

Approach to Myanmar National Building Code 2020



# ARCHITECTURAL REQUIREMENTS and SPECIAL DETAILED REQUIREMENTS based on USE and OCCUPANCY

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## CLASSIFICATION OF ALL BUILDINGS BY USE AND OCCUPANCY

- a) Group A: Assembly ( $A_1$  to  $A_5$ )
- b) Group B: Business
- c) Group E: Educational
- d) Group F: Factory and Industrial ( $F_1$  &  $F_2$ )
- e) Group H: Hazardous
- f) Group I: Institutional ( $I_1$  to  $I_5$ )
- g) Group M: Mercantile
- h) Group R: Residential ( $R_1$  to  $R_6$ )
- i) Group S: Storage ( $S_1$  &  $S_2$ )
- j) Group U: Utility and Miscellaneous ( $U_1$  to  $U_3$ )





# Health Care Buildings



ALL:

- Hospitals (care require longer than 24 hours)
- Clinics (personnel provision time less than 24 hours)

Source: MNBC2020 Part 2

Source: <https://myanmartravel.com/best-hospitals-in-yangon/>



# General requirement of Hospitals



- The maximum height for all hospital buildings shall be according to the functions of the hospitals and the permission of Regional Governments and concerned Municipal Authorities and Health..
- The maximum number of beds in one patient-room in any hospital is 10.
- Whether the patients' rooms are provided with air-conditioning systems or not, all patients' rooms are to have windows leading to outside space and with the following rules:
  - The window areas shall be minimum of 10% of floor area.
  - The minimum distance of building near that window in any case shall be minimum 10 ft.
- The floor area of any patient-room shall be minimum 60 sq.ft. per bed.
- The egress and the escape routes must be in conformity with chapters 6 of this code.
- There shall be minimum of one toilet for 8 beds and one shower facility for 16 beds.
- In cases of patients' rooms with more than 2 beds, separate room for the patient's attendants, individual or the nurse, shall be provided separate space. The attendants, living in the patients' rooms is not permissible.
- All hospitals with more than 20 beds shall have mortuary with proper cooling system.



Source: MNBC2020 Part 2

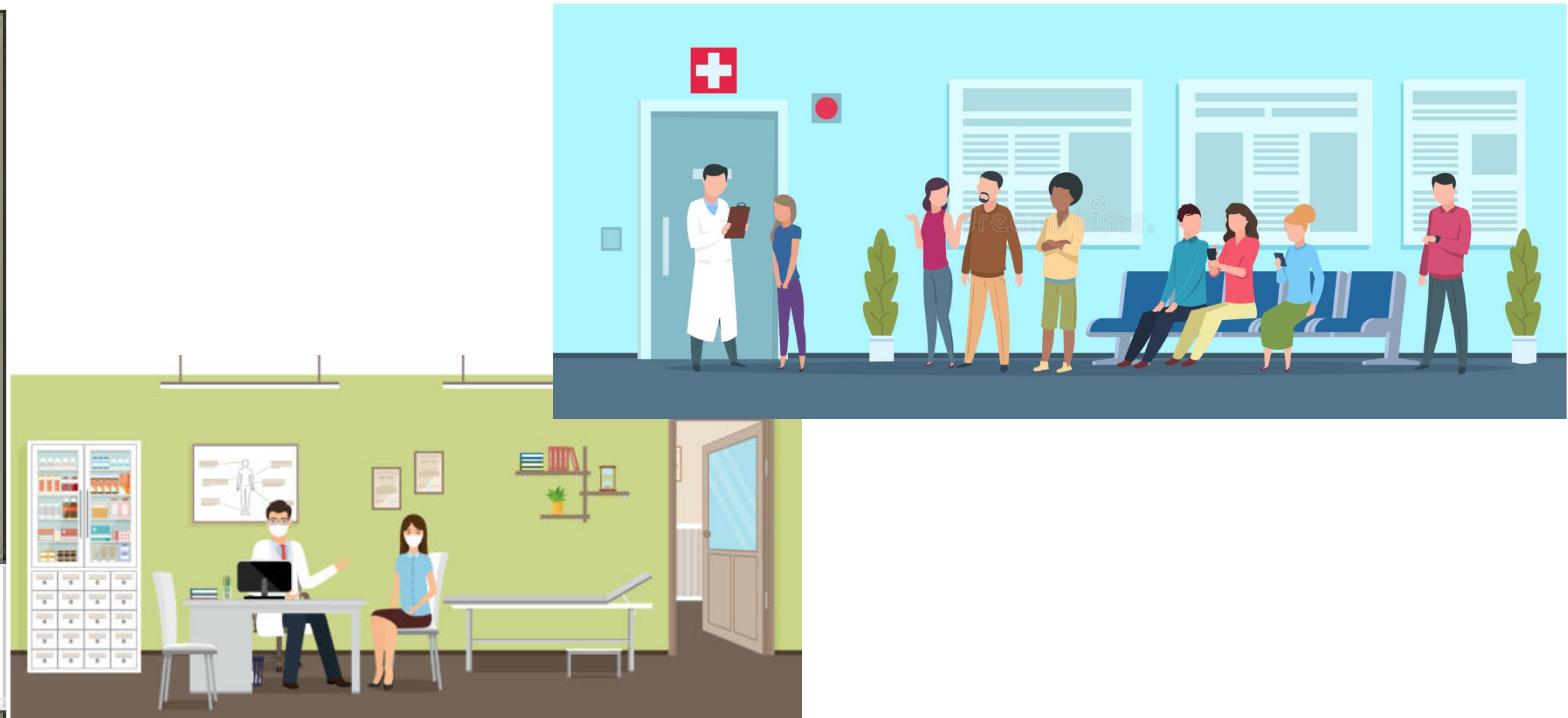
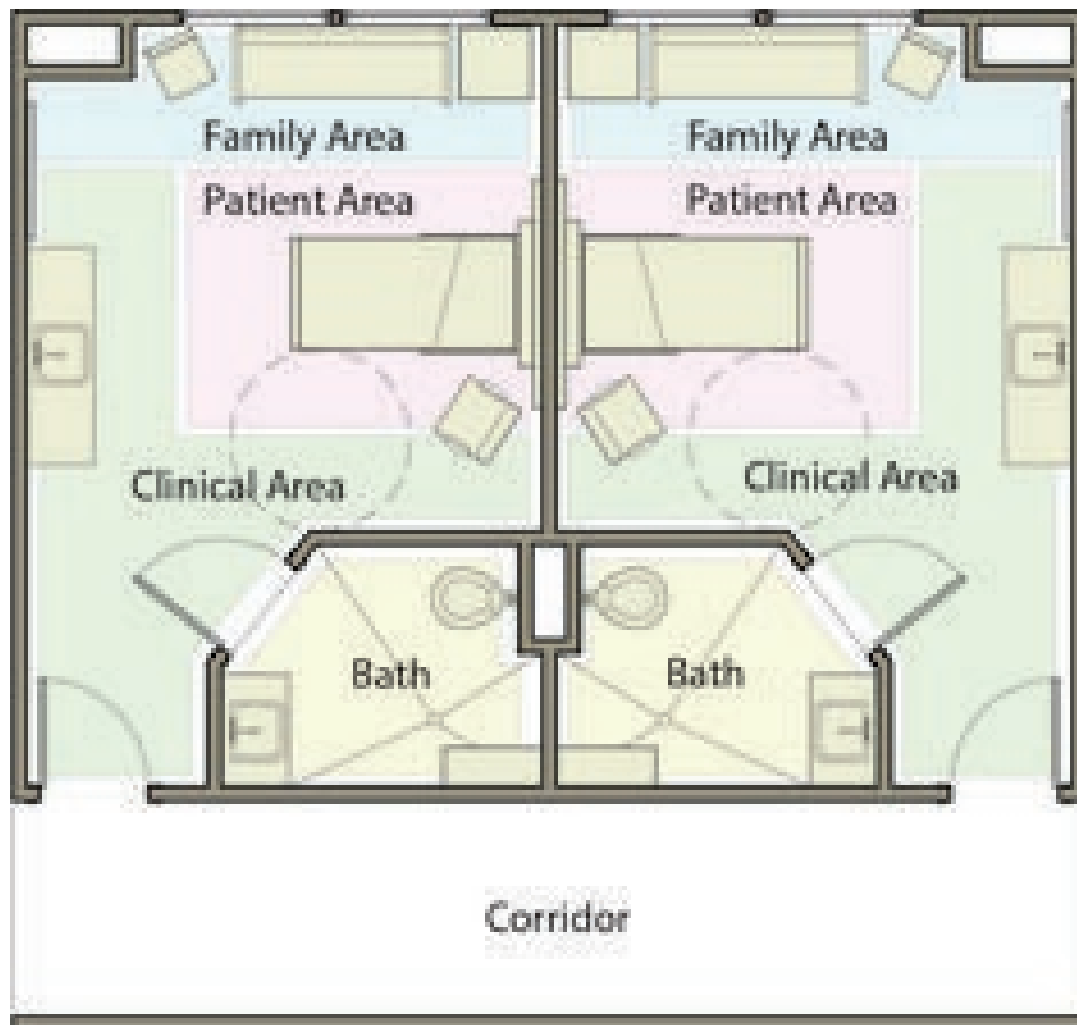
Source: <https://myanmartravel.com/best-hospitals-in-yangon/>





# General requirement of Clinics

- There shall be not more than **10 doctors** in one joined consultation room.
- There shall be physical separation between the paediatric clinics and the general clinics.
- There shall be physical separation between the gynecological clinics and the general clinics, however paediatric clinics and the gynecological clinics can be combined.
- The floor area of waiting room in a consultation unit shall be calculated based on the number of consultants. This shall be minimum of **200 sq.ft. per consultant**.
- The egress and the escape routes must be in conformity with chapters 6 of this code.
- There shall be minimum of one toilet for **15 waiting chairs**.



Source: MNBC2020 Part 2

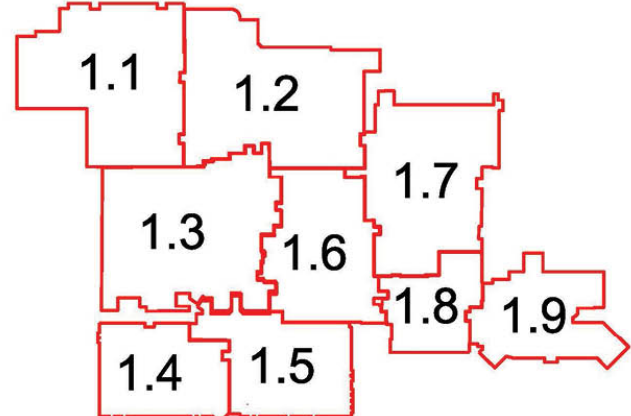
# Ambulatory Health Care Facilities

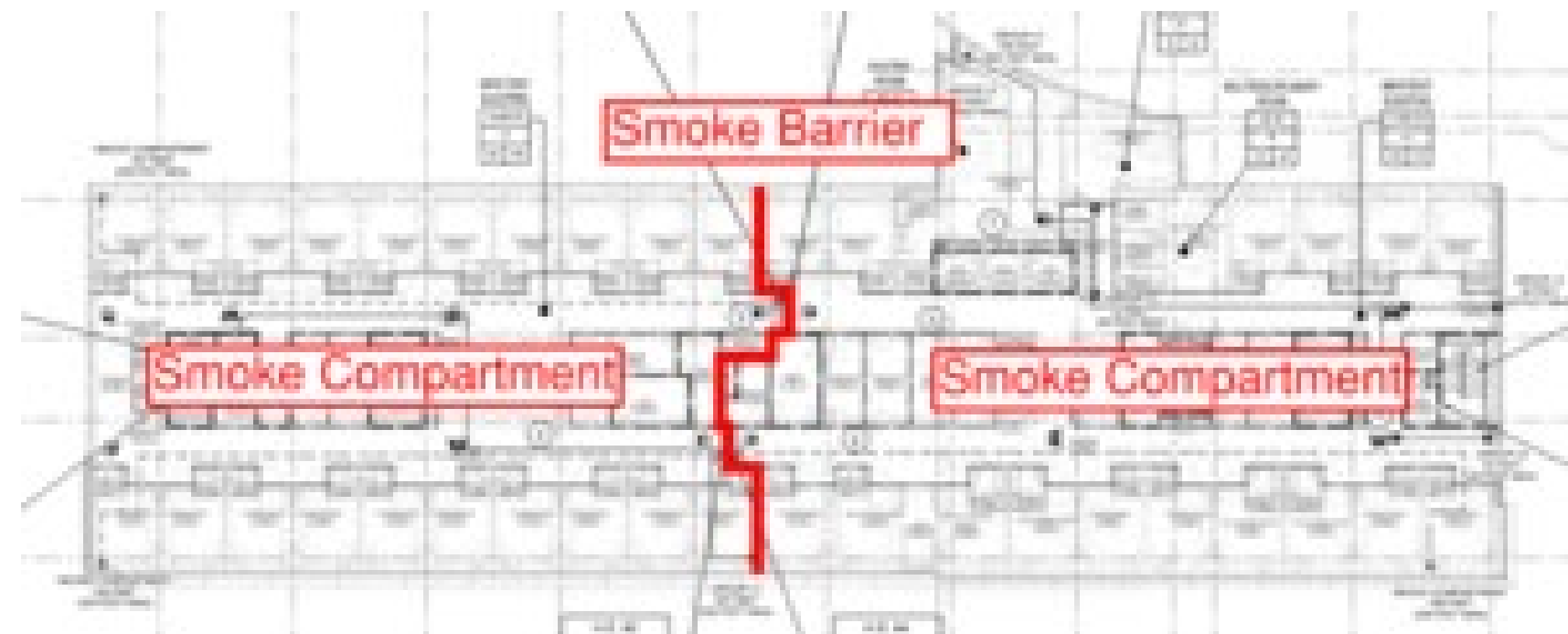


## Smoke barriers

- Smoke barriers shall be provided to subdivide every ambulatory care facility greater than **10,000 square feet (929 m<sup>2</sup>)** into a minimum of two smoke compartments per story.
- The travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed **200 feet (60 960 mm)**.
- The smoke barrier shall be installed in accordance with Myanmar Fire Safety Code of Procedures.

LIFE SAFETY LEGEND	
.....	SMOKE PARTITION (NON RATED)
—+S—	SMOKE BARRIER (ONE HOUR FIRE RATED)
—+—+—	ONE HOUR FIRE RATED BARRIER
—+S—+S—	SMOKE BARRIER (TWO HOUR FIRE RATED)
—+—+—+—	TWO HOUR FIRE RATED BARRIER
■	NON-SLEEPING SUITE
■	SLEEPING SUITE
■	HAZARDOUS AREA
■	SMOKE RESISTANT CORRIDORS
■	EXIT STAIRS
➡	EXIT
➡	HORIZONTAL EXIT

SMOKE COMPARTMENTS	
	
NAME	AREA
1.1	19,508
1.2	21,208
1.3	22,477
1.4	10,275
1.5	12,057
1.6	13,725
1.7	17,594
1.8	7,044
1.9	10,396



Source: MNBC2020 Part 2



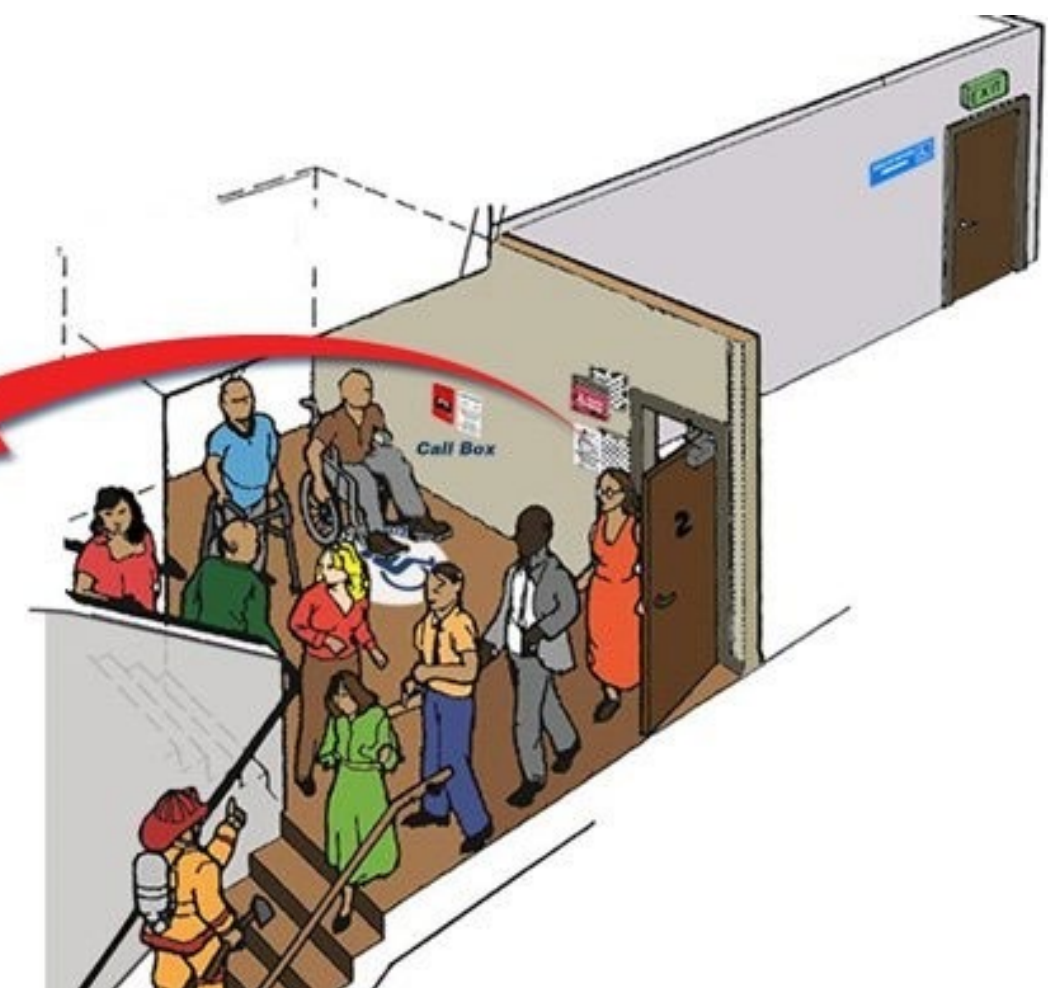


# Ambulatory Health Care Facilities (Cont')



## Refuge area

At least **30 net square feet (2.8 m<sup>2</sup>)** per no ambulatory patient shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas and other low-hazard areas on each side of each smoke barrier.



Source: MNBC2020 Part 2





# Ambulatory Health Care Facilities (Cont')



## Independent egress

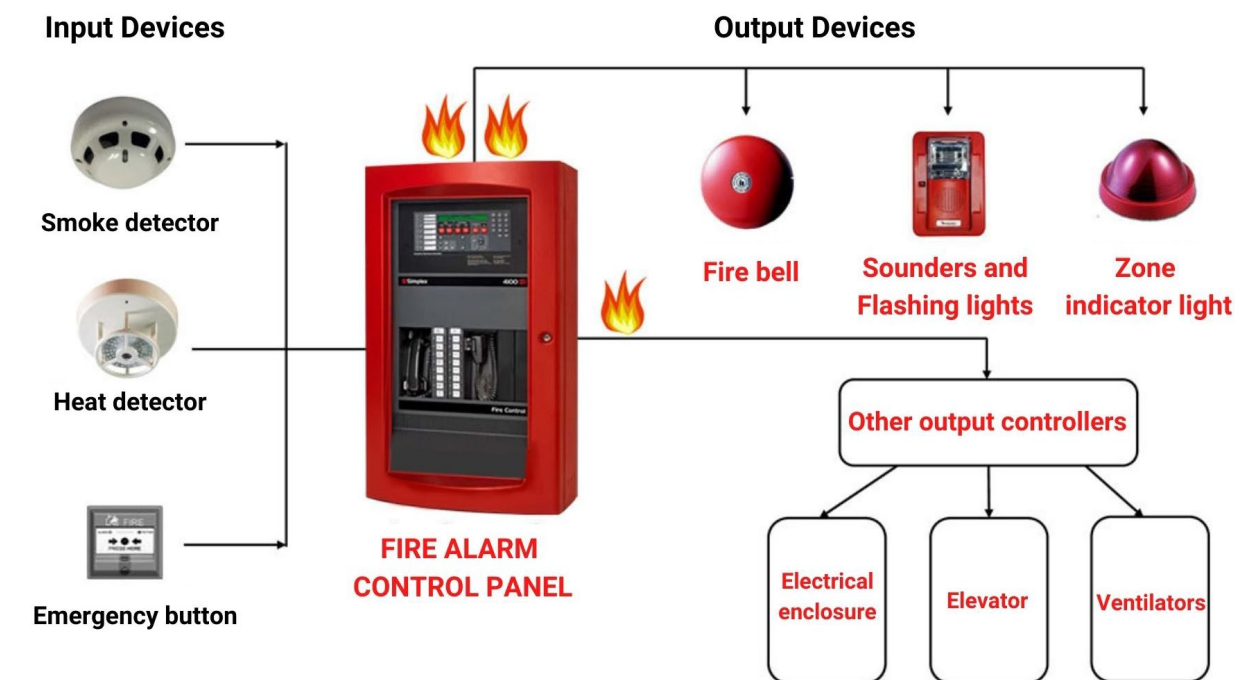
A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated.

## Automatic sprinkler systems

Automatic sprinkler systems shall be provided for ambulatory care facilities in accordance with Myanmar Fire Safety Code of Procedures.

## Fire alarm systems

A fire alarm system shall be provided in accordance with Myanmar Fire Safety Code of Procedures.



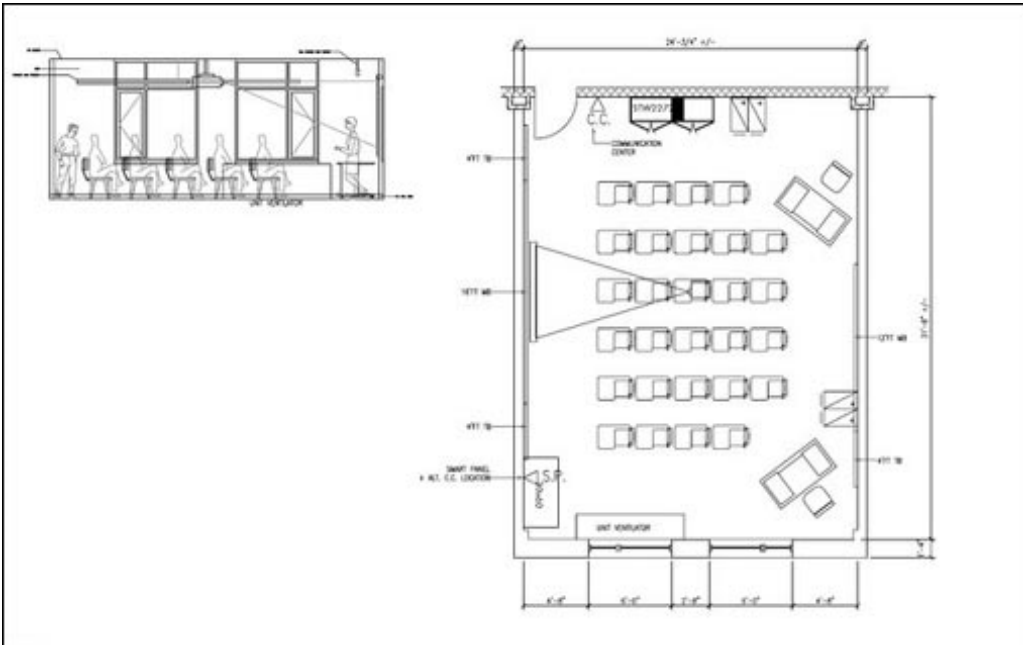
Source: MNBC2020 Part 2



# Educational Buildings



Levels	No. of children per room	Class room Area (sq-ft per child)
Nursery children below four years	10 children	30 sq-ft per child
Kindergarten children below six years	15 children	30 sq-ft per child
Primary classes, first grade to 4 <sup>th</sup> grade	25 children	25 sq-ft per child
Middle classes, fifth grade to eight grade	40 children	20 sq-ft per child
High school classes	40 children	20 sq-ft per child



- All class rooms must have additional storage space for common properties of the class.
- For nurseries and kindergartens: there should be separate space for play areas and rest/sleeping areas.
- For all classes: The maximum width of all class rooms should not exceed 35 feet.
- Class rooms must have window areas which are not less than 15% of the floor areas and window sill heights must be not less than 3ft.
- Class rooms' heights must be minimum 9 ft. All class rooms must be connected with covered corridors or passages.



Source: MNBC2020 Part 2





# General Requirements



All education building must have assembly areas which should hold at least 50% of all children with minimum floor areas of **7 sq.ft per child**.

For urban schools, ample parking space and delivery of children must be considered.

There should be rooms for teachers with maximum eight teachers in one room and at least 80 sq-ft per teacher.

There should be separate toilet facilities for teachers and children and the toilets for the students must be able to check the misuse of drugs and other illicit activities.

All schools must have schools **library and computer facilities**. All schools must have space for facilities of **physical education, handicraft and domestic science education** for the children.

In addition to the open space requirements of this chapter there should be **play ground around 20,000 sq-ft** for all schools with more than 500 children.



Source: MNBC2020 Part 2





# EDUCATION (cont')



General requirements for higher educational institution are as follow:

- a) The higher educational institution shall have **separate compound** with ample land area to provide **academic and recreational facilities**.
- b) The higher educational institution shall provide auxiliary functions and facility such as **libraries, multimedia places** etc.
- c) The higher educational institution shall have **sport facility** for students.
- d) The higher educational institution shall have **medical care facility** for students and staffs.

## Requirements for New School design

- a) The building should provide for health, safety, and security.
- b) The learning environment should enhance teaching and learning and accommodate the needs of all learners.
- c) The learning environment should serve as a center for the community.
- d) The learning environment should result from a planning/design process that involves all stakeholders.
- e) The learning environment should allow for flexibility and adaptability to changing needs.
- f) The learning environment should make effective use of all available resources.



Source: MNBC2020 Part 2





# Covered Mall and Open Mall Buildings



## ANCHOR BUILDING,

An exterior perimeter building of a group other than H having direct access to a covered mall building but having required means of egress independent of the mall.

## COVERED MALL BUILDING

A single building enclosing a number of tenants and occupants, such as retail stores, drinking and dining establishments, entertainment and amusement facilities, passenger transportation terminals, offices and other similar uses wherein two or more tenants have a main entrance into one or more malls.

For the purpose of this chapter, anchor buildings shall not be considered as a part of the covered mall building. The term "covered mall building" shall include open mall buildings as defined below.



### 2.2.4.4 Lease plan

Each covered mall building owner shall provide both the building and fire departments with a lease plan showing the location of each occupancy and its exits after the certificate of occupancy has been issued. No modifications or changes in occupancy or use shall be made from that shown on the lease plan without prior approval of the building official.

### 2.2.4.4 Means of egress

Each tenant space and the covered mall building shall be provided with means of egress as required by Chapter 6, Means of Egress.

Source: MNBC2020 Part 2

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# Covered Mall and Open Mall Buildings (cont')



**Mall.** A roofed or covered common pedestrian area within a covered mall building that serves as access for two or more tenants and not to exceed three levels that are open to each other. The term "mall" shall include open malls as defined below.

**Open mall.** An unroofed common pedestrian way serving a number of tenants not exceeding three levels. Circulation at levels above grade shall be permitted to include open exterior balconies leading to exits discharging at grade.

**Open mall building.** Several structures housing a number of tenants, such as retail stores, drinking and dining establishment, entertainment and amusement facilities, offices, and other similar uses, wherein two or more tenants have a main entrance into one or more open malls. Anchor buildings are not considered as a part of the open mall building.

**FOOD COURT.** A public seating area located in the mall that serves adjacent food preparation tenant spaces.

**GROSS LEASABLE AREA.** The total floor area designed for tenant occupancy and exclusive use. The area of tenant occupancy is measured from the center lines of joint partitions to the outside of the tenant walls. All tenant areas, including areas used for storage, shall be included in calculating gross leasable area.



Source: MNBC2020 Part 2

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# Covered Mall and Open Mall Buildings (cont')



## 2.2.4.5 Mall width

For the purpose of providing required egress, malls are permitted to be considered as corridors but need not comply with the requirements of Chapter 6, Means of Egress of this code where the width of the mall is as specified in this section.

### 2.2.4.5.1 Minimum width

The minimum width of the mall shall be **20 feet (6096 mm)**. The mall width shall be sufficient to accommodate the occupant load served. There shall be a minimum of **10 feet (3048 mm)** clear exit width to a height of **8 feet (2438 mm)** between any projection of a tenant space bordering the mall and the nearest kiosk, vending machine, bench, display opening, food court or other obstruction to means of egress travel.

### 2.2.4.5.2 Minimum width open mall

The minimum floor and roof opening width above grade shall be **20 feet (6096 mm)** in open malls.



Source: MNBC2020 Part 2

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# Covered Mall and Open Mall Buildings (cont')



## 2.2.4.6 Fire-resistance-rated separation

Fire-resistance-rated separation is not required between tenant spaces and the mall. Fire-resistance-rated separation is not required between a food court and adjacent tenant spaces or the mall.

### 2.2.4.6.1 Attached garage

An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and open parking garages shall be considered as a separate building where it is separated from the covered mall building by not less than **2-hour fire barriers** constructed in accordance with Myanmar Fire Safety Code of Procedures.

Exception: Where an **open parking garage or enclosed parking garage** is separated from the covered mall building or anchor building a distance greater than 10 feet (3048 mm), the provisions of fire-resistance rating requirements shall apply.

Pedestrian walkways and tunnels that attach the open parking garage or enclosed parking garage to the covered mall building or anchor building shall be constructed in accordance with Pedestrian Walkways and Tunnels, Chapter 4, Special Building and Construction.



Source: MNBC2020 Part 2

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# Covered Mall and Open Mall Buildings (cont')



## 2.2.4.11 Children's playground structures

Structures intended as children's playgrounds that exceed 10 feet (3048 mm) in height and 150 square feet (14 m<sup>2</sup>) in area shall comply with Covered mall and Open mall Buildings Sections.

### 2.2.4.11.1 Materials

Children's playground structures shall be constructed of non-combustible materials.

### 2.2.4.11.2 Fire protection

Children's playground structures located within the mall shall be provided with the same level of approved fire suppression and detection devices required for kiosks and similar structures.

### 2.2.4.11.3 Separation

Children's playground structures shall have a minimum horizontal separation from other structures within the mall of 20 feet (6090 mm).

### 2.2.4.11.4 Area limits

Children's playground structures shall not exceed 300 square feet (28 m<sup>2</sup>) in area, unless a special investigation has demonstrated adequate fire safety.



Source: MNBC2020 Part 2

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# Covered Mall and Open Mall Buildings (cont')



## 2.2.4.12 Security grilles and doors

Horizontal sliding or vertical security grilles or doors that are a part of a required means of egress shall conform to the following:

- a) They shall remain in the full open position during the period of occupancy by the general public.
- b) Doors or grilles shall not be brought to the closed position when there are 10 or more persons occupying spaces served by a single exit or 50 or more persons occupying spaces served by more than one exit.
- c) The doors or grilles shall be openable from within without the use of any special knowledge or effort where the space is occupied.
- d) Where two or more exits are required, not more than one-half of the exits shall be permitted to include either a horizontal sliding or vertical rolling grille or door.



Source: MNBC2020 Part 2

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# Covered Mall and Open Mall Buildings (cont')



## 2.2.4.13 Standby power

Covered mall buildings exceeding **50,000 square feet (4645 m2)** shall be provided with standby power systems that are capable of operating the emergency voice/ alarm communication system and lighting.

## 2.2.4.14 Emergency voice/ alarm communication system

Covered mall buildings exceeding 50,000 square feet (4645 m2) in total floor area shall be provided with an emergency voice/ alarm communication system. Emergency voice/ alarm communication systems serving a mall required or otherwise, shall be accessible to the concerned authority.

## 2.2.4.15 Height and width of Signs

Plastic signs shall not exceed a height of **36 inches (914 mm)**, except that if the sign is vertical, the height shall not exceed 96 inches (2438 mm) and the width shall not exceed 36 inches (914 mm).

## 2.2.4.16 Fire department access to equipment

Rooms or areas containing controls for air-conditioning systems, automatic fire extinguishing systems or other detection, suppression or control elements shall be identified for use by the fire services department.

## 2.2.4.17 Daylight provision for Mall

For the purpose of providing daylight, meant for the time of power failure, there should be minimum of **10%** of the floor area of day-light provisions such as windows, etc. The furthest distance of such openings shall be less **80 feet** from any point in that mall area.



Source: MNBC2020 Part 2

# High-Rise Buildings



- a) Concerning the location of high-rise buildings shall be designed to build in the vicinity of historical structures, according to the local Zoning Plan and regulations or, as specified by Regional Governments and concerned **Municipal Authority of the respected towns and regions.**
- b) Airport traffic control towers in accordance with Section 2.2.11.
- c) Open parking garages in accordance with Section 2.2.7.3.
- d) Buildings with a Group A-5 occupancy in accordance with Assembly Group A, Chapter 1, Use and Occupancy Classification.
- e) Special industrial occupancies in accordance with Chapter 3, General Building Height and Area.



Source: MNBC2020 Part 2





# High-Rise Buildings (cont')



## 2.2.5.2 Automatic sprinkler system

Buildings and structures shall be equipped throughout with an automatic sprinkler system and a secondary water supply in accordance with Myanmar Fire Safety Code of Procedures.

Exception: An automatic sprinkler system shall not be required in spaces or areas of:

- a) Open parking garages in accordance with Section 2.2.7.3.
- b) Telecommunications equipment buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided that those spaces or areas are equipped throughout with an automatic fire detection system.

### 2.2.5.2.1 Number of sprinkler risers and system design

Each sprinkler system zone in buildings that are **more than 420 feet (128 m) in building height** shall be supplied by a minimum of two risers. Each riser shall supply sprinklers on alternate floors. If more than two risers are provided for a zone, sprinklers on adjacent floors shall not be supplied from the same riser.

#### 2.2.5.2.1.1 Riser location

Sprinkler risers shall be placed in exit enclosures that are remotely located in accordance with Exit and Exit Access Doorways Section, Chapter 6, Means of Egress.



Source: MNBC2020 Part 2





# High-Rise Buildings (cont')



## 2.2.5.2.2 Water supply to required fire pumps

Required fire pumps shall be supplied by connections to a minimum of two water mains located in different streets.

Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.

Exception: Two connections to the same main shall be permitted provided the main is valued such that an interruption can be isolated so that the water supply will continue without interruption through at least one of the connections.

## 2.2.5.3 Emergency systems

The detection, alarm and emergency systems of high-rise buildings shall comply with Myanmar Fire Safety Code of Procedures.

### 2.2.5.3.1 Standby power

A standby power system complying with Part 5, Building Services.

### 2.2.5.4 Means of egress and evacuation;

The means of egress in high-rise buildings shall comply with Chapter 6, Means of egress.

### 2.2.5.5 Elevators

Elevator installation and operation in high-rise buildings shall comply with Part 5, Building Services.



Source: MNBC2020 Part 2





# Atriums

## 2.2.6 Atriums

### 2.2.6.1 General

The provisions of this section shall apply to buildings or structures containing vertical openings defined herein as "Atriums."

#### 2.2.6.1.1 Definition

The following word and term shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning shown herein.

**ATRIUM.** An opening connecting two or more stories other than enclosed stairways, elevators, hoist ways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. Stories, as used in this definition, do not include balconies within assembly groups or mezzanines that comply with Mezzanines Section, Chapter 3, General Building Heights and Areas.

#### 2.2.6.2 Use

The floor of the atrium shall not be used for other than low fire hazard uses and only approved materials and decorations in accordance with Myanmar Fire Safety Code of Procedures shall be used in the atrium space.

Exception: The atrium floor area is permitted to be used for any approved use where the individual space is provided with an automatic sprinkler system in accordance with Automatic Sprinkler Systems, Myanmar Fire Safety Code of Procedures.



Source: MNBC2020 Part 2



# Atriums (cont')



## 2.2.6.3 Automatic sprinkler protection

An approved automatic sprinkler system shall be installed throughout the entire building.

## 2.2.6.4 Fire alarm system

A fire alarm system shall be provided in accordance with Myanmar Fire Safety Code of Procedures.

## 2.2.6.5 Smoke control

A smoke control system shall be installed in accordance with Myanmar Fire Safety Code of Procedures.

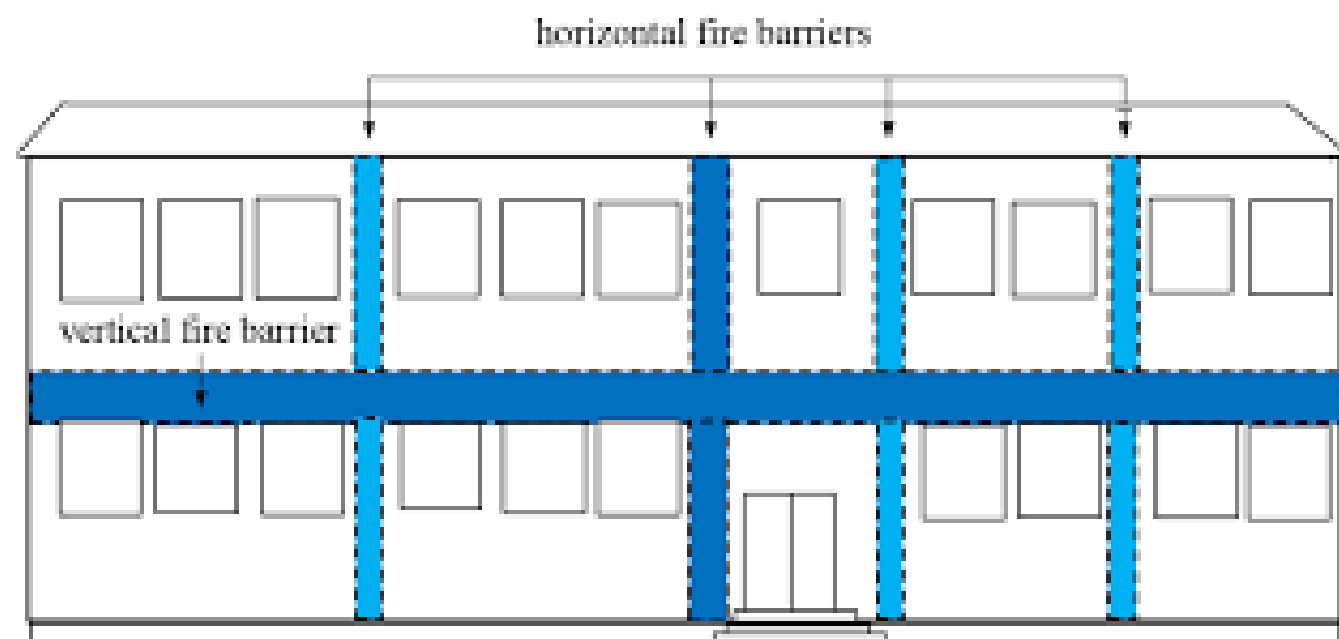
Exception: Smoke control is not required for atriums that connect only two stories.

## 2.2.6.6 Enclosure of atriums

Atrium spaces shall be separated from adjacent spaces by a **1-hour fire barrier** constructed in accordance with Myanmar Fire Safety Code of Procedures.

## 2.2.6.7 Standby power

Equipment required to provide smoke control shall be connected to a standby power system in accordance with Myanmar Fire Safety Code of Procedures.



Source: MNBC2020 Part 2





# Special Amusement Buildings



## 2.2.7 Special Amusement Buildings

### 2.2.7.1 General

Special amusement buildings having an occupant load of **50 or more** shall comply with the requirements for the appropriate Group A occupancy and Sections 2.2.10.1 through 2.2.10.8. Amusement buildings having an occupant load of **less than 50** shall comply with the requirements for a Group B occupancy and Sections 2.2.10.1 through 2.2.10.8.

Exception: Amusement buildings or portions thereof those are without walls or a roof and constructed to prevent the accumulation of smoke.

### 2.2.7.2 Definition

The following word and term shall, for the purpose of this section and as used elsewhere in this code, have the meaning shown herein.

**SPECIAL AMUSEMENT BUILDING.** A special amusement building is any temporary or permanent building or portion thereof that is occupied for amusement, entertainment or educational purposes and that contains a device or system that conveys passengers or provides a walkway along, around or over a course in any direction so arranged that the means of egress path is not readily apparent due to visual or audio distractions or is intentionally confounded or is not readily available because of the nature of the attraction or mode of conveyance through the building or structure.



Source: MNBC2020 Part 2

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# Special Amusement Buildings (cont')



## 2.2.7.3 Automatic fire detection

Special amusement buildings shall be equipped with an automatic fire detection system in accordance with Fire Alarm and Detection Systems Section, Myanmar Fire Safety Code of Procedures.

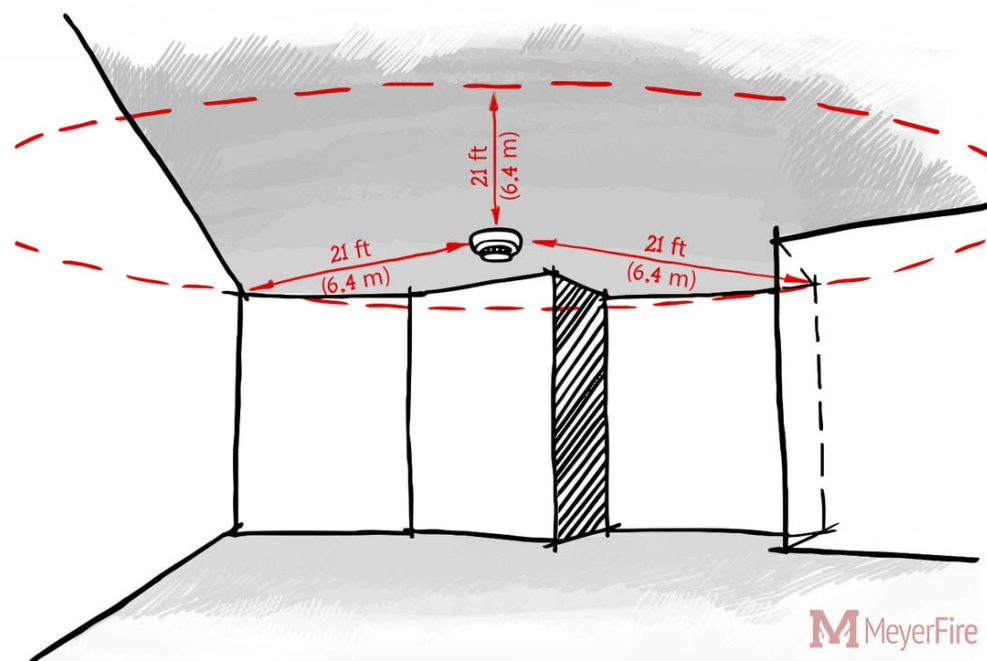
## 2.2.7.4 Automatic sprinkler system

Special amusement buildings shall be equipped throughout with an automatic sprinkler system in accordance with Myanmar Fire Safety Code of Procedures.

Where the special amusement building is temporary, the sprinkler water supply shall be of an approved temporary means.

## 2.2.7.5 Alarm

Actuation of a single smoke detector, the automatic sprinkler system or other automatic fire detection device shall immediately sound an alarm at the building at a constantly attended location from which emergency action can be initiated including the capability of manual initiation of requirements in Myanmar Fire Safety Code of Procedures.



Source: MNBC2020 Part 2







# Thank You!

