall not impair the integrity of adjoining buildings or property.
- 3.2.3.2 Load-bearing structures of a building above the foundations shall be capable of sustaining and transmitting the dead load, imposed loads and the horizontal or inclined forces to which it may be subjected, without exceeding the appropriate limits of stress for the materials of which it is constructed without excessive deflection.
- 3.2.3.3 Structural steel work shall be deemed sufficient for the purpose of sub-article 3.2.3.2, and where the steel work is designed and constructed in accordance with the requirements in the Structural Design Guidelines.
- 3.2.3.4 Structural work in reinforced concrete shall be deemed sufficient for the purpose of sub-article 3.2.3.2, and where the design and construction are based upon the relevant recommendations in the approved Construction Code of Standards.
- 3.2.3.5 Structural work in timber shall be deemed sufficient for the purpose of sub-article 3.2.3.2, and where the design and construction are based upon the recommendations in the approved Construction Code of Standards.

- 3.2.3.6 A wall, pier, or column in brickwork or block work shall be deemed sufficient for the purposes of sub-article 3.2.3.2, and where they are designed and constructed in accordance with the approved Construction Code of Standards.

### 3.2.4 Floors

- 3.2.4.1 A floor of any building shall be of adequate strength to support its own weight and all imposed loads on it, and have appropriate fire resistance rating applicable to its use.
- 3.2.4.2 The design and construction of a structural floor shall satisfy the requirements of sub-articles 3.2.3.2, 2.2.3.4 and 3.2.3.5, of Article 3.2.3.
- 3.2.4.3 Any floor supported on the ground shall be constructed of impervious units consisting of slabs, bricks, natural stone, or other approved material of thickness of not less than 50mm.
- 3.2.4.4 If the floor to which sub-article 3.2.4.3 applies is constructed in concrete, such concrete shall have a minimum characteristic strength of not less than 15 N/mm<sup>2</sup> at the age of 28 days and the concrete floor slab shall be a minimum of 100mm in thickness.
- 3.2.4.5 In every building, the lowest floor in every part of the building shall resist the passage of moisture from the ground.
- 3.2.4.6 The requirement of sub-article 3.2.4.5 shall be deemed satisfied if a floor, being a solid floor, is itself or its finishes, impervious to moisture or a damp proofing layer of approved type is inserted within the thickness of the floor.

### 3.2.5 Walls

- 3.2.5.1 The height of a wall shall be measured in the following manner:
- the height of the lowest or only storey shall be measured from the underside of that part of the wall that immediately rests upon the footings, that is the base, to the highest part of the wall;
  - the height of any other storey shall be measured from the level of the underside of the floor structure above it or, if there is no storey, to the highest part of the wall, or in a storey comprising a gable to half the height of the gable;
  - the height of a party wall comprising a gable shall be measured from its base to the base of the gable,
  - the height of any other wall comprising a gable shall be measured from its base to its highest part excluding any parapet that does not exceed 1.0 meter in height.
- 3.2.5.2 The length of a wall shall be measured from the centers of dividing walls, piers, buttresses, return walls or any other members dividing the wall into distinct lengths.
- 3.2.5.3 The thickness of a load-bearing external wall, internal load-bearing wall, or party wall of any length shall not be less than 200mm, or any thickness which is structurally adequate and approved by the one stop center office, provided that the height of the wall does not exceed 3.0 meters.
- 3.2.5.4 The external wall of a building of not more than one storey in height, whose width in the direction of the span of the roof does not exceed 10.0 meters, and whose height does not exceed 3.0 meters, or a veranda, loggia, garage, greenhouse, tool shed, fuel store, water closet, lavatory, or wash-house which does not exceed 3.0 meters in height, and is attached to the house, shall not be less than 100mm in thickness subject to the following conditions:
- a wall exceeding 2.0 meters in height or length shall be bonded into piers not less than 200mm<sup>2</sup> in horizontal section, or where piers of greater size shall be required to give stability to the wall of such greater size;
  - where any pier is required, the piers shall be provided at each end of the wall and at intermediate distances not exceeding 3.0 meters centre to centre of the piers;
  - the roof shall be constructed so that the walls are not subjected to any thrust; and
  - no load other than the distributed loading from the roof shall be borne on the wall.
- 3.2.5.5 The thickness of a wall of an outbuilding not communicating directly with the building to which it is appurtenant shall not be less than 100mm if it does not exceed 2.0 meters in height and 3.0 meters in length.
- 3.2.5.6 The thickness of a parapet to an external wall shall not be less than 150mm or the thickness of the wall on which it is carried, whichever is lesser and its height shall not exceed six times the thickness.
- 3.2.5.7 The distance between any part of an opening or recess made in an external wall and the outer face of an external return wall shall not be less than one and one-half times the thickness of the wall in which the opening or recess is

made unless adequate support at the corner is provided by another approved method.

- 3.2.5.8 Adequate means of supporting the superstructure shall be provided over every opening and recess in an external wall or party wall.
- 3.2.5.9 The number, size or position of openings or recesses on a wall shall not impair the stability of the wall.
- 3.2.5.10 Where the requirements of sub-articles 3.2.5.1 to 3.2.5.7 of this Article are disregarded in so far as they relate to the dimensions of the construction of load bearing walls, and such walls are designed in accordance with sub-article 3.2.3.2 to 3.2.3.6 of Article 3.2.3, a certificate of good structural practice together with design calculations shall be submitted to the one stop center office by the engineer.
- 3.2.5.11 A common non-load-bearing wall, partition or individual panel shall be deemed satisfactory if the size of the wall, partition or individual panel is designed so that its length or height is not greater than the dimensions specified in the Seventh Schedule.
- 3.2.5.12 Where both the length and the height of a wall partition or individual panel exceeds the specified dimensions, the wall shall be divided into panels by vertical and horizontal supports of adequate strength and rigidity, and the individual panel shall be supported along two vertical opposite ends that shall, in addition, be attached to the main structure by bonding, inserting into a groove, or by other approved methods of fixing.
- 3.2.5.13 Hollow blocks shall not be used in the sub-structure or foundation walls.
- 3.2.5.14 The height of any foundation wall that is not designed as a retaining wall shall not exceed 1.5 meters, or where the difference in ground level including backfill exists between the two sides of a foundation wall, the difference shall not exceed 1.0 meter.
- 3.2.5.15 A foundation wall shall not have a thickness less than 200mm.
- 3.2.5.16 A masonry retaining wall, not being a basement or foundation wall of a building, shall not be erected where the ground, or fill which it retains, is subjected to imposed loads other than from pedestrian traffic within a distance equal to the height of the retained material unless the wall is designed by an engineer.
- 3.2.5.17 The requirements of sub-article 3.2.3.2 of these Regulations, for external load-bearing walls for the top or only storey in domestic buildings where the storey is to be used only for living accommodation, shall be satisfied where the wall, from the level of the floor to that of the ceiling, does not exceed 2.5 meters 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 the top or only storey may be reduced to 150mm in thickness if built in dressed stone, bricks or concrete blocks and supported at intervals of not more than 3.0 meters by a buttress, wall, column or pier.
- 3.2.5.18 The thickness of a party wall or separating wall built with bricks, concrete blocks, natural stone or any other approved materials, shall comply with the requirements of sub-article 3.2.5.3; where the external walls of any building are 150mm in thickness, the thickness of the party wall or separating wall shall also be 150mm.

- 3.2.5.19 Boundary walls and fences shall be erected in a vertical plane, shall be constructed with approved materials, and shall incorporate sufficient, securely fixed supports to ensure the stability. These structures shall not exceed a height of 2.0 m above the ground.
- 3.2.5.20 Any external walls of a building, including any parapet wall to the building, shall adequately resist the penetration of rain.
- 3.2.5.21 No wall, pier or column of a building 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.
- 3.2.5.22 The requirements of sub article 3.2.5.21 shall be deemed satisfied where any wall of the building in contact with the ground is provided with an approved damp-proofing course, which in the case of an external wall shall be continued to a height not less than 150mm above the surface of the ground adjoining the wall.
- 3.2.5.23 Where a roof truss, rafter, beam, or any other member forming part of the roof structure is supported on a wall, provision shall be made to fix the roof structure to the wall in a secure and approved manner, so that any forces to which the roof is normally subjected shall be transmitted to the wall, and to hold down the roof structure against uplift due to wind forces.

### 3.2.6 Roofs

- 3.2.6.1 The roof of a building shall be designed and constructed so as to sustain dead and imposed loads, wind or other forces to which it may be subjected.
- 3.2.6.2 The roof structure of a building shall be deemed satisfactory if designed and constructed in accordance with the requirements of Article 3.2.3 of these Regulations.
- 3.2.6.3 In every building, other than a building that sub-article 3.2.6.4 applies to, the roof shall be covered or the building shall be isolated from other buildings so as to afford adequate protection against the spread of fire into the building or to an adjoining property.
- 3.2.6.4 Where a building exceeds 1000 cubic meters in capacity or forms a block of more than two dwelling units, the roof shall be covered with material capable of affording adequate protection against the spread of fire into the building or adjoining property, and may be constructed as a single block.
- 3.2.6.5 The roof shall be deemed to satisfy the requirements of sub-article 3.2.6.3 and 3.2.6.4 if it is covered with: tiles or slabs of burnt clay; cement, metal or galvanized steel sheets; tiles of sisal-cement; or any other approved roofing materials, which are capable of affording adequate protection against the spread of fire.
- 3.2.6.6 The roof of a building shall be durable, weatherproof, and in the case of a roof with a ceiling, the latter shall be provided with a door or scuttle to allow access into the roof space.
- 3.2.6.7 The requirements of sub-article 3.2.6.6, as it relates to weatherproof roofs, shall be deemed satisfied if the roof is designed and constructed in accordance with the recommendations in the Eighth Schedule.
- 3.2.6.8 The provisions of these Regulations shall be deemed to have been satisfied in terms of the roof structure design where the spacing of roof

trusses is in accordance with the approved Construction Code of Standards.

- 3.2.6.9 Timber purlins shall have nominal dimensions not less than 75mm deep by 50mm wide and shall be spaced at centre-to-centre distances not exceeding 1.2 meters, or as prescribed in the approved Construction Code of Standards.

### 3.2.7 Stairs and Lifts

- 3.2.7.1 Any stairway, ramp or lift, including walls, screens, balustrades, wells, or shafts to the stairway, ramp or lift shall be designed and constructed so as to sustain dead and imposed loads or any other forces to which it may be subjected.
- 3.2.7.2 For the purpose of these Regulations, risers shall be constant throughout a flight and shall be measured vertically from the top of the next tread.
- 3.2.7.3 All treads shall be level and shall extend for the whole width of the stairway.
- 3.2.7.4 Tapered treads shall not be permitted in a stairway that is used as an emergency route.
- 3.2.7.5 A landing of length not less than the width of a stairway or 750mm, whichever is greater, shall be provided at each end of a flight of stairs, at any change in direction or as required in sub-article 3.2.7.7.
- 3.2.7.6 Internal landings shall be unobstructed and level, while external landings shall also be unobstructed, but may be ramped away from the lowest step at a slope not exceeding 1 to 12.
- 3.2.7.7 A series of stairs between landings shall not exceed 16 risers, and a change in direction shall be required after two successive series of stairs between landings without a turn.
- 3.2.7.8 Stairways shall be designed and constructed according to the limiting dimensions shown in the Ninth Schedule.
- 3.2.7.9 Secondary and fire escape stairways shall be of the dimensions not less than those specified for domestic buildings in the Ninth Schedule and in special circumstances, the one stop center office may allow the use of an approved type of escape ladder or any other equipment in place of escape stairways.
- 3.2.7.10 Any series of stairs rising more than 600mm shall have a continuous handrail fixed at a height of not less than 900mm above the pitch line of the stairs or top of landing; where the width of the stairway exceeds 1.0 meter, two handrails shall be provided, one on each side; and a stairway which is wider than 2.0 meters shall be divided by handrails into sections not less than 1.0 meter in width nor wider than 1.5 meters.
- 3.2.7.11 A handrail shall not encroach more than 75mm into the width of the stairway and shall be supported by a vertical baluster spaced at a distance not exceeding 125mm centre to centre.
- 3.2.7.12 A passenger lift shall be maintained and inspected once every six months by a qualified engineer and a certificate shall be issued by the engineer to the one stop center office confirming that the lift installation is in safe working order.

- 3.2.7.13 A lift shall be enclosed in shafts or wells and constructed in reinforced concrete or any other approved fire-resisting materials, except in panoramic lifts.
- 3.2.7.14 The motor chamber or any enclosure housing lift-operating gear shall be:
- a) Impervious to moisture;
  - b) Fully enclosed with approved incombustible materials; and
  - c) Cross-ventilated or adequately ventilated to the satisfaction of the one stop center office.
- 3.2.7.15 The design and construction of the lift shaft or well shall satisfy the requirements in sub-articles 3.2.3.2 and 3.2.3.4 of these Regulations.

## SECTION 3.3 BUILDING SERVICES

### 3.3.1 Plumbing and Drainage

- 3.3.1.1 All plumbing in connection with any building shall be in accordance with the Regulations for Sanitary Installations in Buildings, or any other established practice acceptable to the one stop center office authorities.
- 3.3.1.2 All drainage of foul and wastewater in connection with any building shall be in accordance with the Regulations for Sanitary Installations in Buildings or any other established practice acceptable to the one stop center office authorities.
- 3.3.1.3 An owner of a building who erects or causes to be erected a water closet, urinal or any other fixture for the purpose of disposing excreta, foul or wastewater shall comply with the requirements of the Regulations for Sanitary Installations in Buildings or any other established practice acceptable to the one stop center office authorities.
- 3.3.1.4 Where there is a piped water supply system capable of providing not less than 75 liters per person per day, a building shall have a water-borne system of excreta disposal within the curtilage of the site or the owner of the building shall install the said system.
- 3.3.1.5 Whenever a water supply distribution system capable of providing not less than 75 liters per person per day becomes available in any area where a building is situated, the one stop center office shall serve notice on the owner of the building to convert the existing method of excreta disposal to a water-borne system.
- 3.3.1.6 All water borne sewage shall be discharged into:
- A drain connected to a public sewer; or
  - A septic tank and soak away; or
  - A conservancy tank in the case where the one stop center office certifies that a public sewer shall be available within 5 years of the date of the building application.

### 3.3.2 Disposal of Contents of Chemical Toilet

- 3.3.2.1 The contents of a chemical toilet shall be disposed of in accordance with the directives of the Minister responsible for Health.
- 3.3.2.2 A soil water fitting or any compartment connected to a soil water fitting shall be constructed such that it is approachable directly from any room used for the manufacture, preparation or storage of food for humans, or used as a factory, workshop, workplace or public building.
- 3.3.2.3 A water closet compartment may have direct access to any bedroom where the water closet shall be used exclusively with the bedroom, and there shall be an additional water closet compartment for use in connection with other rooms of the building.
- 3.3.2.4 Where any soil water fitting is within a dwelling unit it shall be ventilated directly to the external air.

- 3.3.2.5 Any owner of a building who constructs a soil water fixture shall provide a compartment in which the soil water fixture shall be situated. The compartment shall have a window not less than 600mm x 300mm in size or equivalent area in its external wall.
- 3.3.2.6 In any building, other than one used or intended to be used as a dwelling unit and where a water closet is provided with sufficient means of lighting, whether artificial or borrowed, the one stop center office may permit a compartment without a window opening directly to the external air.
- 3.3.2.7 The requirements of sub-article 3.2.2.5 shall be satisfied where constant suction ventilation shall be affected by a ventilator or ventilators having a minimum size of 300mm x 300mm, and the ventilator shall open to the external air by air shaft or by any other approved method of ventilation.
- 3.3.2.8 Any owner of a building who constructs a water closet in connection with the building shall ensure the water closet fixture is installed such that the whole of the pan and trap shall be entirely above the floor level of the compartment and shall be provided with a seal made of hardwood, plastic or other approved materials, or other suitable type of seal which shall be approved by the one stop center office.
- 3.3.2.9 Notwithstanding the requirements of sub-article 3.3.2.8, the owner of any building may cause a water closet to be sunk below the floor level of the compartment in which the water closet is constructed and, in the case of a suspended floor, be supported upon a sunken part of such floor so that the upper face of the squatting slab shall be at the floor level of the compartment.
- 3.3.2.10 The floor of any water closet compartment shall be constructed of concrete with a minimum characteristic strength of 15N/mm<sup>2</sup> at the age of 28 days, be not less than 75 mm thick, and shall be finished smooth with a 12mm screed of a minimum Class 2 cement mortar, or with other approved impervious materials.
- 3.3.2.11 In any factory, workshop or other workplace, in premises where more than 20 persons work or are housed, or in any school or college of occupancy type Educational OC 3 and Industrial OC 12, a water-borne system of disposal of foul water shall be installed. The number of water closets shall be determined in accordance with the Regulations for Sanitary Installations in Buildings or other criteria acceptable to the relevant authorities, except where the water supply is not capable of providing a minimum of 75 liters per person per day, in which case the disposal of foul water shall be by ventilated improved pit (VIP) latrine or other methods acceptable to the one stop center office.
- 3.3.2.12 Where female and male persons are both employed or housed, including a school or college, there shall be provided separate latrine facilities, the entrances to which shall be effectively screened off and marked with "Women Only" or "Men Only" signs, as the case may be, with internationally recognized symbols, or both.
- 3.3.2.13 Latrines shall be located on the plot on which the building is to be erected and shall be arranged and maintained to be conveniently accessible to any person employed or housed in the building at all times during the period of employment or residence.
- 3.3.2.14 Latrines shall be located not more than 30 meters from any building in which persons are employed or housed.

- 3.3.2.15 In any school or college, no latrine shall be situated more than 15 meters away from the dormitory, or more than 30 meters from any school or college building which shall be used or intended to be used by pupils.
- 3.3.2.16 A dwelling unit shall be provided with approved latrine facilities in accordance with the requirements of these Regulations. Any owner of a dwelling unit normally employing servants shall provide latrine facilities for the exclusive use of the servants, which shall be in addition to those provided for the occupier of the dwelling unit.
- 3.3.2.17 No building containing more than one dwelling unit shall be erected or occupied without provisions being made for separate latrines for each unit.

### **3.3.3 Water-Borne System Disposal**

- 3.3.3.1 The one stop center office may, in the case of a water-borne system, require the water closets to be located inside any building housing a factory, workshop or other workplace, or inside any dormitory or teaching building of a school or college.
- 3.3.3.2 Where a public sewer is not available or accessible, but where piped water supply is adequate to provide not less than 75 liters per person per day, the method of excreta disposal shall be by water-borne system on site.
- 3.3.3.3 The method of disposal for a water-borne system shall be by septic tank and soak away, tile field, sub-surface seepage trenches, radial arms, or other approved means of subsurface disposal of effluent, or by conservancy tank, which shall be emptied regularly by a body designated for that purpose or as determined by the one stop center office.
- 3.3.3.4 All drains, drain fittings, foul water or wastewater fittings, pipes, accessories or appurtenances which shall be used in a water-borne system shall comply with the requirements of these Regulations and the Regulations for Sanitary Installations in Buildings or any other approved standards.

### **3.3.4 Construction of Plumbing or Drainage Installation**

- 3.3.4.1 In all cases the plumbing or drainage installation of any building shall be constructed to the satisfaction of the one stop center office authorities and the installation shall not be used by the owner of the building prior to approval.
- 3.3.4.2 A septic tank or other works for the treatment, reception or disposal of sewage shall not be constructed except by permission of the one stop center office and only subject to such conditions as may be imposed.
- 3.3.4.3 A septic tank or other installations for the disposal of sewage shall not be constructed under any building, within 3 meters of any building or plot boundary, or within 50 meters of any well, spring, stream or water used or likely to be used for drinking, domestic purposes, or in the manufacture of drinks, or in any such position as to cause pollution of water.
- 3.3.4.4 No drain, surface channel, or any other means of conveying rainwater or surface water shall discharge into a septic tank.
- 3.3.4.5 An owner of a building who constructs a septic tank or related installation shall do so in a manner and in a position to afford means of access to the septic tank for the purpose of cleaning or removal of the contents of the septic tank, residue, or sludge, and shall cause the septic tank and

subsurface installation or any works with respect to the treatment and disposal of sewage to be sufficiently covered, ventilated or protected to prevent any nuisance from the septic tank or the possible breeding of mosquitoes in the septic tank.

3.3.4.6 The walls, floor, and roof of any septic tank, conservancy tank, or effluent tank for the reception of sewage or for containing any filtering medium, shall be constructed of impervious materials or shall be rendered impervious by waterproofing with approved materials and methods.

3.3.4.7 The design and construction of a septic tank or installation for the treatment and disposal of sewage shall be in accordance with the Regulations for Sanitary Installations in Buildings, or any other guidelines as laid down by the one stop center office authorities.

3.3.4.8 The requirements of sub-article 3.3.4.2 shall be deemed satisfied where:

- a) a septic tank is constructed with two compartments proportioned such that the volumetric ratio of the first to the second compartment is 2:1, and the total capacity of the septic tank is based on a retention period of not less than 24 hours or 2000 liters, whichever is the greater;
- b) the ratio of the width of the tank to its length shall range from 1:2 to 1:3;
- c) the Inlet and outlet pipes shall be positioned on the longitudinal centre line of the septic tank and the ends shall consist of tees fitted with screwed caps, with the barrel of the tees submerged not less than 300mm at the inlet or 100mm at the outlet;
- d) the height of the dividing wall in the septic tank shall be curtailed not less than 75mm below the soffit of the roof slab; and
- e) the inter-connection between the two compartments shall be through 100mm diameter sleeves or 100mm square apertures in the dividing wall, spaced at not less than 300mm centre to centre, and the height (H) from the floor of the septic tank to the inverts of the inter-connecting sleeves or apertures shall be determined using the following formula:

$$H = h + 0.25 \text{ in meters,}$$

Where  $hA = NSP$

N = Number of years before desludging (min. 3 years)

A = Area of sludge chamber

P = Number of users

S = Rate of sludge build up (0.04 m<sup>3</sup>/person/year)

### 3.3.5 Kitchen Waste Water

3.3.5.1 Wastewater from any kitchen shall be discharged into a separate soakage pit or other sub surface seepage methods or an evapotranspiration system as approved by the one stop center office.

### 3.3.6 Storm Water Disposal

3.3.6.1 An owner of a building shall make provisions for the whole of the building and site to be effectively drained by the construction of storm water, surface water, and subsoil water systems, which shall be connected to an available outfall.

- 3.3.6.2 In all cases where the slope of the ground is steeper than 1:20, the owner shall construct a cut-off drainage system.
- 3.3.6.3 The cut-off drain shall be earthen or precast units, in-situ concrete or any other materials as approved by the one stop center office.
- 3.3.6.4 The design of the drain shall be based on the slope of the ground, the area of the immediate watershed of the drain, and the maximum intensity of rainfall in the catchment area.
- 3.3.6.5 The drainage installation shall be constructed and maintained at the cost of the owner, and where the drain is common to two or more plots it shall be constructed and maintained jointly by the owners of plots served by the drain.
- 3.3.6.6 The size, slope, and outfall location and design of any drain, whether individual or common, shall be submitted for approval by the one stop center office in accordance with the provisions of sub-article 3.1.1.1(e).
- 3.3.6.7 The one stop center office may, notwithstanding the installations on the approved plans, order the installation of additional storm water, surface water, or subsoil water drainage system on the plot in order to prevent the breeding of mosquitoes or remove any nuisance or hazard the one stop center office may determine exists.
- 3.3.6.8 A drainage system for surface water from the roof of any building or paved surfaces shall conform to the requirements of the Regulations for Sanitary Installations in Buildings or to any approved building practice.
- 3.3.6.9 A roof of any building and of any profile, or any other surface susceptible to rainfall such as canopies, carports, balconies or terraces, shall be constructed to drain effectually to suitable gutters to carry water away from the building and any doorway, window or walkway, except where an apron of concrete or other approved impervious material shall be provided to protect the foundations and the building, and the water can be prevented from entering the building, doorway or window, or falling on any walkway.
- 3.3.6.10 Where a gutter has been provided, it shall be connected to a sufficient number of down pipes which shall be sized and located to carry away any water which may fall on the roof or any other building surface and discharge it into approved drainage without causing dampness in any wall, foundation, opening, or walkway of the building.
- 3.3.6.11 An apron constructed pursuant to sub-article 3.3.6.9 of these Regulations shall be sloped away from the plinth of the building and shall discharge into a surface channel drain or any other approved drainage system.
- 3.3.6.12 All water collected from any roof or paved area shall be carried off the curtilage of any building in the manner approved by the one stop center office.
- 3.3.6.13 The owner of a building or premises shall maintain all gutters and down pipes on the premises free of any blockage or obstruction, and the water shall not stagnate or accumulate in the gutters or down pipes.
- 3.3.6.14 Eave gutters and down pipes shall be made of galvanized iron, mild steel, concrete or cast iron, approved by the one stop center office, and shall be coated or lined with a durable material.

- 3.3.6.15 An eaves gutter shall be supported by suitable means spaced at not more than 1.0 meter centre to centre and shall be properly aligned to have a continuous and even fall to the point of discharge, which shall be located to serve every 10.0 meters in the length of the eaves gutter.
- 3.3.6.16 Down pipes or gutters on any building shall not project beyond the limits of the plot on which the building is erected.

### 3.3.7 Refuse Disposal

- 3.3.7.1 Where a storage area for refuse containers has been provided, it shall be constructed so that it affords protection against any element, weather, scavengers and other vermin, and shall be capable of being maintained in hygienic conditions.
- 3.3.7.2 Any refuse chute shall be designed and erected so as to be safe in operation, and shall be self cleansing.

### 3.3.8 Rat Proofing

- 3.3.8.1 Every building or part of a building shall be constructed so as to effectively prevent the ingress, passage or harborage of rats or other vermin.
- 3.3.8.2 Where a building has been constructed for purposes of storage of material which is likely to attract rats or other rodents, the building shall, in addition to the requirements of sub-article 3.3.8.1, be separated from any part of any dwelling unit and shall have its external door, where made of wood, adequately protected with metal plates or other approved methods, so as to prevent rats or other rodents from gnawing a passage through the door; the door shall be hung so that no gap exceeding 15mm shall be left between the underside of the door and the floor of the building.

### 3.3.9 Glazing

- 3.3.9.1 Any material used in the glazing of any building shall be secure, durable and shall be fixed in such a manner and position that it shall sustain wind and other loads to which it shall be subjected and shall not permit the penetration of water into the building.
- 3.3.9.2 Where any glazing is likely to be subjected to human impact, such glazing shall be reinforced or toughened using approved methods, and the one stop center office may require evidence to be produced of such reinforcement or toughening by the owner of the building.
- 3.3.9.3 Notwithstanding any provisions of these Regulations, any panel of glazing exceeding 1.0 square meter in area in any building shall be constructed with safety glazing material.
- 3.3.9.4 In any building where a pane of glass shall be exposed to wind or a potential impact, the thickness of the glass shall be selected in accordance with approved Standards or Codes of Practice, and the relationship of the thickness of the glass pane and its size shall not deviate from that shown in the Tenth Schedule. In addition, the frame supporting the panel of glazing shall be capable of sustaining any loads it might be subjected.

### 3.3.10 Heating

- 3.3.10.1 Any system of heating in a building shall be designed, constructed and installed to operate safely, and any flue, flue pipe or chimney used in the system shall be designed to remove any smoke, fumes or noxious gases without causing harm to the building or creating a hazard.
- 3.3.10.2 Any flue pipe designed or installed in connection with the heating of a building shall be such that it shall not cause a fire hazard to any adjacent material and shall not be connected to any shaft or duct that forms part of a ventilation system.
- 3.3.10.3 A chimney, which is within or is attached to any building, shall be designed or constructed of non-combustible material and it shall be installed in such a manner that it will not cause a fire hazard to any adjacent material.
- 3.3.10.4 Where the walls of a chimney in any building are comprised of masonry, the walls shall be solid masonry units not less than 100mm in thickness, internally lined with approved non-combustible material capable of withstanding any action of the flue gases, and shall resist, without cracking or softening, the temperature to which it shall be subjected.
- 3.3.10.5 The height of a chimney outlet shall not be less than 1.0 meters above the highest point of contact with any roof of a building, the highest point of any window or of any roof light capable of being opened, any ventilation inlet situated in a roof or in an external wall except that, in addition, the horizontal distance from the nearest window, roof light, or inlet to the chimney outlet shall not be less than 2.0 meters.
- 3.3.10.6 Every fire place used for the burning of solid fuel shall have a hearth made of non-combustible material of approved thickness, and the hearth shall extend not less than 500mm in front of the grating or fire basket and not less than 300mm on either side of the grating or fire basket.

### 3.3.11 Comfort Levels

- 3.3.11.1 Building materials shall have insulating qualities, attested by an approved laboratory; so that where the material is used in the construction of any building it is capable of balancing the extremes of temperature effects in the building to tolerable levels as approved by the one stop center office.
- 3.3.11.2 If the insulating materials used in a building are other than those used in generally accepted practice and if the plans submitted do not illustrate the required performance adequately, the one stop center office may require the owner of a building to superimpose other insulating materials or adopt other acceptable solutions in order to enhance the level of comfort in a building.

### 3.3.12 Lighting and Ventilation

- 3.3.12.1 A room of any building shall have in the external walls an adequate number of openable windows that shall be of such size as to afford effective lighting of the room and ventilation by communication with external air.
- 3.3.12.2 The requirements of sub-article 3.3.12.1 shall be deemed satisfied where overhead sky lighting has been provided in the stairway, bathroom, larder or water closet, backup lighting is provided, and artificial ventilation has been installed in the room as approved by the one stop center office.
- 3.3.12.3 An owner of a building, which will be used as factory, warehouse, workshop, or other workplace, shall provide adequate and efficient means of lighting and ventilation.
- 3.3.12.4 All windows intended for the purpose of lighting or ventilation shall open directly to external air, shall be glazed or provided with wooden shutters or other approved shutters, and shall have a total area of not less than 10% of the floor area of the room.
- 3.3.12.5 The one stop center office shall have the right to order the provision of additional window area in the case of a factory, workshop, or other workplace, and waive the requirements of sub-article 3.3.12.4 with respect to openable window area where a shop has one or more display windows, provided that the door of the shop is kept open in full at all times during the normal hours of business.
- 3.3.12.6 An owner of a dwelling unit shall, in addition to any requirements of these Regulations, provide permanent ventilation opening to any habitable room, passageway, hall or stairway.
- 3.3.12.7 In the case of factory, workshop, or other workplace where a substantial amount of heat will be generated, a permanent roof ventilator with a total area of not less than 2% of the floor area of the factory, workshop or workplace shall be provided.
- 3.3.12.8 Notwithstanding the provisions of these Regulations, the one stop center office may permit the installation of an approved artificial ventilation system in any factory, workshop, or places of public assembly where the artificial ventilation system has been designed by a qualified engineer.

### 3.3.13 Public Safety

- 3.3.13.1 Protection at the edges of a balcony, bridge, flat roof, retaining wall or similar member of any building or structure shall be provided with a balustrade, parapet or other approved protection to prevent any person from falling from the balcony, bridge, flat roof, retaining wall or similar member of the building or structure.
- 3.3.13.2 In all public buildings, changes in level on flat surfaces where users walk should be indicated or designed according to standards as to avoid wrong footings resulting in injuries.
- 3.3.13.3 Where a pedestrian entrance is provided to a vehicle parking area in any building, the entrance shall be so positioned, marked and protected so that a pedestrian shall not unintentionally walk into the path of a moving vehicle.

- 3.3.13.4 All ramps or driveways shall be designed to be safe and fit for the purpose for which it is intended. The maximum grade for ramps for disabled persons shall be 1:12.
- 3.3.13.5 An owner of a site which contains a swimming pool or swimming bath shall provide adequate access to the pool or bath and shall control access at all times.
- 3.3.13.6 All public buildings have the obligation to have systems protecting them against lightning; these buildings should also incorporate all measures intended to guarantee the safety of persons with disabilities.

### 3.3.14 Dimension

- 3.3.14.1 Any room or space shall have dimensions that will ensure that the room or space is adequate for the purpose for which it is intended.
- 3.3.14.2 The floor area of any domestic building or dwelling house shall not be less than that necessary to provide one habitable room and a separate room containing toilet facilities. The floor area shall be determined on the basis of plan dimensions between wall surfaces without finishes, and shall not include any area occupied by built-in cupboards, wardrobes, cabinets or any dividing wall.
- 3.3.14.3 Any habitable room other than a kitchen, scullery, or laundry, shall have a floor area not less than 10.0 square meters, provided that the minimum horizontal dimension of the habitable room in any direction shall not be less than 2.5 meters.
- 3.3.14.4 The height of any room or space in a building shall not be less than that prescribed for the room or the space requirements in the Eleventh Schedule and shall have a vertical dimension measured from the top of the finished floor to the lowest point on the underside of the roof, ceiling or roof structure.
- 3.3.14.5 The total area of any dwelling unit shall not be less 15.0 square meters in the case of a temporary building or 30.0 square meters for all other dwelling units.

### 3.3.15 Facilities for Persons with Disabilities

- 3.3.15.1 Facilities for persons with disabilities shall be included in the design and construction of any public building, hotel, dormitory or any other building where a group of persons are accommodated.
- 3.3.15.2 An owner of a building shall, pursuant to sub-article 3.3.15.1, provide means of access that shall be suitable for use by persons with disabilities, including one confined to a wheelchair or one who is unable to walk, negotiate up or down stairs, from the outside of the building up to the main entrance door, or from any parking area within the building to the main entrance door, whether the building entrance door is on the ground level storey or any other storey.
- 3.3.15.3 The principal entry to any building shall be clearly sign posted and designated to enable a person with a disability to easily locate and use the entrance.

- 3.3.15.4 Suitable toilet facilities, which shall be purpose-designed and constructed for persons with disabilities, shall be provided in the building and shall be accessible to disabled persons without requiring assistance.
- 3.3.15.5 Where parking for motor vehicles used by persons with disabilities has been provided, the route to the facility or to any space that is provided to accommodate wheelchairs shall be free of any obstruction that may impede or endanger the travel of persons with disabilities.
- 3.3.15.6 The one stop center office may grant an exemption from the requirements of the Regulations for any building that is not designated as a home or hospital for persons with disabilities, provided that the exemption shall be granted only upon application, which shall specify the Regulation from which such exemption is sought.
- 3.3.15.7 The requirements of sub-article 3.3.15.2 shall be deemed satisfied where a ramp not less than 1.2 meters in width is provided for the use of persons with disabilities in wheelchairs, is constructed at a gradient not steeper than 1:12, and is finished with a non-slip surface.
- 3.3.15.8 The treads of any stairway in a public building, hotel, dormitory, or any building in which a group of persons are accommodated or work shall be designed and constructed to have the edges of the treads delineated by contrasting color from the color of the remainder of the tread, and the one stop center office may require that the handrail to any stairway be labeled in Braille at each floor level to show the floor number.
- 3.3.15.9 Pursuant to sub-article 3.3.15.4, the number of toilets or sanitary facilities that must be provided for persons with disabilities in wheelchairs shall be determined in accordance with the Twelfth Schedule, and for any building that will be used as a hotel, lodging or hostel, not less than one guest room for every 100 guest rooms shall be designed, constructed or adapted for use by persons with disabilities.
- 3.3.15.10 Counters, front desks and front checkouts should be at a maximum height of 0.8 meters to allow use by a person in wheelchair the possibility to bring his or her arms to the edge of the counter.
- 3.3.15.11 At least one checkout counter in every shop should be 1.0 meter wide to allow wheelchair and buggy access.

### **3.3.16 Occupancy in Hotel, Apartment**

- 3.3.16.1 The one stop center office shall not permit more than one type of occupancy in a building that is to be used as a hotel, service apartment, lodging or any other place where a furnished room is rented.

## **SECTION 3.4 FIRE PROTECTION**

### **3.4.1 General Provisions**

- 3.4.1.1 All buildings shall be designed and constructed so that the occupants are protected against fire and can be easily evacuated from the building, the fire protection systems are capable of minimizing the out-break or spread of fire to any adjacent building, and the building can retain sufficient structural stability in the event that the building catches fire.

- 3.4.1.2 The requirements of sub-article 3.4.1.1 shall be deemed satisfied where suitable equipment and means of access for the purpose of fighting or extinguishing a fire in any building is provided, and the fire protection plan is prepared by a qualified engineer or by other person whose qualifications and experience shall be approved by the one stop center office.
- 3.4.1.3 The occupancy classification for any building shall be classified and designated in accordance with the provisions of Article 3.1.12 and in the event of any doubt or dispute regarding the classification of occupancy for any building, the one stop center office shall determine the classification of occupancy and advise the owner of the building accordingly.
- 3.4.1.4 All external walls of a building shall have a fire resistance rating in accordance with the Thirteenth Schedule of these Regulations.
- 3.4.1.5 Where an external wall of any building does not contain a window or other opening, the wall shall have a fire resistance rating as indicated in the Thirteenth Schedule of these Regulations and the wall may be erected without any distance restriction from any lateral boundary of the site, or from any other building on the same site.
- 3.4.1.6 Any external wall of a building that has a window or other opening shall be erected with a distance restriction as indicated in the Fourteenth Schedule of the Regulations, except where the external wall faces a public open space, where all windows or openings in the in the wall are protected with fire shutters, or where the external wall faces a boundary wall that is constructed of non-combustible material.
- 3.4.1.7 Where any division of a building is equipped with a sprinkler system or any other fire fighting system as approved by the one stop center office, the requirements of sub-article 3.4.1.6 shall be deemed satisfied and the minimum distances prescribed in the Fourteenth Schedule shall be reduced by 50% or 2.0 meters, whichever is the greater.
- 3.4.1.8 The fire resistance rating as prescribed in the Thirteenth Schedule of the Regulations shall not be applicable where the distance to any external wall of a building from the plot boundary or from any other building on the same site shall be greater than the appropriate distances indicated in the Fourteenth Schedule of the Regulations.
- 3.4.1.9 Where a building has a total capacity in excess of 6,000 cubic meters, the building shall be divided into divisions of not more than 6,000 cubic meters, which shall be effectively separated from one another by approved separating elements, and the building shall be protected by a permanent installation of automatic fire extinguishers.
- 3.4.1.10 The provision of sub-article 3.4.1.9 shall not apply in the case of any building which falls in occupancy sub-class OC14, OC28 and OC29, or any building in occupancy sub-class OC15, OC16 and OC17 that has an internal capacity not exceeding 1,500 cubic meters and is divided into interconnected divisions, each of which shall not have a capacity exceeding 1,500 cubic meters and are interconnected.

### **3.4.2 Fire Resistance**

- 3.4.2.1 Any requirement in these Regulations requiring a structural member of a building to have a fire resistance of a specified period shall be construed as requiring that member to be capable of resisting the action of fire on the member for the period under test conditions appropriate to that member in accordance with approved Standards or established procedures of testing.

- 3.4.2.2 In these Regulations, a non-combustible condition as it relates to a structural member shall be construed as the member being composed entirely of a non-combustible material excluding the lining, facing, or any other finishes.
- 3.4.2.3 A member of any building shall satisfy the appropriate requirements in the Fifteenth Schedule of the Regulations with respect to notional periods of fire resistance for the various types of construction.

### 3.4.3 Fire Performance

- 3.4.3.1 Any element or component of a building that is required to have a particular fire resistance shall, with respect to the materials or method of construction, be deemed satisfied where the element or component complies with the provisions of Article 3.4.2 of these Regulations.
- 3.4.3.2 Any portion of a building falling under the occupancy classes listed below shall be separated by means of an occupancy separating element from any portion of the building used for any other occupancy class:
- |                   |                          |
|-------------------|--------------------------|
| a) Assembly:      | OC1, OC2, OC4, OC9, OC10 |
| Educational:      | OC3                      |
| b) Assembly:      | OC5                      |
| c) Mercantile:    | OC6, OC7, OC8, OC20      |
| Industrial:       | OC11, OC12, OC13, OC14   |
| Business:         | OC18, OC19, OC21         |
| d) Institutional: | OC15, OC16, OC17         |
| e) Residential:   | OC22, OC23, OC24, OC25   |
| f) Storage:       | OC26                     |
| h) Storage:       | OC27, OC28 and           |
| Mercantile:       | OC29                     |
- 3.4.3.3 The fire resistance rating of an occupancy separating element shall be in accordance with the Sixteenth Schedule of the Regulations and the value to be used shall be appropriate to the occupancy class on each side of the separating element.
- 3.4.3.4 In the case of a division separating element, the requirements of these Regulations shall be deemed satisfied where the fire resistance rating is in accordance with the Seventeenth Schedule.
- 3.4.3.5 Any structural element or component that will directly support or adjoin any separating element shall be of the same fire resistance rating as the supporting or adjoining separating element.
- 3.4.3.6 Any structural element or component that is located in a building shall satisfy structural requirements with respect to stability for a period not less than that illustrated in the Eighteenth Schedule for the corresponding height of the building; the component shall not include a mezzanine floor.

### 3.4.4 Fire Resistant Walls

- 3.4.4.1 A wall in a building that separates one tenant from another shall have a fire resistance rating of not less than 1.0 hour.
- 3.4.4.2 A partition wall in any building intended for use as a place of detention, hospital or residence for persons with disabilities shall have a fire resistance rating of not less than 1.0hour.
- 3.4.4.3 Any partition wall erected in a building above the third storey shall be non-combustible.
- 3.4.4.4 Where there is an opening in any separation wall, the opening shall be provided with a suitable fire door or fire-shutter, which shall be fitted with an approved self-closing or automatic closing device.
- 3.4.4.5 The one stop center office may permit the use of combustible material in a suspended floor of a building if it is designed or constructed to accommodate two or more dwelling units and does not exceed two storeys in height, or in a detached dwelling house where such a floor shall be directly above ground level or above a non-combustible floor slab.

### 3.4.5 Non-Combustible Roof

- 3.4.5.1 The roof assembly in any building shall have a fire resistance rating of not less than 30 minutes and where the roof assembly exceeds 10.0 meters in height, it shall be constructed with non-combustible materials.
- 3.4.5.2 Where any approved combustible materials are used as a roof covering of a building, the distance between the building and its site boundary shall not be less than 4.5 meters.
- 3.4.5.3 In the case of any building exceeding 10.0 meters in height or that has a roof area exceeding of 500 square meters, the roof covering material shall be constructed with reinforced concrete or other approved non-combustible materials.
- 3.4.5.4 A suspended ceiling and the supporting members of a building shall be of non-combustible materials.
- 3.4.5.5 A fitted floor covering in any building shall comply with the requirements in approved Standards or Codes of Practice for fire protection, and the one stop center office may require proof of compliance by a test to be undertaken by a competent person or testing facility.
- 3.4.5.6 Any combustible wall lining or decorative finish in a building shall comply with the approved Construction Code of Standards.
- 3.4.5.7 Notwithstanding the requirements of sub-article 3.4.5.4, the one stop center office has the right to require the testing of a wall lining or decorative finish to be carried out by a competent person or testing facility to prove compliance.

### 3.4.6 Escape Routes

- 3.4.6.1 Any room of a building shall have access to a feeder route that leads to not less than two independent emergency routes, and in the case such a room is provided with more than one exit door, those doors shall be situated as far apart as practicable.

- 3.4.6.2 The floor of any feeder route shall have an approved non-slip surface and the ceiling shall be finished with approved non-combustible materials.
- 3.4.6.3 All buildings shall have two or more entirely independent emergency routes that shall be arranged such that one route remains usable or accessible at all times.
- 3.4.6.4 The components comprising an emergency route in any building shall be arranged such that they discharge directly into one another, with the last component of an emergency route discharging at ground level directly into a street or to an approved public place.
- 3.4.6.5 The minimum width of any component of an emergency route in any building shall not be less than 1.2 meters.
- 3.4.6.6 The population of a room, storey or part of building and the required minimum width of any component of an emergency route serving the room, storey or part of a building shall be calculated in accordance with guidelines from the approved Construction Code of Standards.
- 3.4.6.7 Where more than one emergency route discharges into a common component, the width of the component and any subsequent components shall be situated along the direction of egress and shall be calculated using the resultant cumulative population, except that in the case of a stairway, the population to be used in the calculation of the component width shall be that of the most densely populated storey.
- 3.4.6.8 The travel distance from any point in a room or storey to a point of access to an emergency route shall not be more than 40.0 meters.
- 3.4.6.9 A wall, floor or ceiling of an emergency route in any building shall have a fire resistance rating of not less than 2 hours.
- 3.4.6.10 The floor of any component of an emergency route shall have a non-slip finish and shall be free of any projections, indentations, hollows or coverings that may cause a person to fall.
- 3.4.6.11 Any emergency route shall have a clear vertical headroom throughout its length of not less than 2.1 meters.
- 3.4.6.12 Any building with a storey above or below the ground level shall be served by not less than two separate stairways, with the entrance to the emergency stairway not be less than 5.0 meters from the entrance to any other stairway.
- 3.4.6.13 The distance from any point of floor level change to a doorway in an emergency route, or between any two points of floor level change, shall not be less than 1.5 meters.
- 3.4.6.14 A curved or winding stairway shall not form part of an emergency route.
- 3.4.6.15 Where a lobby foyer or vestibule is a component of one or more emergency routes, the lobby foyer or vestibule shall have a minimum size equivalent to the combined width of all emergency routes discharging into it.
- 3.4.6.16 Any enclosed stairway that is not pressurized and that is a component of an emergency route in a building shall not exceed 30.0 meters in height, and shall be provided with a ventilation opening of an area not less than 1.0 square meters or an approved roof ventilator.

- 3.4.6.17 Where an enclosed stairway has a component of an emergency route in any building exceeding 30.0 meters in height, the stairway shall be provided with an approved pressurized system that shall operate automatically in the event of a fire in the building.
- 3.4.6.18 A pressurization system in any building shall be provided with approved emergency power supply that shall be independent of the normal mains supply and shall be capable of operating safely for a period of not less than 2 hours.
- 3.4.6.19 Where in any building an escalator or stairway does not form part of an emergency route, such escalator or stairway shall not connect more than two storeys when the building is not protected by an approved sprinkler system.
- 3.4.6.20 A public or other building where a group of persons will work or be accommodated shall be designed and constructed such that adequate provisions be made for exit doors that are not less than 1.2 meters in width and that will be used as a component of the escape routes in the event of a fire. The number of exit doors shall be determined in accordance with the Nineteenth Schedule of the Regulations.

### 3.4.7 Fire Alarm

- 3.4.7.1 The water supply to fire extinguishing equipment in any building shall be designed and installed to be independent of the domestic water supply network in the building.
- 3.4.7.2 The fire extinguishing system in any building shall be equipped with automatic pump starting mechanisms and shall be fitted with an alarm system designed to emit a continuous audible warning whenever any pump installed in the system is activated.
- 3.4.7.3 The reflux valve in a fire extinguishing system in any building shall not be positioned to prevent the flow of water from a fire-pump connection to a hydrant valve or fitted hose reel that is connected to the system.
- 3.4.7.4 Where a hose reel forms part of the fire fighting installation in any building, its shall be installed at a quantity of not less than one per storey or one for every 500 square meters of floor area, whichever is the greater, and shall comply with the relevant provisions of the approved Construction Code of Standards.

## SECTION 3.5 ELECTRICAL INSTALLATIONS

### 3.5.1 Mains Supply

- 3.5.1.1 The mains supply switch for the electrical installations of any building shall be easily accessible and situated adjacent to the consumer control unit.
- 3.5.1.2 Circuit breakers shall be provided on each line of conductors for the mains supply at the point of entry.
- 3.5.1.3 Switchboards shall be located in dry and ventilated spaces.
- 3.5.1.4 Switchboards and distribution boards for all circuits and sub-circuits shall be protected against over current and earth faults.

**3.5.2 Wiring**

- 3.5.2.1 Conductors, switches and accessories shall be of a size capable of carrying, without their respective ratings being exceeded, the maximum current that will normally flow through them.
- 3.5.2.2 The mains circuit and sub-circuits in a building shall be provided with leakage protective devices that, on the occurrence of an earth fault, disconnect the defective circuit from the supply.
- 3.5.2.3 Metalwork not intended to conduct electricity, but is liable to be in touch with an exposed wire, shall be earthed.

## **PART 4 CONSTRUCTION**

### **SECTION 4.1 TESTS AND REPORTS**

#### **4.1.1 Test Report**

- 4.1.1.1 Where the one stop center office is not satisfied with the adequacy or safety of any construction system, method, material, article or product which is proposed to be used or incorporated in any building, it may require a test report, evaluation or compliance certificate.
- 4.1.1.2 The requirements of sub-article 4.1.1.1 shall be deemed satisfied where an appropriate report or certificate has been issued by an approved institution in charge of standards, an approved research centre or laboratory as to the adequacy and safety of the system, method, material, article or product.

#### **4.1.2 Street Levels**

- 4.1.2.1 Where a street has been constructed, but in the opinion of the one stop center office is likely to be reconstructed at a level different from the existing, the one stop center office shall give notice of that fact to the owner, and in the notice it shall supply the level to be used in the construction of the portion of the street at the building site.

#### **4.1.3 Building Materials and Tests**

- 4.1.3.1 Any material used in the erection of a building shall be of a quality adequate for the purpose for which it is to be used. When possible, the promotion of local construction materials should be given priority.
- 4.1.3.2 Structural timber shall be treated by an acceptable method against termite and woodborer attack and fungal decay, and where required proof of the treatment shall be submitted to the one stop center office.
- 4.1.3.3 The requirements contained in sub-article 4.1.3.1 of these Regulations shall be deemed satisfied if such material complies with the relevant approved standard specification.
- 4.1.3.4 The one stop center office shall have the right to test or to have tested any material or component used or to be used in any building operations in order to determine whether the material or component complies with the requirements of these Regulations.
- 4.1.3.5 The one stop center office may, at any time after notifying the person erecting any building where a material or component is to be tested, request the removal from the building site the material or component necessary for the purposes of the test.
- 4.1.3.6 If any material or component ordered tested does not comply with the requirements of these Regulations, the one stop center office may serve a notice on the owner of the building indicating the materials that did not comply with the requirements of the Regulations, thereby prohibiting such person from making any further use of such material or component for the purpose for which it was or is to be used in the erection of the building.
- 4.1.3.7 Except where the one stop center office permits the use of the materials or components referred to in sub-article 4.1.3.6 for some different purpose permitted under these Regulations, the owner of the building shall forthwith

on receipt of the notice served under sub-article 4.1.3.6 remove the material or component from the building or building site.

- 4.1.3.8 The cost of testing any material or component in accordance with sub-article 4.1.3.5 shall be recoverable from the person erecting the concerned building.
- 4.1.3.9 Where a person erecting any building desires to use for a particular purpose any material or component that is not permitted or prescribed by these Regulations, or is not on a list of permitted materials issued by public notice by the one stop center office to be used for that purpose, but can satisfy the one stop center office that such material or component is suitable for that purpose, then the one stop center office may approve the use of such material or component for the purpose concerned, with the cost of the proof being borne by the person erecting the building.

## SECTION 4.2 SITE ACTIVITIES

### 4.2.1 Construction

- 4.2.1.1 Where the construction of any building or element of a building is carried out in compliance with the requirements of any relevant approved standard or code of practice, such construction shall satisfy the requirements of these Regulations in regard with the construction methods and workmanship.
- 4.2.1.2 All workmanship associated with the erection of any building shall be in accordance with acceptable building practices.
- 4.2.1.3 Any building, including any structural element or component of a building, shall be constructed to comply with the design requirements of Part 3 of these Regulations.
- 4.2.1.4 Where any approved standards, code of practice or accepted document has been used as a basis for the design of any building, any construction procedure described in the approved standard, code of practice or accepted document shall be observed in the erection of the building.
- 4.2.1.5 Precautions shall be taken during all stages of construction of any building to ensure that the structural system is not damaged or distorted during the course of erection of the building.
- 4.2.1.6 The following shall apply in respect to scaffolding:
- a) proper scaffolds shall be provided for all work that cannot be done safely on or from the ground or from a ladder;
  - b) the working platforms and gangway scaffolding shall not be less than 500 mm wide and when over 2.0 m in height, shall be provided with toe board and guard rails on any open side;
  - c) the one stop center office may prohibit the erection, use or employment of any scaffolding, staging, shoring, crane or other lifting apparatus, that may cause damage to persons or property; and
  - d) all scaffolding on a building operation more than 6.0 m above the ground shall be constructed in approved steel.
- 4.2.1.7 Any person who constructs or makes an alteration to a building shall erect and maintain hoardings throughout the execution of the works as necessary to protect the public, except that no hoardings shall be erected at any street

without the written permission and to the satisfaction of the one stop center office.

- 4.2.1.8 A signpost as designed by the architect shall be erected at the commencement of construction activities, displaying the name of the project, client, designing and supervising architect, consulting engineers including structural engineers, surveyor and contractor.

## 4.2.2 Notice of Activities on Site

- 4.2.2.1 No building operation shall be commenced unless a notice, in the form required by the one stop center office, has been filed with by the owner of the building, which states the date on which the building operation will commence.

- 4.2.2.2 The notice, in the case of the construction of a building, shall be given at least two working days before erection commences, and in the case of demolition at least seven working days before commencement.

- 4.2.2.3 Construction work shall not proceed beyond any stage if that stage has not been inspected and approved by the one stop center office for structural, electrical, plumbing and drainage works.

- 4.2.2.4 The notices requesting inspection shall be made on a form supplied by the one stop center office and shall be submitted by the owner of the building operations at least two days before any inspection is due.

- 4.2.2.5 The stages to be inspected shall be as specified in the following items:

- a) For small and residential buildings:

- i) surveying or setting out the buildings;
- ii) completion of excavations for foundations;
- iii) completion of electrical installations;
- iv) completion of plumbing and drainage installations when ready for testing; and
- v) Practical completion before occupation.

- b) For reinforced concrete and steelwork structures,

- i. Site Installation;
- ii. Excavation and Leveling;
- iii. Compaction and Embankment
- iv. Trenching and Soil treatment
- v. Foundation Works and Rough Plumbing
- vi. Framing
- vii. Mechanical, Electrical, Plumbing, IT facilities
- viii. Fire Protective measures and PWD's facilities
- ix. Interior and Exterior Finishes
- x. Landscaping

- 4.2.2.6 The one stop center office may carry out tests or inspections as deemed necessary.

### **4.2.3 Demolition Work**

- 4.2.3.1 No owner of any building or site shall demolish, or cause or permit to be demolished, any building without a request filed on a form supplied by the one stop center office, or without giving notice to the one stop center office of the demolition.

- 4.2.3.2 The one stop center office, in granting such permission to demolish, may impose any condition or requirement that it shall deem necessary for the purposes of safety, health and convenience of the public and for the safety of any other building or installation that may be affected by the demolition.
- 4.2.3.3 No person shall at any time during the course of or after the demolition of a building leave the building in a condition dangerous to the public or any adjoining property.
- 4.2.3.4 Where a building is left in a dangerous condition, the one stop center office shall serve a notice to the owner requiring him or her to make the site safe, and if he or she fails to make the site safe, the one stop center office shall carry out the necessary work and recover the cost from the owner of the site.
- 4.2.3.5 Where any building is completely demolished to the level of the ground and the building contained a basement, the owner of the building shall provide safe lateral support to any side of the basement.
- 4.2.3.6 The one stop center office may prohibit the use of any method to be applied in the demolition of a building where the method may create danger to any person, other building or property and where the one stop center office so prohibits it shall, on the request of the owner of the building, give reasons in writing for the prohibition.

#### **4.2.4 Site Operations**

- 4.2.4.1 Any person undertaking any building operation on a site shall consult the checklist of notices and precautions issued by the one stop center office and obtain the permission as required.
- 4.2.4.2 The one stop center office may require that before any operation is commenced on a site, the owner of the site shall erect a fence, hoarding or barricade to keep the public out and to protect the public from activities on the site.
- 4.2.4.3 The fence, hoarding or barricade shall be retained and maintained by the owner in a safe condition for as long as it is necessary, and any access to the site shall be approved by the one stop center office pursuant to sub-article 4.2.4.1.
- 4.2.4.4 No part of the fence, hoarding or barricade shall be removed until the work has been completed without the permission of the one stop center office.
- 4.2.4.5 Any person undertaking any building operation on a site shall confine all operations in connection with the work within the boundaries of the site and shall not encroach upon or over any street or public place abutting the site, except with the prior approval of the one stop center office and subject to the conditions contained in the approval, and with regards to the safety and convenience of members of the public using the street or public place.
- 4.2.4.6 The one stop center office may, before or during the erection or demolition of a building, impose any reasonable conditions in addition to the conditions or requirements contained in these Regulations for the purpose of safeguarding the interests of the general public, which shall be observed by the owner.

## SECTION 4.3 BUILDING ELEMENTS AND MATERIALS

### 4.3.1 Building Materials

- 4.3.1.1 Any building materials shall be of a suitable nature and quality and shall be adequately mixed or prepared, or applied, used or fixed in an approved manner so as to satisfactorily perform the functions for which they are designed.
- 4.3.1.2 Without prejudice to any local proceedings, which shall be instituted against any owner as a consequence of contravention of or non-compliance with the requirements of these Regulations, the one stop center office shall serve notice on such owner to remove or cause to be removed from any building material used in contravention of these Regulations.
- 4.3.1.3 The use, method of mixing, preparation, application, or fixing of the materials shall comply with the provisions of approved Construction Code of Standards.
- 4.3.1.4 The requirements of sub-article 4.3.1.3 shall be satisfied if the use, method of mixing, preparation, application, or fixing of the material is appropriate to the purpose and conditions for and in which the material is intended.
- 4.3.1.5 Second-hand structural or load-bearing materials shall not be used in any building operations.

### 4.3.2 Walls

- 4.3.2.1 Walls of stabilized soil, natural stone, clay, bricks, concrete blocks, or any other approved materials shall be hard, durable, weatherproof and suitable for the purpose for which they are to be used.
- 4.3.2.2 All dimensions specified in these Regulations for stone, bricks or any other approved materials are the actual bedding area and are exclusive of any applied facings, finishes or additives. Where undressed stonework shall be used, the stones shall be roughly dressed so as not to provide variations greater than 5mm to the thickness of the wall.
- 4.3.2.3 Bricks or blocks used in any wall to which these Regulations apply shall be composed of stabilised soil, burnt clay, stone, concrete or sand lime and shall have a crushing strength of not less than:
- a) 2.5 N/mm<sup>2</sup> for the wall of a one-or two-storey dwelling house of a capacity less than 600 cubic meters;
  - b) 10.0 N/mm<sup>2</sup> if the brick or blocks are solid, or 5.0 N/mm<sup>2</sup> if the bricks or blocks are hollow, for the wall of any building other than one to which item (a) refers or other than one exceeding three storeys in height; and
  - c) 20.0 N/mm<sup>2</sup> for the wall of any building exceeding three storeys in height.
- 4.3.2.4 Walls constructed in bricks, concrete blocks or natural stone, both load bearing and non-load bearing, shall be bonded with mortar of thickness not greater than 15mm in bedding joints and 10mm in vertical joints, and the mortar shall satisfy the requirements in the Twentieth Schedule in these Regulations.

### 4.3.3 Formwork

- 4.3.3.1 Formwork shall be constructed so that it remains rigid during the placing and compacting of concrete and sufficiently tight to prevent loss of liquid content or slurry from the concrete.
- 4.3.3.2 The vertical struts supporting the formwork shall be carried down to the base as shall be sufficiently firm to afford the required support.
- 4.3.3.3 The formwork shall be cleaned before use and any material or substance used in treating the formwork shall not be permitted to come into contact with the reinforcement.
- 4.3.3.4 The formwork shall not be removed before the concrete attains a cube strength equivalent to twice the compressive stress to which it shall be subjected at the time of striking the formwork, which under normal circumstances is specified in the Twenty First Schedule of these Regulations and shall be observed before removal of the formwork.

### 4.3.4 Reinforcement

- 4.3.4.1 Reinforcement shall not be bent, cut or straightened in a manner that might damage the material.
- 4.3.4.2 All reinforcement, after cutting and bending, shall be suitably marked in accordance with the approved plans.
- 4.3.4.3 Reinforcement shall be free from loose mill scale, loose rust, oil, grease, or other deleterious matter.
- 4.3.4.4 All reinforcement shall be properly wired or rigidly fixed together, and shall be properly spaced by the use of spacing bars, stirrups or other approved methods.
- 4.3.4.5 All reinforcement shall be placed and maintained in positions shown on the approved plans by the use of metal cradles, chairs, concrete briquettes, or other approved methods.
- 4.3.4.6 Reinforcing bars shall be laid in lengths indicated on the approved plans or according to the requirements of the approved Construction Code of Standards.
- 4.3.4.7 All reinforcement that is fixed-in-place shall be checked and inspected either by a The one stop center officer in charge of housing or an engineer employed by the owner before any concrete is poured.

### 4.3.5 Concrete

- 4.3.5.1 Aggregate used in the concrete mix shall be clean, free from deleterious matter, of the composition and strength required in the specifications.
- 4.3.5.2 The constituent materials forming the concrete shall be adequately mixed by mechanical means or any other approved method to ensure uniform distribution of materials, in proportions designed so as to produce the concrete strength and grade specified for the design, having a water to cement ratio not exceeding 0.6, and without water being added after mixing has been completed.

- 4.3.5.3 The concrete shall be transported and deposited without segregation, and poured before the initial set, after which it shall be thoroughly compacted and worked around the reinforcement using a vibrator or other approved methods.
- 4.3.5.4 The concrete in any structural member shall be properly cured by constant surface wetting for a period of not less than seven days while protecting the surface against rapid drying by covering with hessian or other approved materials or curing agents.
- 4.3.5.5 The engineer shall determine the positions of construction joints, when necessary, before concreting commences. When placing concrete at construction joints, the concrete shall be brought up to, for its full width and thickness, a vertical stop-board and on no account shall concrete be permitted to flow or to find its natural slope.
- 4.3.5.6 On resumption of concreting adjacent to a hardened concrete surface, the surface shall be roughened, swept clean, thoroughly wetted, and covered with brushed grout of the same grade as the concrete, or with freshly mixed mortar composed of one part cement and three parts sand. Alternatively, the surface shall be roughened, swept clean, and be painted with an approved bonding agent.
- 4.3.5.7 Where a service duct or conduit is incorporated in a member, it shall be fixed in position after the formwork has been erected and in a way that reinforcement is not displaced or the structural adequacy of the member impaired.
- 4.3.5.8 Defects such as fractures, honeycombing or gaps in concrete shall not be plastered over and any remedial works shall be ordered and supervised by the engineer.

## **SECTION 4.4 SPECIAL PROVISIONS**

### **4.4.1 Indemnity against Damages**

- 4.4.1.1 Where any building operation may cause or have any detrimental effect on the strength, standard, safety, quality or position of any other property or public utility, the one stop center office shall require the owner executing the building operations to indemnify it against claims for damages that may arise from the building operations with an insurance bond.
- 4.4.1.2 The one stop center office shall determine the sum of the indemnity for any one claim and the number of claims shall be unlimited.
- 4.4.1.3 The indemnity shall be kept in force for as long as the one stop center office determines appropriate, but not after the occupancy Permit has been issued.

### **4.4.2 Site Conditions**

- 4.4.2.1 No building operation shall be permitted on any site where a part of the ground is waterlogged, including the ground adjacent to, but not part of the site of the building operations unless the water has been drained by the owner to the satisfaction of the one stop center office.
- 4.4.2.2 The area to be covered by any building operation shall be properly cleared by the owner of all vegetation, tree stumps, timber or other cellulose based

material, refuse from animal remains, or any material contaminated with faecal matter, before any excavation for foundations is commenced.

4.4.2.3 In any building site where there may be infestation by termites or any other vermin, the owner shall have the infestation or vermin exterminated by approved methods or treated with a one stop center approved chemical before commencing any building operations.

4.4.2.4 The owner of any land where building operations are in progress shall take precautions in the working area, on surrounding roads, and on footways to limit to a reasonable level the amount of dust arising from the operations.

### **4.4.3 Prohibition of Use of Certain Machinery**

4.4.3.1 No person shall carry on any activity or use, cause or permit to be used during the course of any building, demolition or excavation work any machine, machinery, engine, apparatus, tool or contrivance that would unreasonably disturb or interfere with the amenity of the neighbourhood.

4.4.3.2 The prohibition under sub-article 4.4.3.1 shall not apply in circumstances where the use of the machine, machinery, engine, apparatus, tool or contrivance is necessary for the preservation of life, safety or health of any person or property, or where permission of the one stop center office has been granted.

4.4.3.3 Where the one stop center office, on reasonable grounds, believes that any building operation is not in compliance with the provisions in these Regulations, where work has reached a stage of advancement that the one stop center office is unable to establish or where satisfactory proof cannot be obtained from the owner of the building that the work does comply, the one stop center office shall serve notice to the owner of the building to cause the work to be stopped, repaired or demolished to the extent that the one stop center office shall determine.

4.4.3.4 In addition, the one stop center office shall cause a test of such work to be carried out within a time and by such person as specified in the notice.

4.4.3.5 In the event of the one stop center office requiring the owner to cause a test to be carried out, a report on the test shall be prepared and signed by the person who carried out the test and it shall be submitted to the one stop center office, indicating the details of the results and the conclusions.

4.4.3.6 Notwithstanding the conclusions of the report under sub-article 4.5.3.5, the one stop center office may, by notice served on the owner of the building operations, order him or her to take necessary steps within a period as stated in the notice to ensure that there is compliance with the requirements of these Regulations.

4.4.3.7 No owner or person, having been required to cause any work to be stopped, repaired, demolished, or tested, shall continue with the work or any other affected work unless authorization by the one stop center office is received.

4.4.3.8 Where a contravention of these Regulations is confirmed by stopping, repairing, demolishing, or testing of the work, the cost of the work or any repairs shall be borne by the owner of the building.

4.4.3.9 If the owner fails to comply with the terms of the notice served on him or her under these Regulations, he or she has committed an offence.

#### 4.4.4 Temporary Builder's Sheds

- 4.4.4.1 A person carrying out building operations may erect temporary builder's sheds on the site as may be necessary.
- 4.4.4.2 The construction and location of the sheds shall be to the satisfaction of the one stop center office and the sheds shall be maintained in good order and condition at all times during the building operations.
- 4.4.4.3 The one stop center office may serve a notice to the owner of the sheds requiring him or her, within a time specified in the notice, to remove, relocate, reconstruct, repair or improve the condition of the sheds.
- 4.4.4.4 Security personnel employed in connection with any building operations may be accommodated in the builder's sheds subject to the requirements and conditions as may be necessary for the safeguarding of public health, avoidance of any nuisance or inconvenience to persons in the vicinity of the building site.

#### 4.4.5 Temporary Sanitary Facilities

- 4.4.5.1 No owner shall commence any building operations unless approved sanitary facilities for personnel have been provided at the building site or at a reasonably close location.
- 4.4.5.2 Where sanitary facilities have not been provided the one stop center office shall order the cessation of all building work until satisfactory facilities have been provided.
- 4.4.5.3 Sanitary facilities shall be placed in such a position so as not to be offensive, be maintained in a hygienic condition at all times, and be removed by the owner immediately after the completion of the building operations.
- 4.4.5.4 Sanitary facilities shall be provided at the rate of not less than one sanitary facility for every thirty people on the building site.

#### 4.4.6 Excavations

- 4.4.6.1 Where any excavation is carried out or is to be carried out on a site that is likely to be unstable, measures shall be taken by the owner of the site to ensure that the stability is maintained.
- 4.4.6.2 Where any excavation is likely to impair the stability of a property or where the depth at any point in an excavation is expected to be in excess of 3 meters, which is not indicated on the approved plans, the owner of the site shall:
  - a) make an application to the one stop center office, in writing, for authorization prior to the commencement of the excavation;
  - b) take precautionary measures as may be specified by the one stop center office; and
  - c) maintain open excavations in a safe condition at all times to the satisfaction of the one stop center office.

## **PART 5 OCCUPANCY**

### **SECTION 5.1 NOTICES AND INSPECTION**

#### **5.1.1 Inspection by One Stop Center Office**

5.1.1.1 Upon receipt of an application for an occupation permit, the one stop center officer in charge of housing shall carry out all the final inspections of any building according to laws in force in Rwanda prior to the issuance of an occupation permit.

#### **5.1.2 Installation, Maintenance and Operation**

5.1.2.1 The owner of any building shall ensure that any mechanical equipment or service installation provided in connection with the building shall be maintained in a safe condition.

5.1.2.2 The owner or agent of the owner shall ensure that the equipment or installation is designed to be kept operating during the times of normal occupancy.

5.1.2.3 The one stop center office may serve a notice on the owner of a building requiring him or her to comply with the requirements contained in sub-article 5.1.2.2 within the time specified in the notice.

5.1.2.4 The one stop center office may order, by a written notice, the evacuation of a building where the state of equipment or installation may, in the opinion of the one stop center office, be detrimental to the safety or health of the occupants or users of the building.

#### **5.1.3 Emptying of Contents of Septic or Conservancy Tank**

5.1.3.1 The contents of any septic or conservancy tank shall be removed by an approved excavating truck at such intervals so that a nuisance or hazard is not created.

5.1.3.2 Notwithstanding any provisions of these Regulations, the one stop center office may order the disuse or emptying of any septic or conservancy tank on the grounds that such a tank constitutes a nuisance or hazard.

5.1.3.3 The cost of emptying and disposing of the contents of any septic, conservancy or other tank used for the treatment and disposal of sewage shall be borne by the owner of the building served by such tank.

### **SECTION 5.2 HYGIENE**

#### **5.2.1 Non Water-Borne Systems**

5.2.1.1 In areas where a public sewer is not available or accessible and the water supply is not sufficient to provide not less than 75 liters per person per day, the method of excreta disposal shall be by ventilated improved pit latrine, in this section referred to as VIP, or any other methods acceptable to the one stop center office.

5.2.1.2 The requirements for provision of a VIP at any factory, workshop or other premises where more than 20 persons work or are housed, school, college, or dwelling unit, shall conform to the requirements of sub-article 3.3.2.4 of these Regulations, except that the number of facilities shall be in accordance

with the Twenty Second Schedule, and that no VIP shall be located within any building where persons work, are educated or are housed.

- 5.2.1.3 VIPs in connection with dwelling units shall be sited between 1.5 meters and 3.0 meters from any plot boundary, and shall be readily accessible by a servicing vehicle for emptying at any time.
- 5.2.1.4 In areas where VIP emptying services are available, the owner of the building shall notify the agency designated for that purpose whenever the contents of the VIP are within a half-meter of the soffit of the cover slab in order to evacuate the VIP.
- 5.2.1.5 In areas where VIP emptying services are unavailable or inaccessible, the VIP shall be closed whenever the contents are within a half-meter of the underside of the slab, the superstructure shall be removed to cover a new pit, and the old pit shall be filled with earth and well compacted.
- 5.2.1.6 Notwithstanding any requirements of these Regulations, the one stop center officer in charge of housing may order the closure or emptying of any VIP latrine at any time on the grounds that such a VIP latrine constitutes a nuisance or hazard.
- 5.2.1.7 The cost of emptying, closing and disposing of the contents of any VIP latrine shall be borne by the owner of the building served by the VIP latrine.

## 5.2.2 VIP Superstructure

- 5.2.2.1 The VIP superstructure shall be constructed of approved building material to offer adequate privacy, comfort and safety while the latrine is in use.
- 5.2.2.2 The superstructure of the VIP shall consist of strong supporting members of durable materials.
- 5.2.2.3 Where the superstructure of the VIP is comprised of masonry construction, the floor of the VIP shall be a reinforced concrete slab designed to support the superstructure, the vent pipe and the user, and where timber construction has been used the timber shall be treated with creosote oil or other approved preservative.
- 5.2.2.4 The minimum dimensions of the VIP shall not be less than 2.1 meters in height, 800mm in width and 1.2 meters in length.
- 5.2.2.5 The substructure of any VIP shall consist of a lined or unlined pit and the pit size shall be determined by the following formula:

$$V=PSN$$

Where:

- V = volume of pit in meters  
P = number of users  
S = rates of solid, build-up (0.04m<sup>3</sup>/person/year)  
N = number of years (minimum =2 years)

- 5.2.2.6 The following requirements shall apply to ventilation pipes:
- they shall not be less than 100mm in diameter;
  - they shall be manufactured from approved durable material, which shall not easily corrode;

- c) they shall open directly into a pit, they shall be straight and vertical, and the top shall be cut horizontally; and
- d) no cowls or decorative attachments shall be placed at the top of the ventilation pipes.

5.2.2.7 The requirements of sub-article 5.2.2.6 shall be deemed satisfied where any ventilation pipe is made of internally coated or lined galvanized metal, cast iron, masonry, concrete, un-plasticized vinyl chlorides (uPVC), fiber glass or any other materials that will not easily corrode as confirmed by testing.

5.2.2.8 A ventilation pipe shall be fitted with a fly screen with apertures not larger than 1.5 mm square and coated with corrosion resistant material which is capable of withstanding rain, heat or direct sunlight.

5.2.2.9 The seat used in a VIP shall be of approved material that is adequately strong to support any user, have a smoothly finished surface, have a seat cover that obstructs direct light into the pit, and fit onto the seat so as to permit the entry of air into the pit.

5.2.2.10 The minimum latrine accommodation for non water-borne systems of sewage disposal shall be determined in accordance with the Twenty Second Schedule.

### 5.2.3 Storm Water Disposal

5.2.3.1 Where maintenance has been neglected and there is a danger of blockage or structural defects in any drain that could cause damage or erosion to any building structure or site, the one stop center office shall serve notice upon the owner to carry out remedial works as may be specified in the notice within a stated period time and to its satisfaction. Where the owner fails to carry out the remedial works within the stated period of time, the one stop center office may have the works carried out and recover the expenses from the owner.

5.2.3.2 The owner of a building or premises shall maintain the gutters and down pipes on the premises to be free of any blockage or obstruction, and the water shall not stagnate or accumulate in the gutters or down pipes.

### 5.2.4 Refuse Disposal

5.2.4.1 A building shall be provided with refuse containers of a type and material as approved by the one stop center office.

5.2.4.2 Any refuse chute shall be designed and erected so as to afford safe operation and shall be self cleansing.

5.2.4.3 The owner of a building that generates refuse from building works shall dispose of the refuse within a reasonable time period after its generation and shall not deposit the refuse on public land, streets or sidewalks except as approved by the one stop center office.

5.2.4.4 In the case where any building has been erected or where a building application has been approved prior to these Regulations coming into force, and where the premises are inaccessible or inconvenient for the purposes of collecting or removing refuse, the one stop center office may permit refuse containers to be positioned outside the premises in a manner and at such times or periods as may be prescribed.

5.2.4.5 The one stop center office may give approval to any appliance which incinerates combustible refuse provided that the resulting smell, smoke or

any other fumes do not give rise to a nuisance or hazard, and also provided that the owner of the appliance shall satisfy the one stop center office with respect to the disposal of non-combustible refuse.

## **SECTION 5.3 SAFETY**

### **5.3.1 Equipment**

- 5.3.1.1 All equipment or service installations in any building, whether mechanical or electrical, that are intended for use by the public or provided for the safety of the public within the building, shall be installed and maintained in safe working order and be kept operating in a manner so as to attain any standard of performance prescribed in these Regulations or the appropriate Code of Practice.
- 5.3.1.2 The one stop center office has the right to inspect the operation of any equipment or installation at any reasonable time, and shall serve notice to the owner for compliance with the requirements of these Regulations within the time specified in the notice.
- 5.3.1.3 Every staircase in a public building, hotel, dormitory or any building where a group of people are accommodated, shall have an emergency lighting system, with the number of every floor clearly indicated at every landing.

### **5.3.2 Escape Routes**

- 5.3.2.1 The owner of any building used as an office, hotel, dormitory, or any place where a group of people are accommodated, shall display a notice on the inside face of the principal door leading into any room that clearly indicates the escape routes from the room to the exterior of the building together with diagrams to illustrate the written word.
- 5.3.2.2 Any pressurization system in a building shall be provided with approved emergency power supply, which shall be independent of the normal mains supply and shall be capable of operating safely for a period of not less than 2 hours.

### **5.3.3 Fire Alarm**

- 5.3.3.1 The one stop center office shall require:
  - a) that firefighting equipment in any building be installed and maintained in good working condition at all times, that it shall be clearly visible, and shall be labeled with internationally recognized symbols; and
  - b) all fire extinguishing and detection equipment, fire alarm systems, or emergency power supply systems installed in any building shall be maintained by the owner, and any maintenance records shall be made available for inspection at any time.
- 5.3.3.2 Notwithstanding any provisions in these Regulations, the one stop center office shall inspect for approval any fire fighting plan or installation and shall have the right to require fire drills to be carried out by the owner of any building where fire protection, fire detection, or firefighting equipment has been installed.

## **PART 6 MISCELLANEOUS**

### **SECTION 6.1 FEES**

#### **6.1.1 Design Checking Fees**

- 6.1.1.1 The one stop center office shall charge fees for the checking and approval of plans in accordance with a schedule to be determined and revised periodically as deemed necessary.
- 6.1.1.2 Where any building application submitted to the one stop center office has subsequently been withdrawn, disapproved, or invalidated, and the application fee had been paid, the fee received from the applicant shall not be refunded.
- 6.1.1.3 Where an application is re-submitted to the one stop center office, full fees shall become payable.
- 6.1.1.4 Where a building permit has expired and the owner resubmits the application, full fees shall be paid to the one stop center office.
- 6.1.1.5 Full fees with respect to any building notice served shall become payable to the one stop center office where substantial amendments have been made to any previously approved plans, drawings or diagrams before the commencement of the building operations.
- 6.1.1.6 Where minor amendments to the approved plans, drawings or diagrams have been made during the building operations, prior to the issuance of an occupation certificate and upon serving of a notice to that effect, a fee covering the extra or affected works shall be paid to the one stop center office.
- 6.1.1.7 Fees for minor building operations, additions, alterations, and drainage works shall be paid to the one stop center office.

#### **6.1.2 Occupation Permit Fees**

- 6.1.2.1 The one stop center office shall charge fees for issuance of occupation permits in accordance with a schedule to be determined. Such fee schedule shall be revised periodically as deemed necessary.
- 6.1.2.2 The one stop center office may charge fees for inspection visits made to check occupancy compliance if the owner is found to be non-compliant with these Regulations. Such fees shall be charged at the rates established under sub-article 6.1.3.1 and shall not be considered to be in lieu of any penalties that may be effected.

### **SECTION 6.2 ENFORCEMENT**

#### **6.2.1 Enforcement of Regulations**

- 6.2.1.1 No person shall:
  - a) cause any building to be altered or used for a purpose other than the purpose shown on the approved plans of the building; or

- b) use a building for a purpose that will cause a change in the class of occupancy.
- 6.2.1.2 Any person who contravenes the provisions of sub-article 6.2.1.1 is considered to have committed an offence.
- 6.2.1.3 Where the owner of the building fails to comply with the notice served under sub-article 6.2.1.2, the one stop center office shall seek remedies according to the Laws of Rwanda.
- 6.2.1.4 Any person who, having obtained approval under these Regulations for the erection of any building, deviates in any material degree from the approved plans, drawings or diagrams, is considered to have committed an offence.
- 6.2.1.5 The one stop center office shall serve notice on any person who is considered to have committed an offence and request that the person stop immediately the erection of the building concerned or to comply with the approved building application, as the case may be, within a specified period.
- 6.2.1.6 Where the deviation from the approved plans, drawings or diagrams is to such a degree that the building is incapable of being altered to comply with the requirements of these Regulations, the one stop center office shall revoke the permit for the building operations and serve notice to the owner of the building to demolish and remove the building within a specified period.
- 6.2.1.7 Where any deviation is found necessary during the course of construction of the building, the one stop center office may authorize work to continue but may require the amended plans, drawings or diagrams that cover the deviation be submitted for approval before a certificate of occupation will be issued.
- 6.2.1.8 If, before the date specified for the rectification or demolition of any building under sub-articles 6.2.1.3 and 6.2.1.5, the owner satisfies the one stop center office that compliance with the requirements of these Regulations has been attained, the notice served shall be withdrawn.
- 6.2.1.9 Where any building is being or has been erected and a contravention of these Regulations other than those relating to an approved deviation for a building has been committed, the one stop center office shall serve a notice on the owner of the building and in such notice specify a date by which the owner shall have complied with these Regulations, citing the regulation contravened and the steps to be taken in order to comply with that regulation.
- 6.2.1.10 Where any building, not being a temporary building, is being or has been erected without the prior approval, the one stop center office shall serve notice to the owner of the building, calling upon him or her to forthwith apply for approval as required by these Regulations, or to demolish and remove the building by a date specified in the notice.
- 6.2.1.11 Any person who fails to comply with the terms of any notice issued in accordance with these Regulations shall be considered to have committed an offence and is liable to penalties in accordance with laws in force in Rwanda.

## SECTION 6.3 MAINTENANCE

### 6.3.1 Removal of Rubbish, Debris and Combustible Waste

- 6.3.1.1 Where excessive rubble, rubbish, other debris or combustible waste material has been allowed to accumulate on a site before, during or after building operations, the one stop center office may serve notice on the owner to cause the rubble, rubbish, other debris or combustible waste material to be removed from the building site within a specified period.
- 6.3.1.2 If the owner of the building operations fails to comply with the notice, he or she is considered to have committed an offence and is liable on conviction to a fine in accordance with laws in force in Rwanda.
- 6.3.1.3 The one stop center office may, at the cost of the owner, remove the rubble, rubbish, other debris or combustible waste material from the site, if the owner fails to comply with the notice served under sub-article 6.3.1.1 above.
- 6.3.1.4 Any person erecting or demolishing a building shall remove surplus material and matter arising from the erection or demolition of the site or from any other land, public street or public place affected by the material during or after the completion of the erection or demolition.
- 6.3.1.5 If the owner fails to remove the surplus material, the one stop center office shall serve notice to the owner of the building to remove it or have the surplus material removed at the owner's cost.

### 6.3.2 Plumbing and Drainage

- 6.3.2.1 No person shall construct or cause to be constructed a latrine other than a water closet, urinal, or ventilated improved pit (VIP) latrine in accordance with Article 5.2.2, and any person who constructs any other type of latrine not complying with the requirements of these Regulations is considered to have committed an offence.
- 6.3.2.2 Where a sewer has been installed after building operations have been completed and an occupation certificate issued, the one stop center office may revoke the occupation certificate if the owner of the building fails to connect to the sewer within a specified period.
- 6.3.2.3 Where there is a public sewer within 30 meters from the boundary of any plot, a connection shall be made to the public sewer.
- 6.3.2.4 Where there is no public sewer within 30 meters from the boundary of such plot and the sewer is installed after the building operations, the owner of the plot shall apply to the one stop center office for connection to the new sewer, or shall do so within a specified period on being served with a notice by the one stop center office.
- 6.3.2.5 A person who fails to act in accordance with sub-articles 6.3.2.3 and 6.3.2.4 is considered to have committed an offence and is liable on conviction to a fine not exceeding four currency points, imprisonment not exceeding eight months, or both.
- 6.3.2.6 Notwithstanding the penalties prescribed in sub-article 6.3.2.5, the one stop center office may defer the issuance of the occupation certificate of a building until the sewer connection has been completed, with the owner being liable to pay the sewerage charges from the day the public sewer became available.

### 6.3.3 Improper Disposal of Contents of Chemical Toilet

A person who disposes of the contents of a chemical toilet into a body of water or in any manner other than that prescribed by the Minister responsible for health is considered to have committed an offence and is liable on conviction to a fine according to laws in force in Rwanda.

### 6.3.4 Neglect of Storm Water System

- 6.3.4.1 If through neglect by the owner or occupier of any building damage is caused to a drainage installation or to any other property, proceedings may be instituted by the one stop center office or the aggrieved party, separately or by the one stop center office and the aggrieved party jointly, to recover both the cost and compensation with respect to the damage caused by the neglect of the owner.
- 6.3.4.2 Where maintenance has been neglected and there may be a danger of a blockage or a structural defect in any drain, or damage or erosion to any land, the one stop center office shall serve notice upon the owner to carry out remedial works as may be specified in the notice within a stated period of time and to the satisfaction of the one stop center office, and where the owner fails to carry out the remedial works within the stated period, it may carry out the works and recover the expenses from the owner.

**SCHEDULES**

**First Schedule: OCCUPANCY CLASSIFICATION**

**sub - articles 3.1.2.2, 3.1.12.1**

OCCUPANCY			DESCRIPTION
Class	Sub-class	Use Group	
<b>ASSEMBLY</b>	OC1	Entertainment & public assembly	Occupancy where persons gather to eat, drink, dance or participate in other recreational activities.
	OC2	Theatrical and Indoor sports	Occupancy where persons gather for the viewing of theatrical, operatic, orchestral, choral, cinematographic or sports performances.
	OC4	Worship	Occupancy where persons assemble for the purpose of worshipping.
	OC5	Outdoor sports	Occupancy where persons view outdoor sports events.
	OC9	Exhibition Hall	Occupancy where goods and services are displayed primarily for viewing by the public.
	OC10	Museum	Occupancy comprising a museum, art gallery or library.
<b>BUSINESS</b>	OC18	Large shop	Occupancy where merchandise is displayed and offered.
	OC19	Small shop	Occupancy where merchandise is displayed and offered for sale to the public and the floor area does not exceed 250 m <sup>2</sup> .
	OC21	Offices	Occupancy comprising offices, banks, consulting rooms and other similar usage.
<b>EDUCATIONAL</b>	OC3	Places of Instruction	Occupancy where school children, students or other persons assemble for the purpose of tutoring or learning.
<b>INDUSTRIAL</b>	OC11	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, give rise to poisonous fumes, or cause explosions.
	OC12	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, give rise to poisonous fumes, or cause explosions.
	OC13	Low risk industrial	Occupancy where an industrial process is carried out and where either the material handled or the process carried out does not fall into a high or moderate risk category.
	OC14	Plant room	Occupancy comprising usually unattended mechanical or electrical services necessary for the running of building services.
<b>INSTITUTIONAL</b>	OC15	Place of detention	Occupancy where people are detained for punitive or corrective reasons or because of their mental condition.
	OC16	Hospital	Occupancy where people are cared for or treated because of a physical or mental condition.
	OC17	Other institution	Occupancy where groups of people, who are either not fully fit or who are restricted in their movements or their ability to make decisions, reside or are cared for.

## Building Control Regulations Schedules

<b>MERCANTILE</b>	OC 6	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, give rise to poisonous fumes, or cause explosions.
	OC 7	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, give rise to poisonous fumes, or cause explosions.
	OC 8	Low risk commercial service	Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out does not fall into a high or moderate risk category.
	OC 20	Wholesale store	Occupancy where goods are displayed and stored and where only a limited selected group of persons is present at any one time.
	OC 29	Parking garage	Occupancy used for storing or parking more than 10 motor vehicles.
<b>RESIDENTIAL</b>	OC 22	Hotel	Occupancy where person rent furnished rooms, not being dwelling units.
	OC 23	Dormitory	Occupancy where groups of people are accommodated in one room.
	OC 24	Domestic residence	Occupancy consisting of one or more dwelling units.
	OC 25	Detached dwelling house	Occupancy consisting of a detached dwelling unit including any garage or other domestic out buildings.
<b>STORAGE</b>	OC 26	High risk storage	Occupancy where material is stored and where the stored material is liable, in the case of fire, to cause combustion with extreme rapidity or give rise to explosions.
	OC 27	Moderate risk storage	Occupancy where material is stored and where the stored material is liable, in the case of fire, to cause combustion with moderate rapidity or give rise to explosions.
	OC 28	Low risk storage	Occupancy where the material stored does not fall into a high or moderate risk category.

### Second Schedule: DESIGN POPULATION

sub-article 3.1.13.1

Sub-class of occupancy	Population
OC 1, OC2, OC4, OC5	Number of fixed seats or 1 person per m <sup>2</sup> where there are no fixed seats
OC 15, OC17, OC22, OC24	2 persons per bedroom or actual number of persons, whichever is the greater.
OC21	1 person per 10m <sup>2</sup>
OC 20, OC26, OC 27, OC28	1 person per 30m <sup>2</sup>
OC 3, OC9, OC10, OC 19	1 person per 4 m <sup>2</sup>
OC18 (area less than 1,000m <sup>2</sup> )	1 person per 4 m <sup>2</sup>
OC18 (area more than 1,000 m <sup>2</sup> )	1 person per 20 m <sup>2</sup>
OC6, OC7, OC8, OC11, OC 12, OC13	1 person per 10m <sup>2</sup> or actual number of persons, which ever is greater
OC29	1 person per 40 m <sup>2</sup>
OC16, OC23	1 person per 5 m <sup>2</sup>

**Third Schedule: PARKING REQUIREMENTS**

sub- article 3.1.16.4

OCCUPANCY	No. of Parking lots required per 1000m <sup>2</sup> of built-up area		
	Automobiles	Vans	Trucks / Buses
ASSEMBLY	5	-	1
BUSINESS	10	-	1
EDUCATIONAL	2	-	-
INDUSTRIAL	1	2	1
INSTITUTIONAL	2	2	-
MERCANTILE	2	-	1
RESIDENTIAL	10*	-	1**
STORAGE	1	-	1

\* 1 per 100m<sup>2</sup> of detached dwelling house

\*\* for hotels only

**Fourth Schedule: LOAD REDUCTION ON COLUMNS**

sub- article 3.2.1.5

No. of floors supported	Percentage reduction
1	0
2	10
3	20
4	30
5 or more	40

**Fifth Schedule: TERRAIN CATEGORIES**

sub- article 3.2.1.13

Category	Description
1	Exposed open terrain with few or no obstructions (flat, treeless plans).
2	Open terrains with scattered obstructions (airfields, open parklands, sparsely built up suburbs).
3	Terrains with numerous closely spaced obstructions having the size of domestic houses (well-wooded suburbs, towns and industrial areas fully or partially developed).
4	Terrains with numerous, large, high, closely spaced obstructions (large city centres).

**Sixth Schedule: GENERAL CLASSIFICATION & DESIGN BEARING CAPACITIES OF SOILS sub-article 3.2.2.1**

<b>Category</b>	<b>Type of Rocks/Soils</b>	<b>Presumed Allowable Bearing Capacity (kPa)</b>
Rocks	Strong igneous and gneissic rocks in condition	10,000
	Strong limestone and sandstones	4,000
	Schists and slates	3,000
	Strong shale, mudstones and siltstones	2,000
	Soft weathered rocks	600
Non-cohesion Soils	Dense gravel or dense sand and gravel	> 600
	Medium dense gravel or medium dense sand and gravel	< 200 to 600
	Loose gravel or loose sand and gravel	< 200
	Compact sand	> 300
	Medium dense sand	100 to 300
	Loose sand	< 100
Cohesion Soils	Very stiff and hard clays	300 to 600
	Stiff clays	150 to 300
	Firm clays	75 to 150
	Soft clays	< 75
Peat and Organic Soils		Not applicable

**Seventh Schedule: THICKNESS OF NON-LOAD BEARING WALLS**

**sub-article 3.2.5.11**

<b>Wall Thickness (millimeters)</b>	<b>Maximum Wall Height / Length (meters)</b>
75	3
100	4.5
125	5
150	6.5
200	8

**Eighth Schedule: MINIMUM SLOPE**

sub-article 3.2.6.7

Roof Covering	Roof Structure	Roof Slope
Bitumen based / Other Approved Roofing Products	Concrete Slabs	1%
Cement / Clay / Metal Tiles	Concrete Slabs	10%
Cement / Clay / Metal Tiles	Structural Steel / Timber Trusses	25%
Galvanized Steel / Other Approved Sheets	Structural Steel / Timber Trusses	15%
Long span / Special Profiled Metal Sheets	Structural Steel / Timber Trusses	5%

**Ninth Schedule: LIMITING DIMENSIONS OF STAIRS**

sub-articles 3.2.7.8, 3.2.7.9

Stair Use	Minimum Width (mm)	Maximum Riser (mm)	Minimum Tread (mm)	Headroom (meters)
Private access to single room	600	200	225	2.1
Dwelling Unit	800	190	250	2.1
Domestic Building Common Access	1000	180	250	2.1
Public and all other buildings	1200	170	280	2.1

**Tenth Schedule: GLASS THICKNESS**

sub- article 3.3.9.4

Maximum pane Size (m <sup>2</sup> )	Minimum Glass Thickness (mm)
0.75	3
1.5	4
2.1	5
3.2	6
5.0	8

**Eleventh Schedule: ROOM / SPACE DIMENSIONS**

**sub-article 3.3.14.4**

<b>Room / Space</b>	<b>Minimum height</b>
Bedroom	2.4 meters over a floor area of not less than 6.0 square meters, and a clear height of not less than 2.1 meters over any point farther than 750 mm from the edge of the floor space.
Any other habitable room in a dwelling house or dwelling unit.	2.4 meters over not less than 50% of the floor area, and not less than 2.1 meters over the remaining floor area.
All habitable rooms in any building other than those listed above	2.4 meters
Passage or entrance hall	2.1 meters
Bathroom, shower room, laundry or toilet	2.1 meters over any area in which a person shall be in a standing position.
Mezzanine area	2.1 meters above and below the mezzanine floor.

**Twelfth Schedule: TOILETS & WASHBASINS FOR PERSONS WITH DISABILITIES ON WHEELCHAIRS**

**sub-article 3.3.15.9**

<b>Number of Persons</b>	<b>Number of Sanitary Units</b>
Up to 10	0
10-50	1
Over 50	2

**Thirteenth Schedule: FIRE RESISTANCE RATING OF EXTERNAL WALLS**

**sub-articles 3.4.1.4, 3.4.1.5, 3.4.1.8**

<b>Occupancy class (External Walls)</b>	<b>Fire Resistance Rating (hours)</b>
All other than those specified below	2
OC8	1
OC13	1
OC24	1
OC25	0.5
OC26	4

## Building Control Regulations Schedules

### Fourteenth Schedule: DISTANCE BETWEEN A BUILDING AND A BOUNDARY OR BETWEEN BUILDINGS ON THE SAME SITE sub-articles 3.4.1.6, 3.4.1.7, 3.4.1.8

Building or division occupancy class	Elevation area of division (m <sup>2</sup> )	Minimum Boundary Distances or Building to Building (m)					
		Ration of Maximum Window / Opening Area to maximum elevation area of division					
		5%	12.5%	25%	50%	75%	100%
OC1	50	2	2	2.2	3.5	4.5	6
OC2, OC3, OC4	100	2	2.2	3.5	5.2	5.4	8.5
OC5, OC8, OC10	250	2	3	5.6	8.9	10.5	12.8
OC13, OC14, OC15	500	2	3.7	7.1	11.8	14.8	17.5
OC16, OC17, OC22	750	2.3	4.5	8.2	13.5	17.5	21
OC23, OC24, OC25	1,000	4.3	6.3	9.4	15.8	20	24.5
OC28, OC29	OVER 1,000	6.5	8	10.6	18.1	22.5	28
OC6	50	2	2.5	3	4.5	6	8
OC7, OC9	100	2	3	4.5	7	8.5	11
OC11, OC12	250	2.2	4	7.5	10.5	13.5	17
OC18, OC19	500	2.5	5	9.5	14.5	19.5	23
OC20, OC 21	750	4	6	11	8	23.5	28.5
OC26, OC27	1,000	5.2	7	12.5	21	27	33
OC26, OC27	OVER 1000	7	8.5	14	24	30.5	37.5

### Fifteenth Schedule: NOTIONAL PERIODS OF FIRE RESISTANCE

### sub-article 3.4.2.3

Material	Thickness (mm)	Member	Fire Resistance Period (hours)				
			0.5	1	2	4	6
Natural, stone, clay, bricks, concrete, sand-lime	100	Wall		x			
	200	Partition			x		
Concrete blocks	100	Wall			x		
	75	Partition		x			
Reinforced concrete	200	Wall					x
	150	Partition				x	
	100	Partition			x		
	75	Partition		x			
Hollow clay blocks	200	Wall				x	
	150	Partition			x		
	100	Partition		x			
	75	Partition	x				
Hollow concrete blocks	200	Wall		x			
	100	Partition	x				

**Sixteenth Schedule: FIRE RESISTANCE RATING OF OCCUPANCY SEPARATING ELEMENTS**

sub-article 3.4.3.3

<b>Occupancy Separating Element Class</b>	<b>Fire Resistance Rating (hours)</b>
All, other than those specified below	1
OC6, OC11, OC14, OC27, OC28, OC29	2
OC26	4

**Seventeenth Schedule: FIRE RESISTANCE OF DIVISION SEPARATING ELEMENT**

sub-article 3.4.3.4

<b>Division Element Occupancy Class</b>	<b>Fire Resistance Rating (hours)</b>
All, other than those specified below	2
OC8	1.5
OC21, OC24	1
OC26	4

**Eighteenth Schedule: STABILITY OF STRUCTURAL ELEMENT/COMPONENT**

**sub-article 3.4.3.6**

Structural Member Occupancy class	Stability of member (hours)				
	Single storey	Double storey	3-8 storeys	9 storeys and over	Basement storey
OC1	0.5	1	2	2	2
OC2	0.5	1	2	2	2
OC3	0.5	0.5	1.5	2	2
OC4	0.5	1	1.5	2	2
OC5	0.5	0.5	1	1.5	-
OC6	1	1	2	3	2
OC7	0.5	1	2	2	2
OC8	0.5	0.5	1.5	2	2
OC9	1	1.5	2	2	2
OC10	0.5	1	1.5	2	2
OC11	1	1.5	2	3	4
OC12	0.5	1	1.5	2	3
OC13	0.5	0.5	1	2	2
OC14	0.5	0.5	1	1.5	1
OC15	1	1	1.5	2	3
OC16	1	1.5	2	3	2
OC17	1	1	2	3	2
OC 18	1	1.5	2	3	2
OC 19	1.5	1	2	3	2
OC 20	1	1.5	2	2	2
OC 21	0.5	1	1.5	2	2
OC 22	0.5	1	1.5	2	2
OC 23	0.5	0.5	1	2	2
OC 24	0.5	0.5	1	2	2
OC 25	0.5	0.5	0.5-	-	2
OC 26	1	1.5	2	3	4
OC 27	0.5	1	1.5	1.5	3
OC 28	0.5	0.5	1.5	2	2
OC 29	0.5	0.5	1	1.5	2

**Nineteenth Schedule: EXIT IN ESCAPE ROUTES**

**sub- article 3.4.6.20**

Population In Building	Exits
Up to 200	2
200-300	3
300-400	4
400-550	5
550-700	6
700-850	7
850-1000	8
1000-1500	9
1500-2000	10
Over 2000	10+1 for each 500 additional

**Twentieth Schedule: SPECIFICATION OF MORTARS IN MASONRY CONSTRUCTION**

sub-article 4.3.2.4

<b>Types of Mortars (Mix Proportions by volume)</b>				<b>Compressive strength at 28 days (N/mm<sup>2</sup>)</b>
<b>Class of mortar</b>	<b>Cement: Lime: Sand</b>	<b>Cement: Lime</b>	<b>Cement: Lime (with plasticizer)</b>	
1	1:1/4:3	-	-	11
2		1:3	1:3 1/2	4.5
3	1:1:5 1/2	1:4 1/2	1:5 1/2	2.5
4	1:1:8 1/2	1:6	1:7 1/2	1

**Twenty First Schedule: MINIMUM PERIODS BEFORE STRIKING FORMWORK**

sub-article 4.3.3.4

<b>Structural Member</b>	<b>No. of Days</b>
Beam and cantilever sides, walls and columns	1
Slabs (struts left under)	4
Beam soffits (struts left under)	7
Slabs (removal of struts)	10
Beams (removal of struts)	14
Cantilevers (removal of struts)	28

Twenty Second Schedule: MINIMUM LATRINE ACCOMMODATION

sub-article 5.2.1.2 & 5.2.2.10

FUNCTION	USERS	POPULATION	PROVISION OF LATRINES/WCS			
			Male			Female
			Without Urinal	With Urinal	Additional Urinals	
SCHOOL OR COLLEGE	staff	1 – 15	-	1	-	1
		16 – 35	-	2	1	2
		36 – 60	-	3	2	4
	boarding students	1 – 15	-	1	-	1
		16 – 30	-	2	1	2
		31 – 75	-	3	2	4
		76 – 100	-	6	4	8
		101 – 150	-	8	4	10
	Over 150	-	1 per 30	1 per 25	1 per 50	
NURSERY	pupils		1 per 15*	1 per 15*	1 per 15*	1 per 15*
ELEMENTARY SCHOOL	boys	1 – 25	2	2	1	-
		26 -50	3	2	2	-
		51 – 75	4	3	2	-
		76 – 100	5	4	3	-
		101 – 125	6	5	4	-
		126 – 150	8	6	4	-
		151 – 175	9	7	5	-
		176 – 200	10	8	5	-
		Over 200	1 per 30	1 per 30	1 per 50	-
	girls	11 – 20	-	-	-	2
		21 – 40	-	-	-	2
		41 – 60	-	-	-	3
		61 – 80	-	-	-	4
		81 – 100	-	-	-	5
		101 – 120	-	-	-	6
		121 – 140	-	-	-	7
		141 – 160	-	-	-	8
		161 – 180	--	-	-	9
		181 – 200	-	-	-	10
			Over 200	-	-	-
OFFICE OR PUBLIC BUILDING		persons	1 – 15	-	1	-
	16 – 35		-	2	-	2
	Over 35		-		1 per 75	
RESTAURANT	public, male	1 – 50	-	1	--	1
		16 – 50	-	2	-	2
		Over 50	-	2	1 per 40	2
	public, female	1 - 50	1	-	--	2
		1 – 15	-	1	--	-
	staff, male	Over 15	-	-	1 per 75	-
staff, female	1 - 12	1	-	-	1	
WAREHOUSE, WORKSHOPS AND OTHER WORKPLACES	male	1 - 15	2	1	1	-
		16 – 35	3	1	2	-
	female	1 – 12	-	-	-	1
		13 - 25	-	-	-	2

**Twenty Third Schedule: FEES FOR HOARDING AND SCAFFOLDING**

**sub-article 6.1.2.3**

<b>Hoarding Period (months)</b>	<b>Fee (Currency Points per meter length)</b>
Up to 3	0.075
3-6	0.15
6-12	0.25
12-24	0.5
Over 24	0.50+0.15 for every additional month or part thereof