

Your Ref :

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

Date : 30 December 2015

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

## **CONDUCT OF FIRE ENGINEERING ASSESSMENT IN SUPPORT OF FIRE SAFETY WAIVER APPLICATION**

Under the Fire Safety Act, plans of fire safety works submitted by the Qualified Person (QP) shall be in compliance with the prevailing Fire Code. In the event of any deviation from code requirements, a waiver application must be submitted to SCDF.

2. While the assessment of some waiver issues by SCDF is relatively straightforward, others may require fire engineering assessment to substantiate the waiver application so as to provide an objective assessment of the fire safety outcomes. However, presently in many instances, these fire engineering assessments are not carried out by the applicant.

3. In light of the above, SCDF has identified specific clauses in the Fire Code (see Annex A), where it is mandatory that these waiver applications must be supported by fire engineering assessment(s). Unlike a full performance-based plan submission process where fire engineering design brief and engagement of peer reviewer is necessary, this process only requires an additional fire engineering assessment to be conducted by a fire safety engineer in support of the waiver application.



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4. This list which can also be accessed via SCDF's website (<http://www.scdf.gov.sg/building-professionals/downloads>) may not be exhaustive and SCDF may still require and will advise accordingly for fire engineering assessment to be carried out for waiver issues that fall outside the list.

5. This circular shall take effect for waiver application submitted to SCDF from 30 June 2016 and is also available in CORENET-e-Info: <http://www.corenet.gov.sg/einfo>. Please convey the contents of this circular to members of your Board / Institution / Association. For any inquiry or clarification, please contact: MAJ Bryan Ng at DID: 68481443 or Email: [bryan\\_ng@scdf.gov.sg](mailto:bryan_ng@scdf.gov.sg).



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Yours faithfully,

(transmitted via e-mail)

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

cc

CEO, BCA  
CEO, URA  
CEO, HDB  
CEO, JTC  
CE, LTA  
CE, SPRING Singapore  
President, REDAS  
President, IFE  
President, SISV  
President, FSMAS  
President, SCAL  
Honorary Secretary, SPM  
SCDF Fire Safety Standing Committee  
Fire Code Review Committee



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Annex A

Fire Safety Waivers to be substantiated with Fire Engineering Studies

SN	Waiver Clauses to be substantiated with fire engineering studies	Fire Code Requirements
1	1.2.1(A) Minimum air well size	To assess if the smaller air well size (10 to 14m) is sufficient for the ventilation of staircase
2	2.2.13(a) 2.2.13(b) (i) (iii) (iv) Smoke free approach to exit staircase	To assess if the non-compliance of the following is sufficient for smoke free approach: <ul style="list-style-type: none"> <li>• Min width of 6m for air well and not less than 93m<sup>2</sup></li> <li>• At least 15% of floor area and not more than 9m from any part of the lobby</li> <li>• Cross ventilated corridor with at least 50% of the superficial area of the opposing external wall and any part of the corridor shall not be more than 13m from the opening</li> </ul>
3	2.2.15 (c) External corridor serving area of refuge	To assess the deficiency of the external corridor serving the area of refuge
4	2.3.2 (c) External Exit Passageway  2.3.2 (d) Internal Exit Passageway	To assess if the non-compliance in the design and ventilation requirement of external exit passageway will affect egress of occupants  To assess if the non-provision of 15% ventilation opening will affect egress of occupants
5	2.3.3 (a) (iii) Unprotected opening from internal staircase (1.5m horizontally and 3m vertically)	To assess the effect on the shortfall of the 1.5m horizontal and 3m vertical setback to ventilation opening of internal staircase
6	2.3.3 (b) (ii) Unprotected opening from external staircase (3m horizontally and 3m vertically)	To assess the effect on the shortfall of the 3m horizontal and vertical setback to external staircase
7	2.3.3 (c) (i) (ii) (iii) Protection at the staircase discharge	To assess the safety at the discharge point if the design deviates from code requirement: <p><u>Residential</u></p> <ul style="list-style-type: none"> <li>• 50% of the staircase can discharge into covered circulation space with no commercial activity and not more than 10m to the exterior</li> </ul>



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		<ul style="list-style-type: none"> <li>• Must be within sight to exterior and provided with 2 alternative routes</li> <li>• Not more than 4 residential units at the circulation space</li> </ul> <p>Discharge point to be cross ventilated with 50% permanent opening at each end</p> <p><u>Others</u></p> <ul style="list-style-type: none"> <li>• Not more than 5m to exterior from open sided external corridor (all staircases)</li> <li>• For sprinkler building, 50% of the discharge can be into circular space without commercial activity and not more than 10m to the exterior</li> <li>• Where there is commercial activity, a minimum 10m separation distance to be maintained between escape path and the commercial activities. The circulation space must have engineered smoke system or properly compartmented</li> </ul>
8	2.3.3 (f) Ventilation requirement for exit staircase	To assess the effect on the shortfall of the 10% ventilation opening on the egress of occupants
9	2.4.5 (f) Smoke free approach to exit staircase for residential occupancy	To assess the effect on the shortfall of the ventilation width for the smoke free approach: <ul style="list-style-type: none"> <li>• Ventilation opening to be minimum width of 2000mm and minimum height of 1200mm</li> </ul>
10	2.4.8 Smoke free approach to exit staircase for residential occupancy via external corridor concept	To assess if the non-compliance in the design and ventilation requirement of external corridor will affect egress of occupants
11	2.4.13 Common internal corridor - means of ventilation for residential occupancy	To assess the effect on the ventilation for the common internal corridor if the design deviates from code requirement: <ul style="list-style-type: none"> <li>• Ventilation opening to be at least 15% of floor area and not more than 9m from any part of the common internal corridor.</li> <li>• For a cross ventilated corridor design, fixed openings at opposing external wall to</li> </ul>



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		be at least 50% of the superficial area of the walls and no part of the corridor shall be more than 13m away from the ventilation opening
12	2.5.1 (iv) (4) (5) (6) Internal access corridor to patient accommodation ward	To assess the effect on the ventilation for the internal corridor if the design deviates from code requirement
13	2.5.1 (v) (1) (3) External corridor to patient accommodation ward	To assess the effect on the ventilation for the external corridor if the design deviates from code requirement
14	2.7.1 (c) Ventilation requirement for internal corridor (hotels, boarding houses, serviced apartments, hostels, backpackers hotel)	To assess the effect on the ventilation for the internal corridor if the design deviates from code requirement: <ul style="list-style-type: none"> <li>• Cl 2.2.13 (b) (i) &amp; (iv)</li> <li>• Min width of 6m for air well and not less than 93m<sup>2</sup></li> <li>• At least 15% of floor area and not more than 9m from any part of the lobby</li> <li>• Cross ventilated corridor with at least 50% of the superficial area of the opposing external wall and any part of the corridor shall not be more than 13m from the opening</li> </ul>
15	2.7.2 External corridor design (hotels, boarding houses, serviced apartments, hostels, backpackers hotel)	To assess the effect on the ventilation for the external corridor if the design deviates from code requirement
16	2.9.3 (c) (d) (e) Ventilation requirement for internal corridor serving workers' dormitories	To assess the effect on the ventilation for the internal corridor if the design deviates from code requirement: <ul style="list-style-type: none"> <li>• Fixed opening of at least 15% of the floor area and not less than 3.5m and be positioned on opposite side of the corridor for cross ventilation</li> <li>• Ventilation opening in the external wall shall not be more than 12m from any part of corridor</li> </ul>
17	2.9.4 External corridor serving workers' dormitories	To assess the effect on the ventilation for the external corridor if the design deviates from code requirement
18	3.2.8 (c) (i) (ii)	To assess the effect on the compartmentation if



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	<p>Compartmentation requirement for open sided car park</p>	<p>the design deviates from code requirement:</p> <ul style="list-style-type: none"> <li>• 50% permanent fixed openings evenly distributed along the perimeter walls and on every floor/deck. No part of the floor shall be more than 12m from the openings on the perimeter walls</li> </ul>
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