

Your Ref : **Our Ref:** CD/FSSD/12/02/03/01

Date : 8 Sep 2016

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 THE FIRE CODE 2013 - FIRE SAFETY REQUIREMENTS FOR COLDROOM

The Singapore Manufacturing Federation (SMF) has recently approached SCDF to assist in meeting both AVA's food safety requirements and SCDF's fire safety requirements for coldroom protected with compartment walls. Its main concern is that the gaps formed between the compartment walls and coldroom panels tend to attract mould formation due to the dampness caused by condensation of ambient air on the cold surfaces. The gaps also provide ideal hiding spaces for insects and rodents. These unintended outcomes are infringing AVA's food safety requirements for storing and handling of foods.

2. In response to SMF's feedback, SCDF led a work group comprising representatives from SMF, SIA, IES, ACES, IFE, JTC, SCDF and reputable professionals to review the relevant clauses in the Fire Code. The proposed amendments to the Fire Code put forth by the work group were endorsed by the Fire Code Review Committee and SCDF management.



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3. Please convey the contents of this circular to members of your Board/ Institution/ Association. The changes to Cl.3.2.5 (m) and all related clauses (see Annex A) shall be applicable to all plans submitted for approval on or after 1st Jan 2017. This circular is also available in CORENET's e-Info: <http://www.corenet.gov.sg/einfo>. For any clarification, please contact Mr. Randy Tan at DID: 68481461 or Email: Randy_Tan@scdf.gov.sg.

Yours faithfully

(transmitted via email)

MAJ Tan Chung Yee
Fire Safety & Shelter Department
for Commissioner
Singapore Civil Defence Force

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AMENDMENTS TO THE FIRE CODE

Existing Clause	Revised/New Clause
<p>Nil</p>	<p><i>Cl.2.11(A) Coldroom</i></p> <p><i>A coldroom is a room which is normally constructed of combustible insulation materials used for the storage, processing or temporary holding of materials under cold temperature. It shall be treated as an appliance if its floor area does not exceed 10m² and the design does not permit people to walk in.</i></p>
<p>Cl.3.2.5(m) Coldroom</p> <p>A coldroom is a store room used for the storage of materials or chemical under cold temperature. The enclosures to the coldroom are constructed partly or wholly of highly combustible insulation materials. The floor area shall be the aggregate floor areas of all the coldrooms located in a compartment or a unit.</p> <p>(i) Where a coldroom has a floor area exceeding 10m², a separate outer layer of non-combustible construction, including the door, having minimum 1-hour fire resistance rating, shall be provided to compartmentalise the coldroom enclosure from other areas</p>	<p><i>Cl.3.2.5(m) Coldroom</i></p> <p><i>Where coldrooms are provided in Purpose Groups III, IV, V, VI, VII or VIII buildings, the following requirements shall be complied with:</i></p> <p>(i) <i>Coldroom constructed of combustible insulation panels:</i></p> <p>(1) <i>For non-sprinkler-protected buildings</i></p> <p><i>Where the aggregate floor area of coldroom(s) exceeds 10m², a separate outer layer of non-combustible construction, including the door, having 1-hour fire resistance rating, shall be provided to compartmentalize the coldroom(s) from other areas. The maximum aggregate floor area of the coldroom(s) shall not exceed 100m² in each compartment.</i></p>

(ii) Provision of the fire resisting outer layer enclosure, including the fire door to the coldroom would not be required if :

(1) The coldroom has a floor area not exceeding 20m² and is sprinkler protected in a building under Purpose Groups III, IV, V, VI, VII or VIII, and the storage materials shall not include highly flammable chemicals.

(2) The coldroom is located in a building under Purpose Groups I or II.

(3) The coldroom is located in a kitchen compartment (with or without 'open flame' cooking appliances) in an eating establishment, provided the floor area of the coldroom does not exceed 20m², and the kitchen is compartmentalised from other parts of the building by compartment walls and floor having minimum 1-hour fire resistance and door having minimum ½- hour fire resistance, irrespective of the relaxation allowed under cl.3.2.5(f)(v)

(iii) The insulation material for the coldroom shall Class B under BS EN 13501 or its equivalent.

(2) *For sprinkler-protected buildings*

Where the aggregate floor area of coldroom(s) exceeds 20m², a separate outer layer of non-combustible construction, including the door, having 1-hour fire resistance rating, shall be provided to compartmentalize the coldroom(s) from other areas/usages. The maximum aggregate floor area of the coldroom(s) shall not exceed 700m² in each compartment.

(3) *Non-compartmentalized coldroom shall not be used for storage of highly flammable chemicals.*

(ii) *Coldroom constructed of fire-rated insulation panels*

Where the coldroom panels are constructed of material having at least 1-hour fire resistance rating, the compartment sizes stipulated in sub-clauses (i)(1) &(2) above need not be complied with but are subject to a maximum of 2000m² (for non-sprinkler-protected buildings) or 4000m² (for sprinkler-protected buildings), or sizes stipulated under Appendix 2 Cl.3 for storage of chemical/hazmat materials, whichever is applicable and smaller.

(iii) *Properties of coldroom panel*

- (1) *All coldroom panels shall achieve at least Class B under EN 13501-1 or its equivalent, when tested as a composite panel with plastic or other types of core material.*
- (2) *For a coldroom that consists of a processing/handling area, the following toxicity emission and smoke density requirements for the insulation material shall be complied with:*

Table 3.2.5(m)(iii)(2)

<i>Fire risk</i>	<i>Applicable fire test standards</i>	<i>Acceptance criteria</i>
<i>Toxicity emission</i>	<i>BC 6853 Annex B; or</i>	<i>R<1.0</i>
	<i>BS EN 45545-2; or</i>	<i>CIT<0.75</i>
	<i>EN ISO 5659-2</i>	<i>CIT<0.75</i>
<i>Smoke density</i>	<i>EN 13501-1; or</i>	<ul style="list-style-type: none"> • <i>Smoke classification to be of s1 rating</i> • <i>Flaming droplet classification to be d0 rating</i>
	<i>EN ISO 5659-2</i>	<i>VOF₄ < 300 min</i>

(3) For a standalone coldroom that does not have a processing/handling area, the above toxicity emission and smoke density requirements for the insulation material need not be complied with.

(iv) Coldroom panels supporting structures

All coldroom panels supporting structures shall have a fire resistance of not less than 1hr, unless it is located at external open space.

(v) Activities involving open flame

Open flame activities shall not be carried out in coldrooms. Where such activities are required due to the nature of the operation, the areas where open flame activities are carried out shall be protected in accordance with Cl.3.2.5(f)(v)(1) & (4) and the coldroom insulation materials shall meet the toxicity emission and smoke density requirements stipulated under Table 3.2.5(m)(iii)(2) above.