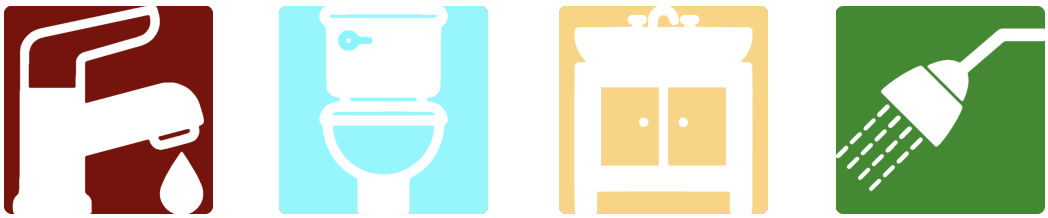
UNIVERSITY OF THE PHILIPPINES

MASTER DEVELOPMENT PLAN



RESTROOM DESIGN STANDARDS

OFFICE OF DESIGN AND PLANNING INITIATIVES
OFFICE OF THE VICE PRESIDENT FOR DEVELOPMENT

2018

UNIVERSITY OF THE PHILIPPINES

MASTER DEVELOPMENT PLAN

RESTROOM DESIGN STANDARDS

Table of Contents

Introduction

A well-designed public restroom has to be:

1. Clean and dry
2. Well ventialled
3. Easy to maintain
4. Planned carefully
5. Friendly to persons with disability
6. Effective in serving the user's comfort/hygiene needs

Design Key Points

1. Layout
2. Lighting
3. Materials
4. Urinals
5. Water Closets
6. Lavatory Counters and Wash Basins
7. Accessories
8. Finishes
9. Installation Standards
10. Ventilation System
11. Plumbing and Sewerage System
12. Looscaping
13. Security and Vandalism Measures

Chapter 1

Layout

- Single entrance/exit plans work satisfactorily provided the path of the users do not cross each other and the main entrance is wide enough.
- The main entrance shall preferable have no door, and the cubicles, urinals, and mirrors shall be away from the line of sight from the main entrace.

- Public toilets should be designed to minimize hand contact as much as possible for hygienic reasons. Electronic products for toilets such as flush valves and faucets require minimum maintenance and offer enhanced operations that promote sanitation and perceived cleanliness because of hands-free operation.

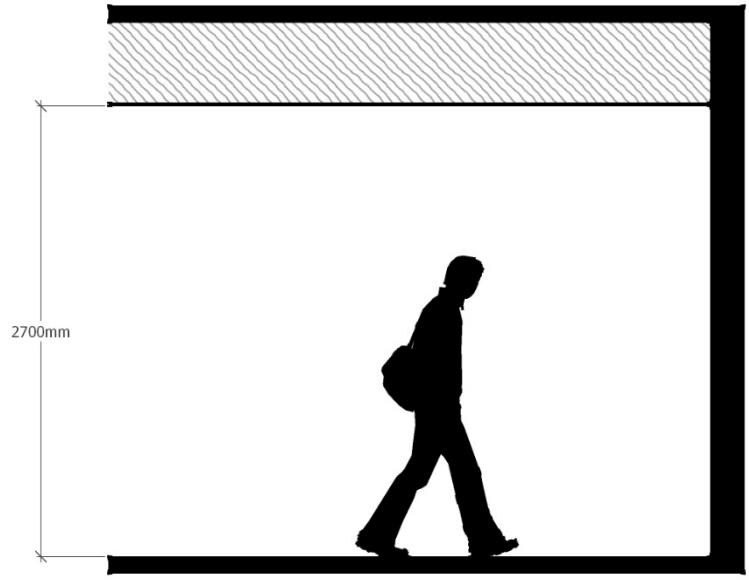
- Location of accessible toilets should not be too remote from the main traffic area to avoid long travel distance.
- The ratio of fittings in male and female toilets shall be 3:5, for example, 1 WC and 2 Urinals for male: 5 WCs for female.
- As much as possible, fixtures such as urinals and WCs should be fitted back-to-back with common pipe ducts in between.
- All public toilets should be mechanically ventilated. Small public toilets should be fitted with an exhause fan as minimum.

Room Layout and Dimensions

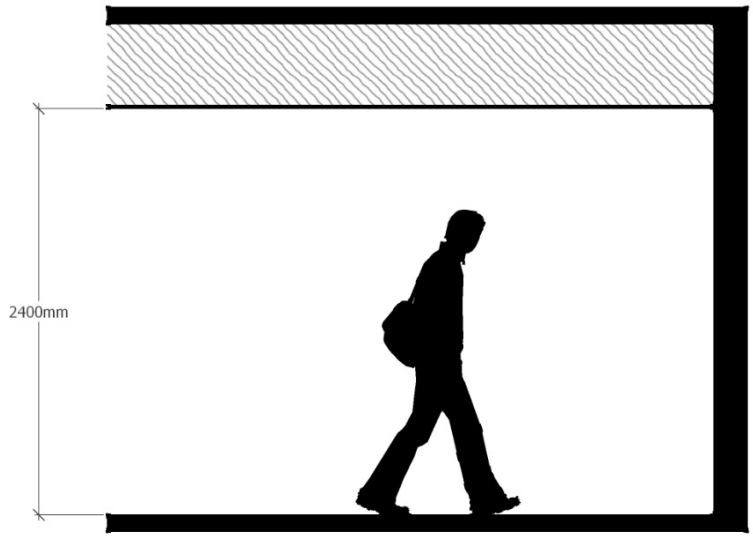
Public Restrooms: Typical Layout with Separate PWD Toilet

- TYPICAL 4.5M x 9.0M BAY
- MAIN ENTRY CLEAR WIDTH = 2000MM
- CORRIDOR CLEAR WIDTH = 1200MM
- RESTROOM ENTRY CLEAR WIDTH = 1200MM
- FOR PWD TOILETS, REFER TO BP 344 ACCESSIBILITY LAW

Restroom Ceiling Height



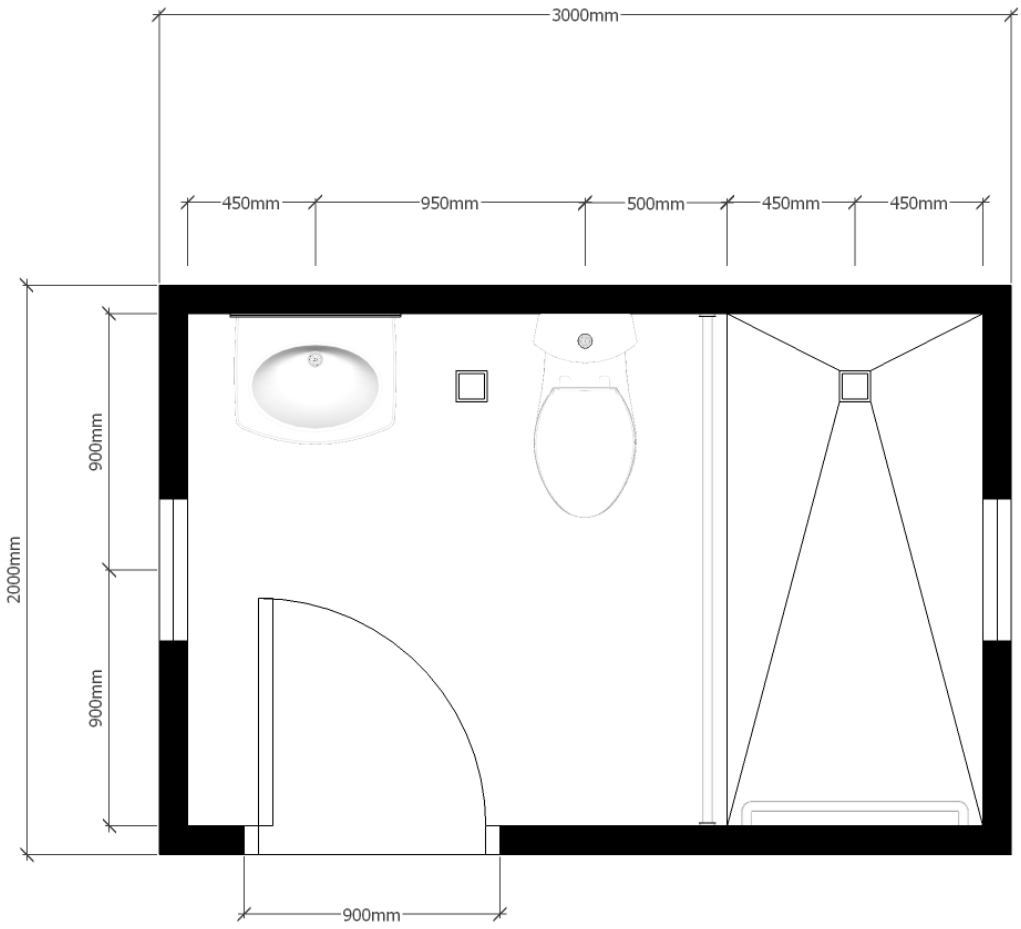
- GROUND FLOOR = 2.7M



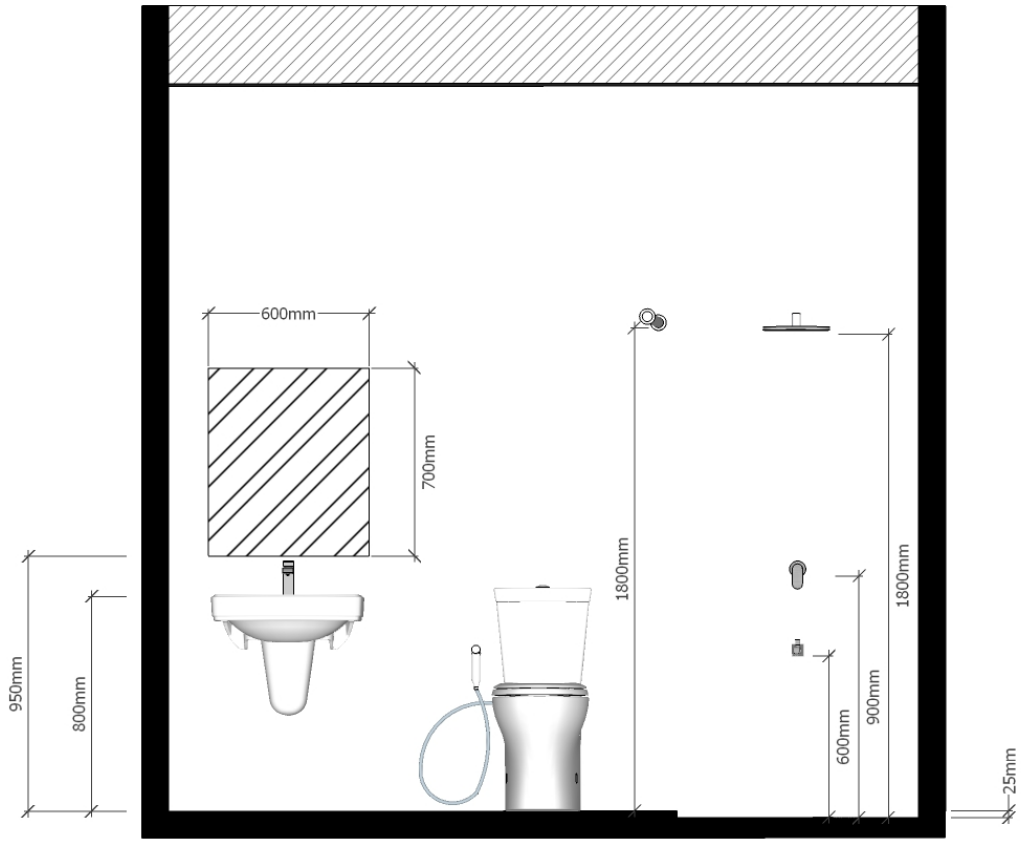
- UPPER FLOORS = 2.4M

Private Restroom

- ROOM DIMENSIONS (OUTER)
  - LENGTH = 2000MM
  - WIDTH = 3000MM
- DOOR WIDTH = 900MM
- LOCATE WINDOWS AWAY FROM PIPES AND FIXTURES



- STANDARD LAYOUT (ELEVATION)
  - LAVATORY
    - HEIGHT = 800MM
  - MIRROR
    - LENGTH = 700MM (MIN)
    - WIDTH = 600MM (MIN)
    - HEIGHT = 950MM
- SHOWER CURTAIN = 900MM
- SHOWER
  - DROP = 25MM
  - SHOWER HEAD HEIGHT = 1800MM
  - LEVER HEIGHT = 900MM
  - FAUCET HEIGHT = 600MM
- LOCATE WINDOWS AWAY FROM PIPES AND FIXTURES



Chapter 2

Lighting

- Natural lightning can be used to help create a softer, friendlier environment.
- All public toilets should be provided with warm-color lighting for general lighting as well as down lights above the wash basin/mirror. Warm color lighting aids in creating a better ambience in the toilets, which in turn encourages more care and responsibility from the users.

Natural Lighting

- CLERESTORY WINDOWS
  - AWNING TYPE
  - CLEAR GLASS OR FROSTED GLASS
  - POWDER COATED ALUMINUM FRAME

- COLORS
  - NEUTRAL 
  - EARTH TONES 

Artificial Lighting

- DOWNLIGHTS
  - LED
  - ROUND TYPE 75MM DIAMETER, RECESSED
  - SQUARE TYPE 200MM x 200MM, RECESSED
  - POWDER COATED ALUMINUM HOUSING (WHITE)
  - POSITION ABOVE FIXTURES
  - COLORS
    - WARM WHITE
    - DAYLIGHT

- WALL SCONCE
  - LED
  - PLACE ABOVE OR BESIDE MIRRORS
  - COLORS
    - WARM WHITE

- STRIP LIGHTS
  - LED
  - PLACE IN COVE LIGHTS AND BEHIND MIRRORS
  - COLORS
    - WARM WHITE

Chapter 3

Materials

- Carefully selected and durable materials to reduce the need for maintenance and prevent misuse (vandalism).
- Applied finishes such as paint should be avoided together with any materials which are affected by moisture or corrosion (e.g., woodchip products and ferrous metals).
- Non-slip homogeneous tiles are often selected because they are durable and are relatively easy to clean.
- All toilets should have moisture impervious cleanable surface regardless of building code requirements.
- If there is piping above the ceiling, suspended tiles will permit easy access for maintenance and are more easily repaired in the event of spot damage.
- Moisture resistant gypsum ceiling board, mineral fiber board, or calcium silicate board may be better suited for applications where access above the ceiling is not required.

Floor

- NON-SLIP TILES
- NATURAL STONE
- HOMOGENEOUS TILES
- TERRAZZO

Wall

- NATURAL STONE
- HOMOGENEOUS TILE
- STAINLESS STELL
- ENAMELED STEEL
- GLASS BLOCK
- ALUMINUM PANELS
- PHENOLIC CLADDING

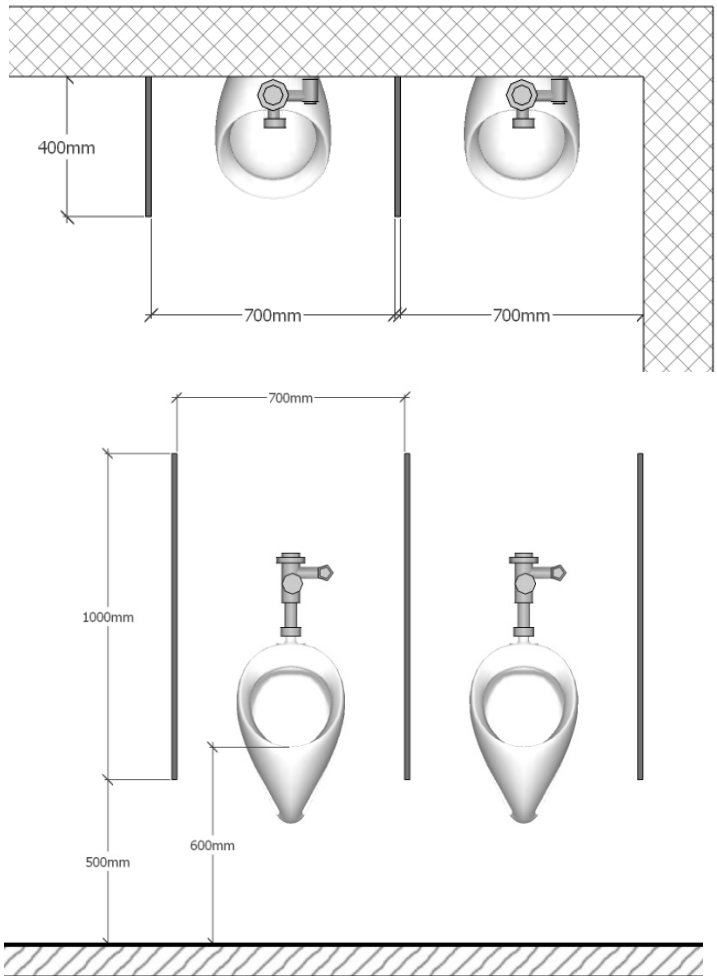
Ceiling

- GYPSUM CEILING BOARD
- MINERAL FIBER BOARD
- FIBROUS PLASTER BOARD
- ALUMINUM PANELS OR STRIPS
- CALCIUM SILICATE BOARD
- SUSPENDED CEILING TILES

Chapter 4

Urinals

- Individually wall-hung urinal units shall be at least 300mm wide and the lip of the collection area shall project from the wall at least 300mm.
- A urinal should not be set closer than 450mm from its center to any side wall, partition, vanity or other obstruction, or closer than 900mm center-to-center between adjacent fixtures.
- There should be at least 900mm clearance in front of the urinal to any wall, fixture, or door.
- Urinals should be separated by privacy panels to act as visual barrier between urinals.
- Privacy panels should not extend right down to the floor as this makes cleaning considerably harder.
- Full length urinals should be installed to cater for children's use.
- As a further enhancement to keep the urinal area dry, scupper drains or steel grating over the drainage could be installed below the urinal bowls.
- Litterbins with covers operated without hand contact (e.g. foot pedal) should also be provided for users who need to was and clean up after urinating so as to reduce littering in urinals.



General Features

- CEREMAIC WITH INNOGLAZE FINISH
- WALL HUNG
- PUSH VALVE

Lip Height

- 600MM

Colors

- WHITE ONLY

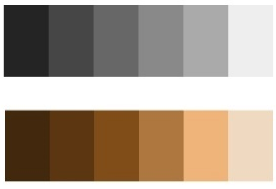

Privacy Panel

General Features

- DEPTH = 400MM (MIN)
- HEIGHT = 1000MM (MIN)
- CLEAR SPACING = 700MM (MIN)
- PHENOLIC (SOLID COLORS OR WOOD PATTERN)
- WALL MOUNTED

Colors

- NEUTRAL
- EARTH TONES



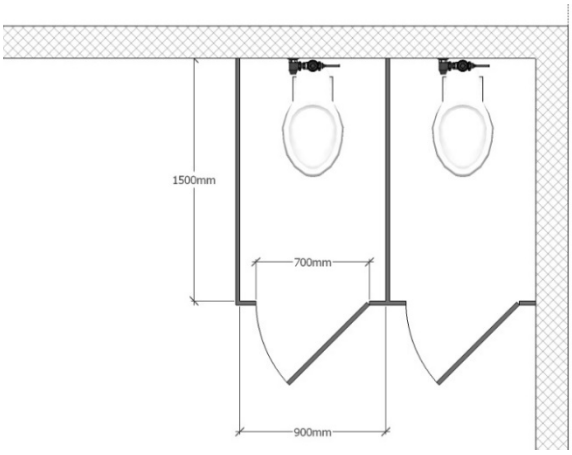
Chapter 5

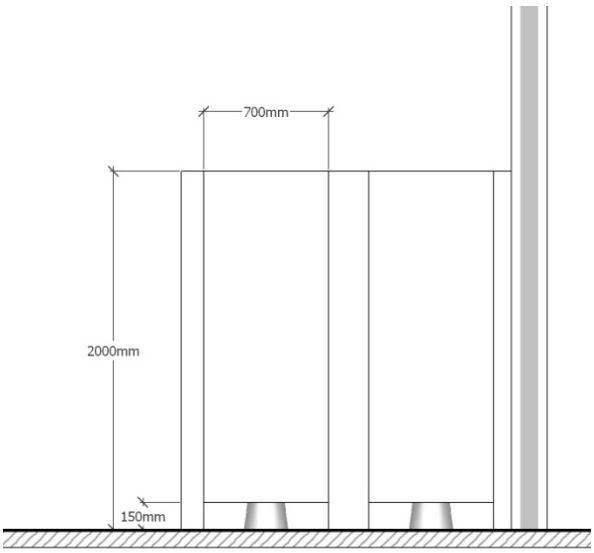
Water Closets

- Pedestal (sitting) type WCs shall preferably be wall hung, without leg support, so as to facilitate cleaning.
- A WC should be set closer than 450mm from its center to any side wall, partition, vanity, or other obstruction.
- There should be at least 900mm clearance in front of the urinal to any wall, fixture, or door.
- The shape of WCs should be of the elongated type.
- Seats should be constructed of smooth, non-absorbent material.
- All seats should be of the hinged open front type.
- It is encouraged for WCs to be installed without the toilet lids if they do not serve any intended purpose.
- Cubicle partitions shall be of rigid design and wall or ceiling hung, where practical, without leg support for easy cleaning of the floor.
- A ledge or foldable shelf should be installed in the cubicles for putting personal items.

Dimensions

- CLEAR DEPTH = 1500MM
- CLEAR WIDTH = 900MM
- HEIGHT = 2000MM
- DOOR OPENING = 700MM
- BOTTOM OPENING = 150MM
- TOILET DISTANCE TO WALL = 450MM (WALL TO CENTER OF TOILET)
- FLUSH VALVE HEIGHT = 800MM
- FOR PWD TOILETS, REFER TO BP 344 ACCESSIBILITY LAW





Material Specifications

- CERAMIC (GLAZED FINISH)
- FLOOR MOUNTED
- ONE PIECE TANK TYPE
- LOW CONSUMPTION 4.5 LPF
- DUAL FLUSH
- WITH TOILET SEAT AND COVER
- PROVIDE SPRAY/BIDET HOSE (FOR PRIVATE RESTROOMS)

Colors

- WHITE ONLY

Chapter 6

Wash Basins and Lavatory Counters

- Basins should have a minimum size of 540MM in length and 400MM in width.
- Wash basins should not be set closer than 450MM from its center to any side wall, partition, vanity or other obstruction, or closer than 900MM center-to-center between adjacent fixtures.
- All wash basins should be installed into lavatory counters.
- The use of flat bottom wash basin is not recommended because it does not effectively allow dirt and debris to be washed into the drain pipes.
- Wash basins shall be on top of lavatory counters.
- For basins that are stand-alone, these shall be deep enough to prevent water splashing out of the basins when in use.
- In food retail outlets where toilet facilities are provided, wash basins shall preferably be outside the toilet.
- The flow rate at these basins shall be two (2) liters per minute without exceeding six (6) liters per minute. Such flow rate will effectively allow dirt and debris to be washed into the drain pipes.
- The wash basin designed for persons with disabilities shall have self-closing delayed-action sensor type taps.

Wash Basins for Public Restrooms

Dimensions

- WIDTH = 540MM (RECOMMENDED)
- DEPTH = 400MM (RECOMMENDED)
- SPACING = 800MM ON CENTER

Material Specifications

- CERAMIC
- SEMI-COUNTERTOP TYPE
- SINGLE LEVER CERAMIC DISC FAUCET (BRASS CHROME PLATED)

Colors

- WHITE ONLY

Wash Basins for Private Restrooms

Material Specifications

- CERAMIC (GLAZED FINISH)
- WALL MOUNTED
- SINGLE LEVER CERAMIC DISC FAUCET OR SENSOR TYPE
- STAINLESS STEEL OR CHROME PLATED BRASS FAUCET



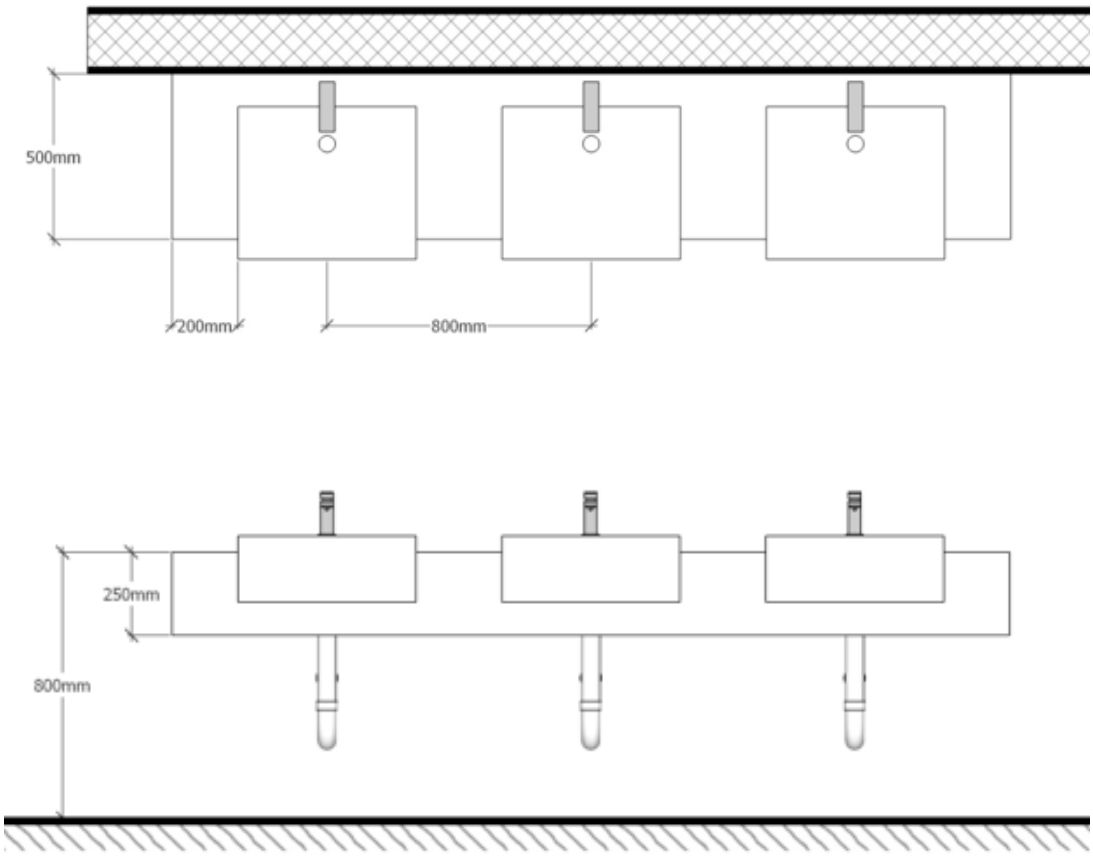

Colors

- WHITE ONLY

Lavatory Counter

Dimensions

- DEPTH = 600MM (MIN)
- HEIGHT = 800MM (MAX)
- OVERALL THICKNESS = 250MM (MIN)
- PROVIDE 200MM OFFSET AT SIDES
- PROVIDE 1.0M CLEAR SPACE IN FRONT OF LAVATORY



Material Specification

- GRANITE COUNTERTOP

Colors

- NEUTRAL
- EARTH TONES

Chapter 7

Fixtures and Accessories

Mirrors

General Features

- 6MM THICK
- PLATE GLASS
- WITH FELT PAPER ON 12MM THICK WEATHERPROOF MARINE PLYWOOD
- FRAMELESS OR SATIN FINISH ANODIZED ALUMINUM FRAME

Soap Dispensers

General Features

- STAINLESS STEEL
- MOUNTING HEIGHT = 900MM

Paper Towel Dispenser

General Features

- STAINLESS STEEL
- MECHANICAL TYPE

Trash Bins

General Features

- STEP CAN
- BRUSHED STAINLESS STEEL
- 4.5L (MIN)

Signages

General Features

- ACRYLIC OR STAINLESS STEEL

Colors

- NEUTRAL

Specifications for Private Restrooms

- SHOWER SET
  - WALL MOUNTED
  - STAINLESS STEEL OR CHROME PLATED BRASS
  - SINGLE LEVER CERAMIC DISC
  - COLD WATER ONLY
- FAUCET
  - WALL MOUNTED
  - STAINLESS STEEL OR CHROME PLATED BRASS
  - WITH DIVERTER VALVE
- SOAP HOLDER
  - WALL MOUNTED
  - PORCELAIN OR STAINLESS STEEL

Drains

Floor Drains

- 100MM x 100MM
- STAINLESS STEEL OR BRASS

Tile Insert

- 110MM x 110MM
- STAINLESS STEEL 304

Chapter 8

Finishes

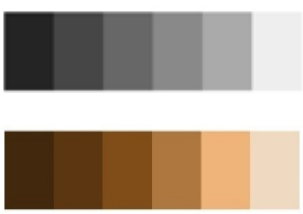
Floor Finishes

Material Specifications

- 600MM x 600MM
- RUSTIC OR MATTE FINISH
- STONE PATTERN

Colors

- NEUTRAL
- EARTH TONES



Wall Finishes

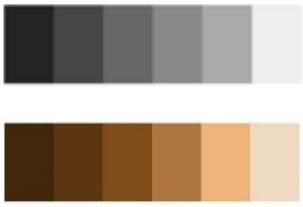
Material Specifications

- 300MM x 600MM
- SEMI-GLOSS, RUSTIC, OR MATTE FINISH
- STONE PATTERN




Colors

- NEUTRAL
- EARTH TONES



Ceiling Finishes

Material Specifications

- 10MM THICK
- TAPERED EDGE
- LIGHT GAUGE METAL FRAME
- PAINTED FINISH (FLAT LATEX)

Colors

- WHITE ONLY

Chapter 9

Installation Standards

- Surface mounting of cables should be avoided and cables should be fully concealed.
- Sharp corners or edges should be avoided.
- Access panels to pipe ducts should be located in inconspicuous areas.
- Mirrors should be flush with the wall surface.
- Sanitary and water appliances and fittings installed in public toilets shall be heavy-duty classiciation and quality and shall be easily-cleaned.

Chapter 10

Ventilation System

- An ineffective ventilation system can make a public restroom unbearable, even if it is well designed.
- An effective ventilation system ensures that vitiated air is quickly extracted and helps to avoid dampness and subsequent growth of mold on floors and walls.
- Access panels to pipe ducts should be located in inconspicuous areas.
- Sanitary and water appliances and fittings installed in public toilets shall be heavy-duty classiciation and quality and shall be easily-cleaned.

Mechanical Ventilation

- Where mechanical means are used for ventilation, there should be cross ventilation and the air exchange rate should have a minimum of 15 air changes per hour.
- The mechanical ventilation system of exhaust fans and, where applicable, ventilation ducts and grilles should ensure that every part of the toilet is within 3M of the fan inlet or an intake grille measured horizontally.
- Preferably, intake grilles should also be provided at low levels near the WCs to enable foul air to be extracted quickly before diffusing into other areas of the restroom.
- Replacement air should be supplied to the toilet to make up for the exhaust air.
- The replacement air may be taken directly from the exterior, or from adjacent spaces that are permanently air-conditioned or naturally ventilated.
- The replacement air should preferably be discharged close to the floor level near the wash basins to help keep the floor dry.
- Air locks should be incorporated to separate the toilet areas from food consumption or preparation areas.

- SPLIT TYPE AIR CONDITIONING SYSTEM
  - WALL MOUNTED
  - INVERTER TYPE
  - COLOR: WHITE ONLY

- EXHAUST FAN
  - CEILING MOUNTED
  - 300MM x 300MM COVER
  - COLOR: WHITE ONLY

Natural Ventilation

- Natural ventilation should be achieved through windows, doors, louvers, or other openings to the outdoors.
- CLERESTORY WINDOWS
  - AT LEAST 1.6M HEIGHT (FLOOR TO BOTTOM OF WINDOW)
  - AWNING TYPE
  - CLEAR GLASS OR FROSTED GLASS
  - POWDER COATED ALUMINUM FRAME
  - WINDOW FRAME COLORS
    - NEUTRAL
    - EARTH TONES

Chapter 11

Plumbing and Sewerage System

- All pipe works should be concealed, except for final connections to the fixtures.
- Pipe work exposed to view should be chrome-plated.

Chapter 12

Looscaping

- The ambience of public toilets can be enhanced further by:
    - Introducing plants which can be easily maintained inside the restrooms as well as surrounding the restrooms;
    - Placing of wall pictures (made of impervious materials) and illuminated with delicate lighting; and
    - Placing of ornaments or sculptures at the dead corners of the restrooms.

Chapter 13

Security and Vandalism Measures

- As a security measure, lighting should be directed at areas of concealment or vandalism-prone areas.
- Wherever possible, surfaces of walls, lavatory counters, toilet cubicle partitions, and other surfaces in and around public restrooms should use graffiti resistant materials, graffiti discouraging decoration, and coloration schemes.
- Durable materials should be used to withstnad heavy usage, excessive weight, and possible abuse.
- Piping should be concealed to protect against public contact.
- Durable materials resistant to human impact should be used for all exposed piping.
- The most effective anti-theft measure is the installation of higher partitions between cubicles to prevent adjacent users from committing theft.
- During non-operational hours, restroom entrances and windows should be secured by shutters, locks, or dead bolts to discourage vandalism.

Chapter 14

Fixture Ratio

Assembly places (theatres, auditoriums, convention halls for the public)

Water Closet		Urinals	Lavatory		Drinking Fountain
Male	Female		Male	Female	
1: 1-100	3: 1-50	1: 1-100	1: 1-200	1: 1-200	1 per 75
2: 101-200	4: 51-100	2: 101-200	2: 201-400	2: 201-400	
3: 201-400	8: 101-200	3: 201-400	3: 401-750	3: 401-750	
	11: 201-400	4: 401-600			
Additional 1 per 500 if over 400	Additional 2 per 300 if over 400	Additional 1 per 500 if over 600	Additional 1 per 500 if over 750		

Assembly places (theatres, auditoriums, convention halls for employees)

Water Closet		Urinals	Lavatory	
Male	Female		Male	Female
1: 1-15	1: 1-15	0: 1-9	1 per 40	1 per 40
2: 16-35	2: 16-35	1: 10-50		
3: 36-55	3: 36-55			
Additional 1 per 40 if over 55		Additional 1 per 50 if over 50		

Dormitories for students

Water Closet		Urinals	Lavatory		Shower
Male	Female		Male	Female	
1 per 10	1 per 8	1 per 25	1 per 12	1 per 12	1 per 8
Additional 1 per 25 if over 10	Additional 1 per 20 if over 8	Additional 1 per 50 if over 150	Additional 1 per 20 if over 150	Additional 1 per 15 if over 150	

Dormitories for staff

Water Closet		Urinals	Lavatory		Shower
Male	Female		Male	Female	
1: 1-15	1: 1-15	1 per 50	1 per 40	1 per 40	1 per 8
2: 16-35	3: 16-35				
3: 36-55	4: 36-55				
Additional 1 per 40 if over 55	Additional 1 per 40 if over 55				

Accessible Toilet Compartments

- 1 PER 20 WATER CLOSETS IN EVERY FLOOR
- ADDITIONAL 1 FOR EVERY EXCESS OF 20

Shower Rooms

- ONE PUBLIC SHOWER ROOM PER BUILDING
- ADDITIONAL ONE SHOWER ROOM PER 150 OCCUPANTS

Chapter 15

Preferred Brands

For Toilets, Urinals, Water Basins, Faucets, and Shower Heads

- AMERICAN STANDARD
- KOHLER
- TOTO

For Accessories

- KIMBERLY CLARK PROFESSIONAL
- BRADLEY CORPORATION

Chapter 16

Cost Estimates

RESTROOM TYPE	ESTIMATED COST RANGE per SQM
PUBLIC	PHP 40,000 - PHP 50,000 per SQM
PRIVATE	PHP 40,000 - PHP 50,000 per SQM

Chapter 17

National Building Code of the Philippines

NATIONAL BUILDING CODE OF THE PHILIPPINES

MALACAÑANG
Manila

PRESIDENTIAL DECREE NO. 1096

ADOPTING A NATIONAL BUILDING CODE OF THE PHILIPPINES THEREBY REVISING REPUBLIC ACT NUMBERED SIXTY-FIVE HUNDRED FORTY ONE

WHEREAS, the country's accelerating economic and physical development, coupled with urbanization and population growth, makes imperative the formulation and adoption of a uniform building code which shall embody up-to-date and modern technical knowledge on building design, construction, use, occupancy and maintenance;

WHEREAS, while there is Republic Act. No. 6541, entitled "An Act to Ordain and Institute a National Building Code of the Philippines", the same does not conform with the developmental goals and infrastructure program of the Government and does not adequately provide for all the technological requirements of buildings and structures, in terms of up-to-date design and construction standards and criteria;

WHEREAS, in the formation of new national building code, it is the desire and policy of the Government to avail of and harness the technical expertise and professional know-how of men not only in the public but in the private sectors as well,

NOW, THEREFORE, I, FERDINAND E. MARCOS, President of the Philippines, by virtue of the powers vested in me by the Constitution, do hereby order and decree the revision of Republic Act. No. 6541 to read as follows:

CHAPTER 1

GENERAL PROVISIONS

SECTION 101. Title

This Decree shall be known as the “National Building Code of the Philippines” and shall hereinafter be referred to as the “Code”.

SECTION 102. Declaration of Policy

It is hereby declared to be the policy of the State to safeguard life, health, property, and public welfare, consistent with the principles of sound environmental management and control; and to this end, make it the purpose of this Code to provide for all buildings and structures, a framework of minimum standards and requirements to regulate and control their location, site, design, quality of materials, construction, use, occupancy, and maintenance.

SECTION 103. Scope and Application

(a) The provisions of this Code shall apply to the design, location, siting, construction, alteration, repair, conversion, use, occupancy, maintenance, moving, demolition of, and addition to public and private buildings and structures, except traditional indigenous family dwellings as defined herein.

(b) Buildings and/or structures constructed before the approval of this Code shall not be affected thereby except when alterations, additions, conversions or repairs are to be made therein in which case, this Code shall apply only to portions to be altered, added, converted or repaired.

SECTION 104. General Building Requirements

(a) All buildings or structures as well as accessory facilities thereto shall conform in all respects to the principles of safe construction and must be suited to the purpose for which they are designed.

(b) Buildings or structures intended to be used for the manufacture and/or production of any kind of article or product shall observe adequate environmental safeguards.

(c) Buildings or structures and all parts thereof as well as all facilities found therein shall be maintained in safe, sanitary and good working condition.

SECTION 105. Site Requirements

The land or site upon which will be constructed any building or structure, or any ancillary or auxillary facility thereto, shall be sanitary, hygienic or safe. In the case of sites or buildings intended for use as human habitation or abode, the same shall be at a safe distance, as determined by competent authorities, from streams or bodies of water and/or sources of air considered to be polluted; from a volcano or volcanic site and/or any other building considered to be a potential source of fire or explosion.

SECTION 106. Definitions

As used in this Code, the words, terms and phrases enumerated in Annex “A” hereof shall have the meaning or definition, correspondingly provided therein.

CHAPTER 2

ADMINISTRATION AND ENFORCEMENT

SECTION 201. Responsibility for Administration and Enforcement

The administration and enforcement of the provisions of this Code including the imposition of penalties for administrative violations thereof is hereby vested in the Secretary of Public Works, Transportation and Communications, hereinafter referred to as the "Secretary".

SECTION 202. Technical Staff

The Secretary is hereby authorized to constitute and provide in his Department a professional staff composed of highly qualified architects, engineers and technicians who possess diversified and professional experience in the field of building design and construction.

SECTION 203. General Powers and Functions of the Secretary under this Code

For purposes of carrying out the provisions of this Code, the Secretary shall exercise the following general powers and functions:

(1) Formulate policies, plans, standards and guidelines on building design, construction, use, occupancy and maintenance, in accordance with this Code.
(2) Issue and promulgate rules and regulations to implement the provisions of this Code and ensure compliance with policies, plans, standards and guidelines formulated under paragraph 1 of this Section.
(3) Evaluate, review, approve and/or take final action on changes and/or amendments to existing Referral Codes as well as on the incorporation of other referral codes which are not yet expressly made part of this Code.
(4) Prescribe and fix the amount of fees and other charges that the Building Official shall collect in connection with the performance of regulatory functions.

SECTION 204. Professional and Technical Assistance

The Secretary with the assistance of his technical staff shall provide such professional, technical, scientific and other services including testing laboratories and facilities as may be required to carry out the provisions of this Code; Provided that the Secretary may secure such services as he may deem necessary from other agencies of the National Government and may make arrangement for the compensation of such services. He may also engage and compensate within appropriations available therefore, the services of such number of consultants, experts and advisers on full or part-time basis, as may be necessary, coming from the government or private businesses, entities or associations to carry out the provisions of this Code.

SECTION 205. Building Officials

Except as otherwise provided herein, the Building Official shall be responsible for carrying out the provisions of this Code in the field as well as the enforcement of orders and decisions made pursuant thereto.
Due to the exigencies of the service, the Secretary may designate incumbent Public Works District Engineers, City Engineers and Municipal Engineers to act as Building Officials in their respective areas of jurisdiction.
The designation made by the Secretary under this Section shall continue until regular positions of Building Official are provided or unless sooner terminated for causes provided by law or decree.

SECTION 206. Qualifications of Building Officials

No person shall be appointed as a Building Official unless he possesses the following qualifications:

1. A Filipino citizen and of good moral character.
2. A duly registered architect or civil engineer.
3. A member of good standing of a duly accredited organization of his profession for not less than two years.
4. Has at least five years of diversified and professional experience in building design and construction.

SECTION 207. Duties of a Building Official

In his respective territorial jurisdiction, the Building Official shall be primarily responsible for the enforcement of the provisions of this Code as well as of the implementing rules and regulations issued therefor. He is the official charged with the duties of issuing building permits.

In the performance of his duties, a Building Official may enter any building or its premises at all reasonable times to inspect and determine compliance with the requirements of this Code, and the terms and conditions provided for in the building permit as issued.

When any building work is found to be contrary to the provisions of this Code, the Building Official may order the work stopped and prescribe the terms and/or conditions when the work will be allowed to resume. Likewise, the Building Official is authorized to order the discontinuance of the occupancy or use of any building or structure or portion thereof found to be occupied or used contrary to the provisions of this Code.

SECTION 208. Fees

Every Building Official shall keep a permanent record and accurate account of all fees and other charges fixed and authorized by the Secretary to be collected and received under this Code.

Subject to existing budgetary, accounting and auditing rules and regulations, the Building Official is hereby authorized to retain not more than twenty percent of his collection for the operating expenses of his office.

The remaining eighty percent shall be deposited with the city or municipal treasurer and shall accrue to the General Fund of the province, city or municipality concerned.

SECTION 209. Exemption

Public buildings and traditional indigenous family dwellings shall be exempt from payment of building permit fees.

As used in this Code, the term “traditional indigenous family dwelling” means a dwelling intended for the use and occupancy by the family of the owner only and constructed of native materials such as bamboo, nipa, logs, or lumber, the total cost of which does not exceed fifteen thousand pesos.

SECTION 210. Use of Income from Fees

Any provision of law to the contrary notwithstanding, the Secretary is hereby authorized to prescribe the procedures for the use of all net income realized by the office of the Building Official from the collection of fees and charges not exceeding twenty percent thereof in accordance with Section 208.

Such income may be used to cover necessary operating expenses including the purchase of equipment, supplies and materials, traveling expenses, obligation expenses and sheriff’s fees and payment of other prior years’ obligations not adequately funded, subject to existing budgetary and auditing rules and regulations.

SECTION 211. Implementing Rules and Regulations

In the implementation of the provisions of this Code, the Secretary shall formulate necessary rules and regulations and adopt design and construction standards and criteria for buildings and other structures. Such standards, rules and regulations shall take effect after their publication once a week for three consecutive weeks in a newspaper of general circulation.

SECTION 212. Administrative Fines

For the violation of any of the provisions of this Code or any of the rules or regulations issued thereunder, the Secretary is hereby empowered to prescribe and impose fines not exceeding ten thousand pesos.

SECTION 213. Penal Provisions

It shall be unlawful for any person, firm or corporation, to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, occupy, or maintain any building or structure or cause the same to be done contrary to or in violation of any provision of this Code.

Any person, firm or corporation who shall violate any of the provisions of this Code and/or commit any act hereby declared to be unlawful shall upon conviction, be punished by a fine of not more than twenty thousand pesos or by imprisonment of not more than two years or by both such fine and imprisonment: Provided, that in the case of a corporation firm, partnership or association, the penalty shall be imposed upon its officials responsible for such violation and in case the guilty party is an alien, he shall immediately be deported after payment of the fine and/or service of his sentence.

SECTION 214. Dangerous and Ruinous Buildings or Structures

Dangerous buildings are those which are herein declared as such or are structurally unsafe or not provided with safe egress, or which constitute a fire hazard, or are otherwise dangerous to human life, or which in relation to existing use, constitute a hazard to safety or health or public welfare because of inadequate maintenance, dilapidation, obsolescence, or abandonment; or which otherwise contribute to the pollution of the site or the community to an intolerable degree.

SECTION 215. Abatement of Dangerous Buildings

When any building or structure is found or declared to be dangerous or ruinous, the Building Official shall order its repair, vacation or demolition depending upon the degree of danger to life, health, or safety. This is without prejudice to further action that may be taken under the provisions of Articles 482 and 694 to 707 of the Civil Code of the Philippines.

SECTION 216. Other Remedies

The rights, actions and remedies provided in this Code shall be in addition to any and all other rights of action and remedies that may be available under existing laws.

CHAPTER 3

PERMITS AND INSPECTION

SECTION 301. Building Permits

No person, firm or corporation, including any agency or instrumentality of the government shall erect, construct, alter, repair, move, convert or demolish any building or structure or cause the same to be done without first obtaining a building permit therefor from the Building Official assigned in the place where the subject building is located or the building work is to be done.

SECTION 302. Application for Permits

In order to obtain a building permit, the applicant shall file an application therefor in writing and on the prescribed form from the Office of the Building Official. Every application shall provide at least the following information:

(1) A description of the work to be covered by the permit applied for;

(2) Certified true copy of the TCT covering the lot on which the proposed work is to be done. If the applicant is not the registered owner, in addition to the TCT, a copy of the contract of lease shall be submitted;

(3) The use or occupancy for which the proposal work is intended;

(4) Estimated cost of the proposed work.

To be submitted together with such application are at least five sets of corresponding plans and specifications prepared, signed and sealed by a duly registered mechanical engineer in case of mechanical plans, and by a registered electrical engineer in case of electrical plans, except in those cases exempted or not required by the Building Official under this Code.

SECTION 303. Processing of Building Permits

The processing of building permits shall be under the overall administrative control and supervision of the Building Official and his technical staff of qualified professionals.

In processing an application for a building permit, the Building Official shall see to it that the applicant satisfies and conforms with approved standard requirements on zoning and land use, lines and grades, structural design, sanitary and sewerage, environmental health, electrical and mechanical safety as well as with other rules and regulations promulgated in accordance with the provisions of this Code.

SECTION 304. Issuance of Building Permits

When satisfied that the work described in an application for building permit and the plans and specifications submitted therewith, conform to the requirements of this Code and other pertinent rules and regulations, the Building Official shall, within fifteen days from payment of the required fees by the applicant, issue the building permit applied for.

The Building Official may issue a permit for the construction of only a part or portion of a building or structure whenever the plans and specifications submitted together with the application do not cover the entire building or structure.

Approved plans and specifications shall not be changed, modified or altered without the approval of the Building Official and the work shall be done strictly in accordance thereto.

SECTION 305. Validity of Building Permits

The issuance of a building permit shall not be construed as an approval or authorization to the permittee to disregard or violate any of the provisions of this Code.

Whenever the issuance of a permit is based on approved plans and specifications which are subsequently found defective, the Building Official is not precluded from requiring permittee to effect the necessary corrections in said plans and specifications or from preventing or ordering the stoppage of any or all building operations being carried on thereunder which are in violation of this Code.

A building permit issued under the provisions of this Code shall expire and become null and void if the building or work authorized therein is not commenced within a period of one year from the date of such permit, or if the building or work so authorized is suspended or abandoned at any time after it has been commenced, for a period of 120 days.

SECTION 306. Non-Issuance, Suspension or Revocation of Building Permits

The Building Official may order or cause the non-issuance, suspension or revocation of building permits on any or all of the following reasons or grounds:

(a) Errors found in the plans and specifications;
(b) Incorrect or inaccurate data or information supplied;
(c) Non-compliance with the provisions of this Code or of any rule or regulation.

Notice of non-issuance, suspension or revocation of building permits shall always be made in writing, stating the reason or grounds therefor.

SECTION 307. Appeal

Within fifteen (15) days from the date of receipt of advice of the non-issuance, suspension or revocation of permits, the applicant/permittee may file an appeal with the Secretary who shall render his decision within fifteen days from date of receipt of notice of appeal. The decision of the Secretary shall be final subject only to review by the Office of the President.

SECTION 308. Inspection and Supervision of Work

The owner of the Building who is issued or granted a building permit under this Code shall engage the services of a duly licensed architect or civil engineer to undertake the full time inspection and supervision of the construction work.

Such architect or civil engineer may or may not be the same architect or civil engineer who is responsible for the design of the building.

It is understood however that in either case, the designing architect or civil engineer is not precluded from conducting inspection of the construction work to check and determine compliance with the plans and specifications of the building as submitted.

There shall be kept at the jobsite at all times a logbook wherein the actual progress of construction including tests conducted, weather conditions and other pertinent data are to be recorded.

Upon completion of the construction, the said licensed architect or civil engineer shall submit the logbook, duly signed and sealed, to the Building Official. He shall also prepare and submit a Certificate of Completion of the project stating that the construction of building conforms to the provisions of this Code as well as with the approved plans and specifications.

SECTION 309. Certificate of Occupancy

No building or structure shall be used or occupied and no change in the existing use or occupancy classification of a building or structure or portion thereof shall be made until the Building Official has issued a Certificate of Occupancy therefor as provided in this Code.

A Certificate of Occupancy shall be issued by the Building Official within thirty (30) days if after final inspection and submittal of a Certificate of Completion referred to in the preceding Section, it is found that the building or structure complies with the provisions of this Code.

The Certificate of Occupancy shall be posted or displayed in a conspicuous place on the premises and shall not be removed except upon order of the Building Official.

The non-issuance, suspension and revocation of Certificates of Occupancy and the procedure for appeal therefrom shall be governed in so far as applicable, by the provisions of Section 306 and 307 of this Code.

CHAPTER 4

TYPES OF CONSTRUCTION

SECTION 401. Types of Construction

For purposes of this Code, all buildings proposed for construction shall be classified or identified according to the following types:

(1) Type I – Type I buildings shall be of wood construction. The structural elements may be any of the materials permitted by this Code.

(2) Type II – Type II buildings shall be of wood construction with protective fire-resistant materials and one-hour fire-resistive throughout: *Except,* that permanent non-bearing partitions may use fire-retardant treated wood within the framing assembly.

(3) Type III – Type III buildings shall be of masonry and wood construction. Structural elements may be any of the materials permitted by this Code: Provided, that the building shall be one-hour fire-resistive throughout. Exterior walls shall be of incombustible fire-resistive construction.

(4) Type IV – Type IV buildings shall be of steel, iron, concrete, or masonry construction. Walls, ceilings, and permanent partitions shall be of incombustible fire-resistive construction: *Except,* that permanent non-bearing partitions of one-hour fire-resistive construction may use fire-retardant treated wood within the framing assembly.

(5) Type V – Type V buildings shall be fire-resistive. The structural elements shall be of steel, iron, concrete, or masonry construction. Walls, ceilings, and permanent partitions shall be of incombustible fire-resistive construction.

SECTION 402. Changes in Types

No change shall be made in the type of construction of any building which would place the building in a different sub-type or type of construction unless such building is made to comply with the requirements for such sub-type of construction: *Except,* when the changes is approved by the Building Official upon showing that the new or proposed construction is less hazardous, based on life and fire risk, than the existing construction.

SECTION 403. Requirements on Type of Construction

Subject to the provisions of this Chapter, the Secretary shall prescribe standards for each type of construction, and promulgate rules and regulations therefor, relating to structural framework, exterior walls and openings, interior walls and enclosures, floors, exits and stairs construction, and roofs.

CHAPTER 5

REQUIREMENTS FOR FIRE ZONES

SECTION 501. Fire Zones Defined

Fire zones are areas within which only certain types of buildings are permitted to be constructed based on their use or occupancy, type of construction, and resistance to fire.

SECTION 502. Buildings located in more than One Fire Zone

A building or structure which is located partly in one fire zone and partly in another shall be considered to be in the more highly restrictive fire zone, when more than one-third of its total floor area is located in such zone.

SECTION 503. Moved Building

Any building or structure moved within or into any fire zone shall be made to comply with all the requirements for buildings in that fire zone.

SECTION 504. Temporary Buildings

Temporary buildings such as reviewing stands and other miscellaneous structures conforming to the requirements of this Code, and sheds, canopies and fences used for the protection of the public around and in conjunction with construction work, may be erected in the fire zones by special permit from the Building Official for a limited period of time, and such buildings or structures shall be-completely removed upon the expiration of the time limit stated in such permits.

SECTION 505. Center Lines of Streets

For the purpose of this Chapter, the center line of an adjoining street or alley may be considered an adjacent property line. Distances shall be measured at right angles to the street or alley.

SECTION 506. Restrictions on Existing Buildings

Existing buildings or structures in fire zones that do not comply with the requirements for a new building erected therein shall not hereafter be enlarged, altered, remodeled, repaired or moved except as follows:

(a) Such building is entirely demolished;

(b) Such building is to be moved outside the limits of the more highly restrictive Fire Zone to a zone where the building meets the minimum standards;

(c) Changes, alterations and repairs may be made provided that in any 12-month period, the value of the work does not exceed twenty percent of the value of the existing building, and provided that, such changes do not add additional combustible material, and do not, in the opinion of the Building Official, increase the fire hazard;

(d) Additions thereto are separated from the existing building by fire walls, as set forth in Sub-section 604 (b);

(e) Damage from fire or earthquake, typhoons or any fortuitous event may be repaired, using the same kind of materials of which the building or structure was originally constructed, provided that, the cost of such repair shall not exceed twenty percent of the replacement cost of the building or structure.

SECTION 507. Designation of Fire Zones

The Secretary shall promulgate specific restrictions for each type of Fire Zone. Cities and municipalities shall be divided into such Fire Zones in accordance with local, physical, and spatial framework plans submitted by city or municipal planning and/or development bodies.

CHAPTER 6

FIRE-RESISTIVE REQUIREMENTS IN CONSTRUCTION

SECTION 601. Fire-Resistive Rating defined

Fire-resistive rating means the degree to which a material can withstand fire as determined by generally recognized and accepted testing methods.

SECTION 602. Fire-Resistive Time Period Rating

Fire-resistive time period rating is the length of time a material can withstand being burned which may be one-hour, two-hours, three-hours, four-hours, etc.

SECTION 603. Fire-Resistive Standards

All materials of construction, and assemblies or combinations thereof shall be classified according to their fire-retardant or flame-spread ratings as determined by general accepted testing methods and/or by the Secretary.

SECTION 604. Fire-Resistive Regulations

The Secretary shall prescribe standards and promulgate rules and regulations on the testing of construction materials for flame-spread characteristics, tests on fire damages, fire tests of building construction and materials, door assemblies and tinclad fire doors and window assemblies, the installation of fire doors and windows and smoke and fire detectors for fire protective signaling system, application and use of controlled interior finish, fire-resistive protection for structural members, fire-resistive walls and partitions, fire-resistive floor or roof ceiling, fire-resistive assemblies for protection of openings and fire-retardant roof coverings.

CHAPTER 7

CLASSIFICATION AND GENERAL REQUIREMENT OF ALL BUILDINGS BY USE OR OCCUPANCY

SECTION 701. Occupancy Classified

(a) Buildings proposed for construction shall be identified according to their use or the character of its occupancy and shall be classified as follows:

(1) Group A – *Residential Dwellings*

Group A Occupancies shall be dwellings.

(2) Group B – *Residentials, Hotels and Apartments*

Group B Occupancies shall be multiple dwelling units including boarding or lodging houses, hotels, apartment buildings, row houses, convents, monasteries and other similar building each of which accommodates more than 10 persons.

(3) Group C – *Education and Recreation*

Group C Occupancies shall be buildings used for school or day-care purposes, involving assemblage for instruction, education, or recreation, and not classified in Group I or in Division 1 and 2 or Group H Occupancies.

(4) Group D – *Institutional*

Group D Occupancies shall include:

Division 1 – Mental hospitals, mental sanitaria, jails, prisons, reformatories, and buildings were personal liberties of inmates are similarly restrained.

Division 2 – Nurseries for full-time care of children under kindergarten age, hospitals, sanitaria, nursing homes with non-ambulatory patients, and similar buildings each accommodating more than five persons.

Division 3 – Nursing homes for ambulatory patients, homes for children of kindergarten age or over, each accommodating more than five persons: Provided, that Group D Occupancies shall not include buildings used only for private or family group dwelling purposes.

(5) Group E – *Business and Mercantile*

Group E Occupancies shall include:

Division 1 – Gasoline filling and service stations, storage garages and boat storage structures where no work is done except exchange of parts and maintenance requiring no open flame, welding, or the use of highly flammable liquids.

Division 2 – Wholesale and retail stores, office buildings, drinking and dining establishments having an occupant load of less than one hundred persons, printing plants, police and fire stations, factories and workshops using not highly flammable or combustible materials and paint stores without bulk handlings.

Division 3 – Aircraft hangars and open parking garages where no repair work is done except exchange of parts and maintenance requiring no open flame, welding or the use of highly flammable liquids.

(6) Group F – *Industrial*

Group F Occupancies shall include: ice plants, power plants, pumping plants, cold storage, and creameries, factories and workshops using incombustible and non-explosive materials, and storage and sales rooms for incombustible and non-explosive materials.

(7) Group G – *Storage and Hazardous*

Groups G Occupancies shall include:

Division 1 – Storage and handling of hazardous and highly flammable material.

Division 2 – Storage and handling of flammable materials, dry cleaning plants using flammable liquids; paint stores with bulk handling, paint shops and spray painting rooms.

Division 3 – Wood working establishments, planning mills and box factories, shops, factories where loose combustible fibers or dust are manufactured, processed or generated; warehouses where highly combustible materials is stored.

Division 4 – Repair garages.

Division 5 – Aircrafts repair hangars.

(8) Group H – *Assembly Other Than Group I*

Group H Occupancies shall include:

Division 1 – Any assembly building with a stage and an occupant load of less than 1000 in the building.

Division 2 – Any assembly building without stage and having an occupant load of 300 or more in the building.

Division 3 – Any assembly building without a stage and having an occupant load of less than 300 in the building.

Division 4 – Stadia, reviewing stands, amusement park structures not included within Group I or in Division 1, 2, and 3 of this Group.

(9) Group I – *Assembly Occupant Load 1000 or More*

Group I Occupancies shall be any assembly building with a stage and an occupant load of 1000 or more in the building.

(10)Group J – *Accessory*

Group J Occupancies shall include:

Division 1 – Private garage, carports, sheds and agricultural buildings.

Division 2 – Fences over 1.80 meters high, tanks and towers.

(b) Other subgroupings or divisions within Groups A to J may be determined by the Secretary. Any other occupancy not mentioned specifically in this Section, or about which there is any question, shall be included in the Group which it most nearly resembles based on the existing or proposed life and fire hazard.

SECTION 702. Change in Use

No change shall be made in the character of occupancy or use of any building which would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of this Code for such division or group of occupancy. The character of occupancy of existing buildings may be changed subject to the approval of the Building Official and the building may be occupied for purposes set forth in other Groups: Provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

SECTION 703. Mixed Occupancy

(a) *General Requirements*

When a building is of mixed occupancy or used for more than one occupancy, the whole building shall be subject to the most restrictive requirement pertaining to any of the type of occupancy found therein except in the following:

(1) When a one-storey building houses more than one occupancy, each portion of the building shall conform to the requirement of the particular occupancy housed therein and;

(2) Where minor accessory uses do not occupy more than ten percent of the area of any floor or a building, nor more than ten percent of the basic area permitted in the occupancy requirements, in which case, the major use of the building shall determine the occupancy classification.

(b) *Forms of Occupancy Separation*

Occupancy separations shall be vertical or horizontal or both, or when necessary, of such other forms as may be required to afford a complete separation between the various occupancy divisions in the building.

(c) *Types of Occupancy Separation*

Occupancy separation shall be classified as “One-Hour Fire-Resistive”, “Two-Hour Fire-Resistive”, “Three-Hour Fire-Resistive” and “Four-Hour Fire-Resistive.”

(1) A “One-Hour Fire-Resistive Occupancy Separation” shall be of not less than one-hour fire-resistive construction. All openings in such separation shall be protected by a fire-assembly having a one-hour fire-resistive rating.

(2) A “Two-Hour Fire-Resistive Occupancy Separation” shall be of not less than two-hour fire-resistive construction. All openings in such separation shall be protected by a fire assembly having a two-hour fire-resistive rating.

(3) A “Three-Hour Fire-Resistive Occupancy Separation” shall be of not less than three-hour fire-resistive construction. All openings in walls forming such separation shall be protected by a fire assembly having a three-hour fire-resistive rating. The total width of all openings in any three-hour fire-resistive occupancy separation wall in any one-storey shall not exceed 25 percent of the length of the wall in that storey and no single opening shall have an area greater than 10.00 square meters. All openings in floors forming a “Three-Hour Fire-Resistive Occupancy Separation” shall be protected by vertical enclosures extending above and below such openings. The walls of such vertical enclosures shall be of not less than two-hour fire-resistive construction, and all openings therein shall be protected by a fire assembly having a three-hour fire-resistive rating.

(4) A “Four-Hour Fire-Resistive Occupancy Separation” shall have no openings therein and shall be of not less than four-hour fire-resistive construction.

(d) *Fire Rating for Occupancy Separation*

Occupancy Separations shall be provided between groups, subgroupings, or divisions of occupancies. The Secretary shall promulgate rules and regulations for appropriate occupancy separations in buildings of mixed occupancy; Provided, that, where any occupancy separation is required, the minimum shall be a “One-Hour Fire-Resistive Occupancy Separation”; and where the occupancy separation is horizontal, structural members supporting the separation shall be protected by an equivalent fire-resistive construction.

SECTION 704. Location on Property

(a) *General*

No building shall be constructed unless it adjoins or has direct access to a public space, yard or street on at least one of its sides.

For the purpose of this Section, the center line of an adjoining street or alley shall be considered an adjacent property line.

Eaves over required windows shall not be less than 750 millimeters from the side and rear property lines.

(b) *Fire Resistance of Walls*

Exterior walls shall have fire resistance and opening protection in accordance with the requirements set forth by the Secretary. Projections beyond the exterior wall shall not exceed beyond a point one-third the distance from an assumed vertical plane located where the fire-resistive protection of openings is first required to the location on property whichever is the least restrictive. Distance shall be measured at right angles from the property line. When openings in exterior walls are required to be protected due to distance from property line, the sum of the areas of such openings in any storey shall not exceed 50 percent of the total area of the wall in that storey.

(c) *Buildings on Same Property and Buildings Containing Courts*

For the purpose of determining the required wall and opening protection, buildings on the same property and court walls shall be assumed to have a property line between them. When a new building is to be erected on the same property with an existing building, the assumed property line from the existing building shall be the distance to the property line for each occupancy as set forth by the Secretary: Provided, that two or more buildings on the same property may be considered as one building if the aggregate area of such building is within the limits of allowable floor areas for a single building, and when the buildings so considered, house different occupancies or are of different types of construction, the area shall be that allowed for the most restrictive occupancy or construction.

SECTION 705. Allowable Floor Areas

The allowable floor areas for one-storey building and buildings over one-storey shall not exceed the limits prescribed by the Secretary for each occupancy groups and/or types of construction.

For purposes of this Section, each portion of a building separated by one or more area separation walls may be considered a separate building provided the area separation walls meet the requirements prescribed therefor by the Secretary.

SECTION 706. Allowable Floor Area Increases

The floor areas hereinabove provided may be increased in certain specific instances and under appropriate conditions, based on the existence of public space, streets or yards extending along and adjoining two or more sides of the building or structure subject to the approval of the Building Official.

SECTION 707. Maximum Height of Buildings

The maximum height and number of storeys of every building shall be dependent upon the character of occupancy and the type of construction as determined by the Secretary considering population density, building bulk, widths of streets and car parking requirements. The height shall be measured from the highest adjoining sidewalk or ground surface: Provided, that the height measured from the lowest adjoining surface shall not exceed such maximum height by more than 3.00 meters: Except, that towers, spires, and steeples, erected as part of a building and not used for habitation or storage are limited as to height only by structural design if completely of incombustible materials, or may extend not to exceed 6.00 meters above the height limits for each occupancy group if of combustible materials.

SECTION 708. Minimum Requirements for Group A Dwellings

(a) *Dwelling Location and Lot Occupancy*

The dwelling shall occupy not more than ninety percent of a corner lot and eighty percent of an inside lot, and subject to the provisions on Easements of Light and View of the Civil Code of Philippines, shall be at least 2 meters from the property line.

(b) *Light and Ventilation*

Every dwelling shall be so constructed and arranged as to provide adequate light and ventilation as provided under Section 805 to Section 811, of this Code.

(c) *Sanitation*

Every dwelling shall be provided with at least one sanitary toilet and adequate washing and drainage facilities.

(d) *Foundation*

Footings shall be of sufficient size and strength to support the load of the dwelling and shall be at least 250 millimeters thick and 600 millimeters below the surface of the ground.

(e) *Post*

The dimensions of wooden posts shall be those found in Table 708-A: *Dimensions of Wooden Posts* (Annex B-1). Each post shall be anchored to such footing by straps and bolts of adequate size.

(f) *Floor*

The live load of the first floor shall be at least 200 kilograms per square meter and for the second floor, at least 150 kilograms per square meter.

(g) *Roof*

The wind load for roofs shall be at least 120 kilograms per square meter for vertical projection.

(h) *Stairs*

Stairs shall be at least 750 millimeters in clear width, with a rise of 200 millimeters and a minimum run of 200 millimeters.

(i) *Entrance and Exit*

There shall be at least one entrance and another one for exit.

(j) *Electrical Requirements*

All electrical installation shall conform to the requirements of the Philippine Electrical Code.

(k) *Mechanical Requirements*

Mechanical systems and/or equipment installation shall be subject to the requirement of the Philippine Mechanical Engineering Code.

SECTION 709. Requirements for Other Group Occupancies

Subject to the provisions of this Code, the Secretary shall promulgate rules and regulations for each of the other Group Occupancies covering: allowable construction, height, and area; location on property, exit facilities, light, ventilation, and sanitation; enclosures of vertical openings; fire extinguishing systems; and special hazards.

CHAPTER 8

LIGHT AND VENTILATION

SECTION 801. General Requirements of Light and Ventilation

(a) Subject to the provisions of the Civil Code of the Philippines on Easements of Light and View, and to the provisions of this part of the Code, every building shall be designed, constructed, and equipped to provide adequate light and ventilation.

(b) All buildings shall face a street or public alley or a private street which has been duly approved.

(c) No building shall be altered nor arranged so as to reduce the size of any room or the relative area of windows to less than that provided for buildings under this Code, or to create an additional room, unless such additional room conforms to the requirements of this Code.

(d) No building shall be enlarged so that the dimensions of the required court or yard would be less than that prescribed for such building.

SECTION 802. Measurement of Site Occupancy

(a) The measurement of site occupancy or lot occupancy shall be taken at the ground level and shall be exclusive of courts, yards, and light wells.

(b) Courts, yards, and light wells shall be measured clear of all projections from the walls enclosing such wells or yards with the exception of roof leaders, wall copings, sills, or steel fire escapes not exceeding 1.20 meters in width.

SECTION 803. Percentage of Site Occupancy

(a) Minimum site occupancy shall be governed by the use, type of construction, and height of the building and the use, area, nature, and location of the site; and subject to the provisions of the local zoning requirements and in accordance with the rules and regulations promulgated by the Secretary.

SECTION 804. Size and Dimensions of Courts

(a) Minimum size of courts and their least dimensions shall be governed by the use, type of construction, and height of the building as provided in the rules and regulations promulgated by the Secretary, provided that the minimum horizontal dimension of court shall be not less than 2.00 meters.

(b) All inner courts shall be connected to a street or yard, either by a passageway with a minimum width of 1.20 meters or by a door through a room or rooms.

SECTION 805. Ceiling Heights

(a) Habitable rooms provided with artificial ventilation shall have ceiling heights not less than 2.40 meters measured from the floor to the ceiling; Provided that for buildings of more than one-storey, the minimum ceiling height of the first storey shall be 2.70 meters and that for the second storey 2.40 meters and succeeding storeys shall have an unobstructed typical head-room clearance of not less than 2.10 meters above the finished floor. Above stated rooms with a natural ventilation shall have ceiling heights not less than 2.70 meters.

(b) Mezzanine floors shall have a clear ceiling height not less than 1.80 meters above and below it.

SECTION 806. Size and Dimension of Rooms

Minimum sizes of rooms and their least horizontal dimensions shall be as follows:

1. Rooms for Human Habitations – 6.00 square meters with a least dimension of 2.00 meters;
2. Kitchens – 3.0 square meters with a least dimension of 1.50 meters;
3. Bath and toilet – 1.20 square meters with a least dimension of 0.90 meter.

SECTION 807. Air Space Requirements in Determining the Size of Rooms

Minimum air space shall be provided as follows:

1. School Rooms – 3.00 cubic meters with 1.00 square meter of floor area per person;
2. Workshops, Factories, and Offices – 12.00 cubic meters of air space per person;
3. Habitable rooms – 14.00 cubic meters of air space per person.

SECTION 808. Window Openings

Every room intended for any use, not provided with artificial ventilation system as herein specified in this Code, shall be provided with a window or windows with a total free area of openings and equal to at least ten percent of the floor area of room, and such window shall open directly to a court, yard, public street or alley, or open water courses.

SECTION 809. Vent Shafts

(a) Ventilation or vent shafts shall have a horizontal cross-sectional area of not less than 0.10 square meter for every meter of height of shaft but in no case shall the area be less than 1.00 square meter. No vent shaft shall have its least dimension less than 600 millimeters.

(b) Skylights – Unless open to the outer air at the top for its full area, vent shaft shall be covered by a skylight having a net free area or fixed louver openings equal to the maximum required shaft area.

(c) Air ducts shall open to a street or court by a horizontal duct or intake at a point below the lowest window opening. Such duct or intake shall have a minimum unobstructed cross-sectional area of not less than 0.30 square meter with a minimum dimension of 300 millimeters. The openings to the duct or intake shall be not less than 300 millimeters above the bottom of the shaft and the street surface or level of court, at the respective ends of the duct or intake.

SECTION 810. Ventilation Skylights

Skylights shall have a glass area not less than that required for the windows that are replaced. They shall be equipped with movable sashes or louvers with an aggregate net free area not less than that required for openable parts in the window that are replaced or provided with approved artificial ventilation of equivalent effectiveness.

SECTION 811. Artificial Ventilation

(a) Rooms or spaces housing industrial or heating equipment shall be provided with artificial means of ventilation to prevent excessive accumulation of hot and/or polluted air.

(b) Whenever artificial ventilation is required, the equipment shall be designed and constructed to meet the following minimum requirements in air changes:

1. For rooms entirely above grade and used for office, clerical, or administrative purposes, or as stores, sales rooms, restaurants, markets, factories, workshops, or machinery rooms, not less than three changes of air per hour shall be provided.

2. For rooms entirely above grade and used as bakeries, hotel or restaurant kitchens, laundries other than accessory to dwellings, and boiler rooms – not less than ten changes of air per hour shall be provided.
3. For auditorium and other rooms used for assembly purposes, with seats or other accommodations – not less than 0.30 cubic meter of air per minute shall be supplied for each person.
4. For wards and dormitories of institutional buildings – not less than 0.45 cubic meter of air per minute shall be supplied for each person accommodated.
5. For other rooms or spaces not specifically covered under this Section of the Code, applicable provisions of the Philippine Mechanical Engineering Code, shall be followed.

CHAPTER 9

SANITATION

SECTION 901. General Requirements

Subject to the provisions of Book II of the Civil Code of the Philippines on Property, Ownership, and its Modification, all buildings hereafter erected, altered, remodeled, relocated or repaired for human habitation shall be provided with adequate and potable water supply, plumbing installation, and suitable wastewater treatment or disposal system, storm water drainage, pest and vermin control, noise abatement device, and such other measures required for the protection and promotion of health of persons occupying the premises and others living nearby.

SECTION 902. Water Supply System

(a) Whenever available, the potable water requirements for a building used for human habitation shall be supplied from existing municipal or city waterworks system.

(b) The quality of drinking water from meteoric, surface or underground sources shall conform to the criteria set in the latest approved National Standards for Drinking Water.

(c) The design, construction and operation of deepwells for the abstraction of groundwater shall be subject to the provisions of the Water Code of the Philippines.

(d) The design, construction and operation of independent waterworks systems private housing subdivisions or industrial estates shall be governed by existing laws relating to local waterworks system.

(e) The water piping installations inside buildings and premises shall conform to the provisions of the National Plumbing Code of the Philippines.

SECTION 903. Wastewater Disposal System

(a) Sanitary sewage from buildings and neutralized or pre-treated industrial wastewater shall be discharged directly into the nearest street sanitary sewer main of existing municipal or city sanitary sewerage system in accordance with the criteria set by the Code on Sanitation and the National Pollution Control Commission.

(b) All buildings located in areas where there are no available sanitary sewerage system shall dispose their sewage “Imhoff” or septic tank and subsurface absorption field.

(c) Sanitary and industrial plumbing installations inside buildings and premises shall conform to the provisions of the National Plumbing Code.

SECTION 904. Storm Drainage System

(a) Rainwater drainage shall not discharge to the sanitary sewer system.

(b) Adequate provisions shall be made to drain low areas in buildings and their premises.

SECTION 905. Pest and Vermin Control

(a) All buildings with hollow and/or wood construction shall be provided with rat proofing.

(b) Garbage bins and receptacles shall be provided with ready means for cleaning and with positive protection against entry of pest and vermins.

(c) Dining rooms for public use without artificial ventilation shall be properly screened.

SECTION 906. Noise Pollution Control

Industrial establishments shall be provided with positive noise abatement devices to tone down the noise level of equipment and machineries to acceptable limits set down by the Department of Labor and the National Pollution Control Commission.

SECTION 907. Pipe Materials

All pipe materials to be used in buildings shall conform to the Standard Specifications of the Philippine Standard Council.

CHAPTER 10

BUILDING PROJECTION OVER PUBLIC STREETS

SECTION 1001. General Requirements

(a) No part of any building or structure or any of its appendages shall project beyond the property line of the building site, except as provided in this Code.

(b) The projection of any structure or appendage over a public property shall be the distance measured horizontally from the property line to the uttermost point of the projection.

SECTION 1002. Projection into Alleys or Streets

(a) No part of any structure or its appendage shall project into any alley or street, national road or public highway except as provided in this Code.

(b) Footings located at least 2.40 meters below grade along national roads or public highway may project not more than 300 millimeters beyond the property line.

(c) Foundations may be permitted to encroach into public sidewalk areas to a width not exceeding 500 millimeters; provided, that the top of the said foundations is not less than 600 millimeters below the established grade; and provided further, that said projection does not obstruct any existing utility such as power, communication, gas, water, or sewer lines, unless the owner concerned shall pay the corresponding entities for the rerouting of the parts of the affected utilities.

SECTION 1003. Projection of Balconies and Appendages Over Streets

(a) The extent of any projection over an alley or street shall be uniform within a block and shall conform to the limitations set forth in Table 1003-A; *Projection of Balconies and Appendages* (Annex B-2).

(b) The clearance between the established grade of the street and/or sidewalk and the lowest under surface of any part of the balcony shall not be less than 3.00 meters.

SECTION 1004. Arcades

(a) Whenever required by existing building and zoning regulations, arcades shall be constructed on sidewalks of streets. The width of the arcade and its height shall be uniform throughout the street provided, that in no case, shall an arcade be less than 3.00 meters above the established sidewalk grade.

SECTION 1005. Canopies (Marquees)

(a) *Definition:* A canopy or marquee is a permanent roofed structure above a door attached to and supported by the building and projecting over a wall or sidewalk. This includes any object or decoration attached thereto.

(b) *Projection and Clearance.* The horizontal clearance between the outermost edge of the marquee and the curb line shall be not less than 300 millimeters. The vertical clearance between the pavement or ground line and the undersurface of any part the marquee shall not be less than 3.00 meters.

(c) *Construction.* A marquee shall be constructed of incombustible material or materials of not less than two-hours fire-resistive construction. It shall be provided with necessary drainage facility.

(d) *Location.* Every marquee shall be so located as not to interfere with the operation of any exterior standpipe connection or to obstruct the clear passage from stairway exits from the building or the installation or maintenance of electroliers.

SECTION 1006. Movable Awnings or Hoods

(a) *Definition.* An awning is a movable shelter supported entirely from an exterior wall of a building and of a type which can be retracted, folded, or collapsed against the face of a supporting building.

(b) *Clearance.* The horizontal clearance between the awning and the curb line shall not be less than 300 millimeters. The vertical clearance between the undermost surface of the awning and the pavement or ground line shall be not less than 2.40 meters. Collapsible awnings shall be so designated that they shall not block a required exit when collapsed or folded.

SECTION 1007. Doors, Windows, and the like

Doors, windows, and the like less than 2.40 meters above the pavement or groundline shall not, when fully opened or upon opening, project beyond the property line except fire exit doors.

SECTION 1008. Corner Buildings with Chaflans

(a) Every corner building or solid fence on a public street or alley less than 3.60 meters in width shall be truncated at the corner. The face of the triangle so formed shall be at right angles to the bisector of the angle of the intersection of the street lines; provided, that in no case, the Secretary shall determine the size and form of the chaflan.

(b) If the building is arcaded, no chaflan is required notwithstanding the width of the public street or alley, less than 12.00 meters.

CHAPTER 11

PROTECTION OF PEDESTRIANS DURING CONSTRUCTION OR DEMOLITION

SECTION 1101. General Requirements

(a) No person shall use or occupy a street, alley or public sidewalk for the performance of work covered by a building permit except in accordance with the provisions of this Chapter.

(b) No person shall perform any work on any building or structure adjacent to a public way in general use for pedestrian travel, unless the pedestrians are protected as specified in this Chapter.

(c) Any material or structure temporarily occupying public property, including fence, canopies, and walkways, shall be adequately lighted, between sunset and sunrise.

SECTION 1102. Storage in Public Property

Materials and equipment necessary for work to be done under a permit when placed or stored on public property shall not obstruct free and convenient approach to and use of any fire hydrant, fire or police alarm box, utility box, catch basin, or manhole and shall not interfere with any drainage of any street or alley gutter.

SECTION 1103. Mixing Mortar on Public Property

The mixing of mortar, concrete, or similar materials on public streets shall not be allowed.

SECTION 1104. Protection of Utilities

All public or private utilities above or below the ground shall be protected from any damage by any work being done under the permit. The protection shall be maintained while such work is being done and shall not obstruct the normal functioning of any such utility.

SECTION 1105. Walkway

(a) When the Building Official authorizes a sidewalk to be fenced or closed, or in case there is no sidewalk in front of the building site during construction or demolition, a temporary walkway of not less than 1.20 meters wide shall be provided.

(b) The walkway shall be capable of supporting a uniform live load of 650 kilograms per square meter. A durable wearing surface shall be provided throughout the construction period.

SECTION 1106. Pedestrian Protection

(a) *Protection Required.* Pedestrian traffic shall be protected by a railing on the street side when the walkway extends into the roadway, by a railing when adjacent to excavations, and by such as set forth in Table 1106-A: Type of Protection Required for Pedestrians (Annex B-2).

(b) *Railings.* Adequate railings when required shall be built substantially strong and should be at least 1.00 meter in height.

(c) *Fences.* Fences shall be built of an approved material, not less than 2.40 meters in height above grade, and be placed on the side of the walkway nearest to the building site. Fences shall enclose entirely the building site. Openings in such fences shall be provided with doors which shall be kept closed at all times.

(d) *Canopies.* The protective canopy shall have a clear height of 2.40 meters above the railway, and shall be structurally safe. Every canopy shall have a solid fence built along its entire length on the construction side. If materials are stored or work is done on top of the canopy, the edge along the street shall be protected by a tight curb board not less than 300 millimeters high and a

railing not less than 1.00 meter high shall be provided. The entire structure shall be designed to carry the loads imposed upon it: Provided, that the live load shall be not less than 600 kilograms per square meter.

SECTION 1107. Maintenance and Removal of Protective Devices

(a) *Maintenance.* All protective devices shall be properly maintained in place and kept in good order for the entire length of time pedestrians may be endangered.

(b) *Removal.* Every protective fence or canopy shall be removed within 30 days after such protection is no longer required as determined by the Building Official.

SECTION 1108. Demolition

(a) The work of demolishing any building shall not be commenced until all the necessary pedestrian protective structures are in place.

(b) The Building Official may require the permittee to submit plans, specifications and complete schedule of demolition. When so required, no work shall be done until such plans, specifications and schedule are approved by the Building Official.

CHAPTER 12

GENERAL DESIGN AND CONSTRUCTION REQUIREMENTS

SECTION 1201. General Requirements

Buildings proposed for construction shall comply with all the regulations and specifications herein set forth governing quality, characteristics and properties of materials, methods of design and construction, type of occupancy and classification.

All other matters relative to the structural design of all buildings and other structures not provided for in this Chapter shall conform with the provisions of the National Structural Code of Buildings, as adopted and promulgated by the Board of Civil Engineering pursuant to Republic Act Number 544, as amended, otherwise known as the "Civil Engineering Law".

SECTION 1202. Excavation, Foundation, and Retaining Walls

(a) Subject to the provisions of Articles 684 to 686 of the Civil Code of the Philippines on lateral and subjacent support, the design and quality of materials used structurally in excavation, footings, and in foundations shall conform to accepted engineering practice.

(b) *Excavation and Fills*

(1) Excavation or fills for buildings or structures shall be so constructed or protected that they do not endanger life or property.

(2) Whenever the depth of excavation for any construction is such that the lateral and subjacent support of the adjoining property or existing structure thereon would be affected in a manner that the stability or safety of the same is endangered, the person undertaking or causing the excavation to be undertaken shall be responsible for the expense of underpinning or extending the foundation or footings of the aforementioned property or structure.

(3) Excavation and other similar disturbances made on public property shall, unless otherwise excluded by the Building Official, be restored immediately to its former condition within 48 hours from the start of such excavation and disturbances by whosoever caused such excavation or disturbance.

(c) *Footings, Foundations, and Retaining Walls*

(1) Footings and foundations shall be of the appropriate type, of adequate size, and capacity in order to safely sustain the superimposed loads under seismic or any condition of external forces that may affect the safety or stability of the structure. It shall be the responsibility of the architect and/or engineer to adopt the type and design of the same in accordance with the standards set forth by the Secretary.

(2) Whenever or wherever there exist in the site of the construction an abrupt change in the ground levels or level of the foundation such that instability of the soil could result, retaining walls shall be provided and such shall be of adequate design and type of construction as prescribed by the Secretary.

SECTION 1203. Veneer

(a) *Definition.* Veneer is a nonstructural facing of brick, concrete, tile, metal, plastic, glass, or other similar approved materials attached to a backing or structural components of the building for the purpose of ornamentation, protection, or enclosure that may be adhered, integrated, or anchored either on the interior or exterior of the building or structure.

(b) *Design Requirements.* The design of all veneer shall comply with the following:

(1) Veneer shall support no load other than its own weight and the vertical dead load of veneer immediately above.

(2) Surfaces to which veneer is attached shall be designed to support the additional vertical and lateral loads imposed by the veneer.

(3) Consideration shall be given to differential movements of the supports including those caused by temperature changes, shrinkage, creep, and deflection.

(4) Adhered veneer and its backing shall be designed to have a bond to the supporting elements sufficient to withstand shearing stresses due to their weights including seismic effects on the total assemblage.

(5) Anchored veneer and its attachment shall be designed to resist horizontal forces equal to twice the weight of the veneer.

(6) Anchors supports and ties shall be non-combustible and corrosion-resistant.

SECTION 1204. Enclosure of Vertical Openings

(a) *General.* Vertical openings shall be enclosed depending upon the fire-resistive requirements of a particular type of construction as set forth in this Code.

(b) *Elevator Enclosures.* Walls and partitions enclosing elevators and escalators shall be of not less than the fire-resistive construction required under the Types of Construction. Enclosing walls of elevator shafts may consist of wire glass set in metal frames on the entrance side only. Elevator shafts extending through more than two storeys shall be equipped with an approved means of adequate ventilations to and through the main roof of the building: *Provided,* that in those buildings housing Groups F and G Occupancies equipped with automatic fire-extinguishing systems throughout, enclosures shall not be required for escalators: *Provided,* further that the top of the escalator opening at each storey shall be provided with a draft curtain. Such draft curtain shall enclose the perimeter of the unenclosed opening and shall extend from the ceiling downward at least 300 millimeters on all sides. Automatic sprinklers shall be provided around the perimeter of the opening and within a 600 millimeters of the draft curtain. The distance between the sprinkles shall not exceed 1.80 meters center-to-center.

(c) *Other Vertical Openings.* All shafts, ducts, chutes, and other vertical openings not covered in paragraph (b) above shall have enclosing walls conforming to the requirements specified under the type of construction of the building in which they are located. In other than Group A Occupancies rubbish and linen chutes shall terminate in rooms separated from the remainder of the building by a One-Hour Fire-Resistive Occupancy Separation. Openings into the chutes shall not be located in required exit corridors or stairways.

(d) *Air Ducts.* Air ducts passing through a floor shall be enclosed in a shaft. The shaft shall be as required in this Code for vertical openings. Dampers shall be installed where ducts pierce the shaft enclosure walls. Air ducts in Group A Occupancies need not be enclosed in a shaft if conforming to the mechanical provisions of this Code.

SECTION 1205. Floor Construction

(a) Floors shall be of such materials and construction as specified under Chapter 5 Fire Zones and Fire-Resistive Standards and under Chapter 6 – Types of Construction.

(b) All floors shall be so framed and secured into the framework and supporting walls as to form an integral part of the whole building.

(c) The types of floor construction used shall provide means to keep the beam and girders from lateral buckling.

SECTION 1206. Roof Construction and Covering

(a) *Roof Covering.* Roof covering for all buildings shall be either fire-retardant or ordinary depending upon the fire-resistive requirements of the particular type of construction. The use of combustible roof insulation shall be permitted in all types of construction provided it is covered with approved roof covering applied directly thereto.

(b) *Roof Trusses.* All roofs shall be so framed and tied into the framework and supporting walls so as to form an integral part of the whole building. Roof trusses shall have all joints well fitted and shall have all tension members well tightened before any load is placed in the truss. Diagonal

and sway bracing shall be used to brace all roof trusses. The allowable working stresses of materials in trusses shall conform to this Code. Camber shall be provided to prevent sagging.

(c) *Attics.*

(1) *Access.* An attic access opening shall be provided in the ceiling of the top floor of buildings with a combustible ceiling or roof construction. The opening shall be located in a corridor or hallway of buildings of three or more storeys in height , and readily accessible in buildings of any height. An opening shall not be less than 600 millimeters square or 600 millimeters in diameter. The minimum clear headroom of 800 millimeters shall be provided above the access opening. For ladder requirements, refer to the Philippine Mechanical Engineering code.

(2) *Area Separation.* Enclosed attic spaces of combustible construction shall be divided into horizontal areas not exceeding 250 square meters by fire-resistive partitions extending from the ceiling to the roof. *Except,* that where the entire attic is equipped with approved automatic fire-extinguishing system, the attic space may be divided into areas not to exceed 750 square meters. Openings in the partitions shall be protected by self-closing doors.

(3) *Draft Stops.* Regardless of the type of construction, draft stops shall be installed in trusses roofs, between roof and bottom chords or trusses, in all buildings exceeding 2000 square meters. Draft stops shall be constructed as for attic area separations.

(4) *Ventilation.* Enclosed attics including rafter spaces formed where ceilings are applied direct to the underside or roof rafters, shall be provided with adequate ventilation protected against the entrance of rain.

(d) *Roof Drainage System*

(1) *Roof Drains.* Roof drains shall be installed at low points of the roof and shall be adequate in size to discharge all tributary waters.

(2) *Overflow Drains and Scuppers.* Where roof drains are required, adequate overflow drains shall be provided.

(3) *Concealed Piping.* Roof drains and overflow drains, when concealed within the construction of the building, shall be installed in accordance with the provisions of the National Plumbing Code.

(4) *Over Public Property.* Roof drainage water from a building shall not be permitted to flow over public property, except for Group A and J Occupancies.

(e) *Flashing.* Flashing and counterflashing shall be provided at the juncture of the roof and vertical surfaces.

SECTION 1207. Stairs, Exits, and Occupant Loads

(a) *General.* The construction of stairs and exits shall conform to the occupant load requirements of buildings, reviewing stands, bleachers, and grandstands.

(1) *Determination of Occupant Loads.* The occupant load permitted in any building or portion thereof shall be determined by dividing the floor area assigned to that use by the unit area allowed per occupant as determined by the Secretary.

(2) *Exit Requirements.* Exist requirements of a building or portion thereof used for different purposes shall be determined by the occupant load which gives the largest number of persons. No obstruction shall be placed in the required width of an exit except projections permitted by this Code.

(3) *Posting of Room Capacity.* Any room having an occupant load of more than 50 where fixed seats are not installed, and which is used for classroom, assembly, or similar purpose shall have the capacity of the room posted in a conspicuous place near the main exit from the room.

(4) *Changes in Elevation.* Except in Group A Occupancies, changes in floor elevations of less than 300 millimeters along any exit serving a tributary occupant load of 10 or more shall be by means of ramps:

(b) Exits

(1) *Number of Exits.* Every building or usable portion thereof shall have at lease one exit. In all occupancies, floors above the first storey having an occupant load of more than 10 shall not have less than two exits. Each mezzanine floor used for other than storage purposes, if greater in area than 185 square meters or more than 18.00 meters in any dimension, shall have at least two stairways to an adjacent floor. Every storey or portion thereof, having an occupant load of 500 to 999 shall have at least three exits. Every storey or portion thereof having an occupant load of 1000 or more shall have at least four (4) exits. The number of exits required from any storey of a building shall be determined by using the occupant loads of floors which exit through the level under consideration as follows: 50 percent of the occupant load in the first adjacent storey above (and the first adjacent storey below, when a storey below exits through the level under consideration) and 25 percent of the occupant load in the storey immediately beyond the first adjacent storey. The maximum number of exits required for any storey shall be maintained until egress is provided from the structures. For purposes of this Section basement or cellars and occupied roofs shall be provided with exits as required for storeys. Floors above the second storey, basements and cellars used for other than service of the building shall have not less than two exits.

(2) *Width.* The total width of exits in meters shall not be less than the total occupant load served divided by 165. Such width of exits shall be divided approximately equally among the separate exits. The total exit width required from any storey of a building shall be determined by using the occupant load of that storey plus the percentage of the occupant loads of floors which exits through the level under consideration as follows: fifty (50) percent of the occupant load in the first adjacent storey above (and the first adjacent storey below when a storey below exits through the level under consideration) and twenty five percent of the occupant load in the storey immediately beyond the first adjacent storey. The maximum exit width from any storey of a building shall be maintained.

(3) *Arrangement of Exits.* If only two exits are required they shall be placed a distance apart to not less than one-fifth of the perimeter of the area served measured in a straight line between exits. Where three or more exits are required they shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.

(4) *Distance to Exists.* No point in a building without a sprinkler system shall be more than 45.00 meters from an exterior exit door, a horizontal exit, exit passageway, or an enclosed stairway, measured along the line of travel. In a building equipped with a complete automatic fire extinguishing system the distance from exits may be increased to 60.00 meters.

(c) *Doors.* The provisions herein shall apply to every exit door serving an area having an occupant load of more than 10, or serving hazardous rooms or areas.

(1) *Swing.* Exit door shall swing in the direction of exit travel when serving any hazardous areas or when serving an occupant load of 50 or more. Double acting doors shall not be used as exits serving a tributary occupant load of more than 100; nor shall they be used as a part of fire assembly, nor equipped with panic hardware. A double acting door shall be provided with a view panel of not less than 1,300 square centimeters.

(2) *Type of Lock or Latch.* Exit door shall be openable from the inside without the use of a key or any special knowledge or effort: *Except*, that this requirement shall not apply to exterior exit doors in a group E or F Occupancy if there is a conspicuous, readily visible and durable sign on or adjacent to the door, stating that the door is to remain unlocked during business hours. The locking device must be of a type that will readily be distinguishable as locked. Flush bolts or surface bolts are prohibited.

(3) *Width and Height.* Every required exit doorway shall be of a size as to permit the installation of a door not less than 900 millimeters in width and not less than 2.00 meters in height. When installed in exit doorways, exit doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exitway is not less than 700 millimeters. In computing the required exit width the net dimension of the exitway shall be used.

(4) *Door Leaf Width.* No leaf of an exit door shall exceed 1.20 meters in width.

(5) *Special Doors.* Revolving, sliding, and overhead doors shall not be used as required exits.

(6) *Egress from Door.* Every required exit door shall give immediate access to an approved means of egress from the building.

(7) *Change in Floor Level at Doors.* Regardless of the occupant load there shall be a floor or landing on each side of an exit door. The floor or landing shall be leveled with, or not

more than 50 millimeters lower than the threshold of the doorway: *Except*, that in Group A and B Occupancies, a door may open on the top step of a flight of stairs or an exterior landing provided the door does not swing over the top step or exterior landing and the landing is not more than 200 millimeters below the floor level.

(8) *Door Identification.* Glass doors shall conform to the requirements in Section 1805. Other exit doors shall be so marked that they are readily distinguishable from the adjacent construction.

(9) *Additional Doors.* When additional doors are provided for egress purposes, they shall conform to all provisions in the following cases: Approved revolving doors having leaves which will collapse under opposing pressures may be used in exit situations; *provided*; that such doors have a minimum width of 2.00 meters or they are not used in occupancies where exits are required to be equipped with panic hardware or at least one conforming exit door is located adjacent to each revolving doors installed in a building and the revolving door shall not be considered to provide nay exit width.

(d) *Corridors and Exterior Exit Balconies.* The provisions herein shall apply to every corridor and exterior exit balcony serving as a required exit for an occupant load of more than ten.

(1) *Width.* Every corridor or exit balcony shall not be less than 1.10 meters in width.

(2) *Projections.* The required width of corridors and exterior exit balconies shall be unobstructed. *Except*, that trim handrails, and doors when fully opened shall not reduce the required width by more than 200 millimeters. Doors in any position shall not reduce the required width of the corridor by more than one-half.

(3) *Access to Exits.* When more than one exit is required, they shall be so arranged to allow going to either direction from any point in the corridor or exterior exit balcony to a separate exit, except for dead ends permitted by this Code.

(4) *Dead Ends.* Corridors and exterior exit balconies with dead ends are permitted when the dead end does not exceed 6.00 meters in length.

(5) *Construction.* Walls and ceilings of corridors shall not be less than one-hour fire-resistive construction. Provided, that this requirement shall not apply to exterior exit balconies, railings, and corridors of one-storey building housing a Group E and F Occupancy occupied by one tenant only and which serves an occupant load of 30 or less, nor to corridors, formed by temporary partitions. Exterior exit balconies shall not project into an area where protected openings are required.

(6) *Openings.* Where corridor wall are required to be one-hour fire-resistive construction, every interior door opening shall be protected as set forth in generally recognized and accepted requirements for dual purpose fire exit doors. Other interior openings except ventilation louvers equipped with approved automatic fire shutters shall be 7 millimeters thick fixed wire glass set in steel frames. The total area of all openings other than doors, in any portion of an interior corridor wall shall not exceed twenty-five percent of the area of the corridor wall of the room being separated from the corridor.

(e) *Stairways.* Except stairs or ladders used only to access equipment, every stairway serving any building or portion thereof shall conform to the following requirements:

(1) *Width.* Stairways serving an occupant load of more than 50 shall not be less than 1.10 meters. Stairways serving an occupant load of 50 or less may be 900 millimeters wide. Private stairways serving an occupant load of less than 10 may be 750 millimeters. Trim and handrails shall not reduce the required width by more than 100 millimeters.

(2) *Rise and Run.* The rise of every step in a stairway shall not exceed 200 millimeters and the run shall not be less than 250 millimeters. The maximum variations in the height of risers and the width of treads in any one flight shall be 5 millimeters: *Except,* in case of private stairways serving an occupant load of less than 10, the rise may be 200 millimeters and the run may be 250 millimeters, except as provided in sub-paragraph (3) below.

(3) *Winding Stairways.* In Group A Occupancy and in private stairways in Group B Occupancies, winders may be used if the required width of run is provided at a point not more than 300 millimeters from the side of the stairway where the treads are narrower but in no case shall any width of run be less than 150 millimeters at any point.

(4) *Circular Stairways.* Circular stairs may be used as an exit provided the minimum width of run is not less than 250 millimeters. All treads in any one flight between landings shall have identical dimensions within a 5 millimeter tolerance.

(5) L*andings.* Every landing shall have a dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 1.20 meters when the stairs has a straight run. Landings when provided shall not be reduced in width by more than 100 millimeters by a door when fully open.

(6) *Basement Stairways.* Where a basement stairway and a stairway to an upper storey terminate in the same exit enclosure, an approved barrier shall be provided to prevent persons from continuing on to the basements. Directional exit signs shall be provided as specified in this Code.

(7) *Distance Between Landings.* There shall be not more than 3.60 meters vertical distance between landings.

(8) *Handrails.* Stairways shall have handrails on each side and every stairway required to be more than 3.00 meters in width shall be provided with not less than one intermediate handrail for each 3.00 meters of required width. Intermediate handrails shall be spaced approximately equal within the entire width of the stairway. Handrails shall be placed not less than 800 millimeters nor more than 900 millimeters above the nosing of treads, and ends of handrails shall be returned or shall terminate in newel posts or safety terminals: *Except,* in the following cases: Stairways 1.10 meters or less in width and stairways serving one individual dwelling unit in Group A or B Occupancies may have one handrail, except that such stairway, open on one or both, sides shall have handrails provided on the open side or sides: or stairways having less than four risers need not have handrails.

(9) *Exterior Stairway Protection.* All openings in the exterior wall below or within 3.00 meters, measured horizontally, of an exterior exit stairway serving a building over two storeys in height shall be protected by a self-closing fire assembly having a three-fourths hour fire-resistive rating: *Except,* that openings may be unprotected when two separated exterior stairways serve an exterior exit balcony.

(10a) *Stairways Construction - Interior.* Interior stairways shall be constructed as specified in this Code. Where there is enclosed usable space under the stairs the walls and soffits of the enclosed space shall be protected on the enclosed side as required for one-hour fire resistive construction.

(10b) *Stairway Construction - Exterior.* Exterior stairways shall be of incombustible material: *Except,* that on Type III buildings which do not exceed two storeys in height, which are located in less fire-restrictive Fire Zones, as well as on Type I buildings which may be of wood not less than 50 millimeters in nominal thickness. Exterior stairs shall be protected as required for exterior walls due to location on property as specified in this Code. Exterior stairways shall not project into an area where openings are required to be protected. Where there is enclosed usable space under stairs, the walls and soffits of the enclosed space shall be protected on the enclosed side as required for one-hour fire-resistive construction.

(11) *Stairway to Roof.* In every building four or more storeys in height, one stairway shall extend to the roof unless the roof has C slope greater than 1 in 3.

(12) *Headroom.* Every required stairway shall have a headroom clearance of not less than 2.00 meters. Such clearance shall be established by measuring vertically from a plane parallel and tangent to the stairway tread nosing to the soffit above all points.

(f) *Ramps.* A ramp conforming to the provisions of this Code may be used as an exit. The width of ramps shall be as required for corridors.

(g) *Horizontal Exit.* If conforming to the provisions of this Code, a horizontal exit may be considered as the required exit. All openings in a separation wall shall be protected by a fire assembly having a fire-resistive rating of not less than one hour. A horizontal exit shall not lead into a floor area having a capacity for an occupant load not less than the occupant load served by such exit. The capacity shall be determined by allowing 0.30 square meter of net floor area per ambulatory occupant and 1.90 square meters per non-ambulatory occupant. The dispersal area into which the horizontal exit leads shall be provided with exits as required by this Code.

(h) *Exit Enclosure.* Every interior stairway, ramp, or escalator shall be enclosed as specified in this Code: *Except*, that in other than Group D Occupancies, an enclosure will not be required for stairway, ramp, or escalator serving only one adjacent floor and not connected with corridors or stairways serving other floors. Stairs in Group A Occupancies need not be enclosed.

(1) Enclosure walls shall not be less than two-hour fire-resistive construction. There shall be no openings into exit enclosures except exit doorways and openings in exterior walls. All exit doors in an exit enclosure shall be appropriately protected.

(2) Stairway and ramp enclosures shall include landings and parts of floors connecting stairway flights and shall include a corridor on the ground floor leading from the stairway to the exterior of the building. Enclosed corridors or passageways are not required for unenclosed stairways.

(3) A stairway in an exit enclosure shall not continue below the grade level exit unless an approved barrier is provided at the ground floor level to prevent persons from accidentally continuing into the basement.

(4) There shall be no enclosed usable space under stairways in an exit enclosure, nor shall the open space under such stairways be used for any purpose.

(i) *Smokeproof Enclosures*

A smokeproof enclosure shall consist of a vestibule and a continuous stairway enclosed from the highest point to the lowest point by walls of two-hour fire-resistive construction. In buildings five storeys or more in height, one of the required exits shall be a smokeproof enclosure.

(1) Stairs in smokeproof enclosures shall be of incombustible construction.

(2) There shall be no openings in smokeproof enclosures, except exit doorways and openings in exterior walls. There shall be no openings directly into the interior of the building. Access shall be through a vestibule with one wall at least fifty percent open to the exterior and having an exit door from the interior of the building and an exit door leading to the smokeproof enclosure. In lieu of a vestibule, access may be by way of an open exterior balcony of incombustible materials.

(3) The opening from the building to the vestibule or balcony shall be protected with a self-closing fire assembly having one-hour fire-resistive rating. The opening from the vestibule or balcony to the stair tower shall be protected by a self-closing fire assembly having a one-hour fire-resistive rating.

(4) A smokeproof enclosure shall exit into a public way or into an exit passageway leading to a public way. The exit passageway shall be without other openings and shall have walls, floors, and ceilings of two-hour fire-resistance.

(5) A stairway in a smokeproof enclosure shall not continue below the grade level exit unless an approved barrier is provided at a ground floor level to prevent persons from accidentally walking into the basement.

(j) *Exit Outlets, Courts, and Passageways*

Every exit shall discharge into a public way, exit court, or exit passageway. Every exit court shall discharge into a public way or an exit passageway. Passageways shall be without openings other than required exits and shall have walls, floors, and ceilings of the same period of fire-resistance as the walls, floors and ceilings of the building but shall not be less than one-hour fire-resistive construction.

(1) *Width.* Every exit court and exit passageways shall be at least as wide as the required total width of the tributary exits, such required width being based on the occupant load served. The required width of exit courts or exit passageways shall be unobstructed except as permitted in corridors. At any point where the width of an exit court is reduced from any cause, the reduction in width shall be affected gradually by a guardrail at least 900 millimeters in height. The guardrail shall make an angle of not more than 30 degrees with the axis of the exit court.

(2) *Slope.* The slope of exit courts shall not exceed 1 in 10. The slope of exit passageway shall not exceed 1 in 8.

(3) *Number of Exits.* Every exit court shall be provided with exits as required in this Code.

(4) *Openings.* All openings into an exit court less than 3.00 meters wide shall be protected by fire assemblies having not less than three-fourth hour fire-resistive rating. *Except,* that openings more than 3.00 meters above the floor of the exit court may be unprotected.

(k) *Exit Signs and Illuminations*

Exits shall be illuminated at any time the building is occupied with lights having an intensity of not less than 10.7 lux at floor level: *Except,* that for Group A Occupancies, the exit illumination shall

be provided with separate circuits or separated sources of power (but not necessarily separate from exit signs when these are required for exit sign illumination)

(l) *Aisles*

Every portion or every building in which are installed seats, tables, merchandise, equipment, or similar materials shall be provided with aisles leading to an exit.

(1) *Width.* Every aisle shall be not less than 800 millimeters wide if serving only one side, and not less than 1 meter wide if serving both sides. Such minimum width shall be measured at the point farthest from an exit, cross aisle, or foyer and shall be increased by 30 millimeters for every meter in length towards the exit, cross aisle or foyer.
Side aisles shall not be less than 1.10 meters in width.

(2) *Exit Distance*. In areas occupied by seats and in Groups H and I Occupancies without seats, the line of travel to an exit door by an aisle shall be not more than 45.00 meters. With standard spacing, as specified in this Code, aisles shall be so located that there will be not more than seven seats between the wall and an aisle and not more than fourteen seats between aisles. The number of seats between aisles may be increased to 30 where exits doors are provided along each side aisle of the row of seats at the rate of one pair of exit doors for every five rows of seats, provided further that the distance between seats back to back is at least one meter. Such exit doors shall provide a minimum clear width of 1.70 meters.

(3) *Cross aisles.* Aisles shall terminate in a cross aisle, foyer, or exit. The width of the cross aisle shall be not less than the sum of the required width of the widest aisle plus fifty percent of the total required width of the remaining aisle leading thereto. In Groups C, H and E Occupancies, aisles shall not be provided a dead end greater than 6.00 meters in length.

(4) *Vomitories.* Vomitories connecting the foyer or main exit with the cross aisles shall have a total width not less than the sum of the required width of the widest aisles leading thereto plus fifty percent of the total required width of the remaining aisles leading thereto.

(5) *Slope.* The slope portion of aisles shall not exceed a fall of 1 in 8.

(m) *Seats*

(1) *Seat Spacing.* With standard seating, the spacing of rows of seats from back-to-back shall be not less than 840 millimeters. With continental seating, the spacing of rows of unoccupied seats shall provide a clear width measured horizontally, as follows: 450 millimeters clear for rows of 18 seats or less; 500 millimeters clear for rows of 35 seats or less; 525 millimeters clear for rows of 45 seats or less; and 550 millimeters clear for rows of 46 seats or more.

(2) *Width.* The width of any seat shall be not less than 450 millimeters.

(n) *Reviewing Stands, Grandstands, and Bleachers*

(1) *Height of Stands.* Stands made of combustible framing shall be limited to 11 rows or 2.70 meters in height.

(2) *Design Requirements.* The minimum unit live load for reviewing stands, grandstands, and bleachers shall be 500 kilograms per square meter of horizontal projection for the structure as a whole. Seat and footboards shall be 180 kilograms per linear meter. The sway force, applied to seats, shall be 35 kilograms per linear meter parallel to the seats and 15 kilograms per linear meter perpendicular to the seats. Sway forces need not be applied simultaneously with other lateral forces.

(3) *Spacing of Seats*

(3.1) *Row Spacing.* The minimum spacing of rows of seats measured from back-to-back shall be: 600 millimeters for seats without backrests in open air stands; 750 millimeters for seats with backrests; and 850 millimeters for chair seating. There shall be a space of not less than 300 millimeters between the back of each seat and the front of the seat immediately behind it.

(3.2) *Rise Between Rows.* The maximum rise from one row of seats to the next shall not exceed 400 millimeters.

(3.3) *Seating Capacity.* For determining the seating capacity of a stand, the width of any seat shall not be less than 450 millimeters nor more than 480 millimeters.

(3.4) *Number of Seats Between Aisles.* The number of seats between any seat and an aisle shall not be greater than 15 for open air stands with seats without backrests, a far

open air stands with seats having backrests and seats without backrests within buildings and 6 for seats with backrests in buildings.

(4) *Aisles*

(4.1) *Aisles Required*. Aisles shall be provided in all stands; *Except*, that aisles may be omitted when all the following conditions exist: Seats are without backrests; the rise from row to row does not exceed 300 millimeters per row; the number of rows does not exceed 11 in height; the top seating board is not over 3.00 meters above grade; and the first seating board is not more than 500 millimeters above grade.

(4.2) *Obstructions.* No obstruction shall be placed in the required width of any aisle or exitway.

(4.3) *Stairs Required.* When an aisle is elevated more than 200 millimeters above grade, the aisle shall be provided with a stairway or ramp whose width is not less than the width of the aisle.

(4.4) *Dead End.* No vertical aisle shall have a dead end more than 16 rows in depth regardless of the number of exits required.

(4.5) *Width.* Aisles shall have a minimum width of 1.10 meters.

(5) *Stairs and Ramps*

The requirements in this Code shall apply to all stairs and ramps except for portions that pass through the seating area.

(5.1) *Stair Rise and Run.* The maximum rise of treads shall not exceed 200 millimeters and the minimum width of the run shall be 280 millimeters. The maximum variation in the width of treads in any one flight shall not be more than 5 millimeters and the maximum variation in one height of two adjacent rises shall not exceed 5 millimeters.

(5.2) *Ramp Slope.* The slope of a ramp shall not exceed 1 in 8. Ramps shall be roughened or shall be of approved nonslip material.

(5.3) *Handrails.* A ramp with a slope exceeding 1 in 10 shall have handrails. Stairs for stands shall have handrails. Handrails shall conform to the requirements of this Code.

(6) *Guardrails*

(6.1) Guardrails shall be required in all locations where the top of a seat plank is more than 1.20 meters above the grade and at the front of stands elevated more than 600 millimeters above grade. Where only sections of stands are used, guardrails shall be provided as required in this Code.

(6.2) Railings shall be 1.10 meters above the rear of a seat plank or 1.10 meters above the rear of the steps in an aisle when the guardrail is parallel and adjacent to the aisle: *Except,* that the height may be reduced to 900 millimeters for guardrails located in front of the grandstand.

(6.3) A midrail shall be placed adjacent to any seat to limit the open distance above the top of any part of a seat to 250 millimeters where the seat is at the extreme end or at the extreme rear of the bleachers or grandstand. The intervening space shall have one additional rail midway in the opening: *Except,* that railings may be omitted when stands are placed directly against a wall or fence giving equivalent protection; stairs and ramps shall be provided with guardrails. Handrails at the front of stands and adjacent to an aisle shall be designed to resist a load of 75 kilograms per linear meter applied at the top rail. Other handrails shall be designed to resist a load of 40 kilograms per linear meter.

(7) *Foot Boards*

Footboards shall be provided for all rows of seats above the third row or beginning at such point where the seating plank is more than 600 millimeters above grade.

(8) *Exits*

(8.1) *Distance to Exit.* The line of travel to an exit shall not be more than 45.00 meters. For stands with seats without backseats this distance may be measured by direct line from a seat to the exit from the stand.

(8.2) *Aisle Used as Exit.* An aisle may be considered as only one exit unless it is continuous at both ends to a legal building exit or to a safe dispersal area.

(8.3) *Two Exits Required.* A stand with the first seating board not more than 500 millimeters above grade of floor may be considered to have two exits when the bottom of the stand is open at both ends. Every stand or section of a stand within a building shall have at least two means of egress when the stand accommodates more than 50 persons. Every open air stand having seats without backrests shall have at least two means of egress when the stand accommodates more than 300 persons.

(8.4) *Three Exits Required.* Three exits shall be required for stands within a building when there are more than 300 occupants within a stand and for open air stands with seats without backrests where a stand or section of a stand accommodates more than 1000 occupants.

(8.5) *Four Exits Required.* Four exits shall be required when a stand or section of a stand accommodates more than 1000 occupants: *Except,* that for an open air stand with seats without backrest four exits need not be provided unless there are accommodations for more than 3000 occupants.

(8.6) *Width.* The total width of exits in meters shall not be less than the total occupant load served divided by 165: *Except,* that for open air stands with seats without backrest the total width of exits in meters shall be not less than the total occupant load served divided by 500 when exiting by stairs, and divided by 650 when exiting by ramps or horizontally. When both horizontal and stair exits are used, the total width of exits shall be determined by using both figures as applicable. No exit shall be less than 1.10 meters in width. Exits shall be located at a reasonable distance apart. When only two exits are provided, they shall be spaced not less than one-fifth of the perimeter apart.

(9) *Securing of Chairs*

Chairs and benches used on raised stands shall be secured to the platforms upon which they are placed: *Except,* that when less than 25 chairs are used upon a single raised platform the fastening of seats to the platform may be omitted. When more than 500 loose chairs are used in connection with athletic events, chairs shall be fastened together in groups of not less than three, and shall be tied or staked to the ground.

(10) *Safe Dispersal Area*

Each safe dispersal area shall have at least two exits. If more than 6000 persons are to be accommodated within such an area, there shall be a minimum of three exits, and for more than 9000 persons there shall be a minimum of four exits. The aggregate clear width of exits from a safe dispersal area shall be determined on the basis of not less than one exit unit of 600 millimeters for each 500 persons to be accommodated and no exit shall be less than 1.10 meters in width, a reasonable distance apart but shall be spaced not less than one-fifth of the perimeter of the area apart from each other.

(o) *Special Hazards*

(1) *Boiler Rooms.* Except in Group A Occupancies, every boiler room and every room containing an incinerator or liquefied petroleum gas or liquid fuel-fired equipment shall be provided with at least two means of egress, one of which may be a ladder. All interior openings shall be protected as provided for in this Code.

(2) *Cellulose Nitrate Handling.* Film laboratories, projection rooms, and nitro-cellulose processing rooms shall have not less than two exits.

SECTION 1208. Skylights

(a) All skylights shall be constructed with metal frames except those for Groups A and J Occupancies. Frames of skylights shall be designed to carry loads required for roofs. All skylights, the glass of which is set at an angle of less than 45 degrees from the horizontal, if located above the first storey, shall be set at least 100 millimeters above the roof. Curbs on which the skylights rest shall be constructed of incombustible materials except for Types I or II Construction.

(b) Spacing between supports in one direction for flat wired glass in skylights shall not exceed 625 millimeters. Corrugated wired glass may have supports 1.50 meters apart in the direction of the corrugation. All glass in skylights shall be wired glass: *Except,* that skylights over vertical shafts extending through two or more storeys shall be glazed with plain glass as specified in this Code: *Provided,* that wired glass may be used in ventilation equal to not less than one-eight the cross-sectional area of the shaft but never less than 1.20 meters provided at the top of such shaft. Any glass not wired glass shall be protected above and below with a screen constructed of wire not smaller than 2.5 millimeters in diameter with a mesh not larger than 25 millimeters. The screen shall be substantially supported below the glass.

(c) Skylights installed for the use of photographers may be constructed of metal frames and plate glass without wire netting.

(d) Ordinary glass may be used in the roof and skylights for greenhouses, *Provided,* that height of the greenhouses at the ridge does not exceed 6.00 meters above the grade. The use of

wood in the frames of skylights will be permitted in greenhouses outside of highly restrictive Fire Zones if the height of the skylight does not exceed 6.00 meters above the grade, but in other cases metal frames and metal sash bars shall be used.

(e) Glass used for the transmission of light, if placed in floors or sidewalks, shall be supported by metal or reinforced concrete frames, and such glass shall not be less than 12.5 millimeters in thickness. Any such glass over 100 square centimeters in area shall have wire mesh embedded in the same or shall be provided with a wire screen underneath as specified for skylights in this Code. All portions of the floor lights or sidewalk lights shall be of the same strength as required for floor or sidewalk construction, except in cases where the floor is surrounded by a railing not less 1.10 meters in height, in which case the construction shall be calculated for not less than roof loads.

SECTION 1209. Bays, Porches, and Balconies

(a) Walls and floors in bay and oriel windows shall conform to the construction allowed for exterior walls and floors of the type of construction of the building to which they are attached. The roof covering of a bay or oriel window shall conform to the requirements of the roofing of the main roof. Exterior balconies attached to or supported by wall required to be of masonry, shall have brackets or beams constructed of incombustible materials. Railings shall be provided for balconies, landings, or porches which are more than 750 millimeters above grade.

SECTION 1210. Penthouses and Roof Structures

(a) *Height*

No penthouse or other projection above the roof in structures of other than Type V construction shall exceed 8.40 meters above the roof when used as an enclosure for tanks or for elevators which run to the roof and in all other cases shall not extend more than 3.60 meters in height with the roof.

(b) *Area*

The aggregate area of all penthouses and other roof structures shall not exceed one third of the area of the supporting roof.

(c) *Prohibited Uses*

No penthouse, bulkhead, or any other similar projection above the roof shall be used for purposes other than shelter of mechanical equipment or shelter of vertical shaft openings in the roof. A penthouse or bulkhead used for purposes other than that allowed by this Section shall conform to the requirements of this Code for an additional storey.

(d) *Construction*

Roof structures shall be constructed with walls, floors, and roof as required for the main portion of the building except in the following cases:

(1) On Types III and IV constructions, the exterior walls and roofs of penthouses which are 1.50 meters or more from an adjacent property line may be of one-hour fire-resistive incombustible construction.

(2) Walls not less than 1.50 meters from an exterior wall of a Type IV construction may be of one-hour fire-resistive incombustible construction.

The above restrictions shall not prohibit the placing of wood flagpoles or similar structures on the roof of any building.

(e) *Towers and Spires*

Towers and spires when enclosed shall have exterior walls as required for the building to which they are attached. Towers not enclosed and which extend more than 20.00 meters above the grade shall have their framework constructed of iron, steel, or reinforced concrete. No tower or spire shall occupy more than one-fourth of the street frontage of any building to which it is attached and in no case shall the base area exceed 150 square meters unless it conforms entirely to the type of construction requirements of the building to which it is attached and is limited in height as a main part of the building. If the area of the tower and spire exceeds 10.00 square meters on any horizontal cross section, its supporting frames shall extend directly to the ground. The roof covering of the spires shall be as required for the main room of the rest of the structure. Skeleton towers used as radio masts, neon signs, or advertisement frames and placed on the roof of any building shall be constructed entirely of incombustible materials when more than 7.50 meters in height, and shall be directly supported on an incombustible framework to the ground. No such skeleton towers shall be

supported on roofs of combustible framings. They shall be designed to withstand a wind load from any direction in addition to any other loads.

SECTION 1211. Chimneys, Fireplaces, and Barbecues

(a) *Chimneys*

(1) *Structural Design.* Chimneys shall be designed, anchored, supported, reinforced, constructed, and installed in accordance with generally accepted principles of engineering. Every chimney shall be capable of producing a draft at the appliance not less than that required for the safe operation of the appliance connected thereto. No chimney shall support any structural load other than its own weight unless it is designed to act as a supporting member. Chimneys in a wood-framed building shall be anchored laterally at the ceiling line and at each floor line which is more than 1.80 meters above grade, except when entirely within the framework or when designed to be free standing.

(2) *Walls.* Every masonry chimney shall have walls of masonry units, bricks, stones, listed masonry chimney units, reinforced concrete or equivalent solid thickness of hollow masonry and lined with suitable liners in accordance with the following requirements:

(2.1) *Masonry Chimneys for Residential Type Appliances.* Masonry chimneys shall be constructed of masonry units or reinforced concrete with walls not less than 100 millimeters thick; or of rubble stone masonry not less than 300 millimeters thick. The chimney liner shall be in accordance with this Code.

(2.2) *Masonry Chimneys for Low Heat Appliances.* Masonry chimneys shall be constructed of masonry units or reinforced concrete with walls not less than 200 millimeters thick: *Except,* that rubble stone masonry shall be not less than 300 millimeters thick. The chimney liner shall be in accordance with this Code.

(2.3) *Masonry Chimneys for Medium-Heat Appliances.* Masonry chimneys for medium-heat appliances shall be constructed of solid masonry units of reinforced concrete not less than 200 millimeters thick, *Except,* that stone masonry shall be not less than 300 millimeters thick and, in addition shall be lined with not less than 100 millimeters of firebrick laid in a solid bed of fire clay mortar with solidly filled head, bed, and wall joints, starting not less than 600 millimeters below the chimney connector entrance. Chimneys extending 7.50 meters or less above the chimney connector shall be lined to the top.

(2.4) *Masonry Chimneys for High-Heat Appliances.* Masonry chimneys for high-heat appliances shall be constructed with double walls of solid masonry units or reinforced concrete not less than 200 millimeters in thickness, with an air space of not less than 50 millimeters between walls. The inside of the interior walls shall be of firebrick not less than 100 millimeters in thickness laid in a solid bed of fire clay mortar with solidly filled head, bed, and wall joints.

(2.5) *Masonry Chimneys for incinerators installed in Multi-Storey Buildings (Apartment-Type Incinerators).* Chimneys for incinerators installed in multi-storey buildings using the chimney passageway as a refuse chute where the horizontal grate area of combustion chamber does not exceed 0.80 square meter shall have walls of solid masonry or reinforced concrete, not less than 100 millimeters thick with a chimney lining as specified in this Code. If the grate area of such an incinerator exceeds 0.80 square, meter, the walls shall not be less than 100 millimeters of firebrick except that higher than 9.00 meters above the roof of the combustion chamber, common brick alone 200 millimeters in thickness may be used.

(2.6) *Masonry Chimneys for Commercial and Industrial Type Incinerators.* Masonry chimneys for commercial and industrial type incinerators of a size designed for not more than 110 kilograms of refuse per hour and having a horizontal grate area not exceeding 0.50 square meter shall have walls of solid masonry or reinforced concrete not less than 100 millimeters thick with lining of not less than 100 millimeters of firebrick, which lining shall extend for not less than 12.00 meters above the roof of the combustion chamber. If the design capacity of grate area of such an incinerator exceeds 110 kilograms per hour and 0.80 square meter respectively, walls shall not be less than 200 millimeters thick, lined with not les than 100 millimeters of firebrick extending the full height of the chimney.

(3) *Linings.* Fire clay chimney lining shall not be less than 15 millimeters thick. The lining shall extend from 200 millimeters below the lowest inlet or, in the case of fireplace, from the throat of the fireplace to a point above enclosing masonry walls. Fire clay chimney linings shall be installed ahead of the construction of the chimney as it is carried up, carefully bedded one on the other in fire clay mortar, with close-fitting joints left smooth on the inside. Firebrick not less than 500 millimeters thick may be used in place of fire clay chimney.

(4) *Area.* No chimney passageway shall be smaller in area than the vent connection of the appliance attached thereto.

(5) *Height.* Every masonry chimney shall extend at least 600 millimeters above the part of the roof through which it passes and at least 600 millimeters above the highest elevation of any part of a building within 3.00 meters to the chimney.

(6) *Corbeling.* No masonry chimney shall be corbeled from a wall more than 150 millimeters nor shall a masonry chimney be corbelled from a wall which is less than 300 millimeters in thickness unless it projects equally on each side of the wall. In the second storey of a two-storey building of Group A Occupancy, corbeling of masonry chimneys on the exterior of the enclosing walls may equal the wall thickness. In every case the corbeling shall not exceed 25 millimeters projection for each course of brick.

(7) *Change in size or Shape.* No change in the size or shape of a masonry chimney shall be made within a distance of 150 millimeters above or below the roof joints or rafters where the chimney passes through the roof.

(8) *Separation.* When more than one passageway is contained in the same chimney, masonry separation at least 100 millimeters thick bonded into the masonry wall of the chimney shall be provided to separate passageways.

(9) *Inlets.* Every inlet to any masonry chimney shall enter the side thereof and shall be of not less than 3 millimeters thick metal or 16 millimeters refractory material.

(10) *Clearance.* Combustible materials shall not be placed within 50 millimeters of smoke chamber or masonry chimney walls when built within a structure, or within 25 millimeters when the chimney is built entirely outside the structure.

(11) *Termination.* An incinerator chimney shall terminate in a substantially constructed spark arrester having a mesh not exceeding 20 millimeters.

(12) *Cleanouts.* Cleanout openings shall be provided at the base of every masonry chimney.

(b) *Fireplaces and Barbecues*

Fireplaces, barbecues, smoke chambers, and fireplace chimneys shall be of solid masonry or reinforced concrete and shall conform to the minimum requirements specified in this Code.

(1) *Fireplace Walls.* Walls of fireplaces shall not be less than 200 millimeters in thickness. Walls of fireboxes shall not be less than 250 millimeters in thickness: *Except,* that where a lining of firebrick is used, such walls shall not be less than 200 millimeters in thickness. The firebox shall not be less than 500 millimeters in depth. The maximum thickness of joints in firebrick shall be 10 millimeters.

(2) *Hoods.* Metal hoods used as part of a fireplace or barbecue shall be not less than No. 18 gauge copper, galvanized iron, or other equivalent corrosion-resistant ferrous metal with all seams and connections of smokeproof unsoldered construction. The hoods shall be sloped at an angle of 45 degrees or les from the vertical and shall extend horizontally at least 150 millimeters beyond the limits of the firebox. Metal hoods shall be kept a minimum of 400 millimeters from combustible materials.

(3) *Circulators.* Approved metal heat circulators may be installed in fireplaces.

(4) *Smoke Chamber.* Front and side walls shall not be less than 200 millimeters in thickness. Smoke chamber back walls shall not be less than 150 millimeters in thickness.

(5) *Fireplace Chimneys.* Walls of chimneys without flue lining shall not be less than 200 millimeters in thickness. Walls of chimneys with flue lining shall not be less than 100 millimeters in thickness and shall be constructed in accordance with the requirements of this Code.

(6) *Clearance to Combustible Materials.* Combustible materials shall not be placed within 50 millimeters of fireplace, smoke chamber, or chimney walls when built entirely within a structure, or within 25 millimeters when the chimney is built entirely outside the structure. Combustible materials shall not be placed within 150 millimeters of the fireplace opening. No such combustible material within 300 millimeters of the fireplace opening shall project more than 3 millimeters for each 25 millimeters clearance from such opening. No part of metal

hoods used as part of a fireplace, barbecue or heating stoves shall be less than 400 millimeters from combustible material. This clearance may be reduced to the minimum requirements set forth in this Code.

(7) *Area of Flues, Throats, and Dampers.* The net cross-sectional area of the flue and of the throat between the firebox and the smoke chamber of a fireplace shall not be less than the requirements to be set forth by the Secretary. Where dampers are used, they shall be of not less than No. 12 gauge metal. When fully opened, damper opening shall be not less than ninety percent of the required flue area. When fully open, damper blades shall not extend beyond the line of the inner face of the flue.

(8) *Lintel* – Masonry over the fireplace opening shall be supported by a non-combustible lintel.

(9) *Hearth* – Every fireplace shall be provided with a brick, concrete, stone, or other approved non-combustible hearth slab at least 300 millimeters wider on each side then the fireplace opening and projecting at least 450 millimeters therefrom. This slab shall not be less than 100 millimeters thick and shall be supported by a noncombustible material or reinforced to carry its own weight and all imposed loads.

SECTION 1212. Fire-Extinguishing Systems

(a) *Fire-Extinguishing Systems* – Where required, standard automatic fire-extinguishing systems shall be installed in the following places, and in the manner provided in this Code.

(1) In every storey, basement or cellar with an area of 200 square meters or more which is used for habitation, recreation, dining, study, or work, and which has an occupant load of more than 20.

(2) In all dressing rooms, rehearsal rooms, workshops or factories, and other rooms with an occupant load of more than 10 or assembly halls under Group H and I occupancies with occupant load of more than 500, and if the next doors of said rooms are more than 30.00 meters from the nearest safe fire dispersal area of the building or opening to an exit court or street.

(3) In all rooms used for storage or handling of photographic x-ray nitrocellulose films and other inflammable articles.

(b) *Dry Standpipes* – Every building four or more storeys in height shall be equipped with one or more dry standpipes.

(1) *Construction and Tests* – Dry standpipes shall be of wrought iron or galvanized steel and together with fittings and connections shall be of sufficient strength to withstand 20 kilograms per square centimeter of water pressure when ready for service, without leaking at the joints, valves, or fittings. Tests shall be conducted by the owner or the building contractor in the presence of a representative of the Building Official whenever deemed necessary for the purpose of certification of its proper function.

(2) *Size* – Dry standpipes shall be of such size as to be capable of delivering 900 liters or water per minute from each of any three outlets simultaneously under the pressure created by one fire engine or pumper based on the standard equipment available.

(3) *Number Required* – Every building four or more storeys in height where the area of any floor above the third floor is 950 square meters or less, shall be equipped with at least one dry standpipe and an additional standpipe shall be installed for each additional 950 square meters or fraction thereof.

(4) *Location* – Standpipes shall be located within enclosed stairway landings or near such stairways as possible or immediately inside of an exterior wall and within 300 millimeters of an opening in a stairway enclosure of the balcony or vestibule of a smokeproof tower or an outside exit stairway.

(5) *Siamese Connections* – Subject to the provisions of subparagraph (2) all 100 millimeters dry standpipes shall be equipped with a two-way Siamese fire department connection. All 125 millimeters dry standpipes shall be equipped with a three-way Siamese fire department connection and 150 millimeters dry standpipes shall be equipped with a four-way Siamese fire department connections. All Siamese inlet connections shall be located on a street-front of the building and not less than 300 millimeters nor more than 1.20 meters above the grade and shall be equipped with a clapper-checks and substantial plugs. All Siamese inlet connections shall be recessed in the wall or otherwise substantially protected.

(6) *Outlets* – All dry standpipes shall extend from the ground floor to and over the roof and shall be equipped with a 63 millimeters outlet nor more than 1.20 meters above the floor level at each storey. All dry standpipes shall be equipped with a two-way 63 millimeters outlet above the roof. All outlets shall be equipped with gate valves.

(7) *Signs* – An iron or bronze sign with raised letters at least 25 millimeters high shall be rigidly attached to the building adjacent to all Siamese connections and such signs shall read: "CONNECTION TO DRY STANDPIPE".

(c) *Wet Standpipes* – Every Group H and I Occupancy of any height, and every Group C Occupancy of two more storeys in height, and every Group B, D, E, F and G Occupancy of three or more storeys in height and every Group G and E Occupancy over 1800 square meters in area shall be equipped with one or more interior wet standpipes extending from the cellar or basement into the topmost storey: *Provided,* that Group H buildings having no stage and having a seating capacity of less than 500 need not be equipped with interior wet standpipes.

(1) *Construction* – Interior wet standpipes shall be constructed of the same materials as those required for dry standpipes.

(2) *Size*

(2.1) Interior wet standpipes shall have an internal diameter sufficient to deliver 190 liters of water per minute under 2.0 kilograms per square centimeter pressure at the hose connections. Buildings of Group H and I Occupancy shall have wet standpipes systems capable of delivering the required quantity and pressure from any two outlets simultaneously; for all other occupancies only one outlet need be figured to be opened at one time. In no case shall the internal diameter of a wet standpipe be less than 50 millimeters, except when the standpipe is attached to an automatic fire-extinguishing system.

(2.2) Any approved formula which determine pipe sizes on a pressure drop basis may be used to determine pipe size for wet standpipe systems. The Building Official may require discharge capacity and pressure tests on completed wet standpipe systems.

(3) *Number required* – The number of wet standpipes when required in this Code shall be so determined that all portions of the building are within 6.00 meters of a nozzle attached to a hose 23.00 meters in length.

(4) *Location* – In Group H and I Occupancies, outlets shall be located as follows: one on each side of the stage, one at the rear of the auditorium, and one at the rear of the balcony. Where occupant loads are less than 500 the above requirements may be waived: *Provided,* that portable fire-extinguishers of appropriate capacity and type are installed within easy access from the said locations. In Group B, C, D, E, F and G Occupancies, the location of all interior wet standpipes shall be in accordance with the requirement for dry standpipes: *Provided,* that at least one standpipe is installed to cover not more than 650 square meters.

(5) *Outlets.* All interior wet standpipes shall be equipped with a 38 millimeter valve in each storey, including the basement or cellar of the building, and located not less than 300 millimeters nor more than 1.20 meters above the floor.

(6) *Threads.* All those threads used in connection with the installation of such standpipes, including valves and reducing fittings shall be uniform with that prescribed by the Secretary.

(7) *Water Supply*. All interior wet standpipes shall be connected to a street main not less than 100 millimeters in diameter, or when the water pressure is insufficient, to a water tank of sufficient size as provided in subparagraph (8). When more than one interior wet standpipe is required in the building, such standpipe shall be connected at their bases or at their tops by pipes of equal size.

(8) *Pressure and Gravity Tanks* – Tanks shall have a capacity sufficient to furnish at least 1,500 liters per minute for a period of not less than 10 minutes. Such tanks shall be located so as to provide not less than 2 kilograms per square centimeter pressure at the topmost base outlet for its entire supply. Discharge pipes from pressure tanks shall extend 50 millimeters into and above the bottom of such tanks. All tanks shall be tested in place after installation and proved tight at a hydrostatic pressure fifty percent in excess of the working pressure required. Where such tanks are used for domestic purposes the supply pipe for such purposes shall be located at or above the center line of such tanks. Incombustible supports shall be provided for all such supply tanks and not less than a 900 millimeters clearance shall be maintained over the top and under the bottom of all pressure tanks.

(9) *Fire pumps*. Fire pumps shall have a capacity of not less than 1,000 liters per minute with a pressure not less than 2 kilograms per square centimeter at the topmost hose outlet.

The source of supply for such pump shall be a street water main of not less than 100 millimeters diameter or a well or cistern containing a one-hour supply. Such pumps shall be supplied with an adequate source of power and shall be automatic in operation.

(10) *Hose and Hose Reels* – Each hose outlet of all interior wet standpipes shall be supplied with a hose not less than 38 millimeters in diameter. Such hose shall be equipped with a suitable brass or bronze nozzle and shall be not over 23.00 meters in length. An approved standard form of wall hose reel or rack shall be provided for the hose and shall be located so as to make the hose readily accessible at all times and shall be recessed in the walls or protected by suitable cabinets.

(d) *Basement Pipe Inlets* – Basement pipe inlets shall be installed in the first floor of every store, warehouse, or factory where there are cellars or basements under same: *Except,* where in such cellars or basements there is installed a fire-extinguishing system as specified in this Code or where such cellars or basements are used for banking purposes, safe deposit vaults, or similar uses.

(1) *Material* – All basement pipe inlets shall be of cast iron, steel, brass, or bronze with lids of cast brass or bronze and shall consist of a sleeve not less than 200 millimeters in diameter through the floor extending to and flush with the ceiling below and with a top flange, recessed with an inside shoulder, to receive the lid and flush with the finished floor surface. The lid shall be a solid casting and shall have a ring lift recessed on the top thereof, so as to be flushed. The lid shall have the words “FOR FIRE DEPARTMENT ONLY, DO NOT COVER UP” cast on the top thereof. The lid shall be installed in such a manner as to permit its removal readily from the inlet.

(2) *Location*. Basement pipe inlets shall be strategically located and kept readily accessible at all times to the Fire Department.

(e) *Approval* – All fire-extinguishing systems, including automatic sprinklers, wet and dry standpipes, automatic chemical extinguishers, basement pipe inlets, and the appurtenances thereto shall meet the approval of the Fire Department as to installation and location and shall be subject to such periodic tests as it may require.

SECTION 1213. Stages and Platform

(a) *Stage Ventilators* – There shall be one or more ventilators constructed of metal or other incombustible material near the center and above the highest part of any working stage raised above the stage roof and having a total ventilation area equal to at least five percent of the floor area within the stage walls. The entire equipment shall conform to the following requirements:

(1) *Opening Action* – Ventilators shall open by spring action or force of gravity sufficient to overcome the effects of neglect, rust, dirt, or expansion by heat or warping of the framework.

(2) *Glass* – Glass, if used in ventilators, must be protected against falling on the stage. A wire screen, if used under the glass, must be so placed that if clogged it cannot reduce the required ventilating area or interfere with the operating mechanism or obstruct the distribution of water from the automatic fire extinguishing systems.

(3) *Design* – Ventilators, penthouses, and supporting framework shall be designed in accordance with this Code.

(4) *Spring Actuation* – Springs, when employed to actuate ventilator doors, shall be capable of maintaining full required tension indefinitely. Springs shall not be stressed more than fifty percent of their rated capacity and shall not be located directly in the air stream, nor exposed to elements.

(5) *Location of Fusible Links* – A fusible link shall be placed in the cable control system on the underside of the ventilator at or above the roof line or as approved by the Building Official, and shall be so located as not to be affected by the operation of fire-extinguishing systems.

(6) *Control* – Remote, manual or electrical control shall provide for both opening and closing of the ventilator doors for periodic testing and shall be located at a point on the stage designated by the Building Official. When remote control of ventilator is electrical, power failure shall not affect its instant operation in the event of fire. Hand winches may be employed to facilitate operation of manually controlled ventilators.

(b) *Gridirons* –

(1) Gridirons fly galleries, and pin-rails shall be constructed of incombustible materials and fire protection of steel and iron may be omitted. Gridirons and fly galleries shall be designed to support a live load of not less than 367 kilograms per square meter. Each loft block well shall be designed to support 373 kilograms per linear meter and the head block well shall be designed to support the aggregate weight of all the loft block wells served. The head block well must be provided with an adequate strongback or lateral brace to offset torque.

(2) The main counterweight sheave beam shall be designed to support a horizontal and vertical uniformly distributed live load sufficient to accommodate the weight imposed by the total number of loft blocks in the gridiron. The sheave blocks shall be designed to accommodate the maximum load for the loft or head blocks served with a safety factor of five.

(c) *Rooms Accessory to Stage* – In a building having a stage, the dressing room sections, workshops, and storerooms shall be located on the stage side of the proscenium wall and shall be separated from each other and from the stage by not less than a One-Hour Fire-Resistive Occupancy Separation.

(d) *Proscenium Walls* – A stage shall be completely separated from the auditorium by a proscenium wall of not less than two-hour incombustible construction. The proscenium wall shall extend not less than 1.20 meters above the roof over the auditorium. Proscenium walls may have, in addition to the main proscenium openings, one opening at the orchestra pit level and not more than two openings at the stage floor level, each of which shall be not more than 2.00 square meters in area. All openings in the proscenium wall of stage shall be protected by a fire assembly having a one and one-half-hour fire-resistive rating. The proscenium opening, which shall be the main opening for viewing performances, shall be provided with a self closing fire-resistive curtain as specified in this Code.

(e) *Stage Floor* – The type of construction for stage floors shall depend upon the requirements based on the type of Occupancy and the corresponding fire-resistive requirements. All parts of the stage floor shall be designed to support not less than 620 kilograms per square meters. Openings through stage floors shall be equipped with tight-fitting trap doors of wood of not less than 50 millimeters nominal thickness.

(f) *Platforms* – The type of construction for platforms shall depend upon the requirements based on the Type of Occupancy and corresponding fire-resistive requirements. Enclosed platforms shall be provided with one or more ventilators conforming to the requirements of stage ventilators: *Except,* that the total area shall be equal to five percent of the area of the platform. When more than one ventilator is provided, they shall be so spaced as to provide proper exhaust ventilation. Ventilators shall not be required for enclosed platforms having a floor area of 45.00 square meters or less.

(g) *Stage Exits* – At least one exit not less than 900 millimeters wide shall be provided from each side of the stage opening directly or by means of a passageway not less than 900 millimeters in width to a street or exit court. An exit stair not less than 750 millimeters wide shall be provided for egress from each fly gallery. Each tier of dressing rooms shall be provided with at least two means of egress each not less than 750 millimeters wide and all such stairs shall be constructed in accordance with the requirement specified in this Code. The stairs required in this Sub-section need not be enclosed.

SECTION 1214. Motion Picture Projection Rooms

(a) *General Requirements* – The provisions of this Section shall apply only where ribbon type motion picture films in excess of 22-millimeter width and electric projection equipment are used. Every motion picture machine using ribbon type film in excess of 22 millimeter width and electric arc projections equipment, together with all electrical devices, rheostats, machines, and all such films present in any Group C, I, or H Occupancy, shall be enclosed in a projection room large enough to permit the operator to walk freely on either side and back of the machine.

(b) *Construction* – Every projection room shall be of not les than one-hour fire-resistive construction throughout and the walls and ceiling shall be finished with incombustible materials. The ceiling shall be not less than 2.40 meters from the finished floor. The room shall have a floor area of not less than 7.00 square meters and 3.50 square meters for each additional machine.

(c) *Exit* – Every projection room shall have at least two doorways separated by not less than one-third the perimeter of the room, each at least 750 millimeters wide and 2.00 meters high. All entrances to a projection room shall be protected by a self-closing fire assembly having a three-fourths hour fire-resistive rating. Such doors shall open outward and lead to proper exits as required in this Code and shall not be equipped with any latch. The maximum width of such door shall be 750 millimeters.

(d) *Ports and Openings* – Ports in projection room walls shall be of three kinds: projection ports; observation ports; and combination ports used for both observation and for stereopticon, spot or floodlight machines.

(1) *Ports Required* – There shall be provided for each motion picture projector not more than one projection port, which shall be limited in area to 750 square centimeters, and not more than one observation port, which shall be limited in area to 1,300 square centimeters. There shall be not more than three combination ports, each of which shall not exceed 750 millimeters by 600 millimeters. Each port opening shall be completely covered with a pane of glass: *Except,* that when acetate safety film is used, projection ports may be increased in size to an area not to exceed 4,500 square centimeters.

(2) *Shutters* – Each port and every other opening in projection room walls, including, any fresh-air inlets but excluding exit doors and exhaust ducts, shall be provided with a shutter of not less than 2.4 millimeters thick sheet metal or its equivalent large enough to overlap at least 25 millimeters on all sides of such openings. Shutters shall be arranged to slide without binding in guides constructed of material equal to the shutters in strength and fire-resistance. Each shutter shall be equipped with a 74° fusible link, which when fused by heat will cause closure of the shutter by gravity. Shutters of a size greater than 1,300 square centimeters shall be equipped with a counter-balance. There shall also be a fusible link located over the upper magazine of each projector, which upon operating, will close all the shutters. In addition, there shall be provided suitable means for manually closing all shutters simultaneously from any projector head and from a point within the projection room near each exit door. Shutters on openings not in use shall be kept closed: *Except*, that shutters may be omitted when only acetate safety film is used.

(e) *Ventilation* –

(1) *Inlet* – A fresh-air inlet from the exterior of the building not less than 900 square centimeters and protected with wire netting, shall be installed within 50 millimeters of the floor in every projection room, the source of which shall be remote from other outside vents or flues.

(2) *Outlets* – Ventilation shall be provided by one or more mechanical exhaust systems which shall draw air from each arc lamp housing to out-doors either directly or through an incombustible flue used for no other purpose. Exhaust capacity shall not be less than 0.50 cubic meter nor more than 1.40 cubic meter per minute for each arc lamp plus 5.60 cubic meters for the room itself. Systems shall be controlled from within the enclosure and shall have pilot lights to indicate operation. The exhaust systems serving the projection room may be extended to cover rooms associated therewith such as rewind rooms. No dampers shall be installed in such exhaust systems. Ventilation of these rooms shall not be connected in any way with ventilating or air-conditioning systems serving other portions of the building. Exhaust ducts shall be of incombustible material and shall either be kept 25 millimeters from combustible material or covered with 10 millimeters of incombustible heat-insulating material.

(f) *Regulation of Equipment* – All shelves, fixtures, and fixed equipment in a projection room shall be constructed of incombustible materials. All films not in actual use shall be stored in metal cabinets having individual compartments for reels or shall be in generally accepted shipping containers. No solder shall be used in the construction of such cabinets.

SECTION 1215. Lathing, Plastering, and Installation of Wall Boards

The installation of lath, plaster and gypsum wall board shall conform to the fire-resistive rating requirements and the type of construction of building.

CHAPTER 13

ELECTRICAL AND MECHANICAL REGULATIONS

SECTION 1301. Electrical Regulations

All electrical systems, equipment and installation mentioned in this Code shall conform to the provisions of the Philippine Electrical Code, as adopted by the Board of Electrical Engineering pursuant to Republic Act No. 184 otherwise known as the Electrical Engineering Law.

SECTION 1302. Mechanical Regulations

All mechanical systems, equipment and installations mentioned in this Code shall conform to the provisions of the Philippine Mechanical Engineering code, as adopted by the Board of Mechanical Engineering pursuant to Commonwealth Act No. 294 as amended, otherwise known as the Mechanical Engineering Law.

CHAPTER 14

PHOTOGRAPHIC AND X-RAY FILMS

SECTION 1401. Storage and Handling

(a) Storage rooms of unexposed photographic and x-ray films shall be provided with automatic fire extinguishing systems in the following cases:

(1) When unexposed films in generally accepted safety shipping containers exceed the aggregate of 14.00 cubic meters.

(2) Where shelving used for storage of individual packages not in said shipping containers exceeds 1.40 cubic meters in capacity; and

(3) Storage is not in generally accepted safety shipping containers in any section not exceeding 14.00 cubic meters.

(b) Film negatives in storage or in process of handling shall be kept in heavy Manila envelopes, not exceeding 12 films to an envelope. Expanding envelopes shall not be used.

(c) Film negatives shall be kept in properly insulated vented cabinets, vented storage vaults or outside storage houses. Not more than 110 kilograms shall be stored in any single cabinet. Where the film stored exceeds 450 kilograms, it shall be in vented storage vaults or in a detached structure or roof vault. Door openings in vaults shall be of four-hour fire-resistive construction and shall be kept closed except when in use.

(d) Only incandescent electric light shall be permitted; protected with substantial wire guards or vapor proof globes or both. Portable lights on extension cords are prohibited. Conspicuous “NO SMOKING” signs shall be posted.

(e) No films shall be stored within 600 millimeters of steam pipes, chimneys, or other sources of heat.

(f) There shall be first aid provisions of types using water or water solutions. Discarded films shall be stored and handled in the same manner as other films until removed from the premises.

SECTION 1402. Classes of Film Exempted

(a) The provisions of this Section do not apply to the following: film for amateur photographic use in original packages of “roll” and “film pack” films in quantities of less than 1.40 cubic meters; safety film; dental X-ray film; establishments manufacturing photographic films and their storage incidental thereto and films stored or being used in standard motion picture booths.

(b) Safety photographic X-ray film may be identified by the marking on the edge of the film.

SECTION 1403. Fire Extinguishing System

Unless otherwise provided in this Code, all fire extinguishing systems when so required shall be of a type, specifications, and methods of installation as prescribed in accordance with the requirements of the Secretary.

CHAPTER 15

PRE-FABRICATED CONSTRUCTION

SECTION 1501. Prefabricated Assembly

(a) Prefabricated assembly is a structural unit, the integral parts of which have been built up or assembled prior to incorporation in the building.

(b) The Secretary shall prescribe special tests to determine the structural adequacy, durability, soundness, weather and fire resistance of prefabricated assemblies.

(c) Every device or system to connect prefabricated assemblies shall be capable of developing the strength of the different members as an integral structure. *Except,* in the case of members forming part of a structural frame as specified in this Code. Anchorages and connections between members and the supporting elements of the structure or walls shall be capable of withstanding all probable external and internal forces or other conditions for a structurally adequate construction. In structural design, proper allowances shall be made for any material to be displaced or removed for the installation of pipes, conduits, or other equipment.

(d) Placement of prefabricated assemblies shall be inspected to determine compliance with this Code.

CHAPTER 16

PLASTICS

SECTION 1601. Approved Plastics

Approved plastic materials shall be those which have a flame-spread rating of 225 or less and a smoke density not greater than that obtained from the burning of untreated wood under similar conditions when tested in accordance with generally accepted engineering practices. The products of combustion shall be no more toxic than the burning of untreated wood under similar conditions.

SECTION 1602. Installation

(a) *Structural Requirements* – All plastic materials shall be of adequate strength and durability to withstand the prescribed design loads. Sufficient and substantial technical data shall be submitted to establish stresses, maximum unsupported spans, and such other information as may be deemed necessary for the various thicknesses and forms used.

(b) *Fastenings* – Fastenings shall be adequate to withstand design loads and internal and external stresses required of the assembly. Proper allowances of plastic materials in conjunction with other materials with which it is assembled or integrated shall be provided.

SECTION 1603. Glazing of Openings

(a) Doors, sashes and framed openings in exterior walls of all buildings except Types IV and V Constructions may be glazed or equipped with approved plastics: *Provided,* that:

(1) The wall in which such glazing is installed is so located that openings are not required to be fire-protected.
(2) Except for Type I Construction, the location, size, and spacing of such glazed openings do not exceed the values set forth by the Secretary.
(3) Plastics used in glazed openings for Type II Construction shall be materials appropriate for use according to flame-spread characteristics and the location, size, and spacing of the openings do not exceed the values set forth by the Secretary.

SECTION 1604. Skylights

(a) *General* – Approved plastics may be used in skylights installed on roofs of Types I, II or III constructions and all buildings in these categories shall be equipped with an approved automatic fire-extinguishing system in Groups A, B, C, E, F, J, H-3 and H-4 Occupancies: *Except,* that:
(1) Approved plastics may be used in any type of construction or occupancy as a fire venting system when approved by the Building Official.
(2) Plastics may be used in approved skylights in Type II one-hour fire-resistive construction which are located 300 millimeters or more above the lower flange of the ceiling. The walls of the skylight well shall be no less fire-resistive than the adjacent ceiling.
(3) Where a fire-resistive ceiling is not required in one-storey buildings, approved plastics may be used in skylights.

(b) *Installation Requirements*
(1) Except in Group A Occupancies, no skylight shall be installed within 3.00 meters of a property line.
(2) The edges of dome-type skylights shall be properly flashed.
(3) Plastic skylights shall be separated from each other by at least 2.50 meters laterally and 3.00 meters along the slope of the roof.

(c) *Allowable areas* – The area of individual plastic skylights shall not exceed 10.00 square meters. The total aggregate area of plastics used in skylights, monitors, and sawtooth glazing shall not exceed twenty percent of the floor area of the room or occupancy sheltered.

(d) *Curb Requirements* – Plastic skylights in roofs having a slope of less than 1 in 3 shall have a 100 millimeters high curb. The curb may be omitted where a wire screen not smaller than No. 12 U.S. gauge with a mesh not larger than 25-millimeters is provided immediately below the skylight. The screen shall be substantially mounted below the skylight.

SECTION 1605. Light-Transmitting Panels in Monitors and Sawtooth Roofs

(a) *General* – Where a fire-resistive rating is not required for the roof structure, and in all buildings provided with an approved automatic fire-extinguishing system, approved plastics may be used with or without sash as the light-transmitting medium in monitors and sawtooth; *Except*, that plastics used in monitors or sawtooth roofs of Type II Construction shall be of materials appropriate to be used according to flame-spread characteristics.

(b) *Allowable Areas* – The area of individual plastic glazing used in monitors and sawtooth glazing shall not exceed 15.00 square meters. The total aggregate area of plastics used in skylights, monitors, and sawtooth glazing shall not exceed twenty percent of the floor area of the room or occupancy sheltered.

(c) *Area Separation* – The area of such plastic panels shall be separated from each other by a section of incombustible material or by a section of the roofing material of the structure not less than 1.50 meters in length. The lower edge of the plastic material shall be at least 150 millimeters above the surface of the adjoining roof surface.

SECTION 1606. Plastic Light Diffusers in Ceilings

(a) *General* – Ceiling light diffusers having an area greater than ten percent of any 10.00 square meters of room area shall be of approved plastics conforming to the requirements specified in this Code.

(b) *Installation* – Plastic light diffusers shall be installed in such a manner that they will not readily become detached when subjected to room temperature of 80°C for 15 minutes, *Except,* for plastic light diffusers which are installed in the first floor area of Group C Occupancies having egress directly to the exterior of the building; and plastic light diffusers which are located between an approved automatic Fire-extinguishing system and the area to be protected other than public corridors for Group A, B, C, D, E, G, H, and I Occupancies if tests required by the Secretary have established that such installation will not interfere with the efficient operation of such automatic fire-extinguishing systems.

SECTION 1607. Partitions

Where partitions are not required to be of fire-resistive or incombustible construction, approved plastics conforming to the requirements specified in this Code may be used.

SECTION 1608. Exterior Veneer

(a) *General*

Exterior veneer may be of approved plastic materials, and shall conform to the provisions of this Section.

(b) *Height*

Plastic veneer shall not be attached to any exterior wall above the first storey: *Provided,* that plastic veneer may be attached to exterior walls above the first storey of buildings located outside of highly restrictive Fire Zones: *Provided,* further that the height of veneer is not in excess of 10.00 meters above the adjacent grade of elevation.

(c) *Area*

Sections of plastic veneer shall not exceed 15.00 square meters in area, *Except,* that in less restrictive Fire Zones, the area may be increased by fifty percent.

(d) *Separation*

Sections of plastic veneer shall be separated by a minimum of 1.20 meters vertically and 600 millimeters horizontally.

SECTION 1609. Awnings and Canopies

(a) Plastic materials appropriate for use according to Flame Spread characteristics may be utilized in awnings and canopies, provided such awnings and canopies are constructed in accordance with provisions governing projections and appendages as specified in this Code.

(b) Approved plastics may be used in awnings where untreated canvass is permitted.

(c) Approved plastics may be used in lieu of plain glass in green-houses in less restrictive Fire Zones.

CHAPTER 17

SHEET METAL PAINT SPRAY BOOTHS

SECTION 1701. Sheet Metal Paint Spray Booths

(a) *General*
Paint spray booths shall be constructed of steel of not less than No. 18 U.S. gauge in thickness and shall be designed in accordance with this Code.

(b) *Area*
The area of a paint spray booth shall not exceed 150 square meters nor ten percent of the basic area permitted for the major use of the building according to its Occupancy Group.

(c) *Floor Construction*
The floor shall be constructed of incombustible material.

(d) *Interior Surface*
Paint spray booths shall be designed to permit the free passage of exhaust air from all parts of the interior and all interior surfaces shall be smooth and continuous without outstanding edges.

SECTION 1702. Fire Protection

Every spray booth having an open front elevation larger than 1.00 square meter and which is not equipped with doors, shall have a fire curtain or metal deflector not less than 100 millimeters deep installed at the upper outer edge of the booth opening.

SECTION 1703. Light

Paint spray booths shall be illuminated through hammered wire or heat-treated glass panels. The glass panels shall be located in such a manner as to reduce the hazard of ignition caused by paint spray deposit.

SECTION 1704. Ventilation

(a) *General*
Mechanical ventilation shall be provided direct to the exterior of the building. The mechanical exhaust system shall be designed to move the air through any portion of the paint spray area at the rate of not less than 30.00 lineal meters per minute. The blades of exhaust fans shall be constructed of non-ferrous material and shall be mounted in such a manner as to prevent contact with the exhaust duct. The motor shall not be mounted in the spray booth or the duct system and belts shall be enclosed where they enter the booth or duct system.

(b) *Exhaust Ducts*
Exhaust ducts shall be constructed of steel having a thickness not less than the values set by the Secretary. The discharge point for ducts in a paint spray booth shall be not less than 2.00 meters from adjoining combustible construction nor less than 8.00 meters from adjoining exterior wall openings: Except, that the discharge point for exhaust ducts is not regulated in a waterwash spray booth.

CHAPTER 18

GLASS AND GLAZING

SECTION 1801. General Requirements

(a) This Chapter shall apply to exterior glass and glazing in all Occupancies except Groups A, B, and J Occupancies not over three storeys in height, and to interior and exterior glass and glazing in all occupancies subject to human impact as specified in this Code.

(b) Standards for materials shall conform to the provisions set by the Secretary on glass dimensional tolerances, breaking stress levels, and design safety factors.

(c) Each light shall bear the manufacturer's label designating the type and thickness of glass. Each light with special performance characteristics such as laminated, heat strengthened, fully tempered or insulated, shall bear the manufacturer's identification showing the special characteristics and thickness by etching or other permanent identification that shall be visible after the glass is glazed.

SECTION 1802. Area Limitation

Exterior glass and glazing shall be capable of safely withstanding the load due to wind pressures for various height zones above ground acting inward or outward. The area of individual lights shall not be more than the maximum allowable area of glass according to the wind load multiplied by the appropriate adjustment factor.

SECTION 1803. Glazing

Glass firmly supported on all four edges shall be glazed with minimum laps and edge clearances in accordance with Section 1801 paragraph (b), *Provided,* that glass edge clearance in fixed openings shall be not less than what is required for wind and earthquake drift. For glass not firmly supported on all four edges and design shall be submitted for approval of the Building Official. Glass supports shall be considered firm when deflection of the support at design load does not exceed 1/175 of the span.

SECTION 1804. Louvered Windows

Regular plate, sheet, or patterned glass in jalousies and louvered windows shall not be thinner than 5.6 millimeters minimal and not longer than 1.20 meters. Exposed glass edges shall be smooth.

SECTION 1805. Impact

Frameless glass doors, glass in doors, fixed glass panels, and similar glazed openings which may be subject to accidental human impact shall conform with the requirements set forth by the Secretary on impact loads of glass: *Except* in the following cases:

(1) Bathtub and shower enclosures shall be constructed from approved shatter-resistant materials, such as: wire-reinforced glass not less than 5.6 millimeters thick; fully tempered glass not less than 4.8 millimeters thick; or laminated safety glass not less than 6.4 millimeters thick.

(2) Glass lights located not less than 450 millimeters above the adjacent finished floor or walking surface.

(3) Glass lights when the least dimension is not greater than 450 millimeters.

(4) Glass lights 1.50 square meters or less in area.

CHAPTER 19

THE USE OF COMPUTERS

SECTION 1901. General Rule

The use of computers for all or any part of the design of buildings under this Code is permitted provided that all programs to be used are documented.

SECTION 1902. Program Documentation

Documenting a program under this Code consists of filing with the Building Official a reference to a publication or publications accessible to him where the detailed description of the program or a brief statement of the theoretical background of the program including a description of the algorithms used are found.

SECTION 1903. Submission of Computer-Generated Computations

A copy of the output sheets for computer-generated computations shall be submitted as a part of the design computations. The out sheets shall be accompanied by a certification of a designer and/or consultant that the output sheets are the results obtained through the use of documented programs. The certification should include the identification of the specific program used for each portion of the computer-generated computations being submitted.

CHAPTER 20

SIGNS

SECTION 2001. General Requirements

(a) No sign or signboard shall be erected in such a manner as to confuse or obstruct the view or interpretation of any official traffic sign, signal, or device.

(b) No sign or signboard shall be constructed as to unduly obstruct the natural view of the landscape, distract or obstruct the view of the public as to constitute a traffic hazard, or otherwise defile, debase or offend aesthetic and cultural values and traditions.

SECTION 2002. Maintenance

All signs, together with all of their supports, braces, guys, and anchors, shall be kept in repair and in proper state of preservation. The display of all signs shall be kept neatly painted and secured at all times.

SECTION 2003. Design and Construction

Sign structures shall be designed and constructed to resist all forces in accordance with the National Structural Code for Buildings. For signs on buildings, the dead lateral loads shall be transmitted through the structural frame of the building to the ground in such a manner as not to overstress any of the elements of the building. The weight of earth superimposed over footings may be used in determining the dead load resisting moment. Such earth shall be carefully placed and thoroughly compacted.

SECTION 2004. Supports and Anchorages

(a) *General.* The supports and anchorages of all signs or sign structures shall be placed in or upon private property and shall be constructed conformity with the requirements of this Code.

(b) *Materials.* Materials for construction of signs or sign structures shall be of the quality and grade as specified in this Code.

(c) *Restrictions on Combustible Materials* – All signs or sign structures erected in highly restrictive Fire Zones shall have structural members of incombustible materials. Ground signs may be constructed of any material meeting the requirements of this Code. Combination signs, roof signs, wall signs, projecting signs, and signs on marquees shall be constructed of incombustible materials. No combustible material other than approved plastics shall be used in the construction of electric signs.

(d) *Non-structural Trim* – Non-structural trim and portable display surfaces may be of wood, metal, approved plastics, or any combination thereof.

(e) *Display Surfaces* – Display surfaces in all types of signs may be made of metal, glass, or approved plastics.

SECTION 2005. Projections and Clearances

(a) *Clearances from High Voltage Power Lines* – Clearances of signs from high voltage power lines shall be in accordance with the Philippine Electrical Code.

(b) *Clearances from Fire Escapes, Exits, or Standpipes* – No signs or sign structures shall be erected in such a manner than any portion of its surface or supports will interfere in any way with the free use of any fire escape, exit, or standpipe.

(c) *Obstruction of Openings.* No sign shall obstruct any opening to such an extent that light or ventilation is reduced to a point below that required by this Code. Signs erected within 1.50 meters

of an exterior wall in which there are openings within the area of the sign shall be constructed of incombustible material or approved plastics.

(d) *Projection over Alleys.* No sign or sign structure shall project into any public alley below a height of 3.00 meters above established sidewalk grade, nor project more than 300 millimeters where the sign structure is located 3.00 meters to 4.5 meters above established sidewalk grade. The sign or sign structure must not project more than 1.00 meter into the public alley where the sign or sign structure is located more than 4.50 meters above established sidewalk grade.

SECTION 2006. Lighting

Signs shall be illuminated only by electrical means in accordance with the Philippine Electrical Code.

CHAPTER 21

TRANSITORY AND FINAL PROVISIONS

SECTION 2101. Existing Building and Structures

All buildings or structures constructed under R.A. 6541 or existing city or municipal building codes or ordinances, if legally done in accordance therewith, shall be respected subject to such limitations established in this Code.

However, alterations, additions, conversions and/or repairs to be made in such buildings or structures shall be subject to the provisions of this Code.

SECTION 2102. Interim Rules and Regulations

Interim rules and regulations on buildings promulgated by the Secretary before the adoption of this Code pursuant to existing laws or decrees shall continue to have binding force and effect, when not in conflict with the provisions of this Code.

SECTION 2103. Separability Clause

If any provision of this Decree or the application thereof is to any person or circumstance declared unconstitutional or invalid for any reason, the same shall not affect the validity of the other provisions.

SECTION 2104. Repealing Clause

All laws, decrees, provisions of charters, executive orders, ordinances, rules and regulations or parts thereof contrary to or inconsistent with the provisions of this Decree are hereby repealed, amended, or modified accordingly.

SECTION 2105. Effectivity

This Decree shall take effect upon its promulgation.

Done in the City of Manila, this 19th day of February, in the year of our Lord, nineteen hundred and seventy seven.

(SGD.)
FERDINAND E. MARCOS
President
Republic of the Philippines

By the President:

(SGD.)
SGD. JUAN C. TUVERA
Presidential Assistant

CERTIFIED COPY:

(SGD.)
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