CHECKLIST FOR FIRE SAFETY REQUIREMENTS FOR GENERAL WAREHOUSES (FIRE SAFETY [FS] GUIDELINES FSG 01:2006)

Project Title:	**Project No.**
	Date:

Standard Requirements	**Applicable**		**Not Applicable**
	Complied With	**Not Complied With/Waiver Sought**	
(1) Compartment: (a) The size of compartment shall not exceed the maximum allowable dimensions shown in the Table 1 of FS Guidelines, depending on the type and location of the warehouse.			
(b) Compartmentation, in respect of size limitation, may be achieved by partially using fire-rated roller shutter. Localized smoke detector shall be installed to activate the roller shutter. The roller shutter shall also be linked to the building automatic fire alarm system which shall act as a backup for the activation of the shutter.			
(c) Compartmentation between the warehouse and loading/unloading area shall be provided, except where the warehouse is a single-storey single-user or multi-story single-user per storey type, with the loading/unloading area abutting external space.			
2 Sprinkler Protection: (a) Automatic sprinkler system shall be provided if the compartment size of the non-sprinkler protected warehouse exceeds the maximum allowable size shown in the Table 1 of this Guidelines. (b) Sprinkler coverage shall be extended to the areas shielded by access platforms in the high-rack storage warehouse. The supporting structures of the platforms shall have the same fire rating as the element of structure of the warehouse.			

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Name & Signature of Project Manager

Project Title:	**Project No.**
	Date

Standard Requirements	**Applicable**		**Not Applicable**
	Complied With	**Not Complied With/Waiver Sought**	
3 Storage Height Control: (a) Signage shall be provided on the walls of the warehouse to control the maximum allowable storage height and to maintain the minimum clearance below the sprinkler heads in accordance with CP52.			
(b) The storage height limitations shall be clearly indicated on plans. **"No Storage Beyond This Line"** sign shall be provided at 30m internal along the internal walls of the warehouse. The lettering of the sign shall not be less than 100mm.			
4 Smoke Control: (a) <u>Smoke Vents</u> (i) Smoke vents shall comply with clause 7.4.2 of the Fire Code. <u>Exception:</u> In a non-sprinkler protected warehouse, the aggregate effective vent opening size shall not be less than 20% of the floor area served.			
(ii) Smoke vents shall be of permanent opening type. Use of glass blocks to cover the smoke vents is not permitted.			
(iii) The minimum dimensions of vertical smoke vent shall be 400mm (length) X 600mm (height) and the minimum dimensions of horizontal smoke vent shall be of $0.25m^2$ in area.			

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CHECKLIST FOR FIRE SAFETY REQUIREMENTS FOR GENERAL WAREHOUSES – CONT'D (FIRE SAFETY [FS] GUIDELINES FSG 01:2006)

Project Title:	**Project No.**
	Date

Standard Requirements	**Applicable**		**Not Applicable**
	Complied With	**Not Complied With/Waiver Sought**	
(iv) No area in the warehouse shall be more than 12m horizontally away from any vertical or horizontal smoke vent.			
(v) All smoke vents shall be located at the highest unobstructed level within and/or along the perimeter walls of the warehouse.			
(b) Engineered Smoke Control (i) Engineered smoke control system shall be provided if the floor area of the compartment is more than 5,000m^2 and 1,900m^2 for aboveground and belowground warehouses respectively.			
(ii) The system shall be designed and installed in accordance with the requirements stipulated in NFPA 92B or equivalent standards approved by SCDF.			
(iii) The fire size determined shall be concurred by SCDF before it is used for the design of the engineered smoke control system.			
(c) Smoke Purging System Replacement of smoke vents by smoke purging system is allowed provided that the warehouse is sprinkler protected. The smoke purging system shall comply with clause 7.1.9 of the Fire Code.			

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CHECKLIST FOR FIRE SAFETY REQUIREMENTS FOR GENERAL WAREHOUSES – CONT'D (FIRE SAFETY [FS] GUIDELINES FSG 01:2006)

Project Title:	**Project No.**
	Date:

Standard Requirements	**Applicable**		**Not Applicable**
	Complied With	**Not Complied With/Waiver Sought**	
5 Fire Extinguisher: (a) Fire extinguisher shall be provided in accordance with SS CP55.			
(b) Classification of storage hazards basing on storage heights shall follow Tables 21(A) and 21(B) of SS CP52 for the different categories of storage and overall stack heights. Ordinary hazard classification in SS CP52 shall be taken as equivalent to medium hazard classification in SS CP55.			
6 Voice Communication System: Two-way emergency voice communication system shall be provided in accordance with clause 8.2 of the Fire Code.			
7 Other Fire Safety Requirements: Other fire safety requirements, namely, means of escape, structural fire precautions, external fire fighting provisions, rising mains, hosereel system, electrical fire alarm, exit lighting, exit signs etc. shall be as stipulated in the Fire Code.			

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Name & Signature of Project Manager

Table 1 : Compartment Size & Storage Height for General Warehouse

Location of Warehouse	Item	With Sprinkler Protection	Without Sprinkler Protection *	
		Storage Hazard	Storage Hazard	
		All	Normal	High
Single storey warehouse	Max. Floor Area per Compartment	12,000 m^2	3,000 m^2	2,000 m^2
	Max. Cubical Extent per compartment	NC	12,000 m^3	7,500 m^3
	Max. Storage Height	18 m	Ref Table 21(A) & (B) of CP52	12 m
Warehouse located on 1st storey of multi-storey warehouse	Max. Floor Area per Compartment	12,000 m^2	3,000 m^2	2,000 m^2
	Max. Cubical Extent per compartment	NC	12,000 m^3	7,500 m^3
	Max. Storage Height	15 m	Ref Table 21(A) & (B) of CP52	12 m
Multi-storey warehouse with vehicular ramp (min. loading 24 tons with dry rising mains)	Max. Floor Area per Compartment	9,000 m^2	3,000 m^2	2,000 m^2
	Max. Cubical Extent per compartment	NC	12,000 m^3	7,500 m^3
	Max. Storage Height	15 m	Ref Table 21(A) & (B) of CP52	12 m
Multi-storey warehouse without vehicular ramp	Max. Floor Area per Compartment	6,000 m^2	3,000 m^2	2,000 m^2
	Max. Cubical Extent per compartment	NC	12,000 m^3	7,500 m^3
	Max. Storage Height	15 m	Ref Table 21(A) & (B) of CP52	12 m
Warehouse located in basement	Max. Floor Area per Compartment	3,000 m^2	NA	NA
	Max. Cubical Extent per compartment	12,000 m^3	NA	NA
	Max. Storage Height	12 m	NA	NA

Note : NC = no control
NA = not applicable
* subject to full compliance of clause 3.2.7(a) and clause 1.2.39(d) of the Fire Code.

Table 2 : Smoke Control Requirement for General Warehouse

Location of Warehouse	Compartment Size	Smoke Control Requirement	Provision of Sprinkler System
Above ground level	<= 100 m^2	NR	-
	> 100 m^2 and <=3,000 m^2	smoke vent	no
	> 3,000 m^2 and <= 5,000 m^2	smoke vent	yes
	> 5,000 m^2	engineered smoke control system	yes
Below ground level	<= 1,900 m^2 *	smoke vent	yes
	> 1,900 m^2 *	engineered smoke control system	yes

Note : NR = not required
* the area includes all non-warehouse areas in the basement level