

# FIRE REGULATIONS

Presented by : CONSTRUCTION INDUSTRY  
DEVELOPMENT AUTHORITY (CIDA)- Jan 29<sup>th</sup> 2019



# SEQUENCE

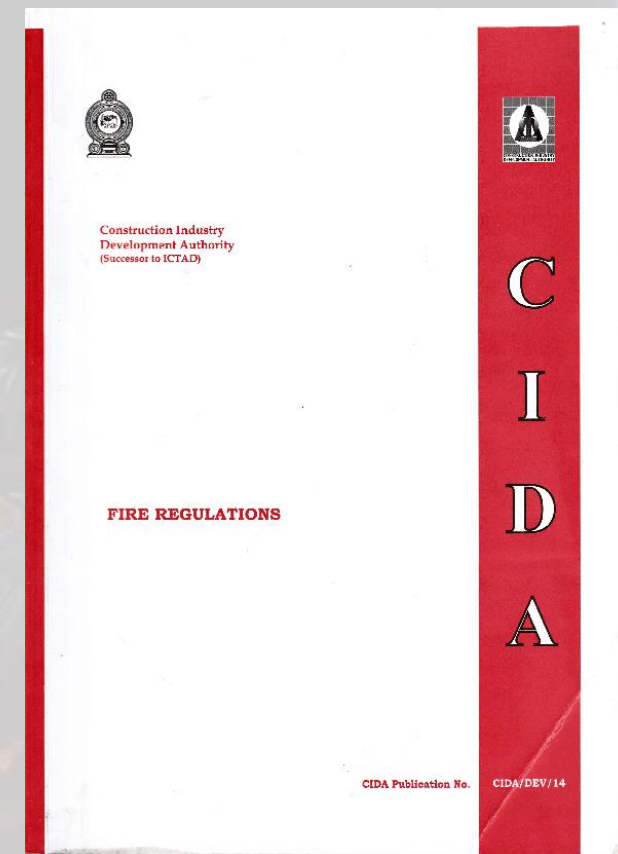
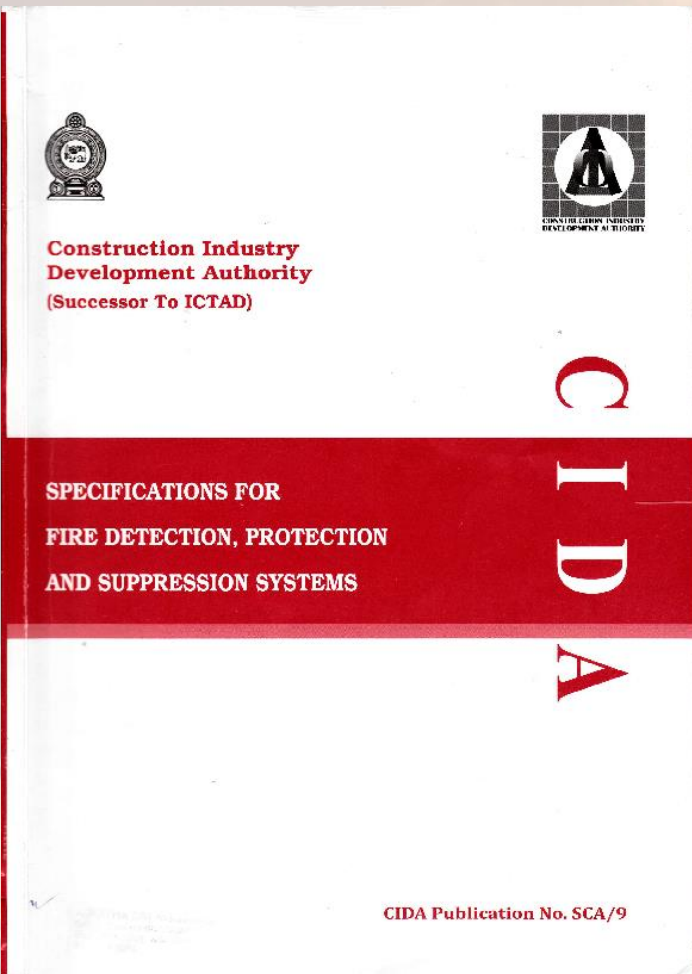
**FIRE REGULATIONS  
OVERVIEW**

**REGULATIONS  
SPECIFICATIONS  
STANDARDS**

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**IMPORTANT ASPECTS OF  
FIRE REGULATIONS**

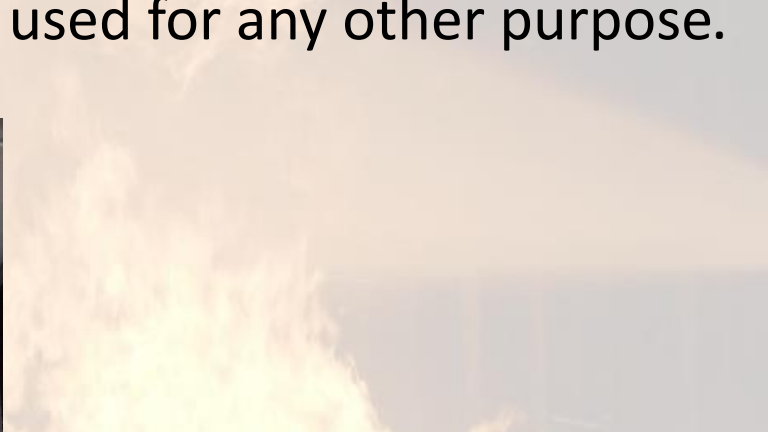
**QUESTIONS**



# CIDA REGULATIONS

There are over 100 regulations in the current document being attended.....

Means of Escape – Areas which are designated as means of escape such as exit staircase, fire fighting lobby, smoke stop lobby, exit passageway, escape corridors, shall not be used for any other purpose.





# TEAM/INSTITUTES INVOLVED IN PREPARATION OF REGULATIONS/ SPECIFICATIONS OF CIDA

- (1) Architects (SLIA)
- (2) Association of Consulting Engineers-SL
- (3) Institute of Quantity Dept. of Fire Services
- (4) Institute of Fire Engineers (IFE) SL Branch
- (5) Building Services Engineering Sectional committee of IESL
- (6) Lanka Association of Building Service Engineers
- (7) Sri Lanka Institute Surveyors - SL
- (8) Fire Engineering & Equipment Traders Association ( FEETA)



# FIRE REGULATIONS - OVERVIEW

- REGULATOR AND IMPLEMENTING BODY

- CIDA ACT

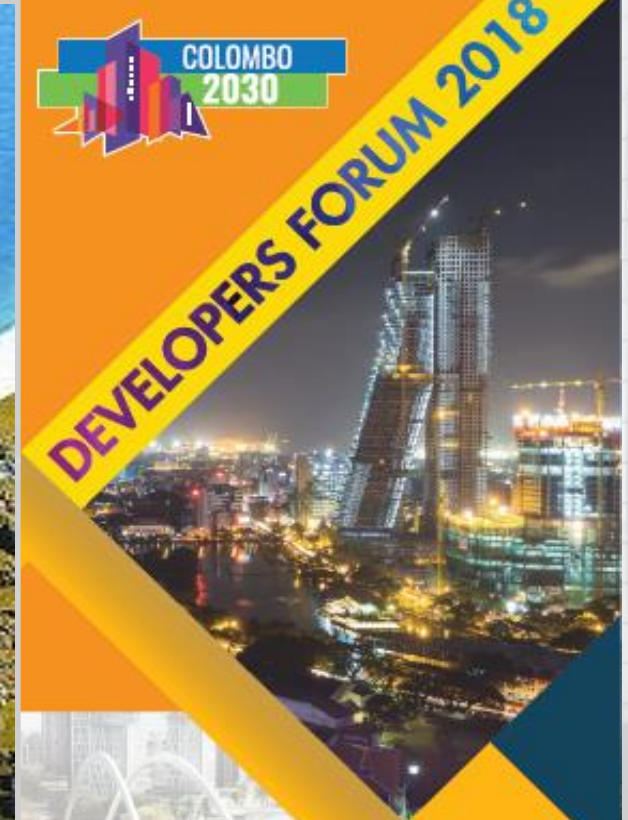


- AUTHORITY HAVING JURISDICTION;

- Local Authority Fire Brigade/ Chief Fire Officer/ Fire Prevention Officers under a statutory organization.

- CIDA REGULATIONS – REVISED IN 2018

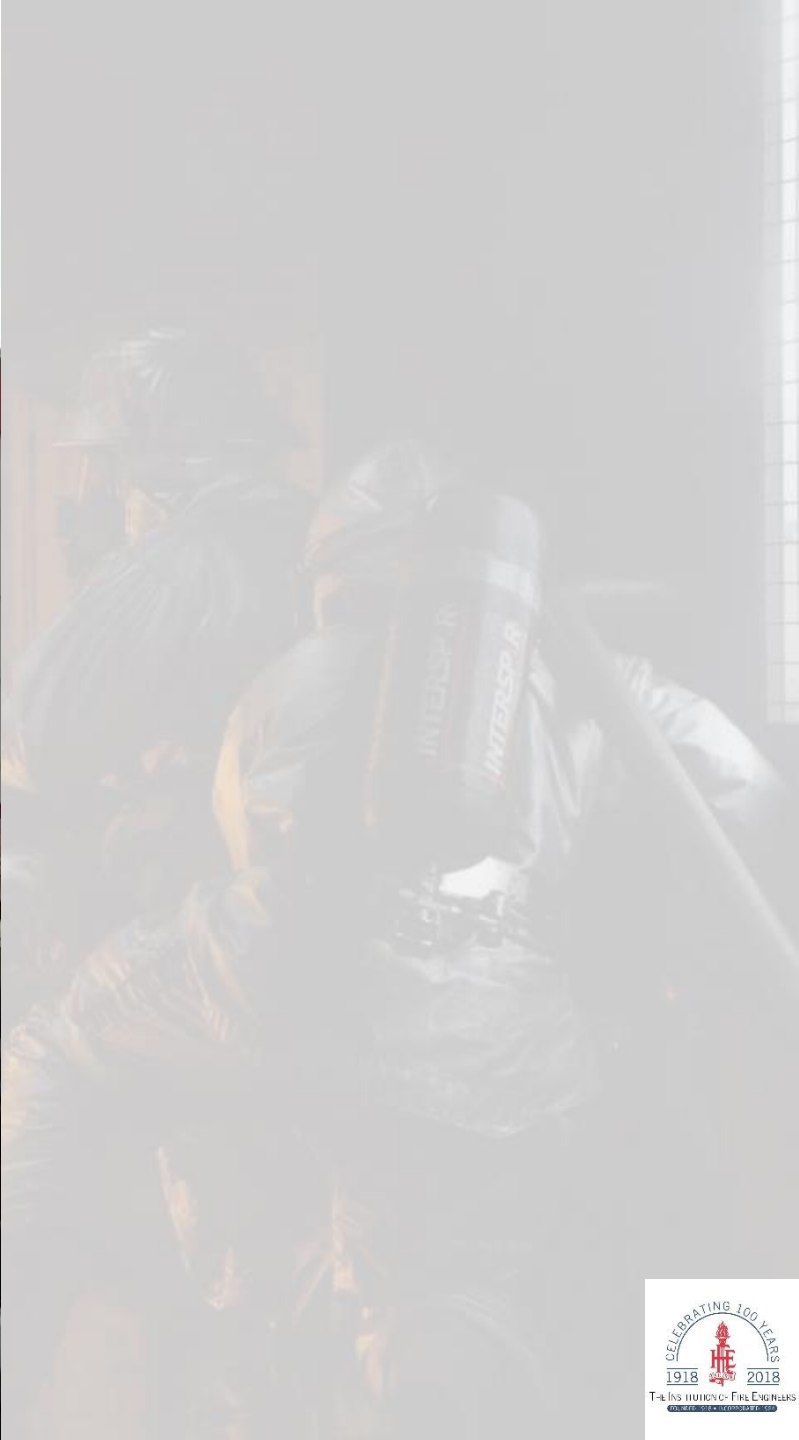


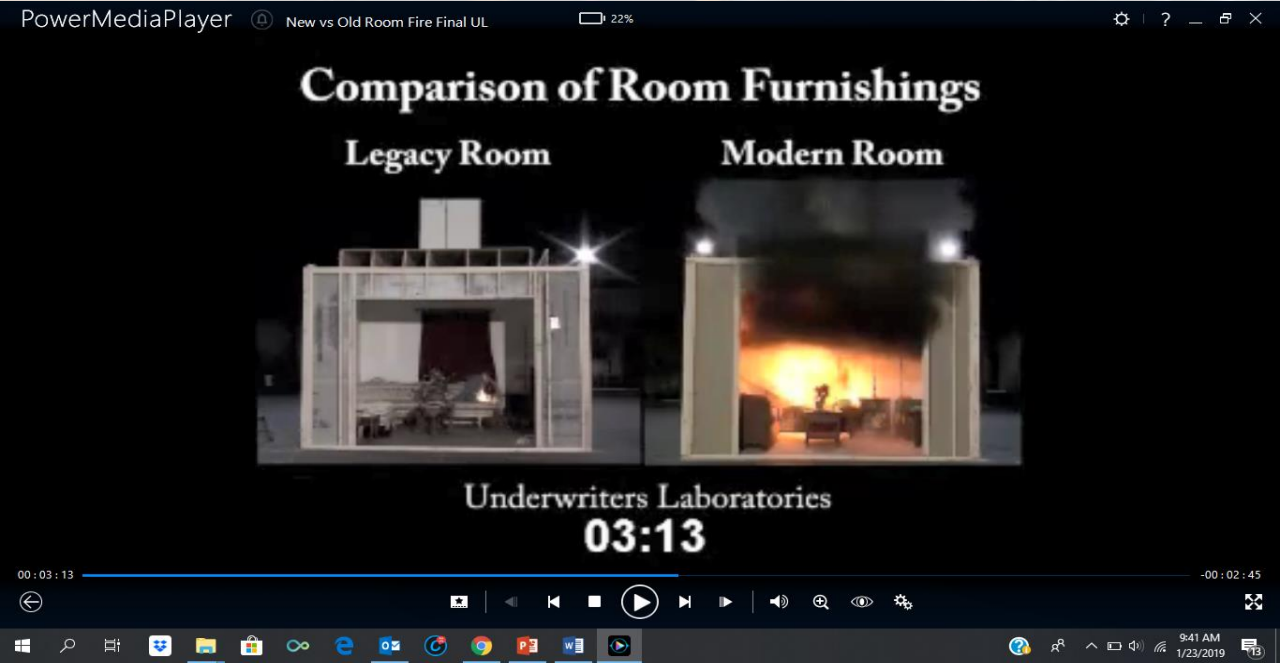
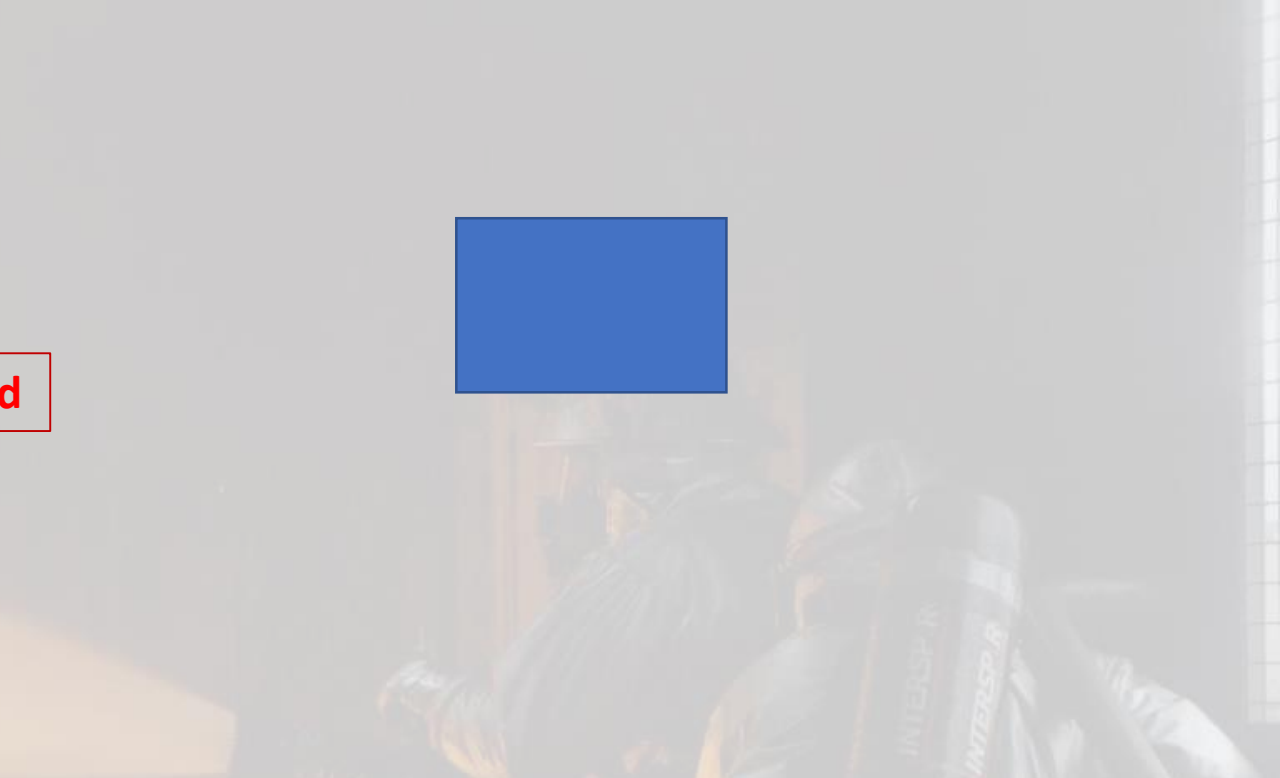


LIFE SAFETY

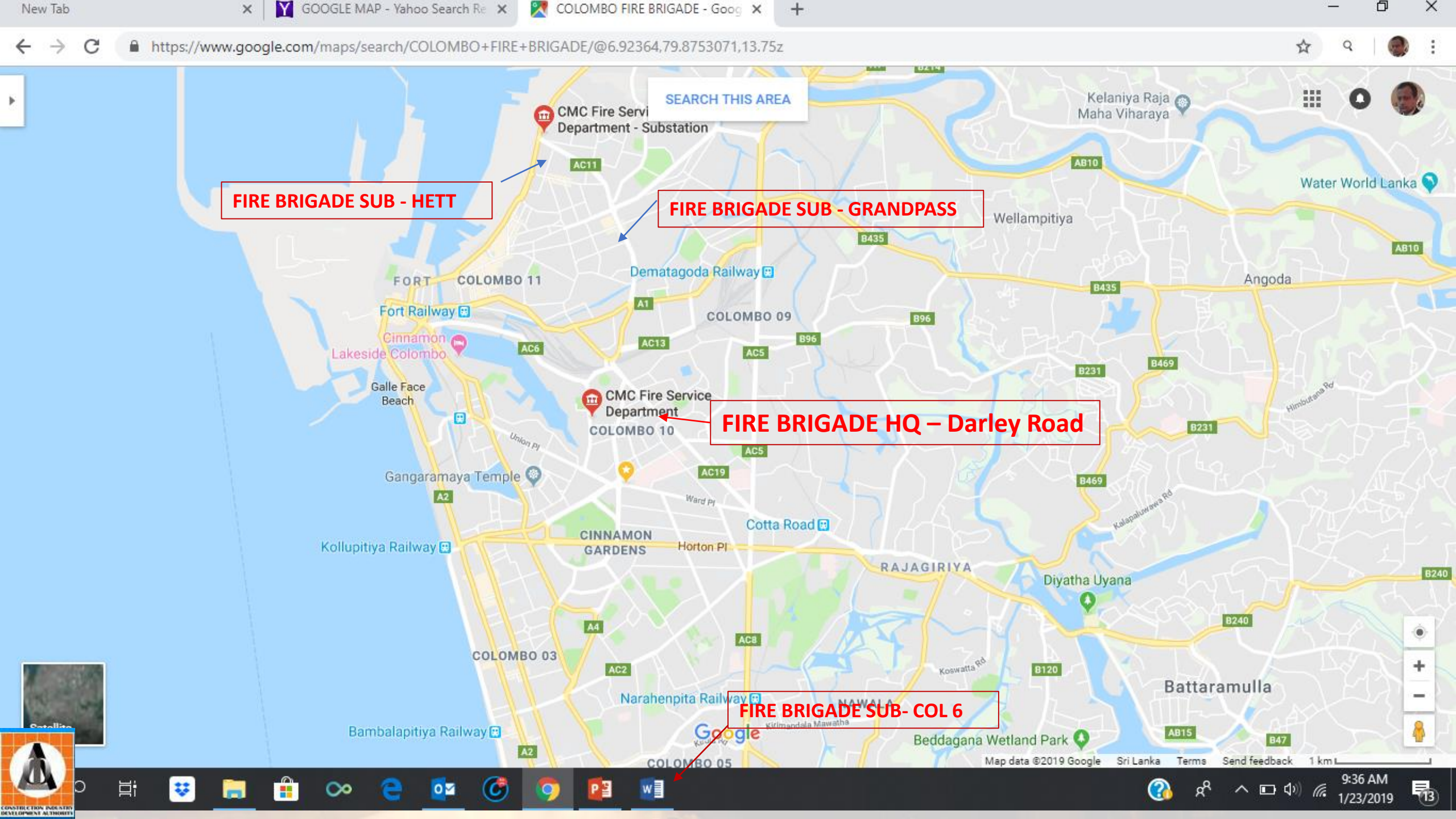












**FIRE BRIGADE SUB - HETT**

**FIRE BRIGADE SUB - GRANDPASS**

**FIRE BRIGADE HQ – Darley Road**

**FIRE BRIGADE SUB- COL 6**

# REGULATIONS/SPECIFICATIONS/STANDARDS/LISTING

- REGULATIONS
  - a rule or order issued by an executive authority or regulatory agency of a government and having the force of law
- SPECIFICATIONS
  - an act of identifying something precisely or of stating a precise requirement.
- STANDARDS ; NFPA/BS
  - something considered by an authority or by general consent as a basis of comparison; an approved model.
- LISTINGS ; UL/LPCB/
  - Equipment, materials, or services included in a list published by an organization acceptable to the AHJ and concerned with evaluation of products or services and that maintains periodic inspection of production of listed equipment, materials





# FIRE REGULATIONS - CONTENTS

- **CHAPTER 1** - ADMINISTRATION AND APPLICATION
- CHAPTER 2 - MEANS OF ESCAPE
- CHAPTER 3 - STRUCTURAL FIRE PRECAUTIONS
- **CHAPTER 4** - FIRE DETECTION AND ALARM SYSTEMS
- **CHAPTER 5** - FIRE EXTINGUISHING APPLIANCES, FIXED FIRE PROTECTION AND SUPPRESSION SYSTEMS
- CHAPTER 6 - SPECIAL USE, OCCUPANCIES AND STRUCTURES
- CHAPTER 7 - ACCESSIBILITY FOR FIRE FIGHTING
- **CHAPTER 8** - INSPECTION MAINTENANCE AND TESTING OF ACTIVE /PASSIVE FIRE PROTECTION FACILITIES

## NEW EDITION - FOCUS

- Residential Dwelling ; 1 (a) Residential Apartments or flats: Having multiple residencies in a single block of building, using common facilities

- High-Rise Building

Any building greater than 30 m in height and less than 60 m in height, where building height is measured from the lowest level of fire department vehicle access to the floor of the highest habitable floor

- Super High Rise Building

Any building greater than 60 m in height, where building height is measured from the lowest level of fire department vehicle access to the floor level of the highest habitable floor





# CHAPTER 1 - ADMINISTRATION AND APPLICATION

- Technical and Compliance Committee on Fire Regulations (TCCFR)



- The committee shall consist of minimum of five members and the committee shall,
- Advise the AHJ on any technical matters where such advice is required for taking a final decision.
- Investigate and recommend corrective actions for violations of and non-compliances with the regulations brought to the notice of CIDA.
- Investigate and recommend the courses of action to be taken with respect to any dispute referred to CIDA

# CHAPTER 1 - ADMINISTRATION AND APPLICATION

- Owners/occupiers of the designated buildings falling under the categories of super high rise and high rise buildings which require Fire Risk Assessment as per this regulation shall be required to produce a report issued by a Qualified Person or body once in every three years, to demonstrate
- The efficiency of the Fire Protection systems,
- Means of escape and
- Conditions of refuge floors etc



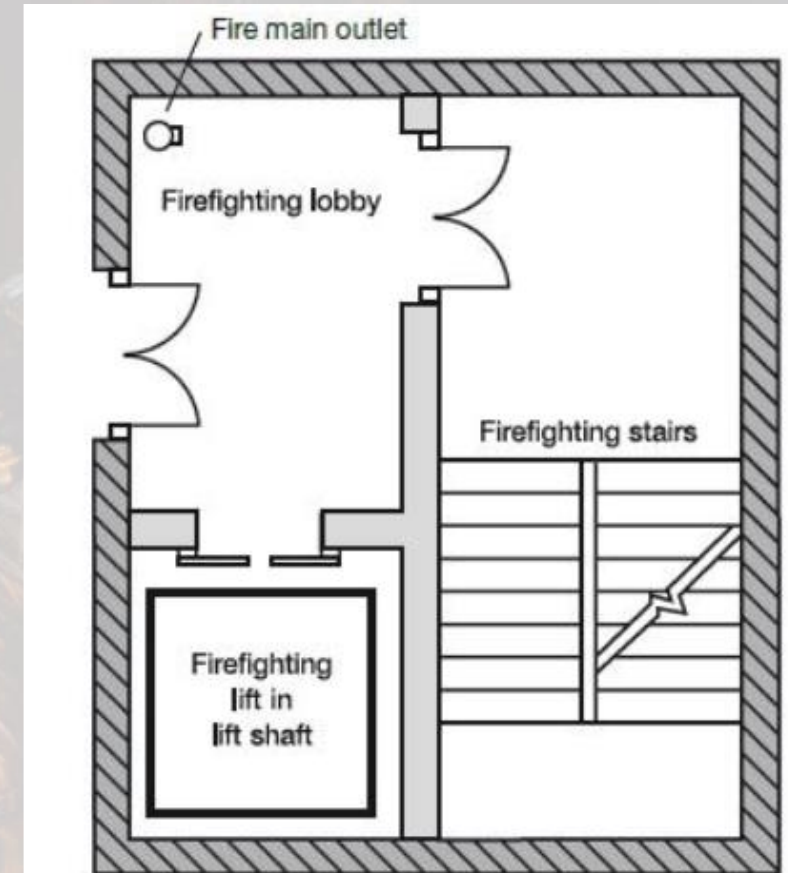
## CHAPTER 2 - MEANS OF ESCAPE

- The provisions of this Chapter of this Regulation shall control the design, construction, protection, location, arrangement and maintenance of required exit facilities to provide safe means of escape from all new buildings and buildings altered or changed in occupancy



## SMOKE FREE LOBBY - REG. 2(19)

- A lobby that is separated from the adjoining areas of the building by a wall having a fire resistance as per the building fire rating. The exit access door shall have fire resistance of half that of the enclosure fitted with automatic self-closing device.
- The design of a smoke stop lobby shall not impede the movement of occupants through the escape route.
- The floor area of a smoke stop lobby shall not be less than 3 m<sup>2</sup>.
- If a smoke stop lobby also serves as a fire fighting lobby, the floor area shall not be less than 6 m<sup>2</sup> and with no dimension less than 2 m.





## CHAPTER 3 - STRUCTURAL FIRE PRECAUTIONS

- The purpose of this Chapter of the Regulation is to minimize the risk of the spread of fire between adjoining buildings by a stable and durable form of construction,
- to prevent the untimely collapse of buildings in the event of fire
- to prevent the spread of fire between specified parts of buildings by the division of such buildings into compartments

## REFUGE FLOORS REG. 3(21)

- A refuge floor consisting of a refuge area shall be provided for every 10 floors for buildings having the height of occupiable floors exceeding 60 m.
- The holding area shall be calculated taking into consideration the total occupant load of 10 floors above and the area shall be sufficient to accommodate 50% of the above load allowing at least 0.5 m<sup>2</sup> per person.





## FIREMEN'S LIFT REQUIREMENTS REG. 3(98)

- Fireman's lift car shall be not less than 1100 mm wide by 2100mm deep with a rated load of 1000 Kg. minimum entrance with 800 mm
- Lift shall be capable of reaching the uppermost habitable floor from fire service access level within 60 seconds.

## EVACUATION LIFT REQUIREMENTS REG. 3(102)

- Evacuation lift car shall be large enough to accommodate a stretcher or a bed. The load shall be not less than 1000 kg and the dimensions shall be minimum 1100 mm wide by 2100 mm deep.
- The **elevator** lobby shall be adequate to accommodate not less than 50% of the occupant load of the area served by the lobby and also include one wheel chair space of 760mm x 1220mm for each 50 persons or part thereof.

# CHAPTER 4 - FIRE DETECTION AND ALARM SYSTEMS

- The purpose of this Chapter is to provide minimum requirements of Fire Detection Alarm and Voice Evacuation systems that shall be installed in building to enhance the life safety of the occupants and to mitigate damage to property.
- The requirements are stated as the minimum requirement to be complied with and any improvements based on any international standard is accepted provided that the designer/Installer could justify its performance is superior to what has been stated in this regulations, to AHJ



# CHAPTER 4 - FIRE DETECTION AND ALARM SYSTEMS

- Requirement for Fire Detection system Reg. 4(6)

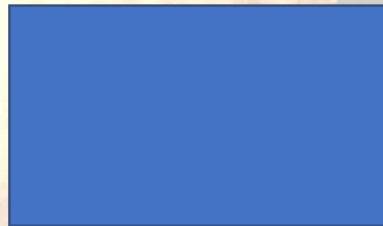
The fire detection systems shall be installed as per Table 14 in this regulation.

# CHAPTER 4 - FIRE DETECTION AND ALARM SYSTEMS

## VOICE EVACUATION SYSTEM

One way emergency voice evacuation and communication system and an emergency command centre shall be provided as follows:

- For all large buildings with gross floor area greater than 2800 m<sup>2</sup> or having a total occupant load exceeding 1000 persons and large industrial and warehouse buildings with gross floor area greater than 5000 m<sup>2</sup>.
- For all buildings which are categorized as high rise and super high rise buildings.





# CHAPTER 4 - FIRE DETECTION AND ALARM SYSTEMS

- Two-way telephone communication system with Fire Command Centre (FCC) shall be provided for all buildings which are categorized as high rise and super high rise buildings and any other building as requested by AHJ.
- Every firefighting lobby
- In basements, where the number of basements exceeds 2.
- Firefighting related mechanical rooms
- Fire service lifts
- Rooms having smoke control equipment
- Each area of refuge



# CHAPTER 5 - FIRE EXTINGUISHING APPLIANCES, FIXED FIRE PROTECTION AND SUPPRESSION SYSTEMS

- The purpose of this Chapter is to provide minimum requirements of portable and fixed Fire Protection systems that shall be installed in building to enhance the life safety of the occupants and to mitigate damage to property.

- TABLE 17





# CHAPTER 5 - FIRE EXTINGUISHING APPLIANCES...

**BREACHING INLET** ; For high rise and super high rise buildings a breaching inlet shall be provided to fill the fire suction tank.



# Reg. 5(33) -AUTOMATIC SPRINKLER SYSTEMS

The following shall be provided with an automatic sprinkler system:

- All indoor car parks
- All high rise & Super High Rise Buildings as defined by these regulations. It should be noted that the sprinklers systems should cover all storeys including the basements





# Reg. 5(31) ;FIRE PROTECTION FOR BUILDING UNDER CONSTRUCTION

All building under construction shall be equipped with following Fire Fighting facility

- A Dry Type rising main shall be installed where the building habitable floor height is less than 60 meters.
- A WET Type rising main shall be installed where the building habitable floor height is more than 60 meters
- Breeching inlets (2 way or 4 way) shall be provided and connected to the riser as per approved building plan



# FIRE PUMP INSTALLATIONS FOR SPRINKLER, HYDRANT AND HOSE REEL SYSTEMS

Reg. 5(49); Separate pumps sets shall be provided for Sprinkler and hydrant installations other than for combination system.

## Pumps, drivers, and controllers

- a) Drivers for pumps at a single installation shall be either electric motors or diesel engines.
- b) Fire pumps shall be listed for fire protection services and certified by an independent testing authority.
- c) A pump shall not be equipped with more than one driver.
- d) Each fire pump shall have its own dedicated driver
- e) Each driver shall have its own independent dedicated controller.





# PUMP PERFORMANCE RESULTS ; REG. 5(55)

- Churn: The pump is operating with no flow.
- Rated capacity: The pump is discharging water at the specified pressure.
- Overload: The pump is discharging water at a rate of 150% of rated flow at a pressure of 65% of rated pressure.



# FIRE PUMP CONFIGURATIONS

	Main Pump	Stand By Pump	Jockey pump	
Hose Reels system	60lpm	60lpm		
Hydrant System	1500lpm	1500lpm	60lpm/10% of main pump flow rate	A minimum of 500 l/min shall be add to each riser having more than 03 landing valves. Maximum flow rate shall not exceed 3000 l/min.
Sprinkler System	flow rate as per the sprinkler hazard classification	flow rate as per the sprinkler hazard classification	60lpm/10% of main pump flow rate	Where the building is sprinklered the maximum flow rate shall be 2500 l/min.

# FIRE PUMP CONFIGURATIONS

- Fire Pumps shall have positive suctions. If this is not feasible, vertical turbine pumps shall be used.
- Automatic and Manual Operation - The pumps shall start “automatically” on a fall in pressure or demand in water, and once started automatically shall be stopped only manually. Facility for starting the pump manually, overriding the automatic controls, must be available
- Pumps in Operation - An audible and visual alarm shall be installed in the control room to indicate that the pumps have started.





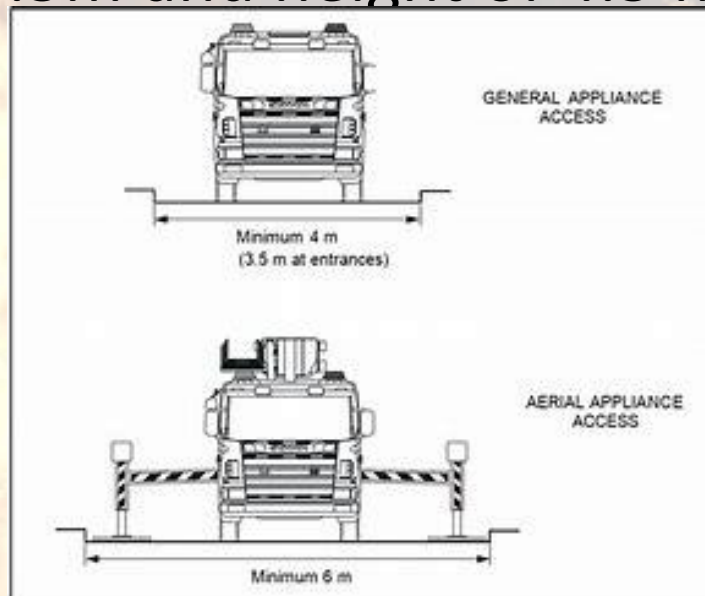
# CHAPTER 6 - SPECIAL USE, OCCUPANCIES AND STRUCTURES

- This chapter of the code shall apply only to those buildings types, uses, occupancies and structures specifically regulated herein, and the requirements of this chapter shall be in addition to the general requirements of the other chapters of the regulation governing the size, location, structural fire precautions, means of escape, construction, ventilation, fire-extinguishing equipment and other service equipment of buildings
- Reg.6(32) Separation of Kitchen Area from Dining Area seating area exceeds 75, the main kitchen area shall be separated from the dining area by a wall having fire resistance of not less than 1 hour
- Display / show kitchens Reg.6(33) Any display or show kitchen which is not separated (compartmented) from the restaurant shall be provided with an automatic fire suppression system.

# CHAPTER 7 - ACCESSIBILITY FOR FIRE FIGHTING

Purpose of this Chapter is to ensure provision for external access to building for fire fighting and accessibility of fire fighting appliances.

- Reg. 7(1) Access way shall be provided for accessibility to site for fire fighting appliances.
- To permit fire-fighting appliances to be deployed, the access way shall have a minimum width of 4.5m and height of 4.5 m throughout its entire length
- Hard standing requirement Reg. 7(2)



# CHAPTER 8 - INSPECTION MAINTENANCE AND TESTING OF ACTIVE /PASSIVE FIRE PROTECTION FACILITIES

- The purpose of this Chapter is to ensure that owner/occupier will “inspect, maintain and test” their Active and Passive Fire Protection Facilities, but not limited to, in a proper operational condition meeting the intended use and as stipulated in the regulation at all times.
- In the event that there are multiple occupants occupying the same complex, the owner, the condominium management corporation and/or the organization appointed to maintain and upkeep the building shall be responsible for the above





# SYSTEMS TO BE INSPECTED, MAINTAINED AND TESTED REG. 8(1)

- Fire Detection and Voice Evacuation Systems
- Fire Protection and Suppression Systems
- The Means of Escape
- Smoke Control Systems
- Stairway “pressurization” systems
- Portable Fire Extinguishers
- Exit Signage
- Emergency Lighting
- Total Flooding Systems
- Fuel Gas Leak Detection Systems
- Fire Brigade Access Routes
- Fire Water Storage



## SERVICING CONTRACT REG. 8(8)

- Responsible person of the Fire Service Installations (FSI) shall employ a registered contractor to inspect FSI of their buildings at least once every 12 months

## DOCUMENTATION REG. 8(10)

- Routine Inspection and Maintenance activities shall be recorded and such records shall be available for inspection by AHJ on request.
- A certificate of compliance shall be issued by the certified inspector on successful completion of the periodic inspection. The owner/occupier shall retain such certificate for inspection by AHJ when required





# CONCLUSION

- Compliance to Regulations
- Check your own design – PAST AND PRESENT
- CIDA Future Plans
- ITS YOUR RESPONSIBILITY



# QUESTIONS