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**FIRE SERVICES DEPARTMENT
LICENSING AND CERTIFICATION COMMAND**

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16 September 2004

To: Authorized Persons
Registered F.S.I. Contractors
Registered Ventilation Contractor
Registered Lift & Escalator Contractors
Fire Insurance Association of H.K.
The Association of Registered F.S.I.
Contractors of Hong Kong
Structural Division, H.K.I.E.
Power Companies

The H.K. & China Gas Co.
The Lift & Escalator Contractors Association
Pacific Century Cyber Works Limited
Hong Kong Construction Association
Director of Architectural Services
Director of Buildings
Director of Housing
Petroleum Companies

Dear Sirs/Madams,

FSD Circular Letter No. 2/2004
Standard Spreader for Supporting Fire Service Pumps at Flat Roof

In order to progressively improve fire safety in old buildings, the Fire Safety (Commercial Premises) Ordinance Chapter 502 was first introduced in 1997 to require the upgrading of fire safety measures in prescribed commercial premises (i.e. banks, supermarkets, off-course betting centres, jewellery or goldsmith shops, department stores and shopping arcades) to an acceptable standard. The Ordinance was amended in April 1998 to expand the fire safety improvement programme to cover pre-1987 commercial buildings.

Since the implementation of the Ordinance on 2 May 1997, owners/occupiers of the prescribed/specified commercial premises may be required to comply with the necessary fire safety requirements of the Fire Safety Directions/Fire Safety Improvement Directions that include the provision of additional fire service installations and equipment such as fire hydrant/hose reel system, sprinkler system, etc. However, as there is often left with no alternative in accommodation but to install the Fire Service (FS) pumps of the system at flat roof of the buildings which are not designed for such installation, the use of a spreader to even out the weight of a pump to avoid overloading problem, from the perspective of building safety, is desirable.

Under the extant Buildings Ordinance, a structural system supporting the pumps (i.e. a spreader) in a building should be designed by an Authorized Person / Registered Structural Engineer (AP/RSE) and constructed by a Registered General Building Contractor

(RGBC). It has been a predicament to some buildings' owners who would find this requirement not only expensive but time-consuming. Therefore, in order to assist Registered Fire Service Installation Contractor (RFSIC) and building owners to meet the requirements in a shorter time and without incurring the costs of employing professional consultants such as APs for some minor works construction, BD has worked out a standard design on a simple spreader for construction and installation of FS pump at flat roof of existing buildings by RFSIC.

The proposal of this standard spreader has been thoroughly discussed at the liaison meetings of Fire Services Department with APs and RFSICs respectively, and at meetings with the Fire Safety Standards Advisory Group (formerly known as Working Group on Fire Service Installations Inspection Procedures) with all the comments and suggestions duly considered and included.

As long as the spreader is constructed and installed by a RGBC or RFSIC in accordance with the Drawing No. 01 (**Appendix A**) and all the conditions prescribed therein, the installation works can be regarded as exempted building works under s.41(3) of the Buildings Ordinance and the procedure of having an AP/RSE to submit the spreader to BD for prior approval can be dispensed with. The procedures for the submission of this standard spreader are listed at **Appendix B**.

The standard spreader is applicable to installation of FS pumps at designated flat roof area only (as shown in approved General Building Plans) where direct access is provided through a door. It is not suitable for installation at sloping roof and flat roof where no proper access is provided to the roof (such as roof cover above stairhood).

For FS pumps directly seated (without spreader) on floor slab, an AP or RSE is still required to be appointed for the certification. Relevant submission and certification procedures are illustrated at **Appendix C** for reference.

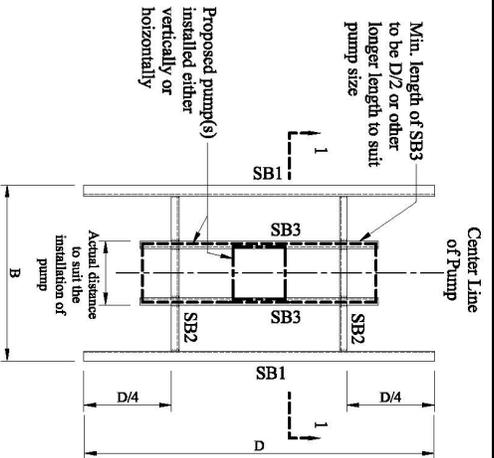
If any FS pump is found installed with spreaders other than that in the standard drawing No. 01 at **Appendix A**, or is found seated on the floor slab of existing building (without due calculation and certification by an AP or RSE to ensure its structural safety), BD may, on safety ground, take action to have it removed.

This new arrangement shall take immediate effect. With due regard to the future implementation of the Fire Safety (Buildings) Ordinance Chapter 572 and other self-initiated improvement works relating to fire service installations, this new arrangement shall also apply.

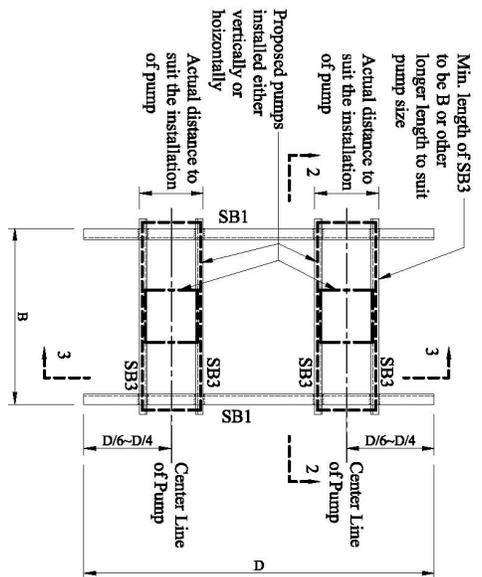
Yours faithfully,

(LAU Kwai-shan)
for Director of Fire Services

Encl.



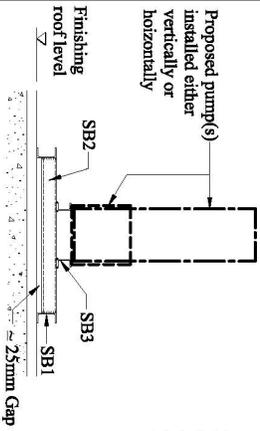
**PLAN FOR ONE OR MORE PUMP(S)
INSTALLED ALONG
THE LONG SPAN OF PLATFORM**



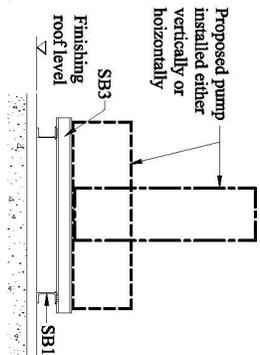
**PLAN FOR TWO OR MORE PUMPS
INSTALLED ALONG
THE SHORT SPAN OF PLATFORM**

Schedule for Steel Platform :-

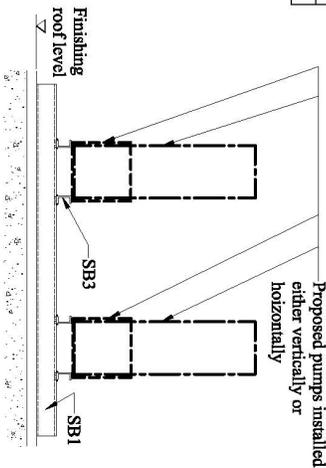
Allowable Gross Static Weight of Pump(s) P (kg)	Dimension B x D (mm) x (mm)	STEEL CHANNEL	
		SB1 (mm) x (mm) x (kg/m)	SB2, SB3 (mm) x (mm) x (kg/m)
Type A P ≤ 50	700 x 950	76 x 38 x 6.7	76 x 38 x 6.7
Type B 50 < P ≤ 100	900 x 1300	102 x 51 x 10.4	76 x 38 x 6.7
Type C 100 < P ≤ 150	1100 x 1500	102 x 51 x 10.4	76 x 38 x 6.7
Type D 150 < P ≤ 200	1200 x 1800	102 x 51 x 10.4	76 x 38 x 6.7



SECTION 1-1



SECTION 2-2



SECTION 3-3

STEEL PLATFORM FOR F. S. PUMP INSTALLATION

STANDARD DETAILS OF STEEL PLATFORM SUPPORTING FIRE SERVICE PUMPS

Notes:-

1. Suitable for flat roof area (shown in approved General Building Plan) where direct access is provided through door. [i.e. assuming existing roof slab having a load capacity of 1.5 Kpa (about 30 lb/sq. Ft.)]
2. Unsuitable for flat roof and sloping roof where no access is provided to the roof or access is provided for maintenance work only.
3. No other loading shall be placed inside the area bounded by perimeter of steel platform. (i.e. the area B x D)
4. Precautionary measure such as the provision of shock absorber shall be taken to avoid excessive vibrations induced to roof slab from the operation of the pumps.
5. Mounting of the steel platform to the roof slab shall be such as not causing any damage to the existing waterproofing system of the roof. For the mounting details between pump/steel platform/roof slab, reference shall be made to the advice and recommendations from the pump suppliers. Any cement mortar bedding underneath steel channels SB1 for leveling of steel platform shall not exceed 50mm in thickness.
6. For two or more pumps fixed on the same steel platform, the total weights of pumps shall not exceed the allowable gross static weight of pumps and the pumps shall be installed in such a way to coincide the loading center of pumps with the center of steel platform.
7. Metal casing served as a shelter and compatible to the size of pump is allowed providing that the weight of metal casing shall not exceed 10% of the static weight of pump.

Notes for Structural Steel Works:-

1. All structural steelworks shall be Grade 43 complying with BS 4360.
2. The weld connection between steel beams shall be of min. 4 mm continuous fillet weld all round in accordance with BS 5135.
3. All steelworks shall be protected against corrosion. (e.g. by painting with 2 coats of epoxy zinc primer with minimum dry film thickness of 110 microns)

DRAWING NO. :

01

Appendix B

Procedures for Submission of Standard Spreader for FS Pumps at Flat Roof

- (a) Whenever RFSICs intend to carry out fire service upgrading works such as those works as stipulated in FSD Circular Letter No. 2/2004, they should submit relevant fire service installation (FSI) drawings via a duly completed FSI/314B to the Fire Services Department (FSD) for approval.
- (b) Upon the approval of FSI drawings, the RFSIC should carry out installation works in accordance with the approved FSI drawings. The standard spreader for supporting FS pumps shall be designed in full accordance with the enclosed Drawing No. 01 at **Appendix A** – Standard Details of Steel Platform Supporting Fire Service Pumps.
- (c) Upon completion of the standard spreader, the RFSIC should notify FSD by completing the Standard Notification Form (SNF) at **Annex I** (Page 1 & 2) with record photographs attached and copied the same to the Fire Safety Section of BD. The submission of the duly completed SNF shall be accompanied with a cover letter stating the name and telephone number of the contact person for future arrangement of inspection of the standard spreader by BD. (A sample sketch is enclosed at page 3 of **Annex I** for easy reference)
- (d) The procedures for processing of this SNF and the audit check on the standard spreader by FSD and BD are shown on the flow chart at **Annex II**.
- (e) Not until there are written notice from the Structural Consultancy Unit (SCU/BD) saying that the standard spreader for supporting the FS pumps had been satisfactorily installed, the FSI upgrading works cannot be certified as satisfactorily completed by FSD.
- (f) For other fire service upgrading works not stipulated in FSD Circular Letter No. 2/2004, submission of FSI/314A together with relevant as-fitted FSI drawings are required. The submission procedures for standard spreader are the same as item (c) to (e) listed above.

Annex I

**Notification of
Completion of Standard Spreader System
For Fire Service Installation**

To Fire Services Department

I (name in full) _____ (Chinese) _____,
* registered general building contractor/registered fire service installation contractor
of (address) _____, hereby inform
that the standard spreader system for fire service installation located at (locations of
installations) _____ of (address of the building) _____
_____ has been erected by me in
accordance with the provisions of the standard drawing No. 01 - Standard Details of
Steel Platform Supporting Fire Service Pumps as stipulated in the FSD Circular Letter
No. 2/2004 and completed on (date) _____ .

2. I attach herewith site photographs of the completed work and submit
herewith a sketch showing the locations and details of the said fire service
installation/standard spreader for record.

Date _____ Company Chop and
Authorized Signature : _____
* Name of Company/Contractor : _____
Certificate of Registration No : _____
Date of expiry of registration : _____

c.c. Fire Safety Section, Buildings Department

* Delete whichever is inapplicable

Sketch showing locations and details of pumps / standard spreaders

Plan showing the locations of pumps / standard spreaders installed

Applicability of standard drawing

Notes No. 1 of standard drawing fulfilled: Yes / No

Notes No. 2 of standard drawing fulfilled: Yes / No

Details of pumps / standard spreaders

Total number of pumps installed:

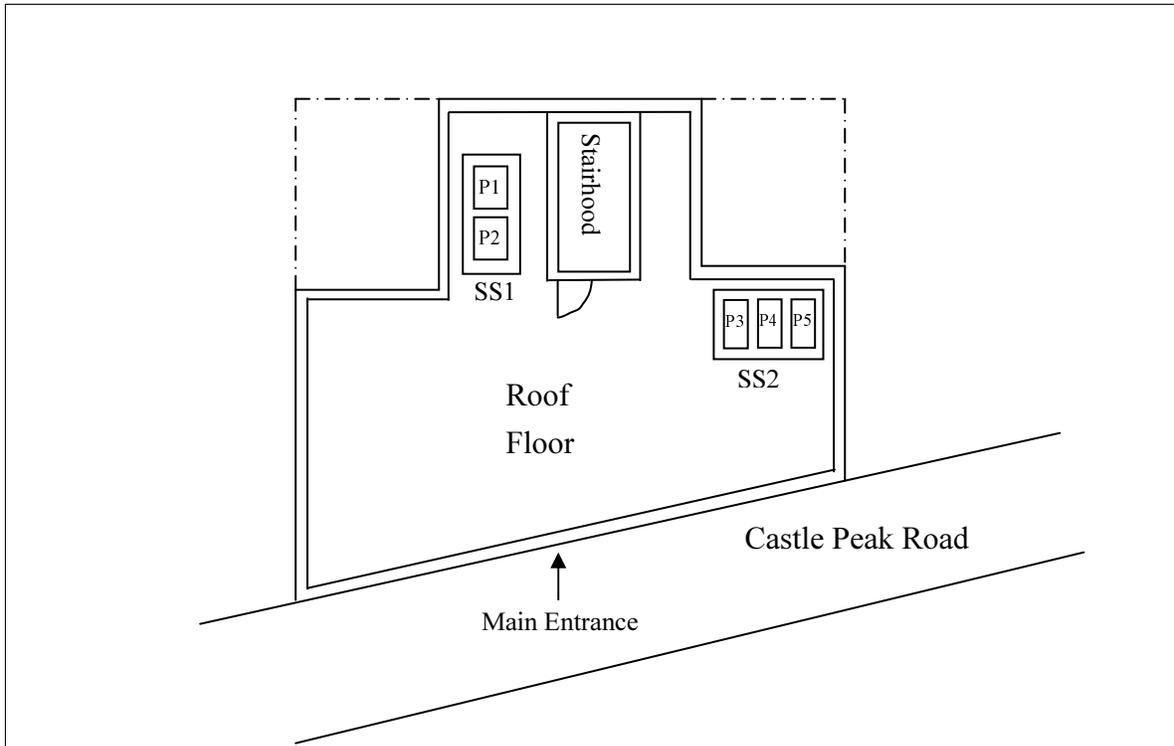
Total number of standard spreader adopted:

Metal casing shelter for pump provided: Yes / No

Pump No.	Pump static weight (kg)	Standard spreader No.	Standard Spreader Type

SAMPLE

Sketch showing locations and details of pumps / standard spreaders



Plan showing the locations of pumps / standard spreaders installed

Applicability of standard drawing

Notes No. 1 of standard drawing fulfilled: Yes / ~~No~~

Notes No. 2 of standard drawing fulfilled: Yes / ~~No~~

Details of pumps / standard spreaders

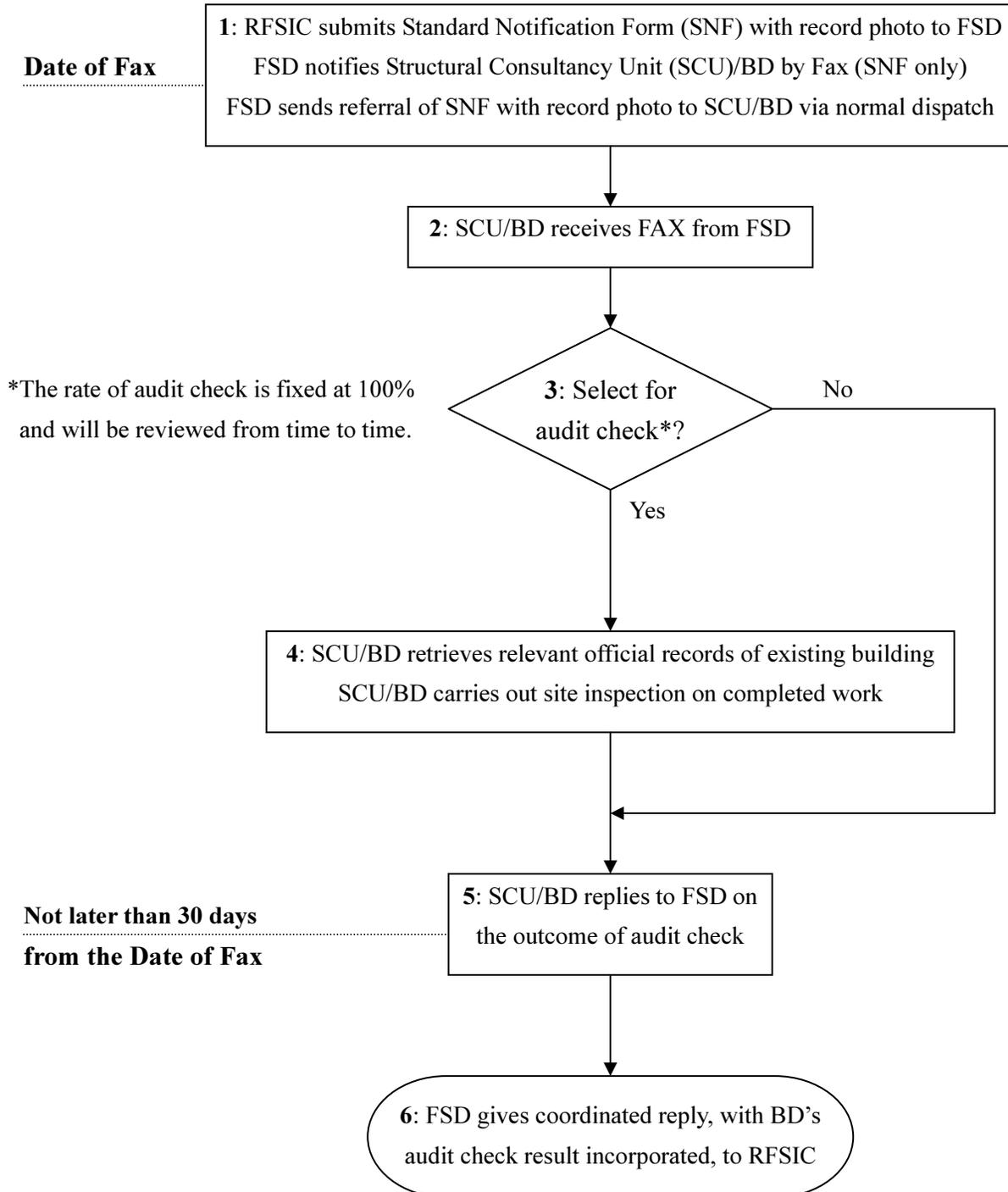
Total number of pumps installed: 5

Total number of standard spreader adopted: 2

Metal casing shelter for pump provided: Yes / ~~No~~

Pump No.	Pump static weight (kg)	Standard spreader No.	Standard Spreader Type
P1	60	SS1	Type C
P2	50	SS1	Type C
P3	75	SS2	Type D
P4	50	SS2	Type D
P5	60	SS2	Type D

**Flow Chart for processing of Standard Notification Form
in respect of Completed Standard Spreaders**



**Certificate on structural safety of building
for FS pump directly seated on floor slab**

When the FS pump(s) is seated directly on the floor slab of an existing building (i.e. without spreader), an Authorized Person (AP) or Registered Structural Engineer (RSE) is required to ensure the structural adequacy of the building structure with supporting calculation and to submit to the Fire Services Department (FSD) a structural certificate and its related documents to certify the structural safety of the building upon completion of the installation work.

A) The structural certificate should include the following:

1. Particulars of the appointed AP/RSE,
2. Particulars of the building,
3. A statement by AP/RSE to confirm the structural adequacy of the existing building structure and the availability of the supporting calculation,
4. Particulars of FS pump(s) installed,
5. The structural element(s) affected, and
6. The design code adopted for checking.

B) The related documents include the following:

1. A plan showing the pump locations and the affected structural elements, and
2. Record photos of the completed work.

Sample format of a structural certificate at **Annex III** and the flow chart for processing of the structural certificate at **Annex IV** are attached for reference.

If it is found that there is a pump(s) seated directly on the floor slab of the existing building without calculation and certification by an AP or RSE, BD may take action to remove them on safety ground.

SAMPLE FORMAT

**Certification of structural safety of building
For fire service pump directly seated on floor slab**

To Fire Services Department

I (full name of AP or RSE) , hereby certify that the building known as (address of the building) is capable of bearing the loads and stresses which may be increased or altered in any way by reason of the fire service installation work completed at (location of installation, e.g. roof floor) .

2. I have checked the structural adequacy of the existing building structures and have kept the supporting calculation. Upon request, the supporting calculation can be available for inspection.

3. Details of the completed fire service pump installation and the affected structural elements are as follows:

(a) Fire service pumps –

Pump No.#					
Pump static weight (kg)					

(b) Affected structural elements shown in the attached plan:

_____ (e.g. beam/slab mark on approved framing plan) _____

(c) Design code adopted for checking:

_____ (e.g. LCC, BS8110) _____

(d) Record photos of the completed work.

Date: _____

_____ (signature) _____

* Authorized person/Registered structural engineer

Certificate of Registration No: _____

Date of expiry of registration: _____

Refer to the attached plan showing the pump locations

* Delete whichever is inapplicable

**Flow chart for processing of Structural Certificate
in respect of FS pump(s) directly seated on floor slab(s)**

