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Our Ref: OM-LA/012

26 April 2006

MEMORANDUM

To: All Engineering Staff

From: Andrew Loh

FSSD CIRCULAR
ADDITIONAL FIRE SAFETY REQUIREMENTS FOR SUPER HIGH-RISE RESIDENTIAL BUILDINGS

Please find attached the circular from FSSD dated 12 April 2006 pertaining to the above-captioned for your information and attention.

ANDREW LOH

cc TLS/RT
cc Notice Board

enc

/hi

BCA
ISO 9000
CERT. NO.: 236
SS ISO 9001 : 2000

SINGAPORE CIVIL DEFENCE FORCE
FIRE SAFETY & SHELTER BUREAU

HQ Singapore Civil Defence Force
91 Ubi Ave 4 Singaore 408827 Fax : 6848 1488
Website : http//:www.scdf.gov.sg

Please quote our ref. no . in all future correspondences

Our Ref: CD/FSSD/12/01/03/04

DID: 68481409
FAX: 68481493

12 Apr 2006

Registrar, Board of Architects (BOA)
Registrar, Professional Engineers Board (PEB)
President, Singapore Institute of Architects (SIA)
President, Institution of Engineers, Singapore (IES)
President, Association of Consulting Engineers, Singapore (ACES)

Dear Sirs

ADDITIONAL FIRE SAFETY REQUIREMENTS FOR SUPER HIGH-RISE RESIDENTIAL BUILDINGS

With the continuous growth of Singapore's population, high demand for residential properties, and the limited land space of this island nation, urban planners and designers are pushing the limits in building height upwards. Such a trend has begun to emerge even in our public residential developmental programme.

2. This has given rise to greater fire safety concerns with skyscraping residential buildings, as they pose greater difficulties in mitigating efforts required of emergency responders as well as evacuation of the occupants. Henceforth, residential buildings that go beyond 40 storeys will be labeled as Super High-rise Residential Buildings. SCDF has reviewed the current Fire Code requirements and has identified the following additional requirements that would enhance fire safety in super high-rise residential buildings:-

a. The creation of refuge floor/holding area at 20-storey intervals.

b. Facilitate the use of water-mist gun by providing water feeding points.

c. Larger capacity fire-lift to ferry men and equipment thus facilitating the rapid deployment in super high-rise buildings.

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3. Attached are details of these additional requirements. All new super high-rise residential buildings shall comply with these additional requirements with immediate effect. For developments that are currently in the making, these requirements will also be made in retrospect, as SCDF had separately conveyed the requirements to the QPs and developers concerned.

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

5. For any inquiry or clarification, please contact Ms Kwan Lian Sian at tel. no. : 68481456 or e-mail address: Lian_Sian_Kwan@scdf.gov.sg

Yours faithfully

(transmitted via e-mail)

Ding Tuen Cheng
Secretary, FSSD Standing Committee
for Commissioner
Singapore Civil Defence Force

cc
All members of FSSD Standing Committee
President, REDAS
President, IFE
President, SISV
CEO, BCA
CEO, URA
CEO, HDB
CEO, PSA
CEO, JTC
CE, LTA
CE, PSB – (Attn : Ms Tan Chiew Wan/Mr. Lau Keong Ong)
GM, SPRING Singapore – (Attn : Mr. Teo Nam Kuan)

ADDITIONAL FIRE SAFETY REQUIREMENTS FOR SUPER HIGH-RISE RESIDENTIAL BUILDING

A. DEFINITION

1. **Refuge Floor** - A floor designated for holding occupants in a super high-rise residential buildings.

2. **Holding Area** – A designated circulation area/space on the refuge floor for temporary assembly of occupants during fire emergency.

3. **Super High-Rise Building** – Building having more than 40 storeys/levels

B. PROVISION OF REFUGE FLOOR

1. Super high-rise residential building shall be provided with at least one refuge floor at an interval of not more than 20 storeys.

2. The refuge floor shall comply with the following requirements:

   a. It shall be of masonry construction having fire resistance rating not less than 2 hours.

   b. At least 50% of the gross floor area of the refuge floor shall be designated as holding area.

   c. There shall be no commercial activities in the holding area, however, it can be used as space for physical exercises or children playground. All equipment placed within the holding area shall be made / constructed of non-combustible materials.

   d. The size of the holding area shall be adequate to accommodate at least half the total occupant load of all storeys above and below the refuge floor, basing on 0.3m² per person.

   e. 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. Link of the holding area with other occupied rooms/areas shall be via an external corridor, or a smoke-stop lobby complying with Cl. 2.2.13(b) of the Fire Code.

   f. 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.

g. All parts of the holding area shall be within 9m of any ventilation opening.

h. Ventilation opening shall be located at least 1.5m horizontally and 3m vertically above adjoining unprotected openings.

i. Sprinkler system shall be provided for the refuge floor if there is any non-residential room located on the same floor.

j. Escape routes leading to the holding area shall be through smoke-stop/fire fighting lobby or external corridor.

k. 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.

l. 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, and shall be able to provide a horizontal luminance at floor level of not less than 5 lux. The delay between the failure of the electrical supply to normal lighting and the energization of the emergency lighting for occupied areas shall not exceed 15 seconds.

C. PROVISION OF FIRE LIFT

1. The fire lift car shall have a clear area/space of not less than 1.7m (depth) x 1.5m (width).

2. The clear area/space (unobstructed by door swings) of fire fighting lobby shall not be less than 6m².

3. Two-way voice communication system shall be provided at the fire fighting lift lobby serving the refuge floor.

D. PROVISION OF QUICK COUPLING FOR SCDF'S WATER MIST GUN

1. At least one number of quick coupling shall be provided on every habitable floor. The remotest point of the floor shall be within 45m of the quick coupling.

2. The quick coupling shall be connected to domestic water riser or hose-reel pipe at the height between 1m and 1.6m and shall be located along common corridor or within the smoke-stop/fire fighting lobby.

3. The design and installation of the quick coupling shall meet the specifications stipulated by SCDF.