

CLAUSE 3.2 - PROVISION OF COMPARTMENT WALLS AND COMPARTMENT FLOORS

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3.2.1 Compartment size - floor area & cubical extent

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Any building other than a building of PG I which has any storey the floor area of which exceeds that specified as relevant to a building of that height in column (2) of [Table 3.2A](#) or a cubic capacity which exceeds that specified as relevant in column (3) of [Table 3.2A](#), shall be divided into compartments by means of compartment walls and compartment floors so that:

- a. no such compartment has any storey the floor area of which exceeds the area specified as relevant to the building in column (2) of the table; and
- b. no such compartment has a cubic capacity which exceeds that specified as relevant in column (3) of the table.

3.2.2 Cubical extent for compartment exceeding 4m in height

- a. In computing the cubical extent of compartments in single storey buildings such as factories, sport halls, markets, food courts, multi-purposes halls, cinemas, concert halls, churches, temples and similar buildings, the height of 4m shall be used where the actual height exceeds that figure.

If the compartment comprises or contains mezzanine, galleries or lofts, the full height of the compartment shall be used in computing the cubical extent for each storey, mezzanine, galleries or lofts.

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- b. Where two buildings are connected by external open-sided covered walkway or open-sided covered link-bridge, the buildings are considered as separate buildings, if they comply with the following conditions:

- (1) There is no commercial activities or other usage that would pose a fire risk within the covered walkway or link-bridge.

(2) The width of the covered walkway or covered link-bridge shall not exceed 5m measured from eave to eave.

3.2.3 Exemption of compartmentation



CI.3.2.1 is not applicable if the building:

- a. is fitted throughout with an automatic sprinkler system which complies with the requirements in Chapter 6; and
- b. complies with *CI.3.2.4*, *CI.3.2.6*, *CI.7.4* and *CI.9.8.3*.

3.2.4. Compartmentation by height

a. In any compartment except those mentioned under *CI.9.1*, up to a habitable height of 24m, no compartment shall comprise more than three storeys. This requirement can be relaxed for atrium spaces provided the design of such spaces complies with the conditions stipulated under *CI.3.2.6*.



b. In any building which exceeds 24m in habitable height, no compartment shall comprise more than one storey for compartments at storey level exceeding 24m above average ground level, other than a compartment which is within a residential maisonette which may comprise two storey levels.



3.2.5 Areas requiring compartmentation

The following situations shall require compartmentation by provision of compartment walls and/or compartment floors:

a. PG II buildings

Any wall and floor separating a residential apartment or maisonette from any other part of the same building, unless permitted (as in the case of an external wall adjoining an external corridor, for provision of window openings).



b. Areas of different purpose groups

Any wall and floor separating part of a building from any other part of the same building which is used or intended to be used mainly for a purpose falling within a different purpose group, as identified under [Table 1.4A](#), except the following:

- (1) ancillary offices located within a building or compartment of PG III, V, VI, VII and VIII, or.
- (2) rooms or spaces for ancillary usage located within a building or compartment of PG III to VIII as stipulated under [Cl.1.4.5](#), or
- (3) rooms or spaces located within a sprinkler-protected building, unless otherwise stated in following [Cl.3.2.5](#) or other clauses in the Code.

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c. Floor over a basement

Any floor immediately over a basement for PG II to VIII buildings shall be a compartment floor except for:

- (1) a basement with floor area not exceeding 100m², or

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- (2) PG IV, V and VII buildings with basement floor area exceeding 100m², provided the following conditions are complied with:

- (a) the building is fitted throughout with an automatic sprinkler system in compliance with the requirements in Chapter 6; and
- (b) the first basement shall be compartmented from other basement storeys.

Note: For PG I buildings, refer to [Cl.9.1.1b.\(2\)](#) for compartmentation of floor over basement requirements.

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d. Basement floors

In any compartment below pavement level, no compartment shall comprise more than one storey, except in the case of PG IV, V and VII buildings as permitted under [Cl.3.2.5c.\(2\)](#) and in the case of basement used solely for car parking. No part of a basement storey shall be used for the bulk storage of highly inflammable liquids or substances of an explosive nature.

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e. Fire Command Centre (FCC)

The FCC shall be separated from other parts of the same building by compartment walls and floors having at least 2-hr fire resistance rating.

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f. Kitchen

In room/ space where open-flame cooking activities are carried out, except for residential units in PG I and II buildings, the following requirements shall be complied with:

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(1) The kitchen shall be separated from other parts of the same building by compartment wall and floor having at least 1-hr fire resistance rating. Separation requirement for kitchen can be exempted under the following conditions:

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(a) when all the cooking facilities in the kitchen are fitted with approved extinguishing systems, or

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(b) when there are at least 25% of the perimeter walls (excluding air well and void) of an eating establishment open directly to the external of the building, and provided any part of the floor space is within 9m from the nearest opening, or

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(c) when there are at least 50% of the perimeter walls (excluding air well and void) of an eating establishment open directly to the external of the building, and provided any part of the floor space is within 12m from the nearest opening, or

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(d) when an eating establishment is separated from other parts of the same building by walls and floors having 1-hr fire resistance rating and doors having at least ½-hr fire resistance rating; and provided:

(i) for a sprinkler-protected building, there is no restriction to the floor area of the compartment, or

(ii) for a non-sprinkler-protected building, the floor area of the compartment shall not exceed 150m².

(2) Openings in the compartment wall and floor shall comply with the relevant provisions of [Cl.3.9](#) for protection of openings.

(3) Doors shall have at least ½-hr fire resistance rating and be fitted with an automatic self-closing device.

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(4) Where the flue or duct passes through the compartment wall or floor, the flue or duct shall be encased by non-combustible construction to comply with the requirements of [Cl.3.9.5](#), and the installation of dampers in such flue or duct is prohibited.

(5) LPG cylinders provided for open-flame cooking activities shall not be located at the basement and the installation of LPG cylinders at other areas shall comply with the provisions in the Fire Safety (Petroleum) Regulations.

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Notwithstanding all the above, the compartment where open-flame cooking activities is carried out shall not comprise more than one storey.

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g. Motor vehicle workshop

A motor vehicle workshop shall be separated from any other part of the same building by compartment walls and floors having at least 2-hr fire resistance rating, and if located in a basement storey of a building, shall be separated from any other part of the same building by compartment walls and floors having at least 4-hr fire resistance rating.

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h. Spray painting room

Areas in which spray painting or other related processes are performed or carried out, shall be separated from other parts of the same building by compartment walls and floors having at least 2-hr fire resistance rating. Where spray painting booths that have built-in vapour extraction system complying with NFPA 33, the fire resistance requirement is not applicable.

Where a spray painting room or booth is protected by an automatic sprinkler system but not complying with NFPA 33, the fire resistance rating for the fire compartment to the room or booth can be reduced from two hours to one hour.

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i. Store room

For non-sprinkler-protected buildings, if the area of the store room exceeds 10m², it shall be compartmented from the other parts of the same building by compartment walls and floors having at least 1-hr fire resistance rating. No fire compartmentation is required for a store room which is housed within a sprinkler-protected building. However, store room exceeding 700m² and 100m² for above-ground and below-ground respectively are subject to the compartment size requirements stipulated under [CI.9.8.3](#).

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j. Areas of special hazard

(1) Areas of special high risk in a building

Boiler rooms, transformer rooms, generator rooms, storage areas of materials that are highly combustible or flammable, and any other areas of special high risk shall be separated from other parts of the building by compartment walls and floors having at least 2-hr fire resistance rating. If the building is protected by an automatic sprinkler system, the fire resistance rating of the compartment walls and floors can be reduced to one hour.

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(2) Room housing transformer that uses flammable liquid shall be located at ground level against an external wall.

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(3) Diesel fuel tank for generator need not be located against an external wall.

3.2.6 Provision for atrium spaces

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The requirements of [Cl.3.2.1](#), [Cl.3.2.4a](#), and [Cl.3.2.4b](#) of this Code are not applicable for atrium spaces provided the following conditions are complied with:

- a. The minimum plan area of the atrium void shall be not less than 93m² and no horizontal dimension between opposite edges of the floor opening is less than 6m wide.
- b. The atrium space is not of high hazard occupancy as stated in [Cl.1.4.68](#).
- c. The atrium is open and unobstructed in a manner such that it can be assumed that a fire in any part of the space will be readily obvious to the occupants before it becomes a hazard.
- d. The building is fitted throughout with an automatic sprinkler system to comply with the requirements in Chapter 6.
- e. The building is fitted with an engineered smoke control system in accordance with [Cl.7.4.5](#).
- f. Provision of openings and enclosures, and the planning of means of escape shall be subject to the approval of the SCDF.

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3.2.7 Buildings of high hazard occupancy

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- a. The compartment of buildings of high hazard occupancy shall not exceed one half of the sizes given in [Table 3.2A](#) and each compartment shall comprise one storey only.
- b. No storey of a building, the habitable height of which is more than 24m, shall be used for the bulk storage of goods or substances of highly combustible nature unless the building is provided with a sprinkler system to comply with Chapter 6.

c. The type of storage materials or substances shall not include the following:

(1) materials with an auto-ignition temperature lower than 200°C; and

(2) combustible/highly flammable materials which include those highlighted in sub-clauses *a.*, *b.*, *c.* and *d.* of *Cl.1.4.67*.

d. For buildings not listed in Table 1.4A, including but not limited to buildings used for the manufacture and/or storage of highly combustible substances and/or flammable liquids, etc., the requirements shall be consulted with the SCDF.

3.2.8 Exemption on size limitation of compartment

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The requirements of *Cl.3.2.1* for car parking decks can be exempted if both the following are complied with:

a. The car parking decks shall be open-sided with not less than 50% of the sides permanently open and unobstructed. Such openings shall be evenly distributed along each of the perimeter walls and on every individual floor/deck, excluding perimeter walls to air well, so as to provide cross ventilation to all parts of the car parking decks.

b. No part of the floor space shall be more than 12m from the openings on the perimeter walls of the building or air well. Air well where provided for this purpose shall have a superficial plan area of not less than 10m², or 0.1m² for every 300mm of height, whichever is greater, and have a minimum dimension on plan of 2m, open vertically to the sky for its full height.

3.2.9 Separation of area undergoing addition & alteration works

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For additions and alterations to existing buildings, the areas undergoing such works shall be separated from other occupied areas of the building in accordance with *Cl.3.15.16*.