

FIRE PROTECTION NOTICE NO.13

FIRE PROTECTION AT CONSTRUCTION SITE

Serious fires have occurred in buildings under construction which will not only delay their completion dates but also result in serious monetary losses, as the whole complete structure may need to be partly/wholly demolished and rebuilt. The worst could bring about injuries and deaths. The major causes for fire in these buildings are:-

- (i) Accumulation of loosely packed and/or scattered building materials which are usually highly combustible;
- (ii) inadequate insulation/protection and/or overloading to electric wiring;
- (iii) carelessness in welding work;
- (iv) lacking of safety measures and supervision for control burning of rubbish;
- (v) smoking and carelessness in the disposal of smoking materials;
- (vi) improper use and storage of dangerous goods; and
- (vii) the lack of fire protection system due to the non-completion of fire service installations and/or improper maintenance.

To mitigate the fire risk and minimize the possibility of the outbreak of fires at construction sites, the following guidelines should be observed by building contractors and site workers:

1. Storage of Combustible Materials

Combustible materials stored on site, whether outside or inside a structure, should be well stacked in an orderly manner and to the minimum. Ample separating spaces should be provided to each stack both from the top and the sides.

2. Storage of Dangerous Goods

All dangerous goods shall be stored in appropriate Dangerous Goods Stores approved by the Director of Fire Services. Unused dangerous goods should be returned to and stored at Dangerous Goods Stores. Safety precautions on the use of dangerous goods should be observed at all times.

3. Housekeeping

Good housekeeping will reduce the chances of a fire, rate of fire spread as well as injuries/fatalities. Things to observe include:-

- (i) orderly storage of materials;
- (ii) periodical removal of discarded combustible packing materials, wood chips, saw dust, etc.; and
- (iii) an unobstructed exit route should always be maintained.

4. Provision of Access

Substantial staircase(s) should be erected corresponding with the building of floor slabs to ensure the availability of escape route and access for fire fighting purpose. Such staircase(s) should be maintained free from obstruction.

5. Open Flame Work

Sparks from open flame work (welding, cutting, etc.) is, by large, the most common cause for fires in buildings under construction. Extreme care should therefore be exercised when carrying out any welding work. All combustible materials should be removed, where possible, from the immediate vicinity. A portable fire extinguisher should be placed at immediate readiness.

6. Coating and Sealing Substances

Special caution is required in heating and boiling of the coating and sealing substances which are used as insulation and sealing materials.

7. No Smoking Instruction

"No Smoking" signs should be prominently displayed and strictly observed in the construction area as especially where highly inflammable adhesives or solvents are used.

8. Electric Wiring

All electric wiring should be properly insulated and protected. Earth leakage circuit breakers should be installed to trip the supply when overloading of the circuit occurs.

9. FIRE SERVICE INSTALLATIONS AND EQUIPMENT

In order to maintain proper fire protection for construction site, it has been agreed by The Hong Kong Construction Association Limited that the following minimum fire service installations and equipment have to be provided during building construction:-

A. FIXED FIRE PUMP

- i. Fixed fire pump(s) shall be provided to relay water supply for all floors above 30m. Local fire stations should be approached for advice on details of such provision as and when the construction of the building is approaching a height of 30m.
- ii. The pump set shall be located close to staircase but shall not cause any obstruction to means of escape.
- iii. Each pump shall be fitted with inlet/outlet of standard 65mm instantaneous coupling conforming to BS336. The inlet/outlet shall be individually controlled by a wheel-operated screw valve designed to open by counter-clockwise rotation. The direction of opening of the valve shall be clearly engraved in both English and Chinese on the wheel.
- iv. The pump shall be provided with an air-relief valve.
- v. The pump set shall be able to produce a flow of not less than 900L/min at a running pressure of not less than 350kPa but not more than 850 kPa at the fire hydrant outlet.
- vi. A plan showing the location(s) of the fixed fire pump(s) shall be provided at a

- prominent position at the entrance of the construction site.
- vii. Directional signs indicating the access to the fixed fire pump(s) shall be displayed at prominent position immediate outside the ground level entrance of the staircase(s) and at suitable intervals.

B. ELECTRICITY SUPPLY TO FIXED FIRE PUMP

- i. Each fixed fire pump shall be connected to the main electricity supply of the construction site.
- ii. The electricity supply shall have enough capacity to cater for the simultaneous operation of all fixed fire pump(s) installed in each building under construction.
- iii. The power cables shall be properly fixed on wall. Each pump shall be provided with duplicated power cables separately routed to avoid complete power failure resulted from mechanical damage. It is preferably that metal conduit or trunking is provided to protect the cables and in such case separate routing will not be required.
- iv. The duplicated power cables shall comprise a cable connected from electricity mains and the other teed off before the main switch. They shall be terminated at an automatic changeover switch installed next to each fixed fire pump. The pump power supply shall be automatically switched to the secondary power if the normal power fails for whatever reason.
- v. Schematic diagrams showing the typical arrangements of electricity supply are shown in Figures 1 and 2.

C. PORTABLE EQUIPMENT

- i. A 9-litre water/CO₂ portable fire extinguisher shall be provided for each 200 square metres of floor area having been constructed and each floor shall have not less than two fire extinguishers.
- ii. The extinguisher shall be located close to staircase.
- iii. A 9-litre water/CO₂ portable fire extinguisher shall also be provided in each site office.

10. Maintenance of Fire Service Installations and Equipment

- 10.1 The building contractor shall maintain all fire service installations and equipment in efficient working order at all times.
- 10.2 The fixed fire pump and portable equipment should not be removed unless the building fire hydrant/hose reel installation has been satisfactorily installed. Local fire station should be informed accordingly.

11. ENQUIRIES

Should there be any enquiries on the fire protection measures for construction site, please contact the local fire stations or Fire Protection Bureau at telephone no. 2733 7574.

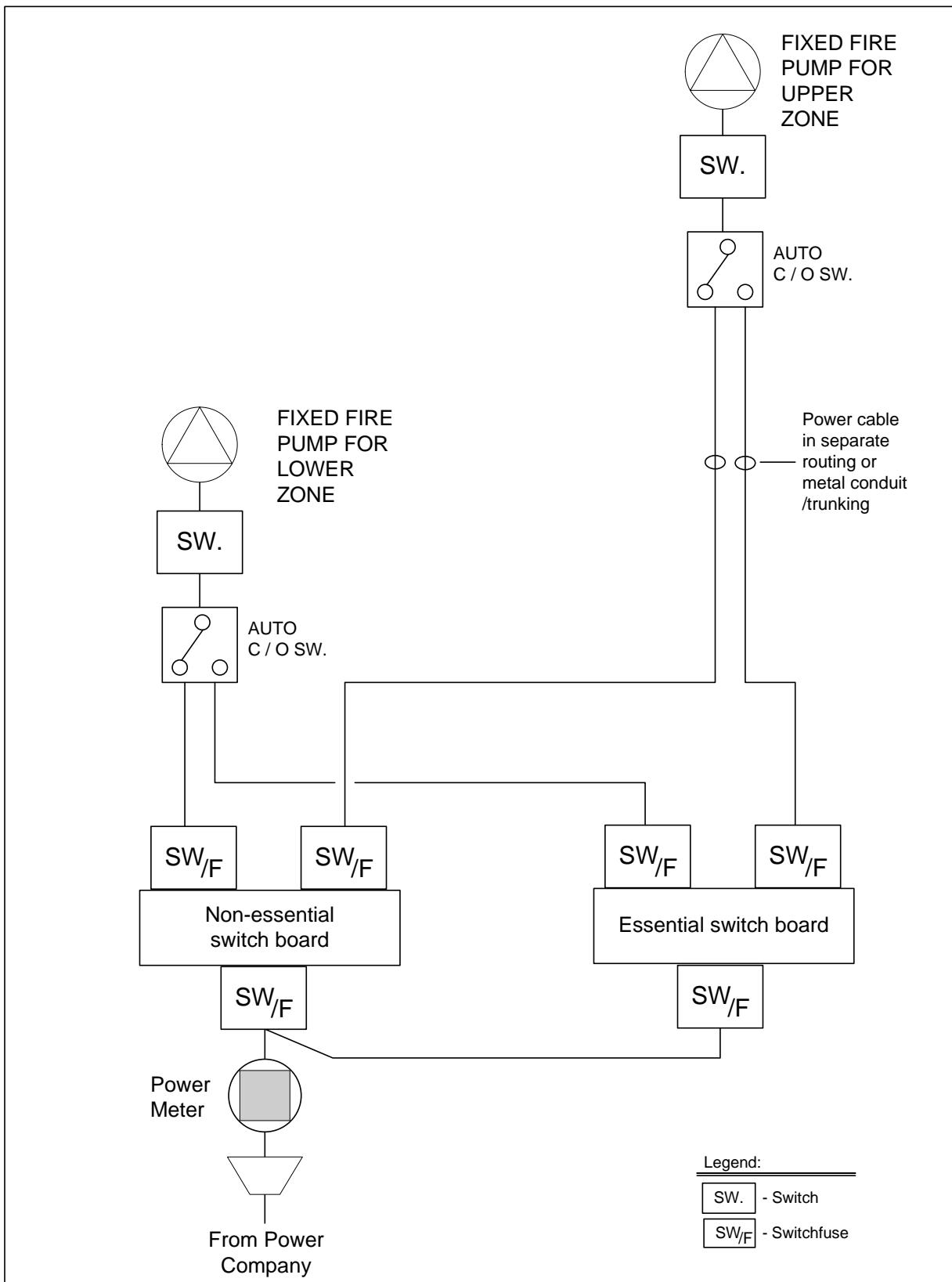


Figure 1: Schematic Diagram of the Electricity Supply for Fixed Fire Pumps (Single Tower)

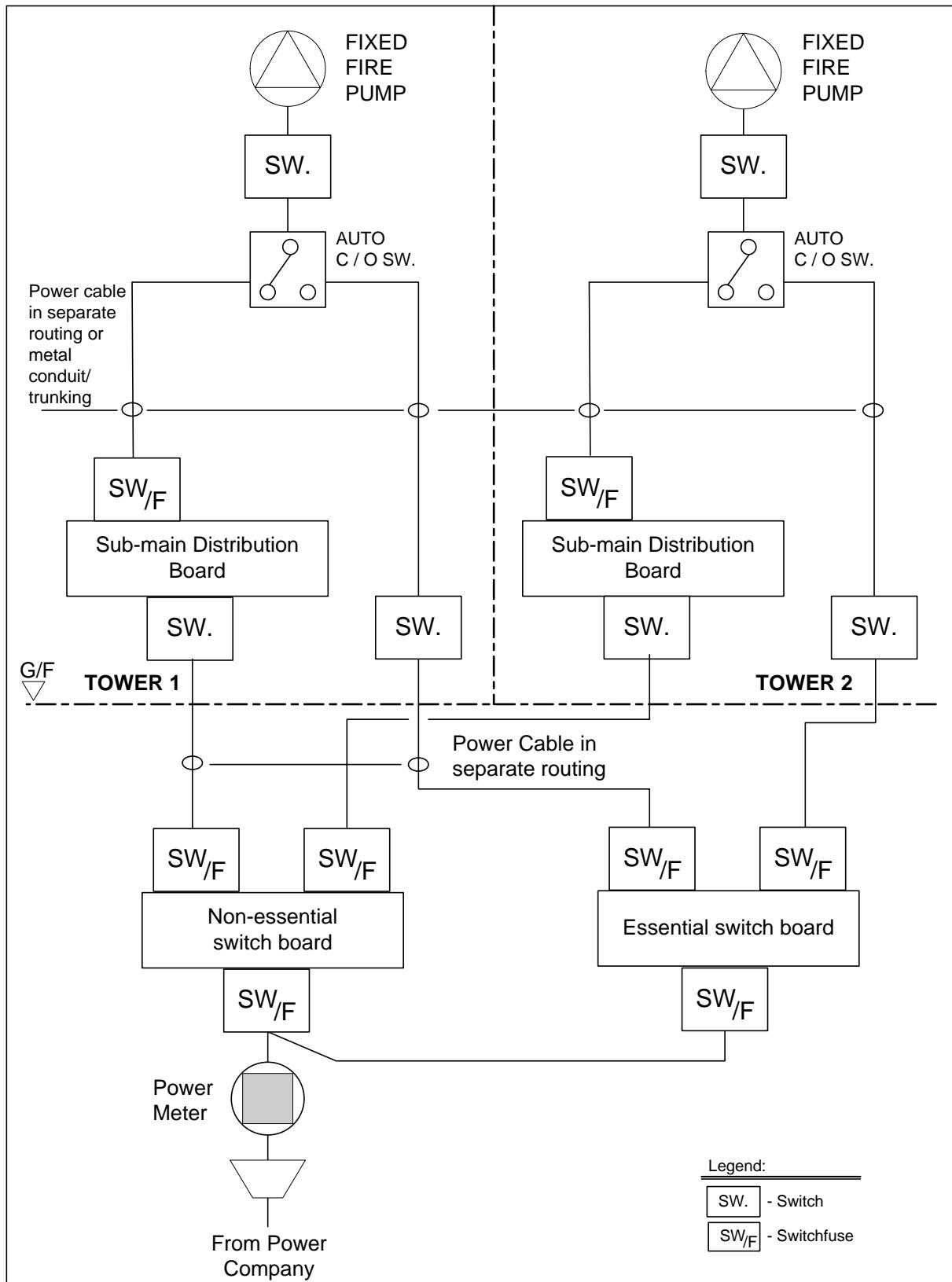


Figure 2: Schematic Diagram of the Electricity Supply for Fixed Fire Pumps (Multiple Towers)