SINGAPORE CIVIL DEFENCE FORCE

Date : 1 Sep 2021 **Our Ref**: CD/FSSD/12/02/03/01

Registrar, Board of Architects
Registrar, Professional Engineers Board
President, Singapore Institute of Architects
President, Institution of Engineers, Singapore
President, Association of Consulting Engineers, Singapore

Dear Sir/Mdm,

AMENDMENTS TO FIRE CODE 2018 - 9th BATCH OF AMENDMENTS

SCDF would like to issue the 9th batch of amendments to the Code of Practice for Fire Precautions in Buildings 2018 (Fire Code 2018). The amendments which were deliberated and accepted by the Fire Code Review Committee are attached as Annex A & Annex B of this circular.

2. Amendments stipulated in this Annexes shall take effect from the dates specified therein. For those amendments that are to take effect at future dates as specified in Annex A, Qualified Persons are encouraged to comply with the requirements before the effective dates. Any proposed plans of fire safety works for new buildings or existing buildings that are submitted to SCDF for approval on or after the effective dates shall be subjected to the amendments made to the Fire Code.

3. Please convey the contents of this circular to members of your Board/ Institution/ Association. This circular is also available in CORENET's e-Info: http://www.corenet.gov.sg/einfo.

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4. For general queries, you may contact Mr Randy Tan at DID: 68481461 or Mr Tan Yi Yang at DID: 68481734. However, for specific edits made to regulated fire safety products/materials, please contact CPT Daven Tan at 68481408.

Yours faithfully

(transmitted via email)

LTC Tan Chung Yee
for Commissioner
Singapore Civil Defence Force

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Annex A

S/N	Clause No	Amendment Date	Effective Date	Clause Status	Clause Before Amendment	Clause After Amendment
1	1.1.2	01/09/2021	01/03/2022	Revised/ Clarification	Fire safety requirements for laboratories handling hazardous chemicals Laboratories storing and using chemicals/HazMat shall comply with SS 641.	Fire safety requirements for laboratories handling hazardous chemicals Laboratories storing and using chemicals/HazMat shall comply with SS 641. For the purpose of designing the ventilation system to limit the amount of flammable vapour/gases inside the laboratory, fresh air shall be drawn directly from an external space or air well.
2	1.4.35	01/09/2021	01/03/2022	Revised/ Clarification	Electromagnetic or electromechanical locking device "Electromagnetic" or "electromechanical locking device" refers to a fail-safe device which provides access control. This device is designed to automatically unlock doors in the event of a fire, thereby helping to facilitate evacuation. An electromagnetic/electromechanical locking device shall be provided with a means of manual override located within the occupied space, 1.2m above the floor and within 1.5m of the door jamb.	Electromagnetic or electromechanical locking device "Electromagnetic" or "electromechanical locking device" refers to a fail-safe device which provides egress access control. In the event of a fire alarm activation, failure of building power supply, and/or any fault in the locking devices/components, related to the release of locking mechanism, this device shall: a. automatically unlock doors immediately to facilitate egress, and remain so until power supply is restored; and

						b. be provided with a means of manual override located within the occupied space, 1.2m above the floor and within 1.5m of the door jamb.
3	2.4.1	01/09/2021	01/03/2022	Revised/ Clarification	General a. The following buildings/usages are exempted from these requirements: (1) ……. (2) ……. (3) …… (4) non-residential buildings/usages, such as car parks and clubhouses located within residential developments and which are intended for ancillary use, are not required to comply with these requirements; and (5) aboveground storeys of PG III to VIII buildings, which are not served by any lift.	General a. The following buildings/usages are exempted from these requirements: (1) ……. (2) ……. (3) …… (4) non-residential buildings/usages, such as car parks, ~~and~~ clubhouses and gardens/terraces located within residential developments and which are intended for ancillary use, are not required to comply with these requirements; and (5) ~~aboveground storeys of~~ PG III to VIII buildings~~, which~~ that are not served by any lift.
4	3.5.3e.	01/09/2021	01/09/2021	Clarification	Extent of unprotected openings	~~Extent of unprotected openings~~

					(1) The extent of unprotected openings in an external wall of a building under PG I, in relation to its distance from the relevant boundary, can be based on the internal room/space in the building that has the largest extent of unprotected openings to comply with *Table 1* of *Annex 3B*. (2) Internal walls enclosing the room/space in the building are not required to be fire-rated, but shall be constructed of non-combustible materials, except glazing.	~~(1) The extent of unprotected openings in an external wall of a building under PG I, in relation to its distance from the relevant boundary, can be based on the internal room/space in the building that has the largest extent of unprotected openings to comply with *Table 1* of *Annex 3B*.~~ ~~(2) Internal walls enclosing the room/space in the building are not required to be fire-rated, but shall be constructed of non-combustible materials, except glazing.~~ *Note: The above strike-through will be omitted and duplicated in Cl.9.1.1c..*
5	3.15.14	01/09/2021	01/03/2022	Revised/ Clarification	Fire-rated glass In buildings which are protected by an automatic sprinkler system, fire-rated glass can be used for the construction of compartment walls, compartment floors, enclosures of smoke-free lobbies and fire lift lobbies, and protected shafts not containing exit staircase and fire lift, subject to the following: a. the walls and doors shall have the necessary fire resistance, including	Fire-rated glass In buildings which are protected by an automatic sprinkler system, fire-rated glass can be used for the construction of compartment walls, compartment floors, enclosures of smoke-free lobbies and fire lift lobbies, and protected shafts not containing exit staircase and fire lift, subject to the following: a. the walls ~~and doors~~ shall have the necessary fire resistance, including

					insulation, when subject to test under BS 476 Part 20-23; and b. the walls and doors shall meet the requirement of Class A for Impact performance when tested under BS 6206 and EN 12600 or AS 2208.	insulation, when subject to test under BS 476 Part 20-23; and b. the doors shall have the necessary fire resistance, including insulation, when subject to test under SS 332 or EN 1634-1; and c. the walls and doors shall meet the requirement of Class A for Impact performance when tested under ~~BS 6206 and EN 12600 or AS 2208~~.under AS 2208 or Class 1 for Impact Level (drop height class) when tested under EN 12600.
6	4.2.2a.(3)	01/09/2021	01/03/2022	Revised/ Clarification	Fire engine accessway and fire engine access road (3) PG II buildings exceeding 10m habitable height For a building under PG II that exceeds the habitable height of 10m, all of the following shall be complied with: (a) A fire engine accessway/fire engine access road shall be provided within a travel distance of 18m to the entrance of all exit staircases	Fire engine accessway and fire engine access road (3) PG II buildings exceeding 10m habitable height For a building under PG II that exceeds the habitable height of 10m, all of the following shall be complied with: (a) A fire engine accessway/fire engine access road shall be provided within a travel distance of 18m to the entrance of all exit staircases where the

					where the landing valves (dry or wet riser) are provided. (b) A fire engine accessway shall be provided to access at least one entire façade of each block and shall be located at a distance of at least 2m and at most 10m away from the façade of the building. (c) The fire engine accessway shall be designed to meet the specifications stipulated in *Table 4.2A*, *Table 4.2D* and *Table 4.2E*.	landing valves (dry or wet riser) are provided~~.~~ in accordance with *Cl.6.2.2b.*. (b) A fire engine accessway of at least ¼ length of perimeter (minimum 15m), whichever is greater, shall be provided to access at least one ~~entire~~ façade of each block and shall be located at a distance of at least 2m and at most 10m away from the façade of the building. This is to facilitate rescue with direct access to unit windows (excluding exit staircase, smoke-free approach to exit staircase). (c) The fire engine accessway shall be designed to meet the specifications stipulated in *Table 4.2A*, *Table 4.2D* and *Table 4.2E*.
7	4.2.2a.(5)	01/09/2021	01/03/2022	Revised/ Clarification	Basement In the case of a basement, the fire engine accessway/fire engine access road shall be provided to within a travel distance of 18m to the entrance of all exit staircases that are provided with landing valves (dry or wet	Basement In the case of a basement, the fire engine accessway/fire engine access road shall be provided to within a travel distance of 18m to the entrance of all exit staircases where the landing valves (dry or wet riser) are

					riser) in accordance with *Cl.6.2.2b.*. The measurement of 18m shall be between the fire engine accessway/fire engine access road and the entrance of exit staircase.	provided ~~that are provided with landing valves (dry or wet riser)~~ in accordance with *Cl.6.2.2b.*. The measurement of 18m shall be between the fire engine accessway/fire engine access road and the entrance of exit staircase.
8	4.2.3b.	01/09/2021	01/09/2021	Clarification	b. Location The fire access opening shall be placed against an occupied space. It shall not be placed at plant/store room, exit staircase, smoke-stop/fire lift lobby or space that leads only to a dead end.	b. Location The fire access opening shall be placed against an occupied space. It shall not be placed at plant/store room, exit staircase, ~~smoke-stop/fire lift lobby,~~ smoke-free approach to exit staircase or space that leads only to a dead end.
9	4.4.2	01/09/2021	01/09/2021	Clarification /Relaxation	Water supply for private fire hydrant a. Private fire hydrant at or below reduced level 125m (1) Private fire hydrants installed at reduced level 125m and below can receive direct supply from public water mains provided the flow and pressure from the public water mains meet the fire hydrant requirements as shown in ***Table 4.4A***, or the following requirements are complied with:	Water supply for private fire hydrant a. Private fire hydrant at or below reduced level 125m (1) Private fire hydrants installed at reduced level 125m and below can receive direct supply from public water mains provided the flow and pressure from the public water mains meet the fire hydrant requirements as shown in ***Table 4.4A***, or the following requirements are complied with:

					(a) the AFA of the largest compartment shall not exceed 1000m² for PG III, IV, V & VII and not exceed 500m² for PG VI & VIII; (b) ……	(a) the AFA of the largest compartment shall not exceed 1000m² for PG III, IV, V & VII and not exceed 500m² for PG VI & VII buildings. No AFA limit for covered car park in PG II, III, IV, V & VII buildings; (b) ……
10	6.2.6	01/09/2021	01/09/2021	Clarification	Building under construction When a building in pursuance of *Cl.6.2.1*, is required to be equipped with rising mains, such rising mains shall be installed progressively as the building attains height during the course of construction. All outlets, landing valves and inlets, water tanks and pumps, and hydrants shall be properly installed so as to be readily operational in case of fire.	Building under construction When a building in pursuance of *Cl.6.2.1*, is required to be equipped with rising mains, such rising mains shall be installed progressively as required under *Cl.9.9.3* ~~the building attains height~~ during the course of construction. All outlets, landing valves and inlets, water tanks and pumps, and hydrants shall be properly installed so as to be readily operational in case of fire.
11	6.3.9	01/09/2021	01/09/2021	Clarification	Sprinkler-protected building Where sprinkler system is required by this Code, provision of automatic thermal/smoke detectors in sprinkler-protected premises will be exempted except where such detectors are	Sprinkler-protected building Where sprinkler system is required by this Code, provision of automatic thermal/smoke detectors in sprinkler-protected premises is ~~will be~~ exempted except where such detectors are required to activate/~~or~~ operate the sprinkler,

					required to activate or operate the sprinkler or other systems.	engineered smoke control system or other systems.
12	6.3.10	01/09/2021	01/03/2022	Revised/ Clarification	Exemption of automatic fire alarm protection The following areas are exempted from automatic fire alarm protection in an automatic fire alarm building: a. areas which are covered with trellises, louvres or perforated panels having 50% or more evenly distributed effective free openings; and b. external open-sided linkways not exceeding 5m in width measured from eave to eave, provided these areas are not for commercial activities or storage.	Exemption of automatic fire alarm protection The following areas are exempted from automatic fire alarm protection in an automatic fire alarm building: a. ~~areas which are covered with trellises, louvres or perforated panels having 50% or more evenly distributed effective free openings; and~~ External open-sided linkways not exceeding 5m in width measured from eave to eave, provided these areas are not for commercial activities or storage. b. ~~external open-sided linkways not exceeding 5m in width measured from eave to eave, provided these areas are not for commercial activities or storage.~~ Areas which are covered with trellises, louvres or perforated panels having 50% or more evenly distributed effective free openings. An alarm sounder and visual alarm shall be provided near the exit staircase in accordance with SS 645.

						c. Open-to-sky roof gardens/terraces located within PG II buildings or mixed-use residential buildings, provided there are no covered commercial activities/spaces at the open-to-sky roof gardens/terraces. When there is other non-residential occupancy other than the open-to-sky roof gardens/terraces located within the same PG II building, the alarm sounder and visual alarm shall be extended to the open-to-sky roof gardens/terraces and positioned near the exit staircase in accordance with SS 645.
13	6.4.1	01/09/2021	01/09/2021	Clarification	Provision The following shall be provided with an automatic sprinkler system: a. Compartment size Whenever compartmentation requirements under Chapter 3 of this Code cannot be complied with. b. …….	Provision Every storey/room of a building, unless otherwise exempted by this Code, ~~The following~~ shall be ~~provided~~ protected by ~~with~~ an automatic sprinkler system under the following situations: a. Compartment size Whenever compartmentation requirements under *Table 3.2A* of Chapter 3 of this Code cannot be complied with. b. …… .

14	6.4.1f.	01/09/2021	01/03/2022	Revised/ Clarification	Provision f. Exemption of sprinkler protection All of the following areas not located within PG VI or VIII buildings are exempted from sprinkler protection in a sprinkler-protected building: (1) Canopies/car porches (a) Such areas are to be used solely for the purpose of passengers pick-up and drop-off. (b) There shall be no commercial activities or storage within these areas. (c) Cut-off sprinklers and fire-rated walls are not required to be provided to separate the sprinkler-protected and non-sprinkler-protected areas. (2) External corridor External corridors shall not exceed 4m in width, and	Provision f. Exemption of sprinkler protection All of the following areas not located within PG VI or VIII buildings are exempted from sprinkler protection in a sprinkler-protected building: (1) Canopies/car porches (a) Such areas are to be used solely for the purpose of passengers pick-up and drop-off. (b) There shall be no commercial activities or storage within these areas. (c) Cut-off sprinklers and fire-rated walls are not required to be provided to separate the sprinkler-protected and non-sprinkler-protected areas. (2) External corridor External corridors shall not exceed 4m in width, and there shall be no commercial

					there shall be no commercial activities or storage within these areas. (3) External/open-sided linkways External/open-sided linkways shall not exceed 5m in width, and there shall be no commercial activities or storage within these areas. (4) Covered areas Areas which are covered with trellises, louvres or perforated panels, which have 50% or more evenly distributed effective free openings (applicable to all purpose groups).	activities or storage within these areas. (3) External/open-sided linkways External/open-sided linkways shall not exceed 5m in width, and there shall be no commercial activities or storage within these areas. (4) Covered areas Areas which are covered with trellises, louvres or perforated panels, which have 50% or more evenly distributed effective free openings ~~(applicable to all purpose groups)~~. An alarm sounder and visual alarm shall be provided near the exit staircase in accordance with SS 645. (5) Open-to-sky roof gardens/terraces Open-to-sky roof gardens/terraces provided there are no covered

						commercial activities/spaces at the open-to-sky roof gardens/terraces. An alarm sounder and visual alarm shall be extended to the open-to-sky roof gardens/terraces and positioned near the exit staircase in accordance with SS 645.
15	6.6.7c.(2)(a)	01/09/2021	01/03/2022	Revised/ Clarification	Landing emergency doors (2) The landing …… (a) They shall form a clear opening of at least 760mm wide and 2m high. (b) ……..	Landing emergency doors (2) The landing …… (a) ~~They shall form a clear opening of at least 760mm wide and 2m high.~~ The dimension of landing emergency doors shall comply with the requirements of SS 550. (b) ……..
16	6.6.7d.(2)(b)	01/09/2021	01/03/2022	Revised/ Clarification	Car emergency doors (1) When car emergency …… (2) When car emergency doors are provided, all of the following requirements shall be complied with (see *Diagram 6.6.7d.(2)*):	Car emergency doors (1) When car emergency …… (2) When car emergency doors are provided, all of the following requirements shall be complied with (see *Diagram 6.6.7d.(2)*):

					(a) …… (b) Car emergency doors shall measure at least 1.8m high and 350mm wide. (c) ……	(a) ……... (b) ~~Car emergency doors shall measure at least 1.8m high and 350mm wide.~~ The dimension of car emergency doors shall comply with the requirements of SS 550. (c) ……
17	6.7.1	01/09/2021	01/03/2022	Revised/ Clarification	Equipment, fixtures and fittings The following equipment/fixtures/fittings for the fire protection systems shall be painted in red. For those equipment/fixtures/fittings not listed below, the colour scheme shall be in accordance with that specified in the relevant codes of practice. a. …….. b. …….. c. …….. d. Wet/dry rising mains (1) Fire pump & control panel	Equipment, fixtures and fittings The following equipment/fixtures/fittings for the fire protection systems shall be painted in red. For those equipment/fixtures/fittings not listed below, the colour scheme shall be in accordance with that specified in the relevant codes of practice. a. …….. b. …….. c. …….. d. Wet/dry rising mains (1) Fire pump & control panel

					(2) Breeching inlet (excluding breeching inlet cabinet/enclosure) (3) Rising mains pipe (4) Landing valve (5) Standby hose cabinet/enclosure e. …… f. ……. g. …….. h. ……..	(2) Breeching inlet (excluding breeching inlet cabinet/enclosure) (3) Dry riser breeching inlet in yellow (4) Wet riser breeching inlet in red (5) Rising mains pipe (6) Landing valve (except dry landing valve to be in yellow) (7) Standby hose cabinet/enclosure e. …… f. ……. g. …….. h. ……..
18	6.7.3	01/09/2021	01/03/2022	Revised/ Clarification	Nil	Graphical symbols Graphical symbols to depict fire safety equipment are allowed for use in buildings provided the signs comply with SS 508. Either graphic or text format can be used for

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>the design of the signage. The Table below shows the different sizes of the graphical symbol with respect to the viewing distance.</td></tr>
<tr><td colspan="7">
<table>
<tr><th colspan="5">TABLE 6.2.9 : SIZES OF GRAPHICAL SYMBOLS</th></tr>
<tr><td>Viewing Distance</td><td>0 to 6m</td><td>> 6 to 9m</td><td>> 9 to 12m</td><td>12m or more</td></tr>
<tr><td>Minimum height of symbol (Z=100)</td><td>60mm</td><td>90mm</td><td>120mm</td><td>150mm</td></tr>
<tr><td colspan="5">Note:
The luminous factor (Z=100) from SS 563 is used to determine the size of the sign. It essentially dictates the size of the sign that varies with distance. The graphical symbol for firefighting equipment shall be sized such that the height and width are same. The size of symbol is not inclusive of borders.</td></tr>
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</td></tr>
<tr><td>19</td><td>7.1.2h.(5)</td><td>01/09/2021</td><td>01/09/2021</td><td>Clarification</td><td>(5) Control panels serving engineered smoke control and smoke purging systems shall be clearly visible and located within a common location readily accessible for operation and maintenance, preferably within circulation space, with a mounting height of not less than 1.5m or more than 1.8m from the finished floor level. For smoke purging systems in car parks, the control panel shall be sited at least 1.5m away from any car park lot or other fire hazards.</td><td>~~(5) Control panels serving engineered smoke control and smoke purging systems shall be clearly visible and located within a common location readily accessible for operation and maintenance, preferably within circulation space, with a mounting height of not less than 1.5m or more than 1.8m from the finished floor level. For smoke purging systems in car parks, the control panel shall be sited at least 1.5m away from any car park lot or other fire hazards.~~</td></tr>
</table>

					If a common accessible location is not possible, the control panels shall be protected with at least 1-hr fire resistance rating.	~~If a common accessible location is not possible, the control panels shall be protected with at least 1-hr fire resistance rating.~~ i. Control panel (1) The location and placement of control panels serving engineered smoke control and smoke purging systems shall be located within a common space such that the panels are clearly visible and readily accessible for operation and maintenance. Control panel shall be mounted at a height not less than 1.5m or not more than 1.8m from the finished floor level. (2) For control panels serving smoke purging systems, it shall be located at least 1.5m away from fire hazards e.g. control panels for smoke purging system in carparks sited away from vehicle parking lots.

						Alternatively, the control panel shall be protected with at least 1-hr fire resisting rating enclosure.
20	9.1.1c.	01/09/2021	01/09/2021	Clarification	Nil	Extent of unprotected openings (1) The extent of unprotected openings in an external wall of a building under PG I, in relation to its distance from the relevant boundary, can be based on the internal room/space in the building that has the largest extent of unprotected openings to comply with *Table 1 of Annex 3B*. (2) Internal walls enclosing the room/space in the building except glazing, are not required to be fire-rated, but shall be constructed of non-combustible materials.
21	9.1.1d.	01/09/2021	01/03/2022	Revised/ Clarification	Nil	PV installation For PV installations the requirements shall be as follows:

						(1) For access to the PV installations on the roof, a portable sturdy or cat/ship ladder to the roof access shall be provided. (2) All access hatches, if provided, shall be readily accessible from the roof. The access hatch opening shall have a minimum clear width of 1m in diameter. (3) A clearance of 1m around the access/hatch opening shall be provided. (4) For fire resistance of PV modules, it shall be in accordance with *Cl.10.2.3*. (5) For emergency disconnection of the PV modules, it shall be in accordance with *Cl.10.2.5*.
22	9.2.1c.	01/09/2021	01/09/2021	Clarification /Relaxation	Nil	Single household dwelling house classified as cluster housing within PG II development In a PG II mixed occupancy development, the single household dwelling house classified as cluster housing can adopt the requirements stipulated in *Cl.9.1.1*.
23	9.3.2d.	01/09/2021	01/09/2021	Reinstatement	Custodian care facility	Custodian care facility

					It shall comply with the following additional requirements: (1) where such facilities are located within a building of mixed use, they shall be compartmentalised from other spaces and occupancies by walls and doors having at least 1-hr fire resistance rating; Exception: The requirement on the provision of fire compartmentation will not apply if the building is sprinkler-protected. (2) where such facilities are located on the 1st storey, they shall be provided with direct access to the exterior of the building; (3) where located on upper storeys, they shall be sited adjacent to an exit staircase with direct access through a smoke-free lobby to the staircase (minimum one exit staircase); (4) where there is no fire lift lobby or smoke-free lobby, there shall be at	It shall comply with the following additional requirements: (1) where such facilities are located within a building of mixed use, they shall be compartmentalised from other spaces and occupancies by walls and doors having at least 1-hr fire resistance rating~~;~~ The requirement on the provision of fire compartmentation will not apply if the building is sprinkler-protected. In addition, the following requirements shall be complied with: ~~Exception:~~ ~~The requirement on the provision of fire compartmentation will not apply if the building is sprinkler-protected.~~ (~~2~~a) where such facilities are located on the 1st storey, they shall be provided with direct access to the exterior of the building; (~~3~~b) where located on upper storeys, they shall be sited adjacent to an exit staircase with direct access through a

					least one direct access to the exit staircase; (5) institutions for the mentally disabled shall be designed with each storey having an area of refuge in accordance with *Cl.1.4.9* and *Table 1.4B*; and (6) fire safety requirements under *Cl.9.3.2b.* - Hospital, shall be fully complied with, except *Cl.9.3.2b.(6)* on provision of escape bed lift and *Cl.9.3.2b(10)* on staircase landing width/depth.	smoke-free lobby to the staircase (minimum one exit staircase); and (4c) where there is no fire lift lobby or smoke-free lobby, there shall be at least one direct access to the exit staircase. (2) Institutions for the mentally disabled shall be designed with each storey having an area of refuge in accordance with *Cl.1.4.9* and *Table 1.4B*.~~; and~~ Fire safety requirements under *Cl.9.3.2b.* - Hospital, shall be fully complied with, except *Cl.9.3.2b.(6)* on provision of escape bed lift and *Cl.9.3.2b(10)* on staircase landing width/depth.
24	9.3.3e.(5)	01/09/2021	01/09/2021	Reinstatement	(5) the ventilation openings in the external walls shall not be at most 12m from any part of the corridor; (6) …… (7) ……	(5) the ventilation openings in the external walls shall ~~not~~ be at most 12m from any part of the corridor; (6) …… (7) ……
25	9.6.1c.	01/09/2021	01/03/2022	Revised/ Clarification	Nil	Storage within PG VI premises

						(1) In a non-sprinkler-protected factory with storage areas/spaces: (a) where the aggregate storage areas/spaces (including transient) within a factory unit exceeded 100m^2, the entire factory unit shall comply with general warehouse requirements under PG VIII buildings, or (b) where the aggregate storage areas/spaces (including transient) within a factory unit exceed 100m^2, they shall be compartmented from the factory such that the areas/spaces of storage within the factory do not exceed 100m^2. (2) The area stipulated in *Cl.9.6.1c.(1)* can be increased to 700m^2 if the factory is protected by an automatic sprinkler system.
26	9.6.2v.(2)	01/09/2021	01/03/2022	New	Electrical equipment and area classification	Electrical equipment and area classification (1) General

					All electrical wiring and equipment shall be of a type suitable for the location, in accordance with NFPA 70 or SS 254.	All electrical wiring and equipment shall be in accordance with NFPA 70 or IEC 60079. (2) Electric Vehicle (EV) Charging Station (a) EV charging station located within a petrol station shall be sited in the following order of priority: (i) Open-to-sky areas. (ii) Forecourt. (b) Main isolation shut-off switches shall be provided as per *Cl.10.4.1*. (c) There shall be at least 12m separation distance between the EV charging station and the refilling points and vent pipes. (d) There shall be at least 6m separation distance between the EV charging station and the designated oil tanker parking area.

						(e) There shall be at least 8m distance separation distance from the EV charging station to any fuel dispensing unit. (f) No electrical connection within EV charger shall be located within 500mm from the finished floor level of the forecourt. (g) EV charging station shall be fully enclosed unless such openings are located at least 1m above the finished floor level of the forecourt.
27	9.6.4	01/09/2021	01/03/2022	Revised/ Clarification	Nil	Fuel dispensing system a. General This set of fire safety requirements shall be applicable to premises installed with fuel dispensing system other than petrol service station stipulated under *Cl.9.6.2*. Approval for the installation of fuel dispensing system shall be obtained from the relevant authority having jurisdiction. b. Fuel storage tank

						Fuel storage tank shall be installed in accordance with SS 532. c. Fuel dispensing system shall be installed in accordance with *Cl.9.6.2s.*.
28	9.8.1b.(3)	01/09/2021	01/09/2021	Reinstatement	Structural fire precautions (1) Vehicle parking area Fire compartmentation shall be provided between a vehicle parking area (PG VIII) and other areas, except for ancillary washrooms, the fire compartment walls and floors shall have at least 1-hr fire resistance rating. Exceptions: (a) For a sprinkler-protected factory, compartmentation between the vehicle parking areas and the factory is not required, provided the vehicle parking area and adjacent driveway are provided with an engineered smoke control system.	Structural fire precautions (1) Vehicle parking area Fire compartmentation shall be provided between a vehicle parking area (PG VIII) and other areas, except for ancillary washrooms, the fire compartment walls and floors shall have at least 1-hr fire resistance rating. Exceptions: (a) For a sprinkler-protected factory, compartmentation between the vehicle parking areas and the factory is not required, provided the vehicle parking area and adjacent driveway are provided with an engineered smoke control system. (b) For a sprinkler-protected warehouse, thermal

					(b) For a sprinkler-protected warehouse, thermal insulation of the fire-rated shutters between the vehicle parking area and the warehouse is not required, provided the vehicle parking/loading and unloading area and adjacent driveway are provided with an engineered smoke control system. (2) Warehouse Warehouse compartment size exceeding 700m² for above ground level and 100m² for below ground level are subject to full compliance of *Cl.9.8.3*.	insulation of the fire-rated shutters between the vehicle parking area and the warehouse is not required, provided the vehicle parking/loading and unloading area and adjacent driveway are provided with an engineered smoke control system. (2) Warehouse Warehouse compartment size exceeding 700m² for above ground level and 100m² for below ground level are subject to full compliance of *Cl.9.8.3*. (3) Tenancy units Fire compartmentation between individual tenancy units within a warehouse building shall be provided. The entire enclosure of each of these units shall be fire compartmented with walls and floors of at least 1-hr fire resistance rating.
29	9.9.1e.	01/09/2021	01/09/2021	Reinstatement	Air well and covering over air well (1) 2-storey shophouses	Air well and covering over air well (1) 2-storey shophouses

					(a) For air well that has the same usage for all floors, the following coverings shall be used: (i) A fixed covering up to the level below the main roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass, or (ii) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass. (b) For air well that has different usage for all floors, the	(a) For air well that has the same usage for all floors, the following coverings shall be used: (i) A fixed covering up to the level below the main roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass, or (ii) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass. (b) For air well that has different usage for all floors, the

					following coverings shall be used: (i) A fixed covering up to the 2nd storey floor level with approved materials such as non-drip acrylic, non-drip polycarbonate and glass, or (ii) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass. (c) The air well shall not be enclosed. (2) 3 and 4-storey shophouses	following coverings shall be used: (i) A fixed covering up to the 2nd storey floor level with approved materials such as non-drip acrylic, non-drip polycarbonate and glass, or (ii) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass. (c) The air well shall not be enclosed. (2) 3 and 4-storey shophouses (a) For air well that has the same usage for all floors, the

					For air well that has the same usage for all floors, the following coverings shall be used: (a) A fixed opening up to the third storey level with approved materials such as non-drip acrylic, non-drip polycarbonate and glass, is allowed, or (b) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with, such as non-drip acrylic, non-drip polycarbonate and glass.	following coverings shall be used: (i) A fixed opening up to the third storey level with approved materials such as non-drip acrylic, non-drip polycarbonate and glass, is allowed, or (ii) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with approved materials, such as non-drip acrylic, non-drip polycarbonate and glass. (b) For air well that has different usage for all floors, the following coverings shall be used: (i) A fixed covering up to the 2nd storey floor level with approved

						materials such as non-drip acrylic, non-drip polycarbonate and glass, or (ii) A fully openable covering (retractable or spring open type), by activation of smoke detectors and fire alarm system, up to the level below the roof eaves with approved materials such as non-drip acrylic, non-drip polycarbonate and glass. (c) The air well shall not be enclosed.
30	10.2.1	01/09/2021	01/03/2022	Revised/ Clarification	General This set of fire safety requirements shall be applicable to roof-mounted PV installations.	General This set of fire safety requirements shall be applicable to roof-mounted PV installations. For PV installations on the roof of PG I buildings, the requirements are stipulated in *Cl.9.1.1d.*.
31	10.2.2	01/09/2021	01/03/2022	Revised/ Clarification	Means of access	Means of access

					a. For PV installations on the roof, at least one exit staircase shall be provided. Where the area of non-habitable roof is large and one-way travel distance to the exit cannot be met, an additional cat ladder or ship ladder adequately separated from the exit staircase, in accordance with *Cl.2.3.12* and leading to the circulation area of the floor below shall be provided. b. For existing buildings which are carrying out the installation of PVs on the roof level where the provision of single exit staircase is not feasible, a portable sturdy ladder to the roof access shall be provided. Single storey buildings with roof height not more than 12m or inaccessible pitched roof up to 24m from grade level are not required to provide a sturdy ladder, if there is a fire engine accessway fronting this installation. c. The computation of travel distance for roof areas which are open to the sky for any purpose group (except PG I) can be based on the requirement for sprinkler-protected compartments/ buildings.	a. For PV installations on the roof, at least one exit staircase shall be provided. Where the area of non-habitable roof is large and one-way travel distance to the exit cannot be met, an additional cat ladder or ship ladder adequately separated from the exit staircase, in accordance with ~~*Cl.2.3.12*~~ *Cl.2.2.11* and leading to the circulation area of the floor below shall be provided. b. ~~For existing buildings which are carrying out the installation of PVs on the roof level where the provision of single exit staircase is not feasible, a portable sturdy ladder to the roof access shall be provided.~~ In situation for buildings where plans submission on the installation of PVs on the roof level was made on or before 16 June 2016, the provision of single exit staircase is not required. Instead, a cat/ship ladder to provide access to the roof shall be provided. c. In the case of single storey buildings with roof height not more than 12m or inaccessible pitched roof up to 24m from grade level access by either cat/ship ladder or if there is a fire engine accessway fronting this installation.

					d. All access hatches, if provided, shall be readily accessible from the roof. The access hatch opening shall have a minimum clear width of 1m in diameter.	d. The computation of travel distance for roof areas which are open to the sky for any purpose group ~~(except PG I)~~ can be based on the requirement for sprinkler-protected compartments/ buildings. e. All access hatches, if provided, shall be readily accessible from the roof. The access hatch opening shall have a minimum clear width of 1m in diameter.
32	10.4	01/09/2021	01/03/2022	New	Nil	Electric Vehicle (EV) Charging Installation 10.4.1 General The requirements in *Cl.10.4.2* are exempted for PG I buildings. 10.4.2 Emergency main isolation shut-off switches a. Each EV charging station shall be provided with at least one emergency main isolation shut-off switch(es) located such that no person need to travel more than 15m from the EV charging station and its parking lot(s) to reach a main isolation shut-off switch.

						b. If more than one EV charging station is provided, the main isolation shut-off switch(es) shall be provided such that no person need to travel more than 15m from any EV charging station and its associated parking lot(s) to reach a main isolation shut-off switch. c. Main isolation switch(es) shall be located on the same storey as the EV charging station(s) they serve. The purpose of such main isolation shut-off switch(es) is to provide a safe means of isolating the main electrical power supply to the entire EV charging system on the same storey. d. Every EV charging stations and EV parking lots shall be located at least 3m away from the nearest edge of any main isolation shut-off switches. <u>Exception</u>

						Main isolation shut-off switches can be allowed to be less than 3m from an EV charging station and its parking lot(s), as long as there is at least one other main isolation shut-off switch located at least 3m away but still within 15m of this EV charging station and its parking lot(s). e. Main isolation shut-off switches shall be located between 800mm and 1.2m above the finished floor level and shall be located in a clearly visible and easily accessible location. f. All main isolation shut-off switches shall be clearly labelled. Clear instructions shall be indicated on how to operate the main isolation shut-off switch. Signages shall be provided with a letter height of at least 50mm.

						g. Where main isolation shut-off switch(es) cannot be seen clearly or not within line of sight from the EV charging station and its parking lot(s), additional signages shall be provided to direct persons to the main isolation shut-off switch(es).
33	Table 4.2A	01/09/2021	01/03/2022	Revised/ Clarification	Existing *Table 4.2A*	See Annex B (affected portions of *Table 4.2A*)
34	Table 4.2C	01/09/2021	01/03/2022	Revised/ Clarification	Existing *Table 4.2C*	See Annex B (affected portions of *Table 4.2C)*
35	Diagram 4.2.2e.	01/09/2021	01/03/2022	Revised/ Clarification	Existing *Diagram 4.2.2e.*	See Annex B (affection portion of *Diagram 4.2.2e.*)
36	Table 11A	01/09/2021	01/03/2022	Revised/ Clarification	Existing *Table 11A*, items 7, 12 & 13	See Annex B (affected portions of *Table 11A*, items 7, 12 & 13)

Annex B

TABLE 4.2A: FIRE ENGINE ACCESSWAY/FIRE ENGINE ACCESS ROAD FOR PG II BUILDINGS			
Details	**Habitable Height (m)**		
	≤ 10	**> 10 & ≤ 50**	**> 50**
Width of fire engine access road	≥ 4m		
Width of fire engine accessway *	Not required	≥ 6m	≥ 7m
Length of fire engine accessway *	-	≥ 15m	≥ 15m
Type of firefighting appliance	Pump ladder	CPL 34 & AL 56	AL56, CPL 60 & HLA 90
Loading capacity of fire engine road #	≥ 24 tonnes	≥ 30 tonnes	≥ 50 tonnes
Loading capacity of fire engine accessway #	-	≥ 30 tonnes	≥ 50 tonnes
Axle/Jack loading	-	See *Table 4.2D* & *Table 4.2E*	
Turning facility	See *Diagram 4.2.2e.*		
U-turn radii			

Note:

= The appended figures for loading capacity of fire engine accessway/fire engine access road are characteristic values.

* = ~~The fire engine accessway shall be provided and located to access at least one entire façade of each building block.~~ A fire engine accessway of at least ¼ length of perimeter (minimum 15m), whichever is greater, shall be provided to access at least one façade of each block and shall be located at a distance of at least 2m and at most 10m away from the façade of the building.

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TABLE 4.2C: FIRE ENGINE ACCESSWAY/FIRE ENGINE ACCESS ROAD FOR PG VI & VIII BUILDINGS			
Details	**Habitable Height (m)**		
	≤ 10	**> 10 & ≤ 50**	**> 50**
Width of fire engine access road	≥ 4m		
Width of fire engine accessway	≥ 6m	≥ 6m	≥ 7m
Length of fire engine accessway	See *Table 4.2.2a.(7)*		
Type of firefighting appliance	CPL 34 & AL 56	CPL 34 & AL 56	AL 56, CPL 60 & HLA 90
Loading capacity of fire engine access road #	≥ 30 tonnes	≥ 30 tonnes	≥ 50 tonnes
Loading capacity of fire engine accessway #	≥ 30 tonnes	≥ 30 tonnes	≥ 50 tonnes
Axle/Jack loading	See *Table 4.2D* & *Table 4.2E*		
Turning facility	See *Diagram 4.2.2e. under* ***(> 10 & ≤ 50)***	See *Diagram 4.2.2e.*	
U-turn radii			

Note:

= The appended figures for loading capacity of fire engine accessway/fire engine access road are characteristic values.

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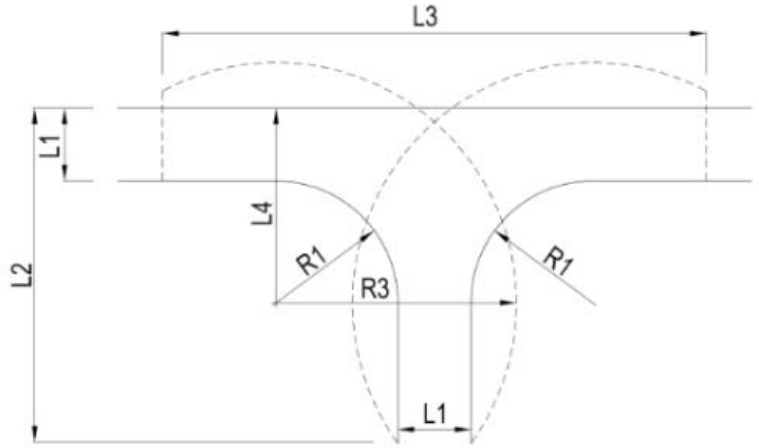
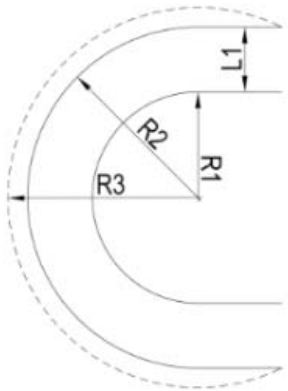


Cul-de-sac turning facility



U-turn radii

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Dimensions of Turning Facilities for Firefighting Appliances			
Parameters	**Building Habitable Height**		
	≤ 10m*	**> 10m & ≤ 50m#**	**> 50m#**
R1	4.0m	6.5m	7.5m
R2	8.0m	10.5m	12.0m
R3	8.5m	12.0m	14.8m
L1	4.0m	4.0m	4.5m
L2	11.0m	16.0m	21.0m
L3	15.0m	28.1m	33.5m
L4	8.0m	10.5m	12.0m

Note:

* - These dimensions are applicable to all PG except PG VI and VIII buildings, unless otherwise stated in *Cl.4.2.2a.(1)*. For PG VI and VIII buildings ≤ 10m, it shall refer to (> 10 & ≤ 50) requirements (as indicated in *Table 4.2C*).

\# - Not applicable to PG I buildings. For PG I buildings, it shall refer to (≤ 10m) requirements.

Diagram 4.2.2e. : Turning facilities for firefighting appliances

Annex B

TABLE 11A: LIST OF REGULATED FIRE SAFETY PRODUCTS & MATERIALS

S/N	Products / Materials	Acceptable Standards	Certification Scheme	Surveillance Regime	
				Testing	Factory/Site Inspection
7.	Fire-rated enclosure/ spraying material [1] [9]	7.1. Protection to steel structure [2]: (a) EN 13381-4 with material testing in accordance with EN 13501-1 (min. class A2) or BS 476-21 with material testing in accordance with BS 476-4/ BS 476-11/ EN 13501-1 (min. class A2) or ISO 834-6 & ISO 834-7 with material testing in accordance with EN 13501-1 (min. class A2) or AS 1530-4 with material testing in accordance with (i) BS 476-4/ BS 476-11/ EN 13501-1 (min. class A2) or (ii) EN 13501-1 (min. class A2) if fire resistance test is using plate-thermocouple and (b) BS 5234-2 and	Scheme 5 (DoCs issued)	Annual surveillance test shall only require material testing, and adopt the same test standards that were adopted for the material testing at the point of CoC listing	Factory inspection to be conducted at least once annually and Site inspection to be conducted for every 3500m^2

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		(c) EN 520 (gypsum plaster board) and (d) ISO 1896 (calcium silicate or cement board)			
12.	Fire-rated glass block/glass partition	(a) BS 476-22 or EN 1364-1 or AS 1530-4 or ASTM E119 or ISO 834-8 and (b) ~~BS 6206~~ ~~or~~ AS 2208 or EN 12600	Scheme 5 (DoCs issued)	Not applicable for glass block Fire-rated glass partition – Impact tests once every 3 years	Factory inspection to be conducted at least once annually and Site inspection to be conducted for every project
13.	Exit sign	13.1 Exit sign (powered electrically): (a) IEC 60598-2-22 and (b) SS 563-1 or ISO 30061 and (c) SS 563-2	Scheme 5 (Labels issued)	Scheme 5 – Testing for every 2000 labels or At least once annually, if fewer than 2000 labels	Scheme 5 – Factory inspection to be conducted at least once annually and Site inspection(s) triggered by certification body (10)

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			Scheme 1b (Labels issued)	Scheme 1b – Batch testing and Full tests over 3 years	Scheme 1b – Batch inspection [11] and Site inspection triggered by certification body for each batch [10]
		13.2 Self-luminous sign (powered by radioactive material) (a) UL 924 and (b) SS 508-1 or ISO 3864-1 and (c) SS 508-2 or ISO 3864-2 and (d) SS 508-3 or ISO 3864-3 and (e) SS 508-5 or ISO 7010 and (f) SS 563-1 or ISO 30061 (Clause 10.5 of SS 563-1 shall be complied with for determination of the viewing distance with distance factor (Z) fixed at 50) and (g) SS 563-2 (~~Clause C2~~ Annex C)	Scheme 5 (Labels issued)	Scheme 5 – Testing for every 2000 labels or At least once annually, if fewer than 2000 labels	Scheme 5 – Factory inspection to be conducted at least once annually and Site inspection(s) triggered by certification body [10]
			Scheme 1b (Labels issued)	Scheme 1b – Batch testing and Full tests over 3 years	Scheme 1b – Batch inspection [11] and Site inspection triggered by certification body for each batch [10]