



**DO's and DON'Ts for Siting and Design of
Fuel Tank Room for
Emergency Generators**

Fire Services Department

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1. Introduction

1.1 Objective

The objective of this Guide is to provide general guidance on the siting and design of Fuel Tank Room(FTR) for emergency generators.

1.2 Scope

The FTR in this Guide refers to a separate room for housing fuel tank with capacity exceeding 500 litres or fuel tank interconnected with other fuel tanks through piping. For fuel tank with capacity of 500 litres or below, reference should be made to Fire Services Standard Requirements of Emergency Electrical Generator [NP/105(5th Revision)].

1.3 Legislative Control

1.3.1 Under section 6 of the Dangerous Goods Ordinance, Chapter 295, no person shall store any dangerous goods in excess of exempted quantity in any premises or place without a licence issued by the Authority, viz. the Director of Fire Services. In accordance with the Dangerous Goods (General) Regulations, Cap. 295B, the exempted quantity of Diesel Oil is 2,500 litres.

1.3.2 Storage tank for diesel oil requires the approval from the Authority in accordance with regulation 99A of the Dangerous Goods (General) Regulations, Cap. 295B.

2. Siting and Design of FTR

The DO's and DON'Ts criteria in respect of siting and design of FTR(s) are tabulated below:-

2.1 DO's

1.	The FTR(s) should only be installed for the supply of fuel to emergency generator for Fire Service Installation (FSI) or power backup for emergency building facilities/essential service, e.g. bank computer system.
2.	Storage of fuel is restricted to Cat. 5 Class 3 DG only.
3.	The enclosure walls and the entrance doors of the FTR(s) should have at least 2-hour and 1-hour Fire Resisting Period (FRP) respectively.
4.	The doors of the FTR(s) should be self-closing and opened in the direction of egress.
5.	Individual protected lobby should be provided to each FTR when it cannot discharge directly to open air.
6.	Doors of the protected lobby should be self-closing with at least 1-hour FRP and should be opened in the direction of egress.
7.	A door curb of at least 300 mm high with 100% retaining capacity for the aggregate quantity of fuel should be provided.
8.	Natural ventilation to open air should be available otherwise mechanical ventilation should be provided.
9.	FTR(s) of volume less than 44m ³ should be provided with independent fire suppression system in accordance with the scale stipulated in item 8.3 of FSD Circular Letter No. 4/96 Part VIII.
10.	Major Automatic and Fixed Fire Service Installation should be provided if the cubic volume of the room is greater than 44m ³ .

2.2 DON'Ts

1.	Siting of FTR(s) shall not jeopardize any means of escape.
2.	Aggregate quantity of the fuel oil in FTR(s) on the same floor shall not exceed 2,500 litres.
3.	Piping connecting fuel tank(s) and/or generator set(s) shall not pass through any means of escape/common area.
4.	In domestic building(s) used exclusively for dwelling purpose, FTR(s) located at level exceeding 30 m in height is not permitted. Composite building(s) where upper floors being used for dwelling purpose are considered as domestic building.
5.	FTR(s) on different floors shall not overlap with the one immediately above or below.
6.	The running of fuel pipelines inside building and passing through floors is not desirable. (see Note)

Note : Fuel pipelines running inside building and passing through floors (i.e. centralized fuel supply design) would most likely create various types of fire risks e.g. accumulation of flammable vapour in pipe duct, unwanted and unchecked fire spread laterally and/or horizontally etc. If the centralized fuel supply design is the only option to be considered, the fuel pipelines shall as far as possible run on the external wall of the building where natural ventilation could be achieved. If internal pipe routing is inevitably adopted, the following fire safety measures to mitigate potential fire risks shall be observed:-

- (i) mechanical ventilation of at least 5 air changes per hour to be provided;
- (ii) flammable gas detectors to detect any formation of flammable vapour due to failure of ventilating system to be provided;
- (iii) all electrical fitting and fixture within the hazardous areas to be complied with BS EN 60079;
- (iv) the main fuel pipeline not to jeopardize the means of escape and to be housed within an enclosure having not less than 4 hours FRP;
- (v) access door / opening to enable inspection and maintenance of the fuel supply line to be provided;
- (vi) good management practice of conducting regular inspections and preventive maintenance to be provided;
- (vii) high level and overflow alarm to detect and control overfilling to be provided;
- (viii) manual override to stop the operation of the fuel pumping system to be provided;

- (ix) overfill return pipe to be connected to the storage tank;
- (x) leakage sensors to detect fuel leakage to be provided;
and
- (xi) emergency cut off switch /stop at the management office to be provided for suspending fuel supply to the fuel tank and the main fuel pipeline.

3. Important Notice

This Guide provides general guidance only and all applications will be considered on a case by case basis in addition to the above Do's and Don'ts.