

# APARTMENT BUILDINGS



APARTMENT BUILDINGS						
1.0	GENERAL REQUIREMENTS.	The fire and life safety requirements in this chapter shall apply to buildings or portions thereof used as apartment occupancies.				
	Residential Occupancy containing three or more dwelling units with independent bathroom and cooking facilities.					
	Residential Apartments / Apartment Buildings		Residential Flats			
1.1	GENERAL CONDITIONS & BUILDING LIMITS					
	Building Category	Building Height (m)	Floor Area (m²)	Basement Levels		
1.1.1	LOW-RISE APARTMENT	< 15.0 m Habitable Height	No Limit	No Limit [in Floor/Fire Area, Depth or Levels]		
1.1.2	MID-RISE APARTMENT	≥ 15 m to < 28 m Habitable Height	[in Area or Number of Dwelling Units per story or Number of Bedrooms per dwelling unit]			
1.1.3	HIGH-RISE APARTMENT	≥ 28 m Habitable Height				
FIRE AND LIFE SAFETY REQUIREMENTS						
Item	Fire Safety Provisions	Minimum Requirements		Low-rise	Mid-rise	High-rise
1.2	CLASSIFICATION OF OCCUPANCIES	Classification of occupancies shall be in accordance with NFPA 101 Chapter 6, and the requirements in 1.2.		Required	Required	Required
1.2.1	MULTIPLE OCCUPANCIES	No dwelling unit of an apartment building shall have its sole means of egress pass through any nonresidential occupancy in the same building.		Required	Required	Required
1.2.1.1	In buildings that are NOT PROTECTED by an automatic sprinkler system	The sole means of egress from the dwelling unit to the exterior shall be separated from the remainder of the building by fire barriers having a minimum 1-hour fire resistance rating.		Permitted	Permitted	Permitted
1.2.1.2		The sole means of egress from the dwelling unit shall not pass through a high hazard contents area.		Permitted	Permitted	Permitted
1.2.1.3	In buildings that are PROTECTED by an automatic sprinkler system	The sole means of egress from the dwelling unit shall not pass through a high hazard contents area.		Permitted	Permitted	Permitted



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
1.2.2	MULTIPLE DWELLING UNITS	Multiple dwelling units shall be permitted to be located above a non residential occupancy only where one of the following conditions exists:	Permitted	Permitted	Permitted
1.2.2.1	Conditions:	Where the dwelling units of the residential occupancy and exits therefrom are separated from the non residential occupancy by construction having a minimum 1-hour fire resistance rating.	-	-	-
1.2.2.2		Where the nonresidential occupancy is protected throughout by an approved, supervised automatic sprinkler system.	-	-	-
1.2.3	ATRIUM	Atrium walls permitted to serve as part of the separation for creating separated occupancies on a story-by-story basis.	Permitted	Permitted	Permitted
1.3	OCCUPANT LOAD	Determined on the basis of the occupant load factors (OLF) that are characteristic of the use of the space as specified in 1.3.1 and 1.3.2.	Required	Required	Required
1.3.1	OCCUPANT LOAD FACTOR (OLF)	The occupant load shall be not less than the number of persons determined by dividing the floor area assigned to that use by the occupant load factor of 18.6 m <sup>2</sup> per person.	Required	Required	Required
1.3.2	NON-RESIDENTIAL OCCUPANCIES in Apartment Buildings	The occupant load calculations for areas of apartment used for non-residential purposes shall be based on the occupant load factors applicable to the use of the area.	Required	Required	Required
1.4	CLASSIFICATION OF HAZARD OF CONTENTS:	The contents of residential occupancies shall be classified as Ordinary Hazard.	Required	Required	Required
1.5	MINIMUM CONSTRUCTION REQUIREMENTS.	Construction shall be in accordance with NFPA 5000 Chapters 7-8, 13-14, 31, and 35- 40.	Required	Required	Required
1.6	ACCESSIBILITY.	Reserved.			
1.7	(Reserved).				
2.0	<b>MEANS of EGRESS REQUIREMENTS.</b>	<b>Means of egress shall comply with NFPA 101 Chapter 7, and as modified in item 2.0 of this FLS Occupancy Chapter.</b>			



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.1	MEANS OF ESCAPE (within the Dwelling or Apartment Unit)	In dwellings or dwelling units of two rooms or more, every sleeping room and every living area shall have not less than one primary means of escape and one secondary means of escape.	Required	Required	Required
2.1.1	Exemptions	A secondary means of escape shall not be required where one of the following conditions is met:	Permitted	Permitted	Permitted
2.1.1(1)		The bedroom or living area has a door leading directly to the outside of the building at or to the finished ground level.	NR-Not Required	NR	NR
2.1.1(2)		Dwelling unit is protected throughout by an automatic sprinkler system.	NR	NR	NR
2.1.2	PRIMARY MEANS OF ESCAPE	The primary means of escape shall be a door, stairway, or ramp providing a means of unobstructed travel to the outside of the dwelling unit at street or the finished ground level.	Required	Required	Required
2.1.3	SECONDARY MEANS OF ESCAPE	The secondary means of escape, shall be one of the following means:	Required	Required	Required
2.1.3.1		A door, stairway, passage, or hall providing a way of unobstructed travel to the outside of the dwelling at street or the finished ground level that is independent of and remote from the primary means of escape.	Required	Required	Required
2.1.3.2		A passage thru an adjacent nonlockable space, independent of and remote from the primary means of escape, to any approved means of escape.	Required	Required	Required
2.1.3.3		An outside window or door operable from the inside without the use of tools, keys, or special effort and shall provide a clear opening of not less than 0.53 m <sup>2</sup> .	Required	Required	Required
2.1.3.4		The width shall be not less than 510 mm, and the height shall be not less than 610 mm. The bottom of the opening shall be not more than 1120 mm above the floor.	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.1.4	TWO (2) PRIMARY MEANS OF ESCAPE	Any dwelling or apartment unit in excess of 185 m <sup>2</sup> shall be provided with not less than two exit access doors remotely located from each other.	Required	Required	Required
2.1.4.1	Exemption for Two Primary Means of Escape	Buildings protected throughout by an approved, supervised automatic sprinkler system.	Permitted	Permitted	Permitted
2.1.5	ARRANGEMENT OF MEANS OF ESCAPE (within the Dwelling or Apartment Unit)	Any required path of travel in a means of escape from any room to the outside shall not pass through another room or apartment not under the immediate control of the occupant of the first room or through a bathroom or other space subject to locking.	Required	Required	Required
2.1.6	DOORS (within the Dwelling or Apartment Unit)	Doors in the path of travel of a means of escape, other than bathroom doors and doors serving a room not exceeding 6.5 m <sup>2</sup> shall be not less than 710 mm wide.	Required	Required	Required
2.1.6.1	Bathroom Doors (Width)	Bathroom doors and doors serving a room not exceeding 6.5 m <sup>2</sup> shall be not less than 610 mm wide.	Required	Required	Required
2.1.6.2	Doors (Height)	Doors (within dwelling or apartment unit) nominal height shall be not less than 1980 mm	Required	Required	Required
2.1.7	HALLWAYS (within the Apartment Unit)	Width of hallways shall be not less than 915 mm.	Required	Required	Required
2.1.7.1		Nominal height of hallways (clearance below projections from the ceiling of not less than 2030 mm shall be not less than 2135 mm.	Required	Required	Required
2.2	MEANS OF EGRESS COMPONENTS	Components of means of egress shall be limited to the types described in 2.2.2 through 2.2.8.			



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.2.1	General.	In buildings protected throughout by an automatic sprinkler system, exit enclosures shall have a minimum 1-hour fire resistance rating, and doors shall have a minimum 1-hour fire protection rating.	Required	Required	Not permitted
2.2.2	DOORS	Doors shall be in accordance with NFPA 101 section 7.2.1, and the requirements in items 2.2.2.1 through 2.2.2.4.	Required	Required	Required
2.2.2.1	Installed Security Measures	No door in any means of egress shall be locked against egress when the building is occupied. Security measures, where installed, should not prevent egress.	Required	Required	Required
2.2.2.1(1)	Delayed-egress Electrical Locking	Delayed-egress electrical locking system complying with NFPA 101 section 7.2.1.6.1 .	Permitted	Permitted	Permitted
2.2.2.1(2)	Sensor-release of Electrical Locking Systems	Sensor-release of electrical locking systems complying with NFPA 101 section 7.2.1.6.2.	Permitted	Permitted	Permitted
2.2.2.1(3)	Elevator Lobby Exit Access Door Locking	Elevator lobby exit access door locking in accordance with NFPA 101 section 7.2.1.6.3.	Permitted	Permitted	Permitted
2.2.2.2	Revolving Doors	Revolving doors complying with NFPA 101 section 7.2.1.10	Permitted	Permitted	Permitted
2.2.2.4	Re-entry Provisions	Apartment occupancies shall be exempt from the re-entry provisions where the exit enclosure serves directly only one dwelling unit per floor, and such exit is a smokeproof enclosure.	Permitted	Permitted	Permitted
2.2.3	STAIRS	Stairs complying with NFPA 101 section 7.2.2 and as specified in 2.2.3.1 and 2.2.3.2.	Permitted	Permitted	Permitted
2.2.3.1	Spiral Stairs	Only within dwelling unit	Permitted	Permitted	Permitted
2.2.3.2	Winders	Only within dwelling unit	Permitted	Permitted	Permitted
2.2.3.3	Lifts/Elevators	Lift serving various stories of a building located within an exit stair enclosure	NP	NP	NP
2.2.4	SMOKEPROOF ENCLOSURES.	Smokeproof enclosures complying with NFPA 101 section 7.2.3.	Permitted	Permitted	Permitted
2.2.5	HORIZONTAL EXITS.	Horizontal exits complying with NFPA 101 section 7.2.4.	Permitted	Permitted	Permitted



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.2.6	RAMPS	Accessible ramps and ramps used as a component in the means of egress shall conform with the general requirements for ramps in NFPA 101 7.2.5.	Required	Required	Required
2.2.7	EXIT PASSAGEWAYS.	Exit passageways complying with NFPA 101 section 7.2.6.	Permitted	Permitted	Permitted
2.2.9	AREAS OF REFUGE.	Areas of refuge complying with NFPA 101 section 7.2.12.	Permitted	Permitted	Permitted
2.3	CAPACITY OF MEANS OF EGRESS	Capacity of means of egress shall be in accordance with NFPA 101 section 7.3 and the requirements in item 2.3.	Required	Required	Required
2.3.1	STREET FLOOR EXIT	Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.	Required	Required	Required
2.3.2	CORRIDORS	Corridors with a required capacity of more than 50 persons, shall be of sufficient width to accommodate the required occupant load but shall have a width of not less than 1200 mm.	Required	Required	Required
2.4	NUMBER OF MEANS OF EGRESS	Number of means of egress shall be in accordance with NFPA 101 section 7.4 and as modified in item 2.4.	Required	Required	Required
2.4.1	EXITS WITHIN DWELLING UNIT	Every dwelling unit shall have access to at least two separate exits remotely located from each other as required by 2.1.	Required	Required	Required
2.4.2	SINGLE EXIT PROVISIONS	A single exit shall be permitted to serve all floor levels, provided that all of the conditions for single exit provisions in 2.4.2.1 through 2.4.2.9 are met.	Permitted	Permitted	NP-Not permitted
2.4.2.1	Floor Area	Net floor area of apartment dwellings is equal or less than 500 m <sup>2</sup> per floor level.	Required	Required	-
2.4.2.2	Common Path	Common path of travel from the entrance door of any dwelling unit to an exit does not exceed 11 m.	Required	Required	-
2.4.2.3	Enclosures of Exit Stairway	Exit stairway is completely enclosed or separated from the rest of the building by a minimum 2-hour fire resistance rating (1.5-hrs doors) where the exit connects four or more stories.	Required	Required	-



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.4.2.4	Number, Depth and Floor Area of Basement	Stairway serve only one (1) Basement, that is equal or less than 500 m <sup>2</sup> fire area or fire compartment and and maximum depth of 6.0 m.	Required	Required	-
2.4.2.5	Opening Protective	All openings between the exit enclosure and the building are protected with self-closing door assemblies of 1-hour fire protection rating.	Required	Required	-
2.4.2.6	Exit Access Corridors	All corridors serving as access to exits have a minimum of 1-hour fire resistance rating.	Required	Required	-
2.4.2.7	Exit Discharge	Exits shall terminate directly, at a public way or an interior exit discharge.	Required	Required	-
2.4.2.7(1)		The interior exit discharge permitted in 2.4.2.7, shall be within 11 m. from the exit enclosure door to an exterior door leading to the public way.	Permitted	Permitted	-
2.4.2.7(2)		The interior exit discharge shall be separated from the remainder of the level of discharge by fire barriers of a min. 1-hour fire resistance rating.	Required	Required	-
2.4.2.8	Subdivisions of Building Spaces	Horizontal and vertical separation of 1.0-hr fire resistance rating is provided between dwelling units.	Required	Required	-
2.4.2.9	Smoke Control/Ventilation Requirements				
2.4.2.9(1)	Smoke Vents	Smoke vents (fixed-wall openings or automatic opening vents) at the top of the stairwell (9 m - 15 m habitable height).	Required	Required	-
2.4.2.9(2)	Pressurization System	Positive pressure ventilation system in exit stair that traverses more than 15 m. habitable height.	NA	Required	-
2.5	ARRANGEMENT OF MEANS OF EGRESS	Arrangement of means of egress shall be in accordance with NFPA 101 section 7.5 and as modified in item 2.5.	Required	Required	Required
2.5.1	ACCESS TO EXITS	Access to all required exits shall be in accordance with Section 2.5, as modified by 2.5.1.1 and 2.5.2	Required	Required	Required
2.5.1.1	Exit Remoteness	Remoteness shall be provided in accordance with NFPA 101 sections 7.5.1.3.1 through 7.5.1.3.7.	Required	Required	Required





Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.5.1.2		The distance between exits addressed by 2.5.1.1 shall not apply to non-looped exit access corridors in buildings that have corridor doors from the dwelling units that are arranged such that the exits are located in opposite directions from such doors.	Permitted	Permitted	Permitted
2.5.2	TRAVEL DISTANCE (TD) TO EXITS	The distance that a person would travel from any point within the floor area to the nearest exit shall be measured in accordance with NFPA 101 section 7.6.2.5.1 and as modified in item 2.5.2.	Required	Required	Required
2.5.2.1	Travel Distance within Dwelling Units	Travel distance within dwelling (apartment) units to a corridor door, shall not exceed 23 m.	Required	Required	Required
2.5.2.2	Buildings Protected Throughout by an Approved Automatic Sprinkler System	Travel distance within dwelling (apartment) units to a corridor door, shall not exceed 38 m.	Required	Required	Required
2.5.2.3	Travel Distance from Dwelling Unit Door to an Exit	The travel distance from a dwelling (apartment) unit entrance door to the nearest exit shall not exceed 30 m.	Required	Required	Required
2.5.2.4	Buildings Protected Throughout by an Approved Automatic Sprinkler System	The travel distance from a dwelling (apartment) unit entrance door to the nearest exit, shall not exceed 61 m.	Required	Required	Required
2.5.2.5	Travel Distance in Exterior Ways of Exit Access	The travel distance from a dwelling (apartment) unit entrance door to the nearest exit for exterior ways of exit access shall not exceed 61 m.	Required	Required	Required
2.5.2.6	Travel Distance in Other Areas	The travel distance, from areas other than those within living units, to an exit shall not exceed 61 m.	Required	Required	Required
2.5.2.7	Buildings Protected Throughout by an Approved Automatic Sprinkler System	The travel distance, from areas other than those within living units, shall not exceed 76 m.	Required	Required	Required
2.5.3	COMMON PATH (CP) OF TRAVEL	Travel within a dwelling unit shall not be included when calculating common path of travel.	Permitted	Permitted	Permitted
2.5.3.1	Common Path Limit	Common path of travel shall not exceed 11 m.	Required	Required	Required
2.5.3.2	Buildings Protected Throughout by an Approved Automatic Sprinkler System	Common path of travel shall not exceed 15 m.	Required	Required	Required
2.5.4	DEAD-END (DE) CORRIDOR	Dead-end corridors shall not exceed 11 m.	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
2.5.4.1	Buildings Protected Throughout by an Approved Automatic Sprinkler System	Dead-end corridors shall not exceed 15 m.	Required	Required	Required
2.6	DISCHARGE FROM EXITS	Exit discharge shall comply with NFPA 101 7.7 and as permitted in 2.6.3.	Required	Required	Required
2.6.1	EXIT TERMINATION	Exits shall terminate directly, at a public way or at an exterior exit discharge.	Required	Required	Required
2.6.2	EXIT DISCHARGE THRU INTERIOR BUILDING AREAS	Discharge through interior building areas with not more than 50 percent of the required number of exits, and 50 percent of the required egress capacity.	Permitted	Permitted	Permitted
2.6.3		Interior exit discharge as permitted in 2.6.2 shall be within a maximum 11 m. travel distance to exit termination or the building external.	Permitted	Permitted	Permitted
2.7	ILLUMINATION OF MEANS OF EGRESS	Means of egress shall be illuminated in accordance with NFPA 101 section 7.8.	Required	Required	Required
2.7.1	EMERGENCY LIGHTING	Emergency lighting in accordance with NFPA 101 Section 7.9, as modified by 2.7.1 through 2.7.3.	Required	Required	Required
2.7.1.1		The apartment building is three (3) or more stories in height.	Required	Required	Required
2.7.2		The occupancy is subject to 50 or more occupants above or below the level of exit discharge.	Required	Required	Required
2.7.3		The occupancy is subject to 300 or more total occupants.	Required	Required	Required
2.8	MARKINGS OF MEANS OF EGRESS	Means of egress shall have signs in accordance with NFPA 101 Section 7.10 in all buildings requiring more than one exit.	Required	Required	Required
2.9	NORMALLY UNOCCUPIED BUILDING SERVICE EQUIPMENT SUPPORT AREAS	Provisions for normally unoccupied service support areas in accordance with NFPA 101 section 7.14.	NP-Not permitted	NP	NP
2.10	(Reserved).				
3.0	PROTECTION	<b>Protection shall comply with the applicable NFPA codes and standards, QCD FLS Annex and as modified in item 3.0 of this FLS Occupancy Chapter.</b>			



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.1	PROTECTION OF VERTICAL OPENINGS	Vertical openings shall be enclosed or protected in accordance with NFPA 101 section 8.6.	Required	Required	Required
3.1.1	COMMUNICATING SPACE	Where the provisions Communicating Spaces in accordance with NFPA 101 section 8.6.6 are used, the building shall comply with 3.5.1.2.	Required	Required	Required
3.1.2	WALLS Enclosing Vertical Openings	Walls enclosing vertical openings shall have a min. 1-hour fire resistance rating, and the doors shall have a minimum 1-hour fire protection rating.	Required	Required	Required
3.1.3	FLOOR Below the Level of Exit Discharge	No floor below the level of exit discharge used only for storage, or purposes other than residential occupancy and open to the public shall have unprotected openings to floors used for residential purposes.	Required	Required	Required
3.1.4	VERTICAL SHAFTS/SHAFTWAYS		Permitted	Permitted	Permitted
3.1.4.1	Enclosures Fire Resistance Rating	Enclosures connecting four (4) or more stories in new construction – 2-hour fire barriers.	Required	Required	Required
3.1.4.1(1)		Other enclosures in new construction – 1-hour fire barriers	Required	Required	Required
3.1.4.2	Openings in Shaft	Windows of kitchens, toilets, baths and other rooms, that opens to a common and shared vertical shafts shall be permitted, except in high-rise buildings, subject to the following conditions:	Permitted	Permitted	Not Permitted
3.1.4.2(1)	Openings Protection	The openings or windows shall have a fire protection rating equivalent to the the fire resistance rating required for the shaft, or	Required	Required	-
3.1.4.2(2)		The room of the openings shall be protected within a fire resistance rated enclosures and any doors in the enclosing walls of the room shall have a fire protection rating of not less than 1-hour.	Required	Required	-
3.1.4.2(3)	Location and Separation Distance	The openings or windows shall be located at a 3 m separation distance measured in a straight line between the nearest edge of each openings from a different unit.	Required	Required	-



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.1.4.2(3)(a)		The openings or windows permitted in shall not be located directly facing each other.	Required	Required	-
3.1.4.2(3)(b)		Any openings> sill height shall not be less than 1.2m ; and height not more than 2.10m above the finish floor level, A concrete overhang (awning) to serve as fire block projected 0.3m from the shaft wall directly above the openings. See figures 3.1.4.2(3)(b)(i) through (v)	Required	Required	-
3.1.5	VERTICAL OPENINGS within Dwelling Unit	Within any individual dwelling unit, vertical openings that is more than one story above or below the entrance floor level of the dwelling unit .	Not permitted	Not Permitted	Permitted
3.2	PROTECTION FROM HAZARDS		Required	Required	Required
3.2.1	HAZARDOUS AREAS	Any hazardous area shall be protected in accordance with NFPA 101 8.7 and as specified in 3.2.1.1 through 3.2.1.9.	Required	Required	Required
3.2.1.1	Boiler and fuel-fired heater rooms	1 hour and sprinklers or 2-hrs enclosures in non-sprinklered buildings.	Required	Required	Required
3.2.1.2	Employee locker rooms	1 hour or sprinklers.	Required	Required	Required
3.2.1.3	Gift or retail shops	1 hour or sprinklers.	Required	Required	Required
3.2.1.4	Bulk laundries	1 hour and sprinklers or 2-hrs enclosures in non-sprinklered buildings.	Required	Required	Required
3.2.1.5	Laundries $\leq 9.3 \text{ m}^2$ outside of dwelling units	1 hour or sprinklers.	Required	Required	Required
3.2.1.6	Laundries $> 9.3 \text{ m}^2$ outside of dwelling units	1 hour and sprinklers or 2-hrs enclosures in non-sprinklered buildings.	Required	Required	Required
3.2.1.7	Maintenance shops (ordinary hazard; $< 1115 \text{ m}^2$ )	1 hour and sprinklers or 2-hrs enclosures in non-sprinklered buildings.	Required	Required	Required
3.2.1.8	Storage rooms outside of dwelling units	1 hour or sprinklers.	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.2.1.9	Trash collection rooms	1 hour and sprinklers or 2-hrs enclosures in non-sprinklered buildings.	Required	Required	Required
3.3	INTERIOR FINISH	Interior finish shall be in accordance with NFPA 101 Section 10.2.	Required	Required	Required
3.3.1	INTERIOR WALL AND CEILING FINISH	Interior wall and ceiling finish materials shall be permitted as follows:	Required	Required	Required
3.3.1.1		Exit enclosures – Class A	Required	Required	Required
3.3.1.2		Lobbies and corridors – Class A or Class B	Required	Required	Required
3.3.1.3		Other spaces – Class A, Class B, or Class C	Required	Required	Required
3.3.2	INTERIOR FLOOR FINISH	Interior floor finish in exit enclosures and exit access corridors and spaces not separated by walls complying with 3.7.1 shall be not less than Class II.	Required	Required	Required
3.4	DETECTION, ALARM & COMMUNICATION REQUIREMENTS				
3.4.1	GENERAL	Complete coverage of Fire Detection and Alarm System.	Required	Required	Required
3.4.2	INITIATION	Complete coverage of an Automatic Detection and Manual Initiating Devices.	Required	Required	Required
3.4.3	OCCUPANT NOTIFICATION	Complete Coverage of an Occupant Notification (audible & visible).	Required	Required	Required
3.4.3.1	Emergency Voice Evacuation System	Mass Notification System	NR	NR	Required
3.4.4	SUPPLEMENTARY				
3.4.4.1	Fire Telephone	In every required provisions of a fire command center (FCC) or emergency control center (ECC).	Required	Required	Required
3.4.4.2	Graphic Annunciator (PC Panel) or Mimic Panel	In every required provisions of a fire command center (FCC) or emergency control center (ECC).	Required	Required	Required
3.5	EXTINGUISHMENT REQUIREMENTS				
3.5.1	AUTOMATIC SPRINKLER (AS) SYSTEM	Apartment Building shall be protected throughout by an approved, supervised automatic sprinkler system.	NR	NR	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.5.1.1	Basement Level/s	Basement level (car park/other usage) with fire area exceeding 1115 m <sup>2</sup> .	Required	Required	Required
3.5.1.1(1)		Multiple-level Basement (car park/other usage) regardless of fire area.	Required	Required	Required
3.5.1.2	Vertical Openings: Convenience Stairways, Communicating Space & Atrium	Buildings with unprotected openings shall be protected throughout by an approved, supervised automatic sprinkler system.	Required	Required	Required
3.5.1.3	Exemption to Automatic Sprinkler System				
3.5.1.3(1)	Open Parking Structures	Open parking complying with the openings requirement for open parking structure, and that are contiguous with apartment buildings.	NR	NR	NR
3.5.2	Fire Hose Reel	Fire hose reels are required in buildings protected by an approved supervised automatic sprinkler system.	Required	Required	Required
3.5.3	Portable Fire Extinguisher	Applicable Portable Fire Extinguishers required in all buildings.	Required	Required	Required
3.5.4	Rising Main (Dry or Wet Standpipe)	Refer to Annex Fire Fighting System Annex_FFS_G1 Revisions 2021	Required	Required	Required
3.6	SMOKE CONTROL / VENTILATION REQUIREMENTS	Legend: NR-Not Required; NA-Not Applicable; NP-Not Permitted			
3.6.1	STAIRWELL/LOBBY	Design conditions per Annex ACMV_N1 Revisions 2021.			
3.6.1.1	Less than 9 m habitable height		No Reqmt	No Reqmt	No Reqmt
3.6.1.2	9 m to 15 m habitable height	Vent at top of stairwell	Required	NA	NA
		Stair ventilation openings at every floor level (for stairs along external walls)	Permitted	NA	NA
		Stairwell Pressurization	NR	NA	NA



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3.6.1.3	>15 m to < 28 m habitable height	Vent at top of stairwell	NA	NP	NA
		Stair ventilation openings at every floor level (stairs along external walls)	NA	Required	NA
		Stairwell Pressurization	NA	Permitted	NA
3.6.1.4	≥28 m habitable height	Vent at top of stairwell	NA	NA	NP
		Stair ventilation openings at every floor level (stairs along external walls)	NA	NA	NP
		Stairwell pressurization, smoke stop/fire fighting lobby pressurization	NA	NA	Required
	Connecting Basement Levels				
3.6.1.5	Two basement levels or ≤6 m deep, ≤2000 m <sup>2</sup> floor area	Vent at top of stairwell : * Permitted up to five (5) connecting above floors (2B+G+4 or less) or 12 m habitable height ; whichever is less; otherwise next below provisions shall apply.	*Required	NP	NP
		Stair ventilation openings at every floor level (for stairs along external walls)	Permitted	Required	NP
		Stairwell pressurization, smoke stop/fire fighting lobby pressurization	Permitted	Permitted	Required
3.6.1.6	Three basement levels or ≤ 9.1m deep, ≤2000 m <sup>2</sup> floor area	Vent at top of stairwell : * Permitted up to three (3) connecting above floors only (3B+G+2 or less) or 6m habitable height, whichever is less; otherwise next below provisions shall apply	*Required	NP	NP
		Stair ventilation openings at every floor level (stairs along external walls)	NA	NA	NA
		Stairwell pressurization, smoke stop/fire fighting lobby pressurization	Permitted	Permitted	Permitted



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.6.1.7	Two basement levels or ≤6 m deep, >2000 m <sup>2</sup> floor area	Vent at top of stairwell: * Permitted up to four (4) connecting floors (2B+G+3 or less) or 9 m habitable height ; whichever is less; otherwise next below provisions shall apply.	*Required	NP	NP
		Stair ventilation openings at every floor level (for stairs along external walls)	Required	NP	NP
		Stairwell pressurization, smoke stop/fire fighting lobby pressurization	Permitted	Required	Required
3.6.1.8	Three basement levels or ≤ 9.1m deep, >2000 m <sup>2</sup> floor area, connecting one floor above only	Vent at top of stairwell : * Permitted up to two connecting above floors or 3 m habitable height only (3B+G+1 or less); whichever is less, otherwise next below provisions shall apply	*Required	NP	NP
		Stair ventilation openings at every floor level (stairs along external walls)	NA	NA	NA
		Stairwell pressurization, smoke stop/fire fighting lobby pressurization.	Permitted	Required	Required
3.6.1.9	Lowest basement level >9.1 m below ground level, regardless of floor area	Vent at top of stairwell	NP	NP	NP
		Stair ventilation openings at every floor level (stairs along external walls)	NP	NP	NP
		Stairwell pressurization, smoke stop/fire fighting lobby pressurization	Required	Required	Required
3.6.2	ESCAPE CORRIDOR PROTECTION	Design conditions per Annex ACMV_N1 Revisions 2021.			
3.6.2.1	Interior Corridors	Vents (Fixed or Automatic Opening)	Required in specific type of Occupancy: Healthcare Occupancies and in Detention and Correctional Occupancies		
		Mechanical Ventilation of Corridor			
		Pressurization of Corridor			
3.6.2.2	Corridor with side/s located along exterior walls	Vents (Fixed or Automatic Opening)			
		Mechanical Ventilation of Corridor			
		Pressurization of Corridor			
3.6.3	ATRIUM and OTHER FLOOR OPENINGS PROTECTION	Design conditions per Annex ACMV_N1 Revisions 2021.			





Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.6.3.1	Malls (with floor openings connecting >2 floors	Smoke Vents (Fixed or Automatic Opening)	Required	NP	NP
		Mechanical Smoke Exhaust Ventilation System/Engineered	Permitted	Required	Required
3.6.3.2	Other Occupancies (connecting >3 floor levels)	Smoke Vents (Fixed or Automatic Opening)	Required	Permitted	NP
		Mechanical Smoke Exhaust Ventilation System/Engineered	Permitted	Permitted	Required
3.6.4	CAR PARKS/PARKING STRUCTURES PROTECTION	Design conditions per Annex ACMV_N1 Revisions 2021.			
3.6.4.1	Open Parking Structures	The open parking structure shall justify that no smoke stagnation will occur such as from a fire located somewhere in the middle of the car park; otherwise mechanical equipment that will aid in effective dispersal of smoke shall be provided	Required	Required	Required
3.6.4.2	Aboveground Enclosed Car Parks				
3.6.4.2.1	Aggregate floor area of $\leq 2000 \text{ m}^2$	Smoke Vents (Fixed or Automatic)	Required	Required	Permitted
		Mechanical Smoke Purging/Clearance	Permitted	Permitted	Required
		Engineered Smoke Control System	Permitted	Permitted	Permitted
3.6.4.2.2	Aggregate floor area of $> 2000 \text{ m}^2$	Smoke Vents (Fixed or Automatic)	Required	NP	NP
		Mechanical Smoke Purging/Clearance	Permitted	Required	NP
		Engineered Smoke Control System	Required	Permitted	Required
3.6.4.3	Belowground Car Parks		$\leq 6\text{m}$ Deep	$> 6\text{m}$ - $\leq 9.1 \text{ m}$ Deep	$> 9.1 \text{ m}$ Deep
3.6.4.3.1	Aggregate floor area of $\leq 2000 \text{ m}^2$	Smoke Vents (Fixed or Automatic)	Required	NP	NP
		Mechanical Smoke Purging/Clearance	Permitted	Required	Required
		Engineered Smoke Control System	Permitted	Permitted	Permitted
3.6.4.3.2	Aggregate floor area of $> 2000 \text{ m}^2$	Smoke Vents (Fixed or Automatic)	NP	NP	NP
		Mechanical Smoke Purging/Clearance	Required	NP	NP
		Engineered Smoke Control System	Permitted	Required	Required
3.7	CORRIDORS		Low-rise	Mid-rise	High-rise



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.7.1	WALLS	Exit access corridor walls shall consist of fire barriers of not less than 1-hour fire resistance rating.	Required	Required	Required
3.7.2	DOORS	Doors that open onto exit access corridors shall have not less than 30-minute fire protection rating	Required	Required	Required
3.7.2.1		Doors that open onto exit access corridors shall be self-closing and self-latching.	Required	Required	Required
3.7.3	UNPROTECTED OPENINGS	Unprotected openings, other than those from spaces complying with 3.7.3.1, shall be prohibited in exit access corridor walls and doors.	NP-Not permitted	NP	NP
3.7.3.1	Exemption	Spaces shall be permitted to be unlimited in area and open to the corridor, provided that the following criteria are met:	Permitted	Permitted	Permitted
3.7.3.1.1		The space is not used for guest rooms or guest suites or hazardous areas.	Permitted	Permitted	Permitted
3.7.3.1.2		The building is protected throughout by an approved, supervised automatic sprinkler system.	Permitted	Permitted	Permitted
3.7.3.1.3		The space does not obstruct access to required exits.	Permitted	Permitted	Permitted
3.7.4	TRANSOM, LOUVERS, OR TRANSFER GRILLES	Transoms, louvers, or transfer grilles shall be prohibited in walls or doors of exit access corridors.	NP-Not permitted	NP	NP
3.8	SUBDIVISION OF BUILDING SPACES	Buildings shall be subdivided in accordance with 3.8.1.	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
3.8.1	SEPARATION BETWEEN DWELLING UNITS	Dwelling units shall be separated from each other by walls and floors constructed as fire barriers of not less 1-hour fire resistance rating.	Required	Required	Required
3.8.2	OPENINGS PROTECTION	Doors that open onto exit access corridors shall have not less than 1-hour fire protection rating	Required	Required	Required
3.9	(Reserved).				
<b>4.0</b>	<b>SPECIAL PROVISIONS.</b>	<b>Special Provisions for Firefighting and Rescue shall comply with QCD FLS Annex and as modified in item 4.0 of this FLS Occupancy Chapter.</b>			
4.1	FIRE (EMERGENCY) COMMAND CENTER (FCC)	QCD FLS Annex_A5 – Revisions_2021.	NR	NR	Required
4.1.1		A Fire Command Center shall be provided in buildings that requires Emergency Voice Communication System and/or Smoke Control System.	Required	Required	Required
4.1.2	Exemptions	In other than high-rise buildings, instead of a dedicated FCC; lobbies or other spaces adjacent to the main entrance/s may be permitted.	Permitted	Permitted	NP-Not Permitted
4.2	FIREMAN'S ACCESS PANELS/ OPENINGS	QCD FLS Annex_A3 – Revisions_2021	Required	Required	Required
4.3	FIRE LIFTS (FIRE SERVICE ACCESS ELEVATORS)	QCD FLS Annex_A4 – Revisions_2021	NR	NR	Required
4.3.1		The building basement/s is more than nine (9) meters below the average ground level (grade plane).	Required	Required	Required
4.3.2	FIREFIGHTING LOBBY	QCD FLS Annex_A2 – Revisions_2021	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
4.3.3	SMOKE-STOP LOBBY	QCD FLS Annex_A2 – Revisions_2021	Required	Required	Required
4.4	AMBULANCE STRETCHER ACCOMMODATION	QCD FLS Annex_A4 – Revisions_2021	NR-Not Required	Required	Required
4.5	EXTERNAL ACCESS TO SITE AND BUILDINGS	QCD FLS Annex_A3 – Revisions_2021	Required	Required	Required
4.5.1	SITE ACCESS/ACCESS ROAD	For gated facility development a 4.0 m wide access road and 4.5 m clear height vertical clearance entry gate or site access shall be provided.	Required	Required	Required
4.5.2	FIRE ENGINE HARDSTANDING (FEH)	FEH with longer side parallel to the façade of the building shall be provided in buildings exceeding the habitable height of 10 m.	Required	Required	Required
4.6	REFUGE FLOORS	QCD FLS Annex_A1 – Revisions_2021	NA-Not Applicable	NA	Required
4.7	(Reserved).				
<b>5.0</b>	<b>BUILDING SERVICES and FIRE PROTECTION EQUIPMENT</b>	<b>Building Services and Fire Protection Equipment shall comply with the applicable NFPA codes and standards and QCD FLS Annex.</b>			
5..1	ELECTRICAL SYSTEM	Electrical wiring and equipment shall be in accordance with NFPA 70.	Required	Required	Required
5.1.1	ELECTRICAL EQUIPMENT/PANEL ROOMS AND SIMILAR ROOMS/ SPACES	QCD FLS Annex _A7 – Revisions_2021	Required	Required	Required
5.1.2	EMERGENCY GENERATORS AND STANDBY POWER SYSTEMS.	Emergency generators and standby power systems shall be installed, tested, and maintained in accordance with NFPA 110.	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
5.1.3	STORED ELECTRICAL ENERGY SYSTEMS	Stored electrical energy systems shall be installed, tested, and maintained in accordance with NFPA 111.	Required	Required	Required
5.2	COMMERCIAL COOKING OPERATIONS	Where permitted, commercial cooking operations shall be protected in accordance with NFPA 96.	Required	Required	Required
5.3	ELEVATORS, ESCALATORS, and CONVEYORS	An elevator, shall not be considered a component in a required means of egress and shall be in accordance with NFPA 101 section 9.4.	Required	Required	Required
5.3.1	NUMBER OF CARS	The number of elevator cars permitted in a hoistway shall be not more than three (3).	Required	Required	Required
5.3.2	OPENINGS TO EXIT ENCLOSURES	Conveyors, elevators, dumbwaiters, and pneumatic conveyors serving various stories of a building shall not open to an exit enclosure.	Required	Required	Required
5.4	WASTE HANDLING SYSTEM	Waste chutes and its associated trash collection storage rooms and service opening rooms, when provided shall comply with NFPA 101 section 9.5.	Required	Required	Required
5.4.1		Approved waste chutes and transport systems, including gravity waste chutes, full pneumatic waste conveying systems, and gravity pneumatic waste conveying systems, shall comply with the provisions of NFPA 82.	Required	Required	Required
5.4.1.1	Construction	Waste chutes, shall be separately enclosed by walls or partitions of not less than 2-hrs fire resistance rating and chute intake openings protection of 1.5-hour fire protection rating.	Required	Required	Required
5.4.1.2	Trash Collection Storage Rooms	Waste chutes, shall have its associated trash collection, service opening rooms separately enclosed by walls of not less than 1-hr fire resistance rating and openings protection of 3/4-hour fire protection rating.	Required	Required	Required



Item	Fire Safety Provisions	Minimum Requirements	Low-rise	Mid-rise	High-rise
5.4.1.3		The doors of chutes shall open only to a trash collection, service opening room, laundry storage room or to a room that is designed and used exclusively for accessing the chute opening.	Required	Required	Required
5.4.2	GRAVITY CHUTES	A waste chute shall extend (full size) at least 0.92 m. above the roof of a building.	Required	Required	Required
5.4.2.1	Chute Venting	The chute shall be open to the atmosphere, with the opening being the same cross-sectional area as the chute.	Required	Required	Required
5.5	FIRE PUMPS				
5.5.1	FIRE PUMPS ROOM	QCD FLS Annex _A6 – Revisions_2021	Required	Required	Required
5.6	SUBSTATION and SWITCHGEARS	QCD FLS Annex _A8 – Revisions_2021	Required	Required	Required
5.7	(Reserved).				



# VERTICAL SHAFT PLAN

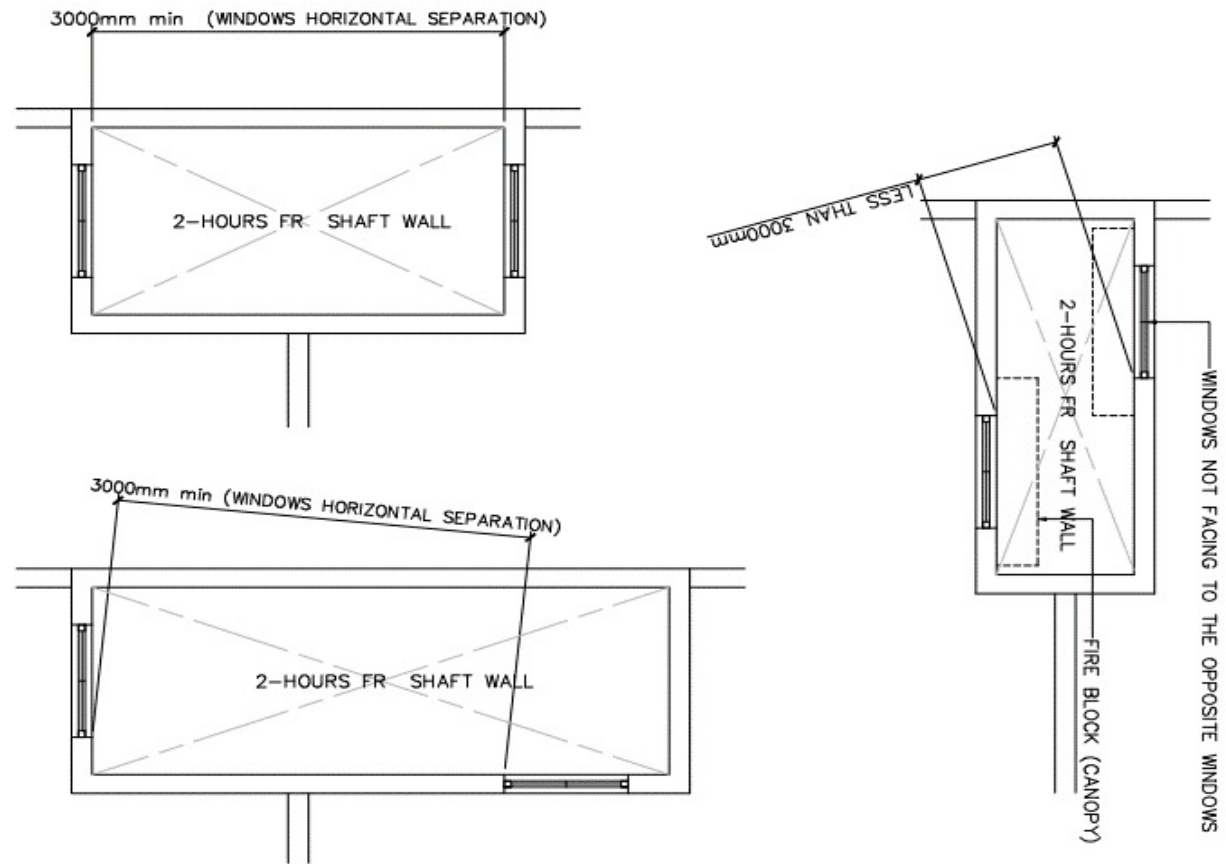
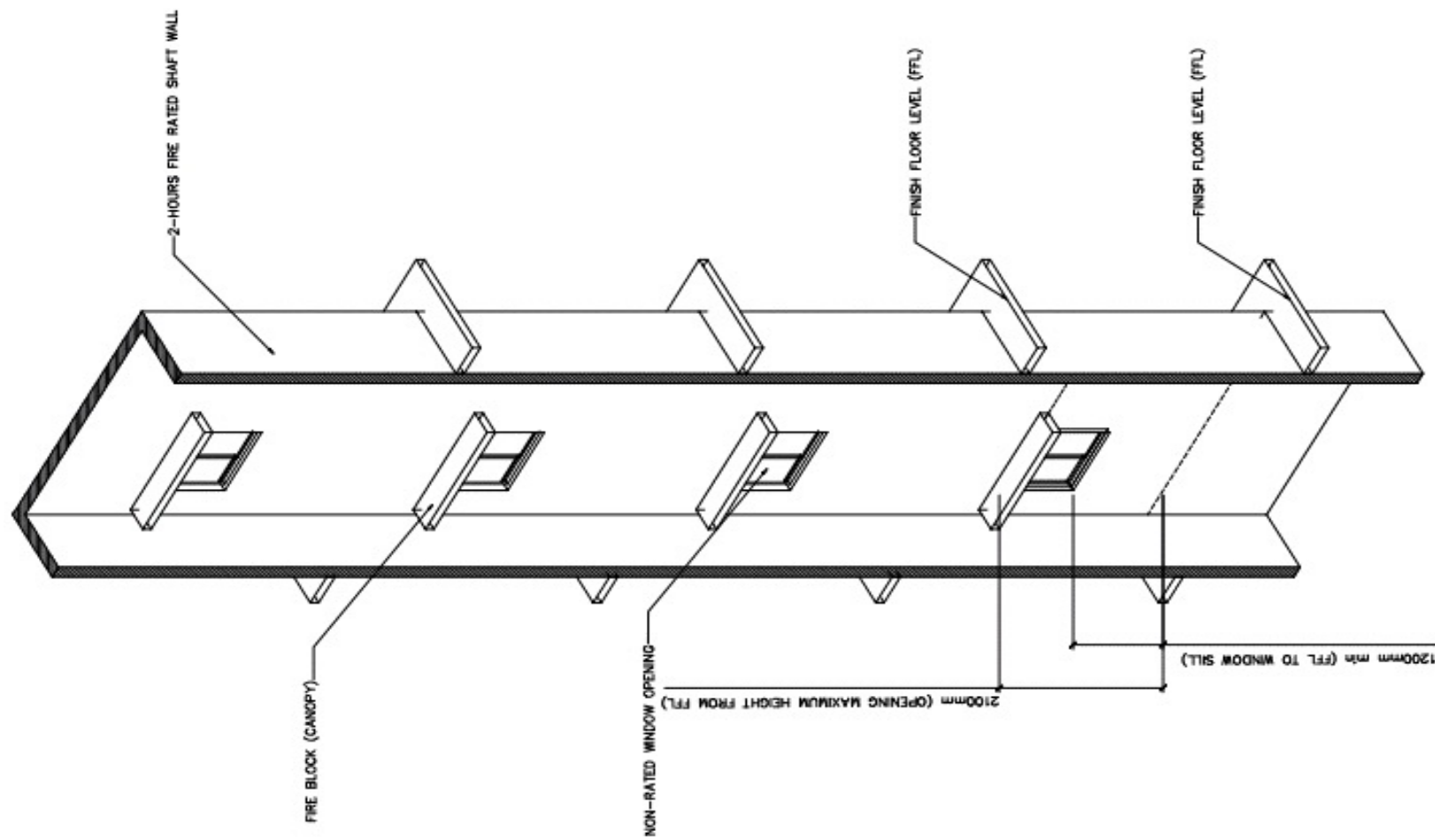


Figure 3.3.2.2(2)









VERTICAL SHAFT ISO SECTION

Figure 3.1.4.2(3)(b)(v).