



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

RESIDENTIAL APARTMENT BUILDINGS

I	APPLICATIONS		RESIDENTIAL APARTMENTS: Residential Occupancy containing three or more dwelling units with independent bathroom and cooking facilities.			
	OCCUPANCY CLASSIFICATION**		Building Height Requirements		Building Area Requirements	
A	LOW-RISE APARTMENT BUILDINGS		≤ 15M		≤ 500M ²	
B	MEDIUM-RISE APARTMENT BUILDINGS	TYPE A - MEDIUM-RISE APARTMENT BUILDINGS	> 15M TO ≤ 18M		> 500M ² - ≤ 1000M ²	
		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
Fire Safety Provisions		Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
III	BUILDING AND SITE ACCESS FOR FIRE FIGHTING & RESCUE		REQUIRED (R)	R	R	R
A	SITE ACCESS / ACCESS ROAD	Provisions for 4m-width firefighting appliance site access and/or access road with unobstructed vertical clearance of not less than 4.5 m.	R	R	R	R
		Gradient is not exceeding 1: 8.3 with the angle of approach and departure for any means of access road not exceeding 1m drop in 20m.	R	R	R	R
		The access road to sustain the stationary load of a 24-ton fire appliance.	R	R	R	R
		For residential building, building for institution, office, shop and places of public resort with habitable height not exceeding 10m; fire engine access road provided within a travel distance of 45m from every point on projected plan area of any building.	R	R	R	R
		For landed residential development with shared communal facilities, firefighting appliance access road maximum travel distance from the fire engine pump appliance to every point on the project plan area of any building within 60m.	NOT REQUIRED (NR)	NR	NR	NR
		Every part of the fire engine hardstanding and/or access road shall be within an unobstructed distance of 50m away from a fire hydrant	NOT APPLICABLE (NA)	NA	NA	NA
		The inner radius of turning facility for the fire engine hardstanding and access road shall be minimum 7.0M.	R	R	R	R
		Dead-end fire department access roads in excess of 46 m in length shall be provided with approved provisions for the fire apparatus to turn around.	R	R	R	R



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B	FIRE ENGINE HARDSTANDING Note: Refer to Annex A for the required length which is in term of the building perimeter length. Different building types have different requirements.	6m x 15m (minimum), with longer side parallel to the façade of the building and unobstructed vertical clearance of not less than 4.5 m.	REQUIRED (R ₁) in building >10m habitable height	REQUIRED (R)	R	R
		The hardstanding shall be able to withstand the stationary load of a 45-ton fire appliance.	R ₁	R	R	R
		For residential building exceeding the habitable height of 10m, fire engine hardstanding shall be within 18m of the breeching inlet.	R ₁	R	R	R
		Length* of fire engine hardstanding provided based on the gross floor area (including toilets, stores, circulation areas, etc.) of the largest floor of any building with habitable height exceeding 10m.	R ₁	R	R	R
		For factory (industrial) and storage (warehouse) requires hardstanding regardless of habitable height.	NOT REQUIRED (NR)	NR	NR	NR
		For factory and storage, the length* of hardstanding provided based on the gross cubic volume of the largest floor in the building.	NR	NR	NR	NR
		Every part of the fire engine hardstanding and/or access road within an unobstructed distance of 50m away from a fire hydrant	NOT APPLICABLE (NA)	NA	NA	NA
		Fire engine hardstanding positioned so that the nearer edge is not less than 2m or not more than 10m from the center position of the access opening, measured horizontally.	R ₁	R	R	R
		Fire engine hardstanding shall be laid on the level platform or if on an incline, the gradient shall not exceed 1:15.	R ₁	R	R	R
		Public road can serve as fire engine hardstanding provided the location of such public roads is in compliance with the requirements of distance from access opening.	R ₁	R	R	R
		Fire engine hardstanding and access road shall be kept clear of obstructions and other parts of the building, plants, trees or other fixtures shall not obstruct the path between the fire engine hardstanding and access opening.	R ₁	R	R	R



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B	FIRE ENGINE HARDSTANDING Note: Refer to Annex A for the required length which is in term of the building perimeter length. Different building types have different requirements.	All corners of the hardstanding shall be marked. Marking of corners shall be in contrasting color to the ground surfaces or finishes.	REQUIRED (R ₁) in building >10m habitable height	R	R	R
		Fire engine hardstanding provided on turfed area must be marked with contrasting object (preferably reflective) that is visible at night. The markings are to be at an interval not more than 2m apart and shall be provided on both sides of the fire engine hardstanding	R ₁	R	R	R
		Side post displaying the wordings 'Fire Engine Access – Keep Clear' shall be provided at the entrance of the fire engine hardstanding. Size of wordings shall not be less than 50mm.	R ₁	R	R	R
C	FIRE COMMAND CENTER (FCC)	Provisions in any building, in which the habitable height exceeds 28 meters (high-rise)	NOT REQUIRED (NR)	NR	NR	R
		Provisions in buildings other than high-rise buildings installed with Emergency Voice Communication System and/or Smoke Control System	REQUIRED (R)	R	R	R
		In other than high-rise Residential Buildings, instead of a dedicated fire rated fire (emergency) command center; lobbies or other spaces adjacent to the main entrance/s may be permitted.	PERMITTED (P)	P	P	NOT PERMITTED (NP)
		Fire Command Center shall be located adjacent to the fire lift lobby at the designated story of the building (i.e. the lobby of the building on the ground floor or immediately adjacent thereto)	REQUIRED (R ₂) when provided with FCC	R ₂	R ₂	R
		Provided with safe access from outside and provided with prominently marked exterior entrances.	R ₂	R ₂	R ₂	R
		Fire Command Center can be alternatively located at the logical main entrance where the fire response team will report if there is no fire lift in the building.	R ₂	R ₂	R ₂	R



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C	FIRE COMMAND CENTER (FCC)	Fire command center shall contain control and supervisory equipment/panels in accordance with NFPA 101 and the following:	REQUIRED (R ₂) when provided with FCC	R ₂	R ₂	R
		Main Fire Alarm Panel (MFAP)	R ₂	R ₂	R ₂	R
		Emergency voice communication control panel	R ₂	R ₂	R ₂	R
		Firefighters' smoke-control station (NFPA 92A)	R ₂	R ₂	R ₂	R
		Fire command center is adequately size to house all above-mentioned equipment and a free working space of at least 9m ² minimum area (least dimension 2.5m) with at least 1.0m unobstructed clearance from all equipment.	R ₂	R ₂	R ₂	R
		Provided with not less than 2 hours fire resistance enclosure or separation from other parts of the building	R ₂	R ₂	R ₂	R
		Services and equipment not serving the Fire Command Centre shall not pass through the center.	R ₂	R ₂	R ₂	R
D	FIRE LIFT / FIRE SERVICE ACCESS ELEVATORS	Provisions in any building, in which the habitable height exceeds 28 meters (high-rise)	REQUIRED (R ₃) - in every Fire Service Access Elevator/Lift Provisions	R ₃	R ₃	REQUIRED (R)
		The building basement/s is more than nine (9) meters below the average ground level (grade plane).	R ₃	R ₃	R ₃	R
		Fire service access elevators/lifts shall be contained within a separate protected shaft.	R ₃	R ₃	R ₃	R
		A lift/elevator mainly intended for the transport of goods shall not be designated as a fire service access elevators/lifts.	R ₃	R ₃	R ₃	R
		A minimum of two lifts/elevators each having a minimum 3500 lb. (1588 kg) capacity serving every story within the subject building shall be provided to serve as fire service access elevators/lifts.	R ₃	R ₃	R ₃	R



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D	FIRE LIFT / FIRE SERVICE ACCESS ELEVATORS	A minimum of one fire service access elevator/lift shall be sized in accordance with the requirements for Ambulance Stretcher Accommodation Elevator/Lift.	REQUIRED (R ₃) - in every Fire Service Access Elevator/Lift Provisions	R ₃	R ₃	R
		When required, a minimum of one fire service access elevator/lift shall be provided for every 900 sq. m. floor area.	R ₃	R ₃	R ₃	R
		Fire service access elevators/lift shall have access to every habitable floor above or below the designated floor.	R ₃	R ₃	R ₃	R
		Shall be adjacent and have direct access to an exit stair enclosure and approached by a firefighting lobby at each story.	R ₃	R ₃	R ₃	R
		A pictorial symbol of the standardized design designating which lift/elevator are fire service access elevators/LIFTS shall be installed on each side of the hoistway door frame on the portion of the frame at right angles to the firefighting lobby. Refer to Annex B for the Fire Lift/Fire Service Access Elevators Symbol.	R ₃	R ₃	R ₃	R
E	AMBULANCE STRETCHER ACCOMMODATION ELEVATORS / LIFT	In buildings with habitable height exceeding 18m., a minimum of one elevator/lift shall be provided for fire fighters emergency operation to all floors.	NOT REQUIRED (NR)	NR	REQUIRED (R)	R
		The lift/elevator car shall be sized and arranged to accommodate a 2 ft. × 6 ft. 4 in. (610 mm × 1930 mm) ambulance stretcher in the horizontal, open position.	NR	NR	R	R
		The elevator/lift car shall be identified by the international symbol for emergency medical services (Star of Life) located inside the car on both sides of the door frame. Refer to Annex B for the Ambulance Stretcher Accommodation Symbol.	NR	NR	R	R



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IV	MEANS OF EGRESS					
A	MEANS OF EGRESS GENERAL REQUIREMENTS	All provisions shall comply with NFPA 101 Life Safety Code, chapter 7.1 Means of Egress General Requirements	REQUIRED (R)	R	R	R
1	SEPARATION OF MEANS OF EGRESS	FRR*-Fire Resistance Rating	R	R	R	R
1.1	EXIT ACCESS CORRIDORS	Fire resistance rated separation	1-HR FRR*	1-HR FRR*	1-HR FRR*	1-HR FRR*
1.2	EXITS	Connects 3 or fewer stories	1-HR FRR*	NA	NA	NOT APPLICABLE (NA)
		Connects 4 or more stories	2-HRS FRR*	2-HRS FRR*	2-HRS FRR*	2-HRS FRR*
	OPENING PROTECTIVE	Openings in the separation shall be protected by fire door assemblies equipped with door closers	R	R	R	R
	CONSTRUCTION	Constructed of an assembly of noncombustible or limited-combustible materials	R	R	R	R
	OPENINGS IN EXIT ENCLOSURE	Shall be limited to door assemblies from normally occupied spaces and corridors and door assemblies for egress from the enclosure.	R	R	R	R
	PENETRATIONS IN EXIT ENCLOSURE	Penetrations into, and openings thru, an exit enclosure assembly shall be limited in accordance with NFPA 101. 7.1.3.2.1(10).	R	R	R	R
		Penetrations or communicating openings shall be prohibited between adjacent exit enclosures.	R	R	R	R
		Membrane penetrations shall be permitted on the exit access side of the exit enclosure and shall be protected in accordance with NFPA 101.8.3.5.6.	R	R	R	R
	EXIT ENCLOSURE	An exit enclosure shall provide a continuous protected path of travel to an exit discharge.	R	R	R	R
		An exit enclosure shall not be used for any purpose that has the potential to interfere with its use as an exit and, if so designated, as an area of refuge.	R	R	R	R



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2	HEADROOM	Not less than less than 7 ft. 6 in. (2285 mm), with projections from the ceiling not less than 6 ft. 8 in. (2030 mm) with a tolerance of -3/4 in. (-19 mm), above the finished floor	REQUIRED (R)	R	R	R
	HEADROOM ON STAIRS	Not less than 6 ft. 8 in. (2030 mm) and shall be measured vertically above a plane parallel to, and tangent with, the most forward projection of the stair tread.	R	R	R	R
3	WALKING SURFACES	Complying with chapter 7 NFPA 101	R	R	R	R
4	CHANGES IN ELEVATION	Abrupt changes in elevation of walking surfaces shall not exceed 1/4 in. (6.3 mm).	R	R	R	R
5	LEVEL	Walking surfaces shall be in accordance with NFPA 101.7.1.6.3 (1), (2) and (3).	R	R	R	R
6	SLIP RESISTANCE	Walking surfaces shall be slip resistant under foreseeable conditions.	R	R	R	R
		The walking surface of each element in the means of egress shall be uniformly slip resistant along the natural path of travel.	R	R	R	R
7	CHANGES IN LEVEL IN MEANS OF EGRESS	Shall be achieved by an approved means of egress where the elevation difference exceeds 21 in. (535 mm).	R	R	R	R
		Changes in level in means of egress not in excess of 21 in. (535 mm) shall be achieved either by a ramp complying with the requirements of NFPA 101.7.2.5 or by a stair complying with the requirements of NFPA 101.7.2.2.	R	R	R	R
8	GUARDS	Provided at the open sides of means of egress that exceed 30 in. (760 mm) above the floor or the finished ground level below.	R	R	R	R
9	IMPEDIMENT TO EGRESS	Any device or alarm installed to restrict the improper use of a means of egress shall be designed and installed so that it cannot, even in case of failure, impede or prevent emergency use of such means of egress.	R	R	R	R



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10	MEANS OF EGRESS RELIABILITY	Shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency.	REQUIRED (R)	R	R	R
11	FURNISHING AND DECORATION	No furnishings, decorations, or other objects shall obstruct exits or their access thereto, egress therefrom, or visibility thereof.	R	R	R	R
		Mirrors shall not be placed on exit door leaves. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of egress.	R	R	R	R
B	MEANS OF EGRESS COMPONENTS	All provisions shall comply with NFPA 101 Life safety Code chapter 7.2 Means of Egress Components	R	R	R	R
1	DOORS	A door assembly in a means of egress shall conform to the general requirements of Section NFPA 101.7.1 and to the special requirements of NFPA 101.7.2.1.	R	R	R	R
1.1	SIDE-HINGE OR PIVOTED-SWINGING TYPE	Door openings in means of egress shall be not less than 32 in. (810 mm) in clear width, except under any of the conditions enumerated in NFPA 101.72.1.2.3.2 (1) through (9).	R	R	R	R
1.2	HORIZONTAL SLIDING DOORS OR VERTICAL ROLLING GRILLES	permitted, complying with all the criteria in NFPA 101.7.2.1.4.1 (3)(a) thru (e), (4)(a) thru (d), (5) & (7) and 101.7.2.1.14	R	R	R	R
1.3	REVOLVING/ POWERED DOORS	Permitted complying with chapter 7 NFPA 101	R	R	R	R
1.4	DOOR LEAF SWING DIRECTION	Door leaves required to be of the side-hinged or pivoted-swinging type shall swing in the direction of egress travel.	R	R	R	R
		Where serving a room or area with an occupant load of 50 or more	R	R	R	R
		Where the door assembly is used in an exit enclosure, unless the door opening serves an individual living unit that opens directly into an exit enclosure	R	R	R	R
		Where the door opening serves a high hazard contents area.	R	R	R	R



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1.5	SELF-CLOSING DEVICES	<i>A door leaf normally required to be kept closed shall not be secured in the open position at any time and shall be self-closing or automatic-closing.</i>	REQUIRED (R)	R	R	R
1.6	LOCKS, LATCHES, AND ALARM DEVICES.	<i>Locks, if provided, shall not require the use of a key, a tool, or special knowledge or effort for operation from the egress side.</i>	R	R	R	R
2	STAIRS	<i>Stairs used as a component in the means of egress shall conform to the general requirements of NFPA 101.7.1 and to the special requirements of NFPA 101.7.2.2.</i>	R	R	R	R
2.1	STANDARD STAIRS					
	CLEAR WIDTH	<i>Fewer than 50 person</i>	915mm	915mm	915mm	915mm
		<i>Less than 2000 person</i>	1120mm	1120mm	1120mm	1120mm
		<i>Equal or more than 2000 person</i>	1420mm	1420mm	1420mm	1420mm
2.2	SPIRAL STAIRS	<i>Permitted as a component in a means of egress, provided that all of the criteria in NFPA 101 7.2.2.2.3.2 through 7.2.2.2.3.4 are met.</i>	NOT PERMITTED (NP)	NP	NP	NP
		<i>Permitted only within a dwelling unit</i>	PERMITTED (P)	P	P	P
2.3	CURVE STAIRS	<i>Permitted, provided that the depth of tread is not less than 11 in. (280 mm) at a point 12 in. (305 mm) from the narrower end of the tread and the smallest radius is not less than twice the stair width.</i>	P	P	P	P
2.4	WINDERS	<i>Permitted as a component in a means of egress, provided that the requirements in NFPA 101 7.2.2.2.4.2 and 7.2.2.2.4.3 are met.</i>	P	P	P	P
2.5	STAIR DETAILS					
	CONSTRUCTION	<i>All stairs serving as required means of egress shall be of permanent fixed construction of non-combustible or limited combustible materials.</i>	R	R	R	R
	LANDINGS	<i>Stairs shall have landings at door openings.</i>	R	R	R	R



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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
	TREAD AND LANDING SURFACES	Stair treads and landings shall be solid, without perforations, and shall be free of projections or lips that could trip stair users.	REQUIRED (R)	R	R	R
	TREAD AND LANDING SLOPE	Shall not exceed 1/4 in./ft. (21 mm/m) (a slope of 1 in 48).	R	R	R	R
	DIMENSIONAL UNIFORMITY	Variation in excess of 3/16 in. (4.8 mm) in the sizes of adjacent tread depths or in the height of adjacent risers shall be prohibited.	R	R	R	R
		The variation between the sizes of the largest and smallest riser or tread depths shall not exceed 3/8 in. (9.5 mm) in any flight.	R	R	R	R
2.10	GUARDS AND HANDRAILS	Complying with all NFPA 101.7.2.2.4 requirements.	R	R	R	R
	HANDRAILS	Stairs and ramps shall have handrails on both sides.	R	R	R	R
		For new stairs, handrails shall be provided within 30 in. (760 mm) of all portions of the required egress width.	R	R	R	R
	CONTINUITY	Required guards and handrails shall continue for the full length of each flight of stairs. At turns of stairs, inside handrails shall be continuous between flights at landings.	R	R	R	R
	PROJECTIONS	The design of guards and handrails and the hardware for attaching handrails to guards, balusters, or walls shall be such that there are no projections that might engage loose clothing.	R	R	R	R
		Openings in guards shall be designed to prevent loose clothing from becoming wedged in such openings.	R	R	R	R
	HANDRAILS DETAILS	Shall be in accordance with NFPA 101. 7.2.2.4.4	R	R	R	R
	GUARD DETAILS	The height of guards shall be measured vertically to the top of the guard from the surface adjacent thereto.	R	R	R	R
		Guards shall be not less than 42 in. (1065 mm) high.	R	R	R	R
		Open guards, shall have intermediate rails or an ornamental pattern such that a sphere 4 in. (100 mm) in diameter is not able to pass through any opening up to a height of 34 in. (865 mm).	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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B	MEDIUM-RISE APARTMENT BUILDINGS	TYPE A - MEDIUM-RISE APARTMENT BUILDINGS	> 15M TO ≤ 18M		> 500M ² - ≤ 1000M ²	
		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
2.11	ENCLOSURE AND PROTECTION OF STAIRS	Complying with all NFPA 101.7.2.2.5 requirements.	REQUIRED (R)	R	R	R
	ENCLOSURES	All inside stairs serving as an exit or exit component shall be enclosed.	R	R	R	R
		Doors FPR- Fire Protection Rating ≤3 storeys / ≥3 storeys	1-HR FPR	1.5-HR FPR	1.5-HR FPR	1.5-HR FPR
		Enclosures FRR - Fire Resistance Rating ≤3 storeys / ≥3 storeys	1-HR FRR	2-HRS FRR	2-HRS FRR	2-HRS FRR
	EXPOSURES	Fire resistance rating of walls and openings within 3050mm horizontally of an exterior stairway enclosure	1-HR FRR	1-HR FRR	1-HR FRR	1-HR FRR
	USEABLE SPACE	Enclosed, usable spaces within exit enclosures shall be prohibited, including under stairs.	NOT PERMITTED (NP)	NP	NP	NP
	STAIRWAY IDENTIFICATION	New enclosed stairs serving three or more stories and existing enclosed stairs serving five or more stories shall comply with NFPA 101.7.2.2.5.4.1(A) through 7.2.2.5.4.1(M).	R	R	R	R
	EXIT STAIR PATH MARKINGS	Where exit stair path markings are required in in all exit stair components, such markings shall be installed in accordance with NFPA 101.7.2.2.5.5.1 through 7.2.2.5.5.11.	R	R	R	R
	PERIMETER DEMARCATION MARKING	Stair landings, exit passageways, and other parts of the floor areas within the exit enclosure shall be provided with a solid and continuous perimeter demarcation marking stripe on the floor or on the walls or a combination of both.	R	R	R	R
	OBSTACLE	Shall be identified with markings not less than 1 in. (25 mm) in horizontal width comprised of a pattern of alternating equal bands of luminescent material and black; and with the alternating bands not more than 2 in. (51 mm) in horizontal width and angled at 45 degrees.	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
	DOORS SERVING EXIT ENCLOSURE	Shall be provided with a marking stripe on the top and sides of the door(s) frame(s).	REQUIRED (R)	R	R	R
	DOOR HARDWARE MARKING	Shall be provided with a marking stripe.	R	R	R	R
	EMERGENCY EXIT SYMBOL	An emergency exit symbol with a luminescent background shall be applied on all doors serving the exit enclosure that swing out from the enclosure in the direction of egress travel.	R	R	R	R
	UNIFORMITY	Placement and dimensions of the marking stripes shall be consistent and uniform throughout the same exit enclosure.	R	R	R	R
	RE-ENTRY PROVISIONS	Every door assembly in a stair enclosure serving more than four stories.	R	R	R	R
3	RAMPS	Every ramp used as a component in a means of egress shall conform to the general requirements of NFPA 101.7.1 and to the special requirements of NFPA 101.7.2.5.	R	R	R	R
		Provided as secondary exit for one (1) basement level only	PERMITTED (P)	P	P	P
3.1	DIMENSIONAL CRITERIA	Minimum clear width: 1120mm (44in.)	R	R	R	R
		Maximum slope: 1 in 12	R	R	R	R
		Maximum cross slope: 1 in 28	R	R	R	R
		Maximum rise for a single ramp run: 760mm (30in.)	R	R	R	R
4	ROOF ACCESS	Building equal or more than 4 storeys (g+3) or roofs 12m above grade plane	R	R	R	R
		Where open stair/s are permitted	NOT APPLICABLE (NA)	NA	NA	NA
		One at each 9300m ² roof area or flat roofs or roof pitch <3 in 12	R	R	R	R
	ROOF ACCESS COMPONENTS	Smoke vents (fixed wall opening/s) at the top of the stairwell with a minimum area of 1.5m ² .	R	R	NA	NA
		Stair access to roof installed with operable doors.	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
5	SMOKE PROOF ENCLOSURES	Smoke proof enclosure shall be continuously enclosed by barriers having a 2-hour fire resistance rating from the highest point to the level of exit discharge	REQUIRED (R)	R	R	R
5.1	STAIR ENCLOSURES	All inside stairs serving as an exit or exit component shall be enclosed.	R	R	R	R
		Open stair penetrating one (1) floor/level only	PERMITTED (P)	P	P	P
5.2	FIRE FIGHTING LOBBY (F/F LOBBY)	Fire lifts/fire service access elevators shall open into or served at each story by a fire fighting lobby.	R ₃	R ₃	R ₃	R
		Where a fire lift/fire service access elevator has two entrances onto a floor, the second entrance shall not be required to open into a firefighting lobby. As a compensatory measure, pressurization shall be provided to the lift/elevator shaft.	REQUIRED (R ₃) - in every Fire Service Access Elevator/Lift Provisions	R ₃	R ₃	R
		Enclosed fire fighting lobby shall not be required at the street floor or level of exit discharge.	P	P	P	P
	LOBBY DIMENSIONS	Firefighting Lobby floor area shall not be smaller than 6.0m ² and its least side dimension of not less than 2.0 meter clear width.	R ₃	R ₃	R ₃	R
5.3	SMOKE-STOP LOBBY (S/S LOBBY)	Provisions in any building, in which the habitable height exceeds 28 meters (high-rise)	NOT REQUIRED (NR)	NR	NR	R
		Provisions in any building, in which the basement level/s exceed 9.0m meters depth	R	R	R	R
		Building traverses more than five (5) floor levels including basement/s and belongs to a place of public resort (Assembly & Healthcare occupancy) regardless of the habitable height.	NOT APPLICABLE (NA)	NA	NA	NA
		Enclosed smoke-stop lobby shall not be required at the street floor or level of exit discharge.	P	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
	LOBBY DIMENSIONS	Smoke-stop Lobby floor area shall not be smaller than 3.0m ² and its least side dimension of not less than 1.8 meter clear width.	REQUIRED (R)	R	R	R
	ENCLOSURES AND OPENING PROTECTIVE	The firefighting and smoke-stop lobbies shall have minimum 2 hours fire resistance rating (1.5-hour doors as opening protective) and pressurized to minimum 10 air changes per hour.	R	R	R	R
6	HORIZONTAL EXITS	Horizontal exits shall be permitted to be substitute for other exits where the total egress capacity and the total number of the other exits (stairs, ramps, door openings leading outside the building) is not less than half that required for the entire area of the building or connected buildings, and provided that none of the other exits is a horizontal exit.	PERMITTED (P)	P	P	P
7	EXIT PASSAGEWAYS / CORRIDORS	If used as exit components shall conform to the requirements of NFPA 101.7.1 and to the special requirements of NFPA 101.7.2.6.	R	R	R	R
	ENCLOSURE	An exit passageway shall be separated from other parts of the building as specified in NFPA 101.7.1.3.2.	R	R	R	R
	WIDTH	The width of an exit passageway shall be sized to accommodate the aggregate required capacity of all exits that discharge thru it.	R	R	R	R
	STAIR DISCHARGE	An exit passageway that serves as a discharge from a stair enclosure shall have not less than the same fire resistance rating and opening protective fire protection rating as those required for the stair enclosure.	R	R	R	R
8	ESCALATORS & MOVING WALKS	Constitute a part of the required means of egress	NOT PERMITTED (NP)	NP	NP	NP
9	FIRE ESCAPE STAIRS	Shall comply with the provisions of NFPA 101. 7.2.8.	P	P	P	P
10	FIRE ESCAPE LADDERS	Fire escape ladders complying with NFPA 101.7.2.9.2 and 7.2.9.3 shall be permitted in the means of egress only in any of the provisions specified in NFPA 101.7.2.9.1.	P	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
11	SLIDE ESCAPES	An approved type slide escape shall be permitted as a component in a means of egress.	PERMITTED (P)	P	P	P
12	ALTERNATING TREAD DEVICES	Alternating tread devices complying with NFPA 101.7.2.11.2 shall be permitted in the means of egress only in any of the provisions specified in NFPA 101.7.2.11.1.	P	P	P	P
13	AREAS OF REFUGE	Areas of Refuge complying with NFPA 101.7.2.12	REQUIRED (R)	R	R	R
14	ELEVATORS	Constitute a part of the required means of egress	NOT PERMITTED (NP)	NP	NP	NP
		As second means of egress from a tower and complying with ASME A17.1/CSA B44	NOT APPLICABLE (NA)	NA	NA	NA
	ELEVATOR DOORS	Opening into exit enclosures	NP	NP	NP	NP
C	CAPACITY OF MEANS OF EGRESS	All provisions shall comply with NFPA 101 Life safety Code chapter 7.3 Capacity of Means of Egress	R	R	R	R
1	OCCUPANT LOAD	Determined on the basis of the occupant load factors of NFPA 101 Table 7.3.1.2 or shall be determined as the maximum probable population of the space under consideration, whichever is greater.	R	R	R	R
	OCCUPANT LOAD FACTOR	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 for that use.	18.6m ² /person	18.6m ² /person	18.6m ² /person	18.6m ² /person
2	EGRESS CAPACITY	Based on the capacity factors shown in NFPA 101 Table 7.3.3.1 and NFPA 101.7.3.3.2 .	R	R	R	R
D	NUMBER OF EXITS	All provisions shall comply with NFPA 101 Life safety Code chapter 7.3 Number of Means of Egress	R	R	R	R
1	SINGLE EXIT PROVISIONS	Serving all floor levels	PERMITTED (P ₁) complying with all conditions for Single Exit	P ₁	NP	NP
		In mezzanine or balcony where the common path of travel limitations are met.	P	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
1.1	SINGLE EXIT IN DWELLING UNITS	<i>In any section where the common path of travel limitations are met.</i>	PERMITTED (P)	P	P	P
		<i>Dwelling unit has an exit door opening directly to a street or yard at finished ground level.</i>	P	P	NA	NOT APPLICABLE (NA)
		<i>Dwelling unit has direct access to outside stair and serves a max. of 2 units both of which are located on the same floor level .</i>	P	P	NA	NA
		<i>Dwelling unit has direct access to an inside stair serving only that unit and separated from other parts of the building with 1-hr fire barriers</i>	P	P	NA	NA
1.2	CONDITIONS IN SINGLE EXIT PROVISIONS	1 <i>Gross floor area is equal or less than 500m² .</i>	REQUIRED (R)	R	NA	NA
		2 <i>Travel distance from the entrance door of any dwelling unit to an exit does not exceed 10.7m.</i>	R	R	NA	NA
		3 <i>Exit stairway is completely enclosed or separated from the rest of the building.</i>	R	R	R	NA
		4 <i>Stairway serve only 1 basement level.</i>	R	R	NA	NA
		5 <i>All openings between the exit enclosure and the building are protected with self-closing door assemblies of 1-hour fire protection rating.</i>	R	R	NA	NA
		6 <i>All corridors serving as access to exits have a minimum of 1-hour fire resistance rating.</i>	R	R	R	NA
		7 <i>Horizontal and vertical separation of 1.0-hr fire resistance rating is provided between dwelling units.</i>	R	R	R	NA
		8 <i>Provisions of smoke vents (fixed-wall opening/s) at the top of the stairwell with a minimum area of 1.5m².</i>	R	NA	NA	NA
		9 <i>Exit stair that traverses more than 5 stories including basements are pressurized.</i>	NOT APPLICABLE (NA)	R	R	R



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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
2	NOT LESS THAN 2 SEPARATE EXITS	On every story and accessible from every part of every story.	R	R	R	R
		50 - 500 occupants.	R	R	R	R
3	NOT LESS THAN 3 SEPARATE EXITS	Equal or more than 500 occupants	REQUIRED (R)	R	R	R
4	NOT LESS THAN 4 SEPARATE EXITS	Equal or more than 1000 occupants	R	R	R	R
E	ARRANGEMENT OF MEANS OF EGRESS	All provisions shall comply with NFPA 101 Life safety Code chapter 7.5 Arrangement of Means of Egress.	R	R	R	R
1	GENERAL REQUIREMENTS	Exits shall be located, and exit access shall be arranged, so that exits are readily accessible at all times.	R	R	R	R
		Where exits are not immediately accessible from an open floor area, continuous passageways, aisles, or corridors leading directly to every exit shall be maintained and shall be arranged to provide access for each occupant to not less than two exits by separate ways of travel.	R	R	R	R
		Exit access corridors shall provide access to not less than two approved exits.	R	R	R	R
		Corridors shall provide exit access without passing through any intervening rooms other than corridors, lobbies, and other spaces permitted to be open to the corridor.	R	R	R	R
1.1	REMOTENESS	Where more than one exit, exit access, or exit discharge is required from a building or portion thereof, such exits, exit accesses, or exit discharges shall be remotely located from each other and be arranged to minimize the possibility that more than one has the potential to be blocked by any one fire or other emergency condition.	R	R	R	R
1.2	MINIMUM SEPARATION BETWEEN EXITS, EXIT ACCESS OR EXIT DISCHARGE	Remotely located at a distance from one another not less than one-half the length of the maximum overall diagonal dimension of the building or area to be served.	R	R	R	NA



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
1.2	MINIMUM SEPARATION BETWEEN EXITS, EXIT ACCESS OR EXIT DISCHARGE	<i>Remotely located at a distance not less than one-third the length of the maximum overall diagonal dimension of the building or area to be served in buildings protected throughout by an automatic sprinkler system.</i>	NOT APPLICABLE (NA)	NA	NA	R
1.3	MEASUREMENT OF EXIT SEPARATION	<i>Measured in a straight line between the nearest edge of the exits, exit accesses, or exit discharges.</i>	REQUIRED (R)	R	R	R
		<i>Exit separation shall be measured along the shortest line of travel within the corridor in buildings other than high-rise buildings, where exit enclosures are provided as the required exits and are interconnected by not less than a 1-hour fire resistance-rated corridor.</i>	PERMITTED (P)	P	P	NA
2	IMPEDIMENTS TO EGRESS	<i>Access to an exit shall not be through kitchens, storerooms, restrooms, workrooms, closets, bedrooms or similar spaces, or other rooms or spaces subject to locking.</i>	R	R	R	R
		<i>Exit access and exit doors shall be designed and arranged to be clearly recognizable.</i>	R	R	R	R
		<i>Hangings or draperies shall not be placed over exit doors or located so that they conceal or obscure any exit.</i>	R	R	R	R
3	EXTERIOR WAYS OF EXIT	<i>Exit access shall be permitted to be by means of any exterior balcony, porch, gallery, or roof that conforms to the requirements of NFPA 101 chapter 7 Means of Egress.</i>	R	R	R	R
4	ACCESSIBLE MEANS OF EGRESS	<i>Areas accessible to people with severe mobility impairment, other than in existing buildings, shall have not less than two accessible means of egress.</i>	R	R	R	R
		<i>Where an exit stair is used in an accessible means of egress, it shall incorporate an area of refuge within an enlarged story-level landing or shall be accessed from an area of refuge.</i>	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

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C	HIGH-RISE APARTMENT BUILDINGS			> 28M			UNLIMITED AREA (UL)		
	Fire Safety Provisions	Minimum Requirements		LOW-RISE APARTMENT		MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT	
						TYPE A	TYPE B		
F	MEASUREMENT OF TRAVEL DISTANCE	All provisions shall comply with NFPA 101 Life safety Code chapter 7.6 Measurement Of Travel Distance		REQUIRED (R)		R	R	R	
		(NS-not sprinkler protected/ S-sprinkler protected)		NS	S	NS	S	NS	S
1	TRAVEL DISTANCE	In accordance with NFPA 101 Table A.7.6	Within dwelling unit to corridor door	23 m	38 m	23 m	38 m	23 m	38 m
			From a dwelling unit entrance door to the nearest exit	30 m	61 m	30 m	61 m	30 m	61 m
			From a dwelling unit entrance door to the nearest exit for exterior ways of exit access	61 m	61 m	61 m	61 m	61 m	61 m
			Areas other than those within living units to an exit	61 m	76 m	61 m	76 m	61 m	76 m
			Total travel distance from the remotest portion of the apartment to the nearest exit	53 m	99 m	53 m	99 m	53 m	99 m
2	COMMON PATH LIMIT	NFPA 101 Table A.7.6	Travel within a dwelling unit is not included when determining common path travel.	10.7 m	15 m	10.7 m	15 m	10.7 m	15 m
3	DEAD-END CORRIDOR	In accordance with NFPA 101 Table A.7.6		10.7 m	15 m	10.7m	10.7 m	15 m	10.7 m
G	EXIT DISCHARGE		All provisions shall comply with NFPA 101.7.7 Discharge from Exits.		R		R	R	R
1	EXIT TERMINATION	Exits shall terminate directly, at a public way or at an exterior exit discharge.		R		R	R	R	
		Yards, courts, open spaces, or other portions of the exit discharge shall be of the required width and size to provide all occupants with a safe access to a public way.		R		R	R	R	
2	EXIT DISCHARGE THRU INTERIOR BUILDING AREAS	Interior exit discharge within a maximum 10.7 meter travel distance to exit termination or the building external.		PERMITTED (P)		P	P	P	
		Discharge through interior building areas with not more than 50 percent of the required number of exits, and not more than 50 percent of the required egress capacity.		P		P	P	P	



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
H	ILLUMINATION OF MEANS OF EGRESS	Means of egress shall be illuminated in accordance with Section 7.8 NFPA 101 Life Safety Code.	REQUIRED (R)	R	R	R
I	EMERGENCY LIGHTING	Emergency lighting in accordance with Section 7.9 NFPA 101 Life Safety Code.	R	R	R	R
		Emergency lighting shall be provided in all buildings four or more stories in height, or with more than 12 dwelling units, unless every dwelling unit has a direct exit to the outside of the building at the finished ground level.	R	R	R	R
J	MARKINGS OF MEANS OF EGRESS	Means of egress shall have signs in accordance with Section 7.10 NFPA 101 Life Safety Code.	R	R	R	R
		Means of egress shall have signs in all buildings requiring more than one exit.	R	R	R	R
K	SPECIAL MEANS OF EGRESS PROVISIONS					
1	FIREMEN ACCESS PANELS	Provisions of fireman's access panels in every building exceeding the habitable height exceeding 10m.	R	R	R	R
		Access opening shall be spaced not more than 20m apart measured along the external wall from centre to centre of all access openings.	REQUIRED (R ₄) – in building with habitable height >10m.	R	R	R
		Access shall include unobstructed external wall openings, windows, balcony doors, glazed wall panels or access panels.	R ₄	R	R	R
		Windows, doors, wall panels or access panels must be readily operable from the inside and outside, unless fitted with breakable glazing.	R ₄	R	R	R
		The inside and outside of access openings shall be unobstructed at all times during the occupancy of the building.	R ₄	R	R	R



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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
1	FIREMEN ACCESS PANELS	An external wall which face the fire engine hardstanding and is windowless or a blank wall shall be provided with access opening at each storey.	REQUIRED (R ₄) – in building with habitable height >10m.	R	R	REQUIRED (R)
		Access opening shall be not less than 850mm wide by 1000mm high with sill height of not more than 1100mm and height not less than 1800mm above the inside floor level.	R ₄	R	R	R
		Panels to access openings shall be posted with either a red or orange triangle of equal sides (minimum 150mm on each side), which can be upright or inverted, on the external side of the wall and with wordings "Fire Fighting Access – Do Not Obstruct" of at least 25mm height on the internal side.	R ₄	R	R	R
		Buildings and construction regardless of occupancy except factory and storage, having a habitable height of 10m or less, shall be exempted from the requirement to provide access opening.	R ₄	R	R	R
2	REFUGE FLOORS	High-rise building (more than 30 stories) shall be provided with at least one refuge floor at an interval of not more than 20 stories.	NOT REQUIRED (NR)	NR	NR	REQUIRED (R ₅) High-rise building of more than 30 stories
2.1	CONSTRUCTION	Shall be of masonry construction having fire resistance rating not less than 2 hours.	NR	NR	NR	R ₅
2.2	SIZE AND OTHER USE OF THE REFUGE FLOOR/HOLDING AREA	At least 50% of the gross floor area of the refuge floor shall be designated as holding area.	NR	NR	NR	R ₅
		There shall be no commercial activities in the holding area.	NR	NR	NR	R ₅
2.3	SIZE OF THE HOLDING AREA	The size of the holding area shall be adequate to accommodate at least half the total occupant load of all stories above and below the refuge floor, basing on 0.3m ² per person.	NR	NR	NR	R ₅
2.4	SEPARATION/ENCLOSURES	The holding area shall be separated from other areas of the refuge floor by compartment wall having fire resistance rating not less than 2 hours.	NR	NR	NR	R ₅



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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
2	REFUGE FLOORS	Link of the holding area with other occupied rooms/areas shall be via an external corridor, or a smoke-stop lobby.	NOT REQUIRED (NR)	NR	NR	REQUIRED (R ₅) High-rise building of more than 30 stories
2.5	HOLDING AREA VENTILATION	The holding area shall be naturally ventilated with permanent openings on at least 2 sides of external walls. Height of opening shall not be less than 1200mm high and the total area of ventilation openings shall not be less than 25% of the floor area of the holding area.	NR	NR	NR	R ₅
		The holding area can also be mechanically ventilated or air-conditioned in the event of emergency.	NR	NR	NR	PERMITTED (P)
		The ventilation equipment shall be connected to secondary power supply via 2 hour fire resistance cable. The ventilation system shall be independent and shall not share with other areas.	NR	NR	NR	R ₅
2.6	PROTECTION	Sprinkler system shall be provided for the refuge floor.	NR	NR	NR	R ₅
2.7	ACCESS	Escape routes leading to the holding area shall be through smoke-stop/fire lobby or external corridor.	NR	NR	NR	R ₅
2.8	SIGNAGE/ MARKINGS AND EMERGENCY LIGHTINGS	A sign depicting "REFUGE FLOOR" shall be displayed inside the staircase and on wall immediately outside the staircase at the refuge floor. The sign of lettering size not less 50mm shall be displayed at a height of 1500mm above the landing/finished floor level.	NR	NR	NR	R ₅
		Emergency lighting shall be provided to cover all areas of the holding area. Such lighting shall be connected to secondary power supply, i.e. generator, battery, etc.	NR	NR	NR	R ₅
2.9	VOICE COMMUNICATION SYSTEM	Two-way voice communication system shall be provided at the firefighting lift lobby serving the refuge floor.	NR	NR	NR	R ₅
3	RESERVE.		-	-	-	-



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				TYPE A	TYPE B	
V	INTERIOR FINISH CONTENTS AND FURNISHING					
A	INTERIOR FINISH	In accordance with NFPA 101 Life Safety Code chapter 10.2.	REQUIRED (R)	R	R	R
1	INTERIOR WALL & CEILING FINISHES	Exit enclosures	CLASS A	CLASS A	CLASS A	CLASS A
		Lobbies and Corridors	CLASS A OR CLASS B	CLASS A OR B	CLASS A OR B	CLASS A OR CLASS B
		Other spaces	CLASS A, CLASS B OR CLASS C	CLASS A, B OR C	CLASS A, B OR C	CLASS A, CLASS B OR CLASS C
2	INTERIOR FLOOR FINISHES	Exit enclosures, exit access corridors and spaces not separated from them by walls complying with NFPA 101.30.3.6	CLASS II	CLASS II	CLASS II	CLASS II
VI	FEATURES OF FIRE PROTECTION		NFPA 5000 Tables 7.2.1.1, 7.3.2.1, 7.3.5 (a), (b), 7.3.5.5, 7.4.1			
A	CONSTRUCTION	In accordance with chap. 7 & 8 of NFPA 5000 Building Construction and Safety Code and chap. 8 of NFPA 101 Life Safety Code.	R	R	R	R
1	CONSTRUCTION (NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE MATERIALS)	Type I or Type II Construction	Exterior Bearing Walls	Hourly ratings required per type of construction based on NFPA 5000 height & area requirements	Hourly ratings required per type of construction based on NFPA 5000 height & area requirements	Hourly ratings required per type of construction based on NFPA 5000 height & area reqts.
			Framing, Columns, Beams, Girders, Trusses			
			Floor Construction			
B	SUBDIVISION OF BUILDING SPACES	Dwelling units shall be separated from each other by walls and floors having a minimum 1-hour fire resistance rating (FRR).	R	R	R	R
		In buildings protected throughout by sprinkler system, dwelling units shall be separated from each other by walls and floors constructed as fire barriers having a minimum 1/2-hour FRR.	NOT APPLICABLE (NA)	NA	NA	R
1	FIRE BARRIERS	Fire barriers used to provide enclosure, subdivision, or protection shall be in compliance with NFPA 101.8.3	R	R	R	R
2	SMOKE PARTITIONS	Complying with NFPA 101.8.4, smoke partitions shall be provided to limit the transfer of smoke.	R	R	R	R
3	SMOKE BARRIERS	Complying with NFPA 101.8.5, smoke barriers shall be provided to subdivide building spaces for the purpose of restricting the movement of smoke.	R	R	R	R



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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
	CORRIDORS WALLS	Exit access corridor walls shall consist of fire barriers that have not less than a 1-hour fire resistance rating (FRR).	REQUIRED (R)	R	R	R
		In buildings protected throughout by an automatic sprinkler system, corridor walls shall have a minimum 1/2-hour FRR.	R	R	R	R
	OPENING PROTECTIVE	Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other.	R	R	R	R
		The fire protection rating for opening protective in fire barriers, fire-rated smoke barriers, and fire-rated smoke partitions shall be in accordance with NFPA 101 Table 8.3.4.2.	R	R	R	R
	DOORS	Doors that open onto exit access corridors shall have not less than a 20-minute fire protection rating	R	R	R	R
		Doors that open onto exit access corridors shall be self-closing and self-latching.	R	R	R	R
	PENETRATIONS	Penetrations that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a fire stop system or device.	R	R	R	R
	JOINTS	Joints shall be protected with a smoke-tight joint system that is capable of limiting the transfer of smoke and/or a joint system that is designed and tested to prevent the spread of fire for a time period equal to that of the assembly in which the joint is located.	R	R	R	R
	EXTERIOR CURTAIN WALLS AND PERIMETER JOINTS	Voids created between the fire resistance-rated floor assembly and the exterior curtain wall shall be protected with a perimeter joint system that is designed and tested in accordance with ASTM E 2307.	R	R	R	R
		The perimeter joint system shall have an F rating equal to the fire resistance rating of the floor assembly.	R	R	R	R



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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
C	VERTICAL OPENINGS	<i>In accordance with NFPA 101.8.6 requirements</i>	PERMITTED (P)	P	P	P
1	FLOOR SMOKE BARRIERS	<i>Every floor that separates stories in a building shall be constructed as a smoke barrier.</i>	REQUIRED (R)	R	R	R
2	VERTICAL OPENINGS CONTINUITY	<i>Shall be enclosed with fire barrier walls, shall be continuous from floor to floor, or floor to roof, and shall be protected as appropriate for the fire resistance rating of the barrier.</i>	R	R	R	R
3	SHAFTS	<i>Openings through floors shall be enclosed at the lowest or highest level of the shaft, with construction in accordance with the required fire resistance rating</i>	R	R	R	R
	REQUIRED FIRE RESISTANCE RATING	<i>Enclosures connecting four or more stories in new construction</i>	2-hour fire barriers	2-hr FRR	2-hr FRR	2-hr FRR
		<i>Other enclosures in new construction</i>	1-hour fire barriers	1-hr FRR	1-hr FRR	1-hr FRR
		<i>In new apartment buildings protected throughout by sprinkler system.</i>	1-hr FRR	1-hr FRR	1-hr FRR	1-hr FRR
		<i>Wall Enclosures</i>	1-hr FRR	1-hr FRR	1-hr FRR	1-hr FRR
		<i>Doors</i>	1-hr fire protection rating (FRR)	1-hr FRR	1-hr FRR	1-hr FRR
4	COMMUNICATING SPACES	<i>Unenclosed floor openings forming a communicating space between floor levels in accordance with NFPA 101.8.6.6</i>	PERMITTED (P)	P	P	P
5	ATRIUMS	<i>Atriums in accordance with NFPA 101.8.6.7</i>	P	P	P	P
6	CONVENIENCE OPENINGS	<i>Unenclosed vertical openings not concealed within the building construction in accordance with NFPA 101.8.6.10</i>	P	P	P	P
7	MEZZANINES	<i>Aggregate area shall not exceed one-third the open area of the room in which the mezzanines are located. See NFPA 101.8.6.11</i>	P	P	P	P
8	CONCEALED SPACES & DRAFSTOPS	<i>Protection in accordance with NFPA 101.8.6.12</i>	REQUIRED (R)	R	R	R
D	SPECIAL HAZARD PROTECTION	<i>Protection in accordance with NFPA 101.8.7</i>	R	R	R	R
1	AREAS REQUIRING SPECIAL HAZARD PROTECTION	<i>Include, but are not limited to, areas such as those used for storage of combustibles or flammables, areas housing heat-producing appliances, or areas used for maintenance purposes.</i>	R	R	R	R



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VII	FIRE PROTECTION					
A	DETECTION ALARM AND COMMUNICATION SYSTEMS	<i>In accordance with NFPA 70 National Electrical Code and NFPA 72 Fire Alarm Code</i>	REQUIRED (R)	R	R	R
1	FIRE ALARM SYSTEM	<i>Includes requirements for carbon monoxide alarms & carbon monoxide detection system as per NFPA 101 2012 and NFPA 72.</i>	R	R	R	R
1.1	FIRE ALARM CONTROL PANEL/UNIT	<i>Automatic - consist of detectors, manual call points/station, audible/visible devices and interface modules/relays for other building emergency/safety utilities.</i>	R	R	R	R
		<i>Manual - consist of manual call points and audible/visible devices.</i>	NOT APPLICABLE (NA)	NA	NA	NA
1.2	AUTOMATIC FIRE DETECTORS	<i>Smoke detectors shall be installed in all areas, rooms and spaces.</i>	R	R	R	R
		<i>Heat detectors shall be installed where smoke detector to the hazard area being protected will be ineffective.</i>	R	R	R	R
		<i>Other types of detection or combination thereof suitable to detect/protect the hazard area (gas, substation, electrical rooms etc.)</i>	R	R	R	R
1.3	ZONE CHART	<i>Fire Evacuation Plan shall be installed in each floor on common lobby</i>	R	R	R	R
		<i>Fire Zone Chart showing all floor layouts shall be installed beside the panel/s</i>	R	R	NA	NA
1.4	GRAPHIC ANNUNCIATION / MIMIC PANEL	<i>Graphic Annunciation/Mimic Panel showing each floor layout and each specific alarm devices by led(light emitting diode) and installed beside the main fire alarm control panel/unit .</i>	NOT REQUIRED (NR)	NR	NA	NA
		<i>Fire panel with CPU based equipment accessories (LCD monitor, computer, printer) that can determine the specific location of any activated alarm devices in lieu of mimic panel.</i>	NA	NA	PERMITTED	PERMITTED
1.5	EMERGENCY COMMUNICATION SYSTEM	<i>Emergency Alarm/Voice Communication System (EVACS)</i>	NR	NR	R	R
		<i>Mass Notification System (MNS)</i>	NR	NR	R	R



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B	EXTINGUISHING REQUIREMENTS	In accordance with NFPA 10, 13, 14, 20, 22, applicable NFPA standards for the installation of other than water fixed extinguishing systems.	REQUIRED (R)	R	R	R
1	PORTABLE FIRE EXTINGUISHERS	Throughout provisions with type and rating in accordance with NFPA 10	R	R	R	R
2	FIRE BLANKETS	Provisions in kitchen and/or pantry	R	R	R	R
3	STANDPIPE SYSTEM	Buildings has a habitable height (HH) of more than 9.0 meters	NOT REQUIRED <9m. HH	R	R	R
		Dry standpipe with 65mm diameter landing valves on all levels for highest habitable height exceeding 9m up to 28m	R	R	R	R
		Wet standpipe with 65mm diameter landing valves on all levels for highest habitable height exceeding 28m	NR	NR	NR	R
4	FIRE HOSE REELS	25mm x 30m hard rubber or synthetic base material-approved type for occupants use; with minimum supply riser of 65mm diameter to serve maximum 4 units per floor (if not protected throughout with automatic sprinkler system); permitted to be connected in the cross main of a sprinkler system.	NR	R	R	R
5	AUTOMATIC SPRINKLER SYSTEM	Protected throughout by an approved, supervised automatic sprinkler system in accordance with NFPA 13	NR	NR	NR	R
		Provided in concealed spaces	NR	NR	NR	R
		One basement level used as Car park and with fire area exceeding 1115m ² .	R	R	R	R
		One basement level used as mixed occupancy regardless of fire area (m ²).	R	R	R	R
		More than one basement level regardless of fire area(m ²).	R	R	R	R
6	OTHER EXTINGUISHING EQUIPMENT	In accordance with applicable NFPA standards for the installation of other than water fixed extinguishing systems.	PERMITTED (P)	P	P	P



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VIII	BUILDING SERVICES PROTECTION					
A	BUILDING UTILITIES	<i>In accordance with NFPA 101 Life Safety Code chapter 9 and other relevant NFPA Codes and Standards.</i>	REQUIRED (R)	R	R	R
1	GAS EQUIPMENT & RELATED PIPINGS	<i>Installation and Protection in accordance with NFPA 54 National Fuel Gas Code and NFPA 58 Liquefied Petroleum Gas Code.</i>	R	R	R	R
2	ELECTRICAL SYSTEMS	<i>In accordance with NFPA 70 National Electrical Code</i>	R	R	R	R
	ELECTRICAL EQUIPMENT ROOMS	<i>Required protection of an automatic suppression system (ASS) or 2-hrs fire resistance rated (FRR) enclosures.</i>	R	R	R	R
3	SUBSTATIONS AND SWITCHGEARS	<i>In accordance with NFPA 70 National Electrical Code</i>	R	R	R	R
3.1	STAND-ALONE CONSTRUCTION	<i>Minimum 3m separation from occupied buildings.</i>	R	R	R	R
	EGRESS	<i>Where these are single story below ground and the escape distances comply with the code, fixed fire extinguishing system will not be required.</i>	PERMITTED (P)	P	P	P
		<i>Where escape distances exceed the requirements from non-sprinkler protected occupancies, sprinklers shall be provided.</i>	R	R	R	R
	AUTOMATIC SUPPRESSION SYSTEMS	<i>Where water would be ineffective or the possibility that water could exacerbate the situation or water damage could be significant, alternative protection using environment friendly clean agent would be acceptable.</i>	P	P	P	P
		<i>CO₂ total flooding systems will not be accepted in cable basements under any circumstances.</i>	NOT PERMITTED (NP)	NP	NP	NP
		<i>Fire extinguishing systems where required by NFPA 101 shall be permitted to be replaced by environment friendly clean agent systems.</i>	P	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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B	MEDIUM-RISE APARTMENT BUILDINGS	TYPE A - MEDIUM-RISE APARTMENT BUILDINGS	> 15M TO ≤ 18M		> 500M ² - ≤ 1000M ²	
		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
	FIRE DETECTION AND ALARM	<i>The entire construction shall be fitted with automatic smoke and heat detectors and manual call points.</i>	REQUIRED (R)	R	R	R
	MFAP LOCATION/S	<i>At the main guardhouse where the guardhouse is a separate structure and located at the entrance to the property.</i>	PERMITTED (P)	P	P	P
		<i>In the main entrance lobby of the building provided it is fire protected.</i>	P	P	P	P
		<i>External to the main entrance of the building and suitably protected from the elements.</i>	P	P	P	P
3.2	ATTACHED TO BUILDINGS	<i>Substations and Switchgear Rooms Attached to Occupied Buildings</i>				
	FIRE PROTECTION	<i>Provision for automatic extinguishing system (ASS) and 2-hrs fire resistance rated (FRR) enclosures.</i>	R	R	R	R
		<i>The fire extinguishing requirements of NFPA 101 that apply for the building shall also apply to these substations and switchgears.</i>	R	R	R	R
		<i>Where the introduction of water would present additional hazards such as electrocution, environment friendly clean agent systems shall be allowed to substitute for sprinklers systems.</i>	R	R	R	R
	OMISSION OF AUTOMATIC FIRE EXTINGUISHING SYSTEM	<i>The room is dedicated to electrical equipment only.</i>	R	R	R	R
		<i>Only dry-type electrical equipment is used.</i>	R	R	R	R
		<i>The equipment is fully enclosed within a 3 hour minimum fire rated enclosure including protections for penetrations.</i>	R	R	R	R
		<i>No combustible storage is permitted in the room.</i>	R	R	R	R
		<i>Appropriate fire detection system is provided and monitored by the main fire alarm system.</i>	R	R	R	R
3.3	EXPLOSION PROTECTION	<i>Automatic Suppression System and 2-hours fire resistance rated enclosure</i>	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

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		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
4	COMMERCIAL COOKING EQUIPMENT	<i>In accordance with NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations</i>	NOT APPLICABLE (NA)	NA	NA	NA
4.1	KITCHEN/PANTRY	<i>Fire resistance rated (FRR) enclosures.</i>	NOT REQUIRED (NR)	NR	NR	NR
4.2	COOKING EQUIPMENT	<i>Equipment used only for food warming.</i>	NOT APPLICABLE (NA)	NA	NA	NA
5	ELEVATORS, ESCALATORS & CONVEYORS	<i>In accordance with ASME a17.1/CSA b44 Safety Code for Elevators and Escalators.</i>	REQUIRED (R)	R	R	R
6	FIRE FIGHTERS' EMERGENCY OPERATION	<i>In accordance with chapter 9 NFPA 101 Life Safety Code and ASME a17.1/CSA b44 Safety Code for Elevators and Escalators.</i>	NOT REQUIRED (NR)	NR	R	R
B	RUBBISH CHUTE, INCINERATORS & LAUNDRY CHUTES	<i>In accordance with NFPA 82 Standard on Incinerators and Waste and Linen Handling Systems and Equipment.</i>	R	R	R	R
1	ENCLOSURES REQUIRED FIRE RESISTANCE RATING (FRR)	<i>Equal or more than 3 storeys</i>	<i>1-hour FRR / 1-hour FRR</i>	<i>NA/NA</i>	<i>NA/NA</i>	<i>NA/NA</i>
		<i>Traverses more than 3 storeys</i>	<i>2-hours FRR / 1.5-hour FRR</i>	<i>2-hrs / 1.5-hr</i>	<i>2-hrs / 1.5-hr</i>	<i>2-hours FRR / 1.5-hour FRR</i>
C	EMERGENCY POWER SUPPLY SYSTEM (EPSS)	<i>In accordance with NFPA 110 Standards for Emergency & Stand-by Generator</i>	NR	R	R	R
1	GENERATORS	<i>Enclosures required fire resistance rating (FRR)</i>	NA	1-hour FRR	1-hour FRR	1-hour FRR
2	OTHER TYPES OF EPSS	<i>UPS / Direct KAHRAMAA Power Supply*</i>	PERMITTED (P)	P	P	P
D	FIRE PUMP ROOM	<i>In accordance with NFPA 20 Standard for the Installation of Stationary Fire Pumps for Fire Protection.</i>	REQUIRED	R	R	R
1	ENCLOSURES REQUIRED FIRE RESISTANCE RATING (FRR)	<i>More than 15.3 m from any building</i>	<i>1-hour FRR</i>	<i>1-hour FRR</i>	<i>1-hour FRR</i>	<i>1-hour FRR</i>
		<i>Within 15.3m or attached to occupied buildings</i>	<i>2-hours FRR</i>	<i>2-hours FRR</i>	<i>2-hours FRR</i>	<i>2-hours FRR</i>
		<i>Protected throughout with sprinkler (building/s & pump room)</i>	NA	NA	NA	1-hour FRR
2	SAFE ACCESS	<i>Direct to external access within the level of discharge</i>	R	R	R	R
		<i>Located within a travel of 3m from any exit that complies with direct discharge requirements.</i>	P	P	P	P
3	LOCATION	<i>Maximum of one basement level below the level of exit discharge</i>	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
4	ACCESS COMPONENT (UNDERGROUND LOCATION)	Standard Stair Type (of any non-combustible material)	R	R	R	R
		Cat Steel Ladder	NOT PERMITTED (NP)	NP	NP	NP
5	WORKING AREA / ROOM SIZE REQUIREMENTS	For supplying the fire hose reel system only, room area (50-100gpm) shall be no less than 8m ² where the shortest side (width) shall be more than 2m and working clearance of 0.8m between the wall and equipment.	REQUIRED (R)	R	NA	NA
		For supplying the combination fire hose reel and automatic fire sprinkler system only, room area (300-400gpm) shall be no less than 20m ² where the shortest side (width) shall be more than 3m and working clearance of 0.8m between the wall and equipment.	NOT APPLICABLE (NA)	NA	R	NA
		For supplying the combination wet landing valve, fire hose reel and automatic fire sprinkler system only, room area (500-1,000gpm) shall be no less than 30m ² where the shortest side (width) shall be more than 4m and working clearance of 0.8m between the wall and equipment.	NA	NA	NA	R
5	FIRE PUMP SETS	Minimum 50gpm capacity (non-listed) supplying only fire hose reel.	REQUIRED (R)	R	R	NA
		Minimum 300gpm capacity (listed) range supplying combination fire hose & automatic sprinklers (BSMTS only).	R	R	NA	NA
		Minimum 500gpm capacity (listed) range supplying wet landing valve, fire hose reel and automatic fire sprinklers.	NA	NA	R	-
		Minimum 750gpm capacity (listed) range supplying wet landing valve, fire hose reel and automatic fire sprinklers	NA	NA	NA	R
E	FIRE WATER STORAGE TANKS	NFPA 22 Standard for Water Tanks for Private Fire Protection.	NOT REQUIRED (NR)	R	R	R
1	WATER TANK MATERIALS	Non-combustible or limited combustible materials.	NOT APPLICABLE (NA)	REQUIRED (R)	R	R
		GRP-type Tank/s (within 1-hr fire rated enclosure).	NA	PERMITTED (P)	P	P
2	DESIGN/COMPARTMENTATION	Two (2) compartments complete with accessories.	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
3	FIRE WATER STORAGE TANKS DURATION OF SUPPLY	For supplying the fire hose reel system only, duration shall be 30 minutes relative to the selected fire pump capacity minimum 50gpm, permitted to be single compartment.	REQUIRED (R)	R	NA	NA
		For supplying combination fire hose reel and automatic fire sprinklers (basement/s only), duration shall be 60 minutes relative to the selected fire pump capacity minimum 300gpm)	R	R	R	NA
		For supplying combination wet landing valves, fire hose reel and automatic fire sprinklers (basement/s only), duration shall be 60 minutes relative to the selected fire pump capacity (minimum 500gpm)	NOT APPLICABLE (NA)	NA	NA	R
IX	AIRCONDITIONING, VENTILATION AND SMOKE CONTROL SYSTEM					
A	SMOKE CONTROL / EMERGENCY VENTILATION	NFPA 92, 90A, 90B, 88A and this Standard/Guide (Requirements of this standard/guide shall be upheld in case of conflict with NFPA Codes and Standards)	NOT REQUIRED (NR)	R	R	R
1	VENTILATION BY ANY OF THE FF: i. NATURAL VENTILATION; ii. MECHANICAL VENTILATION BY POSITIVE PRESSURE (PRESSURIZATION) SYSTEM	Exit Staircases connects more than five (5) storeys (levels) including basement/s	NA	R	R	R
		and/or when Smoke-stop &/or Fire Fighting Lobbies are required.	NA	NA	NA	R
2	VENTILATION / SMOKE CONTROL SYSTEM BY ANY OF THE FF: i. NATURAL VENTILATION; ii. MECHANICAL VENTILATION & SMOKE CONTROL SYSTEM	Basement level/s with fire area exceeding 500sq.m.	NA	R	R	R
		Vertical openings, atriums & other large volume of spaces	R	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
3	EXIT STAIRCASES	Ventilation Requirements.	NOT REQUIRED (NR)	R	R	R
3.1	MECHANICAL VENTILATION ALTERNATIVE	Minimum design Δp between stairwell and smoke zone : as = 12.5 pa (0.05 in. w.g.); ns = 25 pa (0.1 in. w.g.)	NR	R	R	R
		Minimum 1 m/s airflow velocity across open doors and Δp of not lower than 12.5 pa (0.05 in. w.g.) across other closed doors and smoke zone. * allowance for three (3) doors open required for high rise buildings. *allowance for two (2) doors open permitted for non-high rise building.	NR	R	R	R
		Maximum Δp between stairwell and smoke zone determined by the required door opening force which shall not exceed 110N	NR	R	R	R
		Single injection system permitted in non-high rise building or 30.5 m (100 ft) total stairwell shaft height including basements or below ground levels; Otherwise multiple injection system with injection points distributed at an interval of three (3) floor levels or 11 m, whichever is the least.	NR	R	R	R
		Pressurization air supply intakes located at least 5 m away from building exhausts; minimum 1 m below building exhausts where oriented vertically.	NR	R	R	R
		Acceptable means for controlling pressure in the stairwell shall be provided	NR	R	R	R
3.2	NATURAL VENTILATION ALTERNATIVE	Exit staircases accessed via open and externally located vestibule/lobby.	NR	PERMITTED (P)	P	P
		Exit staircases accessed via vestibule/lobby having a minimum net area of 1.5 sq. m (16 sq. ft) opening in a wall facing an outer court yard or public way that is at least 6.1 m (20 ft) wide.	NR	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
3.2	EXIT STAIRCASES NATURAL VENTILATION ALTERNATIVE	Exit staircases with fixed or automatic ventilation opening of not less than 50% of the total wall area at each floor/storey level in exit staircases located along perimeter walls of the building facing outer court yard or public way that is at least 6.1 m (20 ft) wide	NOT REQUIRED (NR)	PERMITTED (P)	P	P
		Exit staircases with fixed or automatic ventilation openings of not less than 50% of the total wall area at each floor/storey level abutting an air/light well that is open to the sky having minimum clear width of 10m. N.B. Permitted for exit staircases in non-high-rise building that connects up to one level below the level of exit discharge.	NR	P	NOT PERMITTED (NP)	NP
		Exit staircases with fixed or automatic ventilation openings (Smoke Vents) at the top of the air well shafts with a minimum area of 1.5m ² . N.B. Permitted for exit staircases in Type A Medium-rise Buildings, that connects up to one level below the level of exit discharge.	REQUIRED (R)	P	NOT PERMITTED (NP)	NP
4	SMOKE-STOP AND FIRE FIGHTING LOBBIES	Ventilation Requirements.	NR	R	R	R
4.1	MECHANICAL VENTILATION ALTERNATIVE	Positive ventilation (supply mode only) at the rate of 10ACH (air change per hour).	NR	R	R	R
4.2	NATURAL VENTILATION ALTERNATIVE	Open and externally located lobby.	PERMITTED (P)	P	P	P
		Lobbies having openings on external wall meeting the following conditions:	P	P	P	P
		1-Minimum net area of 1.5sq.m. (16sq.ft.) or 15% of the floor area of the lobby, whichever is greater.	P	P	P	P
		2-Openings are located as near as practicable to the ceiling and the top of the opening is 1.8 m (6 ft) or more above the level of the floor of the lobby.	P	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
4.2	SMOKE-STOP AND FIRE FIGHTING LOBBIES NATURAL VENTILATION ALTERNATIVE	3-Openings are facing an outer court, yard or public way that is at least 6.1 m (20 ft) wide (3.1 when facing an air/light well, the well is totally open to the sky and have an area of not less than 1 sq. m/m height of enclosing well. N.B. Permitted in non-high-rise building and the air/light well starts from one level below the level of exit discharge.	PERMITTED (P)	P	P	P
		Lobbies below ground level may be ventilated through unobstructed openings having a minimum net cross section area of 25% of the floor area of the lobby provided at the ceiling of the lobby and discharging directly to external of the building N.B. Permitted for up to three (3) floor levels or 9 m below ground, whichever is the least, and the exit staircase being served not connecting upper floor levels and is open to external.	P	P	P	P
5	SMOKE CONTROLLED ZONES (SPACES PROTECTED UNDER ZONED SMOKE CONTROL PRINCIPLE)	Ventilation Requirements.	REQUIRED (R ₆) where provided	R ₆	R ₆	R ₆
		Minimum Δp across a smoke barrier in fully sprinklered building = 12.5 pa (0.05 in. w.g.).	R ₆	R ₆	R ₆	R ₆
		In non-sprinklered and other than fully sprinklered building, Δp equivalent to two times the calculated maximum Δp that can be produced by the fire.	R ₆	R ₆	R ₆	R ₆
		Maximum Δp across a smoke barrier determined by the required door opening force which shall not exceed 110 N.	R ₆	R ₆	R ₆	R ₆
6	CAR PARKS	Ventilation Requirements.				
6.1	MECHANICAL VENTILATION ALTERNATIVE	SHEVS (Smoke and Heat Exhaust Ventilation System) providing a minimum 6 ach under normal ventilation mode and 10 ach during fire mode.	NOT REQUIRED (NR)	P	P	P
		Make up air flow rate preferably at 85% of exhaust flow rate.	NR	P	P	P



RESIDENTIAL APARTMENT BUILDINGS

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	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
6.1	CAR PARKS MECHANICAL VENTILATION ALTERNATIVE	High and low level extraction points in ducted system; with low level extraction points constituting at least 50% of the required extraction and no portion on the floor farther than 12 m to an extraction point	NOT REQUIRED (NR)	PERMITTED (P)	P	P
		Exhausts ducts of minimum 1.2 mm thickness and 2-hrs protection rating	NR	P	P	P
		Car park ventilation system employing thrust fans confirmed through performance based analysis and use of CFD Fire Modeling	NR	P	P	P
		Acceptance criteria for ventilation system employing thrust fans: at 1.8 m above floor level and within 10 m radius location of the design fire, attains the following: - minimum 10 m visibility upstream of the fire - temperature of smoke layer not exceeding 60 °c	NR	P	P	P
		Minimum design fire size of 4 mw (2m x 5m) for car parks protected with automatic sprinklers system; 8 mw (5m x 5m) for non-sprinklered car parks.	NR	P	P	P
6.2	CAR PARKS NATURAL VENTILATION ALTERNATIVE	Fixed openings that is 40% of total enclosure area in at least two opposing walls	NR	P	P	P
6.3	USE OF SMOKE VENTS	Permitted in below ground enclosed car parks whose aggregate floor area does not exceed 1000 sq. m and connects two (2) floor levels only	REQUIRED (R)	R	NP	NOT PERMITTED (NP)
		Aggregate number and sizes of vents equivalent to not less than 2.5% of the floor being served, with no vent smaller than 0.6 m diameter or width	R	R	NP	NP
		Vents distributed along perimeter, on side or ceilings of the car park, with no portion on the floor farther than 12 m to a vent	R	R	NP	NP
		Separate vent provided for each floor level	R	R	NP	NP



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

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C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
6.3	USE OF SMOKE VENTS	Smoke vents which are kept closed during normal or non-fire condition designed to operate automatically.	REQUIRED (R)	R	NP	NOT PERMITTED (NP)
		In car park provided with supervised automatic sprinklers, provision of smoke vents designed such that it does not affect sprinkler activation.	R	R	NP	NP
7	ATRIUMS AND OTHER LARGE SPACES	Designed in accordance with NFPA 90 and other QCD recognized standards provided for atrium or similar communicating spaces that connects more than three (3) floor levels.	REQUIRED (R ₇) WHERE PROVIDED	R ₇	R ₇	R ₇
		Designed in accordance with NFPA 90 and other QCD recognized standards provided to any compartment in the building with floor area of more than 1000 sq. m.	R ₇	R ₇	R ₇	R ₇
8	FIRE PUMP ROOM	Positive ventilation with fresh air and exhausts directly obtained from external.	R ₇	R	R	R
		Minimum 6 ACH for normal condition and 10 ach during fire condition.	R ₇	R	R	R
		Means for controlling temperature of the room provided.	R ₇	R	R	R
9	GENERATOR ROOM	Positive ventilation with fresh air and exhausts directly obtained from external.	R ₇	R	R	R
		Minimum 6 ACH for normal condition and 10 ach during fire condition.	R ₇	R	R	R
		Means for controlling temperature of the room provided.	R ₇	R	R	R
10	FIRE FIGHTERS' SMOKE CONTROL STATION (FSCS)	Located in the fire command center/control room or other location acceptable to QCD.	NOT REQUIRED (NR)	R	R	REQUIRED (R)
		Positive ventilation.	NR	R	R	R
		Means for controlling temperature of the room/equipment provided.	NR	R	R	R



RESIDENTIAL APARTMENT BUILDINGS

FIRE PREVENTION DEPARTMENT GENERAL DIRECTORATE OF CIVIL DEFENCE MINISTRY OF INTERIOR, STATE OF QATAR

FIRE AND LIFE SAFETY GENERAL REQUIREMENTS

I	APPLICATIONS		RESIDENTIAL APARTMENTS: Residential Occupancy containing three or more dwelling units with independent bathroom and cooking facilities.			
II	OCCUPANCY CLASSIFICATION**		Building Height Requirements		Building Area Requirements	
A	LOW-RISE APARTMENT BUILDINGS		≤ 15M		≤ 500M ²	
B	MEDIUM-RISE APARTMENT BUILDINGS	TYPE A - MEDIUM-RISE APARTMENT BUILDINGS	> 15M TO ≤ 18M		> 500M ² - ≤ 1000M ²	
		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
11	SMOKE CONTROL FAN PANELS	<i>Provides control capability over equipment of the smoke control system :</i>	NOT REQUIRED (NR)	R	R	REQUIRED (R)
		<i>a. On-auto-off control over individual equipment of the smoke control system that is permitted to or can also be controlled from other sources in the building</i>	NR	R	R	R
		<i>b. Open-auto-close control over individual dampers relating to smoke control system that is permitted to or can also be controlled from other sources in the building</i>	NR	R	R	R
		<i>c. On-off or open-close or start-stop control over smoke control system and other critical equipment associated with fire or smoke emergency and that can only be controlled from the FSCS/panel</i>	NR	R	R	R
		<i>Switch for manual activation/deactivation or override control of the smoke control system of rotary selector type</i>	NR	R	R	R
12	EQUIPMENT	<i>Equipment such as but not limited to, fans, fire dampers, fire-smoke dampers, smoke dampers, ducts shall be suitable for its intended use and approved by QCD</i>	REQUIRED (R ₇) WHERE PROVIDED	R	R	R
13	DETECTION, CONTROL AND ACTIVATION	<i>Fire detection systems required to provide control signals to mechanical smoke control systems or elements thereof shall comply with NFPA 72. such detection systems together with its control units shall be listed for smoke control applications</i>	NR	R	R	R
		<i>Automatic activation of the smoke control system using either: Fire Alarm System Water flow Switch in Automatic Sprinkler System</i>	NR	R	R	R
14	POWER SUPPLY SYSTEM	<i>Smoke control system supplied with two (2) power sources:</i>	NR	R	R	R
		<i>Primary source from normal building power supply system having separate or independent connection from building's non-fire safety related installations supply system complying to NFPA 101</i>	NR	R	R	R



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II	OCCUPANCY CLASSIFICATION**		Building Height Requirements		Building Area Requirements	
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		TYPE B - MEDIUM-RISE APARTMENT BUILDINGS	> 18M TO ≤ 28M		> 1000M ² - UNLIMITED AREA (UL)	
C	HIGH-RISE APARTMENT BUILDINGS		> 28M		UNLIMITED AREA (UL)	
	Fire Safety Provisions	Minimum Requirements	LOW-RISE APARTMENT	MEDIUM-RISE APARTMENT		HIGH RISE APARTMENT
				TYPE A	TYPE B	
14	POWER SUPPLY SYSTEM	Secondary power source from an approved standby power supply system complying to NFPA 101	NOT REQUIRED (NR)	R	R	REQUIRED (R)
		Wiring for operation and control of smoke control systems connected ahead of the main disconnect and protected against exposure to fire.	NR	R	R	R
		Automatic transfer from normal to full standby power within 60 seconds of failure of the primary power source.	NR	R	R	R
		Mechanical smoke control system permitted and designed as combined system or which are used to serve multiple control zones have both backed up power supply and equipment (standby/back up fan):	NR	R	R	R
		- One additional fan required as standby/back up fan for each system feed by a single fan.	NR	R	R	R
		- Where a particular control zone is being protected by a system having two or more fans of equal capacity, the system could be backed up by an additional fan having the same capacity of the other fans.	NR	R	R	R
		- Where a particular control zone is being protected by a system having more than one fans of different capacities, the system could be backed up by an additional fan having the same capacity as the largest fan.	NR	R	R	R

Note:

*This Fire Safety Guide is prepared to determine the minimum required Fire Safety provisions for each Occupancy Type as referenced from General Directorate of Civil Defence (GDGD) adopted National Fire Protection Association (NFPA) Codes & Standards. For further guidance, the user is referred to the NFPA Codes and Standards.

**Occupancy Classification: Unless both the height and area requirements / criteria are met, the next higher classification / category SHALL apply.