



Guidelines on Formulation of Fire Safety Requirements for New Railway Infrastructures

新铁路基础设施建设 消防安全规定制订指引

October 2016

2016年10月



**GUIDELINES ON FORMULATION
OF FIRE SAFETY REQUIREMENTS
FOR
NEW RAILWAY INFRASTRUCTURES**

**新铁路基建设施
消防安全规定制订指引**

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PREAMBLE

The development of railway fire safety design in Hong Kong evolved from the first underground railway project in around 1970s. Without preceding project references and prescriptive requirements under the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment (FSI Code), the Fire Services Department (FSD) in collaboration with railway corporations and other government departments, since then started to draw up fire safety requirements for railway infrastructures.

Owing to the unique and complex design nature of railway stations and their associated premises, performance-based fire safety designs have been widely adopted in the planning of railway projects. In principle, fire safety standards provided by the fire engineering approach should not be inferior to the prescriptive requirements as stipulated in relevant codes and standards. On top of fire engineering approach, sets of fire safety requirements drawing on local practice and experience with due reference to the international standards on railway safety, such as National Fire Protection Association 130 (NFPA 130) of the USA and Office of Rail Regulation (ORR) of the UK, have also been developed. In gist, the underlying fire safety design principles for railway infrastructures are to provide the best fire safety protection to passengers and operational staff as well as emergency personnel in the event of a fire and other calamities.

前言

本港铁路消防安全设计的发展，源自一九七零年代的首个地下铁路项目。由于没有相关项目的参考数据，加上《最低限度之消防装置及设备守则与装置及设备之检查、测试及保养守则》（《消防装置守则》）未能完全套用在铁路消防系统的设计上，消防处遂联同铁路公司及其他政府部门制订有关铁路基础设施的消防安全规定。

鉴于新铁路站及其相关处所的独特设计及复杂性，在策划铁路项目时，铁路公司广泛采用了以性能化消防安全设计。原则上，采用消防工程学方法的消防安全标准，不应逊于各有关守则及标准所载的订明规定。为此，我们汲取本地的做法及经验，并充分参考有关铁路安全的国际标准（例如美国消防协会 130 及英国铁路管理局）后，制订了多套消防安全规定。扼要而言，铁路项目的基本消防安全设计原则，乃是在发生火警及其他灾难时，为乘客、操作人员及紧急救援人员提供最大的消防安全保障。

To facilitate stakeholders of the railway industry to adopt a consistent fire safety design towards new railway infrastructures in the future, this Guidelines serve to provide general guidance on formulating fire safety requirements by incorporating the latest fire safety measures of various railway lines under construction in Hong Kong. Railway corporations and fire engineering consultants will find this Guidelines useful in formulating fire safety requirements for new railway infrastructures in the future, including railway stations, depots, ancillary buildings and trackside areas.

This Guidelines comprises three parts in which the first part covers the general information and processing mechanism of Railway Projects, etc. The second part describes the fire safety requirements for Railway Infrastructure. Supplementary information and checklists of Fire Safety Requirements are provided at Appendices of this Guidelines.

This Guidelines should be read in conjunction with the current FSI Code (April 2012 Edition), FSD Circular Letters and the Code of Practice for Fire Safety in Buildings 2011 (FS Code) issued by the Buildings Department (BD). In case of special factors and circumstances, the Director of Fire Services may require additional fire safety requirements to be imposed before he is so satisfied. Moreover, the general fire safety measures relating to Means of Access (MoA), Means of Escape (MoE) and Fire Resisting Construction (FRC) stipulated in this Guidelines should be subject to the final satisfaction and agreement of BD. Yet, compliance with the fire safety requirements stipulated in this Guidelines should not be taken as compliance with the fire safety requirements under the Buildings Ordinance, which are under the jurisdiction of the BD.

为方便铁路业持份者日后在发展新铁路项目时，采用一致的消防安全设计，本指引收纳了本港多条兴建中铁路线所采用的最新消防安全措施，藉以提供制订消防安全规定的一般指引。当铁路公司及消防工程顾问日后为新铁路基建设施，包括铁路车站、车厂、附属建筑物及轨旁区域，制订消防安全规定时，本指引将具相当效用。

本指引由三部分组成。第一部分包括一般信息、铁路项目的审批机制等等。第二部分则介绍铁路基础设施的消防安全规定。补充资料与消防安全规定核对表则以附录形式详列于本指引内。

本指引应与现行的《消防装置守则》(2012年4月版)、消防处通函，以及屋宇署发出的《2011年建筑物消防安全守则》(《消防安全守则》)一并阅读参考。而因应特殊因素及情况的个别项目，消防处处长或会要求遵从额外消防安全规定，方才接纳有关标准符合要求。此外，指引内有关进出途径、逃生途径及耐火结构的一般消防安全措施，最终须经屋宇署按个别情况决定是否满意及接纳。因此，符合本指引所订的消防安全规定，不得视作符合《建筑物条例》所订的消防安全规定，该方面属屋宇署的职权范围。

With regard to the fire safety issues to be addressed by the fire engineering approach, such as determination of fire size, assessment of tenability, design of smoke control system, evaluation of occupants evacuation time and pattern, etc., reference should be made to Part G of the FS Code and other well-recognized international standards and guidelines, including but not limited to CIBSE Guide E, SFPE Handbook, etc. The existing mechanism using Computational Fluid Dynamics (CFD) fire modeling, computational simulation of tunnel ventilation system, engineering calculation, fire risk assessment, etc. may also be accepted by FSD on a case-by-case basis. In fact, a practical and pragmatic approach would be adopted on a case-by-case basis when there are any physical constraints leading to non-fulfillment of the requirements stipulated in this Guidelines and the railway corporation has made its due efforts in meeting the requirements.

To meet the higher expectation on railway safety from the general public and align with the world's enhanced fire safety requirements, FSD will keep on reviewing the current fire safety measures and make amendments if necessary.

In case of inconsistency between the English and Chinese versions, the English version shall apply and prevail.

至于采用消防工程学方法处理的消防安全事宜，例如火灾规模／功率的判定、火场环境容受度的评估、烟雾控制系统的设计、用户疏散时间及模式的评估等等，应参考《消防安全守则》G部及其他广泛认可的国际标准及指引，包括但不限于英国特许屋宇设备工程师学会的指引E、美国消防工程师学会SFPE手册等。消防处会按个别情况，接纳采用计算流体动力学的火灾模型、隧道通风系统的计算仿真、工程计算、火警风险评估等的现行机制。事实上，如基于任何实质限制，致令未能符合本指引所规定的要求，而铁路公司亦已尽力尝试符合有关规定，消防处会采取明智务实的方法处理，就个别个案考虑专为铁路基建项目而制订的特定消防安全规定。

为配合市民大众对铁路安全的更高期望，并务求与国际已提升的消防安全规定接轨，消防处会持续检讨现行的铁路消防安全措施，并在有需要时作出修订。

中英文版本如有歧异，应以英文版本为准。

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Part I

General

1.1 Title

This document shall be titled “Guidelines on Formulation of Fire Safety Requirements for New Railway Infrastructures” hereinafter referred to as the “Guidelines”.

1.2 Definitions

“Ancillary Building”

A non-public area which is designed mainly for a wide range of functions, including but not limited to power supply, ventilation, substation and electrical/mechanical plant area. All ancillary buildings are, in general, unmanned and should not be accessible by the public.

“Concession Area”

A designated area for approved retail trades and commercial facilities/services located within the railway station. The design of such area shall be based on the “Cabin Concept” as described in Appendix I(a).

“Depot”

A building area which is designed to carry out essential railway depot functions, including but not limited to stabling of trains, permanent way facilities and engineering train sidings, etc.

第一部

总论

1.1 标题

本文件题为《新铁路基建设施消防安全规定制订指引》，下称「本指引」。

1.2 释义

「附属建筑物」

主要为多种用途而设的非公众地方，包括但不限于供电、通风、变电站及机电装置机房设施。所有公众是不能进入附属建筑物。

「专营范围」

在车站内专为被核准零售业及商业设施／服务而设的指定区域，其设计须符合附录（一）（甲）所载的「舱房概念」。

「车厂」

为进行铁路车厂主要功能而设的建筑用地，其中包括但不限于列车停放处、永久轨道设施及工程车停放处等。

“Designated Emergency Entrance (DEE)”

An emergency access point at each station/ancillary building/depot, designated as the primary access point for emergency personnel. Fire protection facilities such as Fire Services inlets, sprinkler inlets, Fire Services control panels, automatic fire alarm panels, FSD telephone panel and remote unlocking devices will be installed in the vicinity.

“Emergency Access Point (EAP)”

A location designated as the access point for emergency personnel, leading from street level or at grade to the trackside area.

“Emergency Egress Point (EEP)”

A location designated as the egress point for detained passengers to leave the trackside area safely and reach the Ultimate Place of Safety.

“Escape Route”

A continuous path or paths taken by passengers and/or other station occupants to reach the Ultimate Place of Safety.

“Firefighting and Rescue Stairway (FRS)”

A stairway accommodating an access staircase and a fireman’s lift.

「指定紧急入口」

各车站／附属建筑物／车厂的紧急救援入口，指定为紧急救援人员的主要入口处。防火设施如消防入水掣、花洒入水掣、消防控制板、自动火警警报控制板、消防处电话控制板及遥控解锁装置会位于这个入口附近。

「紧急救援入口」

指定为紧急救援人员的入口处，从路面或地面通往轨旁区域。

「紧急出口」

指定为紧急离开车厢的乘客安全离开轨旁区域前往最终安全地点的出口处。

「逃生路线」

乘客及／或其他车站用户可取道前往最终安全地点的一条或多条连续的路径。

「消防和救援楼梯间」

此楼梯设有通道楼梯及消防员升降机。

“Fire Resistance Rating (FRR)”

The period of time for which any element of construction, wall, door, fire shutter or other components of a building is capable of resisting the action of fire when tested in accordance with BS 476: Parts 20 to 24, or as specified in the Code of Practice for Fire Safety in Buildings 2011 (FS Code). In the Guidelines, only overall FRR in hour is specified. Reference should be made to the FS Code for detailed FRR criteria in terms of stability, integrity and insulation for elements of construction, fire barriers and other components.

“Fire Separated Corridor”

A designated fire services access corridor constructed with walls, floor and ceiling having an FRR of not less than 2 hours. It is equipped with a sprinkler system, pressurization system and smoke detection system with no unprotected services other than fire service installations provided within the corridor.

“Integrated Entrance”

An entrance to the station which leads directly from the adjoining property development area with a physical connection to the railway station. Such entrance will be under the direct control of the corporation station management. It will be provided with a fire shutter having an FRR of not less than 4 hours and will not be treated as MoE in the event of a fire.

“Long Adit”

A normal public circulation route under the direct control of the corporation station management and in the form of a long corridor or pedestrian subway over 50 m in length forming part of the Station Area.

「耐火时效」

任何建筑构件、墙壁、门、防火卷闸或建筑物其他组成部分按英国标准 476：第 20 至 24 部所订标准进行测试后所显示耐火时效，或《消防安全守则》订明的耐火时效。本指引只订明以小时计算的整体耐火时效。至于建筑构件、隔火屏障及建筑物其他组成部分在稳定性、完整性及隔热方面的耐火时效的详细准则，应参阅《消防安全守则》。

「隔火走廊」

以不少于 2 小时耐火时效的墙壁、地板及天花板建造的指定消防入口信道，配备花洒系统、增压系统及烟雾侦测系统，除了消防装置之外，信道内并无其他无防护的设施。

「综合车站出入口」

从毗邻物业发展区域可经由实体信道直达车站的入口，由铁路公司车站管理人员直接管辖，装设不少于 4 小时耐火时效的防火卷闸，发生火警时不会用作逃生途径。

「长通道」

由铁路公司车站管理人员直接管辖的一般公众通路，是长度逾 50 米的长走廊或行人隧道，属车站区域的一部分。

“Non-public Area”

A station area which is not accessible by the general public and should be used for daily railway operations, including office, staff area, plant room and other building services, relating to the station only. All non-public areas shall be separated from station public areas by a physical separation having an FRR of not less than 2 hours.

“Place of Safe Passage”

A passage under the direct control of the corporation station management through which passengers and other station occupants will pass for evacuation in the event of a fire. Inside the passage, a smoke clear height of not less than 2.5 m is maintained by the smoke extraction system for a minimum period of 60 minutes for evacuation. This will normally be on the floor immediately above or below or an area adjacent to where a fire occurred. Place of Safe Passage shall be provided with stairway and/or escalator to the next level or Ultimate Place of Safety as defined herein.

“Point of Safety”

An entrance to the Place of Safe Passage or a protected route which leads to the Ultimate Place of Safety as defined herein.

“Primary Substation (Zone Substation)”

A primary substation or zone substation is a substation receiving power from extra high voltage substations or bulk infeed substations as defined by the Hong Kong Planning Standards and Guidelines issued by the Planning Department.

「非公众地方」

公众不可进入的车站区域，只应用于与铁路日常营运有关的用途，包括办公室、员工专用区、机房及其他屋宇装备。而非公众地方一概应以不少于 2 小时耐火时效的实体耐火间隔与车站的公众地方分隔开来。

「安全通道」

由铁路公司车站管理人员直接管辖的通道，发生火警时乘客及其他车站占用人可经此疏散。在信道内，以排烟系统维持不少于 2.5 米的无烟净空高度最少达 60 分钟，以供疏散。此等通道一般会位于紧接火警地点的上一层或下一层，或毗连发生火警的区域。安全通道须设有楼梯及／或自动梯，通往最紧接的楼层或本指引所界定的最终安全地点。

「安全地点」

安全通道的入口，或通往本指引界定为最终安全地点的防护通道的入口。

「主配电站（分区配电站）」

按规划署发布的《香港规划标准与准则》所界定，总变电站或分区电力站是由超高压变电站或高容量变压站供电的电力分站。

“Property Development Area”

An area which is not under the direct control of the corporation station management. Property development areas shall be separated from the station areas by means of a fire separation having an FRR of not less than 4 hours.

“Protected Route”

A route including protected lobby, corridor, stairways, ramp and passageway leading from the Point of Safety to the Ultimate Place of Safety providing physical fire separation from adjacent areas with an FRR of not less than 2 hours. It shall be equipped with sprinkler system, fire hydrant/hose reel system, smoke detection system, directional/exit signs and emergency lighting, and has no unprotected services other than fire service installations provided within the corridor.

“Public Area”

A station area, including platform, concourse, paid area, unpaid area, concession area, long adit and entrance, which is accessible by the general public and used for railway operation and its associated activities. All station public areas shall be separated from non-public areas by means of a fire separation with an FRR of not less than 2 hours.

「物业发展区域」

该区域并非由铁路公司车站管理人员直接管辖，须以不少于 4 小时耐火时效的隔火设施与车站区域分隔开来。

「防护通道」

此通道包括防护的门廊、走廊、楼梯、斜路及通道，由安全地点通往最终安全地点，设有不少于 2 小时耐火时效的实体隔火设施，将信道与毗邻区域分隔开来，并装设花洒系统、消防栓／消防喉辘、烟雾侦测系统、方向／出路指示牌及紧急照明系统，除了消防装置之外，信道内并无其他无防护的设施。

「公众地方」

可容许公众进入及用作铁路营运及相关活动的车站区域，包括月台、大堂、已付车费区域、非付车费区域、专营范围、长通道及入口。车站的公众地方一概须以不少于 2 小时耐火时效的隔火设施与非公众地方分隔开来。

“Supplementary Emergency Entrance (SEE)”

A supplementary emergency access point at each station/ancillary building/depot, designated as the secondary access point for emergency personnel. Fire protection facilities such as Fire Services inlets, sprinkler inlets, Fire Services repeater panels, FSD telephone panel and remote unlocking devices will be installed in the vicinity.

“Station”

The entire railway station in which one or more of the following areas are included:

- (i) Station area
- (ii) Station related area
- (iii) Integrated entrance

“Station Area”

An area used for railway activities and services, including public area, concession area, staff accommodation, plant room and other non-public areas.

“Station Related Area”

An area under the direct control of the corporation station management and essential to the operation of the station. It includes vehicle drop-off, pick-up and queuing areas and access roads where prescriptive requirements of relevant local codes shall be followed.

「辅助紧急入口」

各车站／附属建筑物／车厂的辅助紧急救援入口，指定为紧急救援人员的备用入口处。防火设施如消防入水掣、花洒入水掣、消防处无线电转发器控制板、消防处电话控制板及遥控解锁装置会设于这个入口附近。

「车站」

整个火车站，包括下列一个或以上的区域：

- (i) 车站区域
- (ii) 车站相关区域
- (iii) 综合车站出入口

「车站区域」

用作铁路运作及服务用途的区域，包括公众地方、专营范围、员工办公地方、机房及其他非公众地方。

「车站相关区域」

由铁路公司车站管理人员直接管辖的区域，对于车站营运十分重要。此区域包括车辆上落客点、排队轮候区及通路，在此须遵守该区相关守则的订明规定。

“Trackside Area”

An area used for supporting the movement of rolling stocks and railway activities.

“Ultimate Place of Safety”

A location in open air at street level or at grade where occupants are protected from the effects of fire and offered with adequate provisions for safe evacuation.

「轨旁区域」

用于支持列车移动及铁路运作的区域。

「最终安全地点」

在地面或路面的露天地点，在该处用户不受火警影响，并获得足够设备作出安全疏散。

1.3 Abbreviation

AFA	Automatic Fire Detection and Alarm System
BAV	Backup Access Vehicle
BD	Buildings Department
BS	British Standard
CEDD	Civil Engineering and Development Department
CFATS	Computerized Fire Alarm Transmission System
CFD	Computational Fluid Dynamics
CIBSE	Chartered Institution of Building Services Engineers
CSO	Construction Site Office
DEE	Designated Emergency Entrance
DTRS	Digital Trucked Radio System
EAP	Emergency Access Point
EEP	Emergency Egress Point
EMSD	Electrical and Mechanical Services Department
ERB	Emergency Rail Bus
ESO	Engineering Site Office
EVA	Emergency Vehicular Access
FCR	Fire Control Room
FH/HR	Fire Hydrant/Hose Reel

1.3 缩写

(没有翻译文本)

FRC	Fire Resisting Construction
FRP	Fire Resistance Period
FRR	Fire Resistance Rating
FRS	Firefighting and Rescue Stairway
FS Code	Code of Practice for Fire Safety in Buildings 2011
FSD	Fire Services Department
FSI	Fire Service Installation
FSI Code	Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment (April 2012 Edition)
HKPF	Hong Kong Police Force
HyD	Highways Department
IoE	Instrument of Exemption
LandsD	Lands Department
LPC	Loss Prevention Council
MIV	Motorized Isolation Valve
MoA	Means of Access
MoE	Means of Escape
MTR	Mass Transit Railway
NFPA	National Fire Protection Association
OCC	Operations Control Centre
ORR	Office of Rail Regulation
PA	Public Address

(没有翻译文本)

PlanD	Planning Department
RDO	Railway Development Office
SCR	Station Control Room
SEE	Supplementary Emergency Entrance
SFPE	Society of Fire Protection Engineers
SSCC	Safety and Security Coordinating Committee
STIC	Station and Transport Integration Committee
TD	Transport Department
TSSC	Trackside Safety and Security Committee
UPS	Uninterruptable Power Supply

(没有翻译文本)

1.4 Processing Mechanism of Railway Projects

Having regard to the exceptional nature of railway projects, the Building Authority may, under the provisions of section 54(2) of the Mass Transit Railway Ordinance (Cap. 556), issue an Instrument of Exemption (IoE) to exempt such building works from the Buildings Ordinance (Cap. 123). Such exemption is confined to those procedures and requirements relating to the appointment of Authorized Person and Registered Structural Engineer as appropriate, approval of plans, consent to commencement and resumption of works and occupation of buildings under sections 4, 14 to 17A and 19 to 21 of the Buildings Ordinance, such that the Building Authority's duties and sanctioning power to ensure standards of health and safety are not undermined. Instead of submitting building plans through the Centralised Processing System for ordinary building projects, the following Committees with specific "Terms of Reference" are formed to ensure that railway infrastructures are designed, built and operated to the required safety standards.

1.4.1 Station and Transport Integration Committee (STIC)

- (a) STIC is chaired by the Railway Development Office, Highways Department (HyD). STIC members comprise representatives from Fire Services Department (FSD), Buildings Department (BD), Transport Department (TD), Hong Kong Police Force (HKPF), Planning Department (PlanD), Lands Department (LandsD), Civil Engineering and Development Department (CEDD), Regional Office of HyD and the railway corporation.

1.4 铁路项目的审批机制

建筑事务监督可在顾及铁路项目的特殊性质后，根据《香港铁路条例》（第 556 章）第 54 条第 2 款，发出豁免文书，使该等建筑工程不受《建筑物条例》（第 123 章）任何条文所规限。该等豁免只限于与根据《建筑物条例》第 4、14 至 17A 条及第 19 至 21 条而委任认可人士及注册结构工程师（视何者属适当而定）、批准图则、同意展开及恢复暂停的工程及占用建筑物相关的程序及规定，务使建筑事务监督在确保健康与安全方面的职务及惩处权力不受削弱。当局并非透过实施处理一般建筑工程的中央处理建筑图则制度，而是透过成立以下具特定职权范围的委员会，确保铁路基建设施按所需的安全标准予以设计、建造及营运。

1.4.1 车站及运输综合委员会

- (a) 该委员会由路政署的铁路拓展处担任主席，成员包括消防处、屋宇署、运输署、警务处、规划署、地政总署、土木工程拓展署、路政署的路政区办事处及铁路公司的代表。

- (b) STIC provides a forum for the discussion and agreement, mainly on the integration into the built environment, construction of new railway stations, ancillary buildings, depots, or modification to the existing facilities; provision of pedestrian accesses to station entrances; and integration of other transport modes with railway services.

1.4.2 Safety and Security Coordinating Committee (SSCC)

- (a) SSCC is chaired by the Railways Branch of Electrical and Mechanical Services Department (EMSD). SSCC members comprise representatives from FSD, BD, HyD, HKPF and the railway corporation.
- (b) SSCC provides a forum for discussions and agreement on the safety and security related issues of railway stations, depots and/or other associated structures for which an IoE has been issued by the Building Authority, including existing and new facilities, permanent and temporary structures (e.g. Construction Site Office (CSO) / Engineering Site Office (ESO), please see Appendix VI for Minimum Fire Service Installations and Equipment for CSO / ESO) and modification to the existing facilities.

1.4.3 Trackside Safety and Security Committee (TSSC)

- (a) TSSC is also chaired by the Railways Branch of EMSD. TSSC members comprise representatives from FSD, BD, HyD, HKPF and the railway corporation.

- (b) 委员会提供讨论及协商的平台，主要议题为融合铁路基建与建筑环境；兴建新铁路站、附属建筑物及车厂；改装现有设施；设置通往车站入口的行人通道，以及令铁路服务能配合整体交通运输模式。

1.4.2 安全及保安统筹委员会

- (a) 该委员会由机电工程署铁路科担任主席，成员包括消防处、屋宇署、路政署、警务处及铁路公司的代表。

- (b) 委员会提供讨论及协商的平台，议题为与已获建筑事务监督发出豁免文书的铁路站、车厂及／或其他附连构筑物相关的安全及保安事宜，涵盖现有及新建设施、永久及临时构筑物（例如建筑地盘办公室／工程工地办公室，有关建筑地盘办公室／工程工地办公室的最低限度消防装置及设备请参阅附录（六）），以及现有设施的改装工程。

1.4.3 轨道安全及保安委员会

- (a) 该委员会亦是由机电工程署铁路科担任主席，成员包括消防处、屋宇署、路政署、警务处和铁路公司的代表。

- (b) TSSC provides a forum for discussions and agreement on the safety and security related issues of railway tracksides and associated facilities for which an IoE has been issued by the Building Authority, including existing and new facilities, permanent and temporary structures and modification to the existing facilities.

1.5 Formulation of Fire Safety Requirements

1.5.1 As one of the core members of STIC, SSCC and TSSC, FSD is responsible for giving advice on fire safety requirements to railway projects. The fire safety requirements stipulated in Part II of the Guidelines are formulated by making due reference to previous standards of railway projects, international standards, fire engineering studies, prescriptive codes, etc. For railway premises/structures of special designs or hazards which necessitate special considerations, FSD may accept, on a case-by-case basis, fire engineering approach as an alternative provided that safety standards provided by the fire engineering approach should not be inferior to the prescriptive requirements. Methodology for application of the fire engineering approach should outline a structured fire engineering principle(s) to the assessment of total fire safety effectiveness and to the achievement of pre-identified design objective(s) having taken into consideration of the objectives of fire safety requirements for the protection of life including operation staff and emergency personnel and property within the railway premises/structures in the event of emergency.

- (b) 委员会提供讨论及协商的平台，议题为与已获建筑事务监督发出豁免文书的铁路轨道及相关设施的安全和保安事宜，涵盖现有及新建设施、永久及临时构筑物，以及现有设施的改装工程。

1.5 消防安全规定的制订

- 1.5.1 消防处是车站及运输综合委员会、安全及保安统筹委员会和轨道安全及保安委员会的核心成员，负责就铁路项目的消防安全规定提供意见。消防处在制订载于本指引第二部分的消防安全规定时，已充分参考过往的铁路项目所采用的标准，以及有关国际标准、消防工程学研究及订明规定等。至于那些因设计特别或具危险而需予特别考虑的铁路处所／构筑物，消防处可因应个案情况，接纳采用消防工程学方法以作替代，惟采用消防工程学方法而达至的安全标准，不应逊于订明规定所达至的安全标准。采用消防工程学方法，应制订一套清晰的消防工程原则，以评估楼宇消防安全方面的总成效及达至预期的设计目标。在制订有关原则时，须考虑在紧急情况下，就保障铁路处所／构筑物内的人命（包括操作人员和紧急救援人员）和财产而制订的消防安全规定。

1.5.2 In general, prescriptive requirements (Deemed-to-Comply provisions) of the following local codes or circular letters shall also be adhered to:

- (i) ***Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment April 2012 (FSI Code)*** which stipulate the minimum fire service installations and equipment to be provided and give guidance as to the conduct of inspections and tests in order to satisfy the Director of Fire Services;
- (ii) ***FSD Circular Letters*** which are published from time to time by the Director of Fire Services requiring Authorized Persons and other concerned parties to comply with the latest requirement on fire safety provisions; and
- (iii) ***Code of Practice for Fire Safety in Buildings 2011 (FS Code)*** which stipulates the requirements for fire resisting construction, means of escape, means of access and emergency vehicular access. In addition, it also provides guidelines on the testing standards for the fire properties of building elements and components, fire safety management of buildings and the alternative approach in fire safety design, i.e. fire engineering approach. Insofar as the Buildings Ordinance is concerned, the FS Code shall apply to railway works that are submitted through SSCC, TSSC and STIC and the works of which have not yet been commenced on or before 1 April 2012.

1.5.2 一般而言，下列本地守则及通函内的订明规定（应视为须予遵守的条文）亦须予以遵行：

- (i) 《最低限度之消防装置及设备守则与装置及设备之检查、测试及保养守则》（2012年4月版）（《消防装置守则》）

此守则订明最低限度须安装的消防装置及设备，并就如何进行检查和测试以令消防处处长满意提供指引；

- (ii) 消防处通函

消防处处长不时发出通函，要求认可人士及其他相关人士遵从有关消防安全设施的最新规定；及

- (iii) 《2011年建筑物消防安全守则》（《消防安全守则》）

此守则订明对耐火结构、逃生途径、进出途径和紧急车辆通道的规定。此外，亦提供以下方面的指引：建筑对象和构件的燃烧特性测试标准、建筑物的消防安全管理，以及消防安全设计的替代方法（即采用消防工程学方法）。就《建筑物条例》而言，《消防安全守则》适用于通过安全及保安统筹委员会、轨道安全及保安委员会和车站及运输综合委员会提交，且于二零一二年四月一日或之前尚未展开的铁路工程。

Part II

General Fire Safety Requirements for Railway Infrastructures

2.1 Station

2.1.1 Fire Service Installations (FSI)

Requirements – Systems/Installations/Equipment for:

- (i) Audio/visual advisory system
- (ii) Automatic actuating devices
- (iii) Automatic fixed installation other than water
- (iv) Emergency power supply
- (v) Emergency lighting
- (vi) Exit sign
- (vii) Fire alarm system
- (viii) Fire control centre
- (ix) Fire detection system
- (x) Fire hydrant/hose reel system
- (xi) Fire Services communication system
- (xii) Fireman's lift
- (xiii) Firefighting and rescue stairway
- (xiv) Portable hand-operated approved appliance
- (xv) Pressurization of staircase
- (xvi) Sprinkler system
- (xvii) Static or dynamic smoke extraction system
- (xviii) Street fire hydrant system
- (xix) Special equipment/requirement
- (xx) Ventilation/air conditioning control system

第二部

鐵路基建設施的消防安全規定

2.1 鐵路車站

2.1.1 消防裝置

須裝設的系统／裝置／设备：

- (i) 声响／视像警报系统
- (ii) 自动启动装置
- (iii) 不含水的灭火剂自动固定装置
- (iv) 应急供电设备
- (v) 应急照明系统
- (vi) 出口指示牌
- (vii) 火警警报系统
- (viii) 消防控制中心
- (ix) 火警侦测系统
- (x) 消防栓／喉轆系统
- (xi) 消防通讯系统
- (xii) 消防员升降机
- (xiii) 消防和救援楼梯间
- (xiv) 认可的人手操作手提器具
- (xv) 楼梯增压
- (xvi) 花洒系统
- (xvii) 静态式或机械式排烟系统
- (xviii) 街道消防栓系统
- (xix) 特别设备／规定
- (xx) 通风／空气调节控制系统

Extent

- (i) Flashing exit signs/directional signs and Public Address (PA) System shall be provided in station public circulation areas as part of the audio/visual advisory system to direct passengers towards the designated exits.
- (ii) As required by that equipment which requires to be automatically actuated.
- (iii) To be provided to areas where the use of water is undesirable for the risk.
- (iv) An independently powered generator or dual power supply from two independent primary substations (zone substations) of sufficient electrical capacity to meet the essential services it is required to provide.
- (v) Emergency lighting shall be provided throughout the entire station and all exit routes leading to the Ultimate Place of Safety.
- (vi)
 - (a) Sufficient directional and exit signs shall be provided to ensure that all exit routes from any floor/premises within the station are clearly indicated as required by the configuration of escape routes serving the station.
 - (b) All directional and exit signs in public areas shall be internally illuminated and of flashing type. During emergency evacuation, the directional and exit signs within the public area shall be switched on and flashing to indicate the appropriate exit routes to the Ultimate Place of Safety.

应用范围

- (i) 须在车站的公众通道地方设置闪动的出口指示牌／方向指示牌和广播系统，作为声响／视像警报系统的一部分，以便引领乘客前往指定出口。
- (ii) 配合须自动启动的设备。
- (iii) 设置在不宜用水救火的地方。
- (iv) 须设置发电量充足的独立发电机或由两个独立主配电站（分区配电站）双重供电，为各项必要服务提供所需的电力。
- (v) 整个车站及通往最终安全地点的所有出口路线均须安装应急照明系统。
- (vi) (a) 须按照车站的逃生路线设计，设置足够的方向指示牌及出口指示牌，以确保清楚指示车站内各个楼层／处所的所有出口路线。

(b) 公众地方的所有方向指示牌和出口指示牌均须设有内部照明装置，而且能够闪动。当紧急疏散时，应将公众地方的方向指示牌和出口指示牌亮着并闪动，以指示前往最终安全地点的适当出口路线。

- (c) “Hidden flashing exit signs” are designed for emergency evacuation. It shall be provided for escalators which would normally run against the direction of escape routes and would stop under emergency situation.
- (d) “MTR graphic type” directional/exit signs are acceptable in public areas. However, non-public areas shall follow the relevant prescriptive requirements.



- (vii)
 - (a) For non-public area, one actuating point and one audio warning device are to be located at each hose reel point. Visual alarm signals shall be provided where necessary in accordance with the current Design Manual - Barrier Free Access. This actuating point shall include facilities for starting fire pump and initiating audio/visual warning device.
 - (b) For public area, one actuating point is to be located at each hose reel point. This actuating point shall include facilities for starting fire pump.

- (c) 在行走方向通常与逃生路线相反及在紧急情况下停止运行的自动梯，须设置专为紧急疏散而设计的「隐藏式闪动出口指示牌」。
- (d) 公众地方可以容许使用「港铁图像式」的方向／出口指示牌，惟非公众地方则须遵守相关的订明规定。



- (vii) (a) 在非公众地方，每个消防喉辘装置处均须安装启动按钮及声响警报装置各一个。如有需要，须遵照现行《设计手册：畅通无阻的信道》的规定提供视像火警信号。启动按钮必须可以启动消防泵及声响／视像警报装置。
- (b) 在公众地方，每个消防喉辘装置处均须安装启动按钮。启动按钮必须可以启动消防泵。

- (c) An “Acknowledgement” button shall be provided on the local Integrated Backup Control Panel. Upon acknowledgement of an alarm signal, Mass Transit Railway (MTR) staff shall investigate the cause of the alarm. If the fire alarm is not acknowledged within the pre-defined delay period (1 minute), fire evacuation operation will be activated. Evacuation message shall be automatically transmitted via the Public Address (PA) System to all station public areas. The PA system shall be used to broadcast pre-recorded evacuation message to passengers. Exit signs shall flash to direct passengers towards the exits.
- (d) A “Confirm” button shall be provided on the local Integrated Backup Control Panel to activate automatic fire evacuation operation when the fire alarm is confirmed.
- (viii) Minimum of one, additional to be provided according to the complexity of the station. It shall normally be located at ground floor level on the main face of the building, preferably adjacent to the main entrance, and be continuously manned by trained personnel/promptly attended by trained personnel in case of emergency. For typical station with station control room accommodated with the Fire Services control panels and automatic fire alarm panels, it could be accepted as an alternative provision.
- (ix) The entire station area shall be covered by a fire detection system, except above ground lavatory where automatic fixed installation is provided.

- (c) 车站的综合备用控制板须装有「知悉」掣。港铁职员在收到警报信号之后，须调查警报的原因。若有人在预先设定的延时期限（一分钟）内按「知悉」掣以示知悉火警警报，系统便会立即启动火警疏散行动。疏散信息会自动通过广播系统向车站的所有公众地方播放。须用广播系统向乘客广播预先录制的疏散信息。出口指示牌须闪动以引领乘客前往出口。

- (d) 车站的综合备用控制板须装有「确认」掣。在确认发生火警后，应按此掣以启动自动火警疏散行动。

- (viii) 须至少设立一个消防控制中心，并视乎车站的复杂程度增设。消防控制中心一般须设于建筑物正面的地面层水平，最好邻近主要入口，并由受过训练的人员持续驻守，或由受过训练的人员在紧急时迅速前往该中心。典型车站的车站控制室均装有消防控制板和自动火警警报控制板，此类车站控制室可被接受为消防控制中心。

- (ix) 火警侦测系统须覆盖整个车站范围，但装有自动固定装置的地面洗手间除外。

- (x) (a) There shall be sufficient fire hydrants (with twin-hydrant outlets or two single-hydrant outlets) and hose reels to ensure that every part of the station can be reached by a length of not more than 30 m of Fire Services hose and hose reel tubing.
- (b) The fire hydrant/hose reel system of the railway station shall also serve the fire hydrant system of associated tunnels or viaducts.
- (xi) To be provided to enable three separate talk groups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk radio communication within the station simultaneously. In addition, the radio coverage shall also be extended to the area within a radius of 50 m from DEE/SEE of the station at grade level. Direct line telephone housed in a dedicated FSD telephone panel at the entrances of DEE/SEE and trackside EAP shall be provided for communication with the Operations Control Centre and Station Control Room.
- (xii) As required by the FS Code. In addition, the car of a fireman's lift in DEE should have a minimum dimension of 1 400 mm × 2 400 mm. The minimum dimension of a fireman's lift in SEE usually follows the prescriptive requirements stipulated in the FS Code provided that the DEE could provide access to all station levels/areas.
- (xiii) As required by the FS Code.
- (xiv) As required by the occupancy.

- (x) (a) 须设有足够消防栓（具备双出水口或两个单出水口）及消防喉轆，以确保长度不超过 30 米的灭火喉及喉轆软管可达至车站的任何部分。
- (b) 铁路站的消防栓／喉轆系统须同时可供相连隧道或高架铁路的消防栓系统使用。
- (xi) 所设通讯系统须能供 3 个独立通话组别的消防人员于同一时间在车站内以所携的消防处无线电设备进行有效而具效率的集束无线电通讯。此外，该车站的无线电覆盖范围亦须达车站地面各个紧急入口 50 米半径范围。位于指定紧急入口、辅助紧急入口及轨旁的紧急救援入口的消防处专用电话控制板须设置直线电话，以便与车务控制中心和车站控制室联络。
- (xii) 须遵照《消防安全守则》的规定。此外，指定紧急入口的消防员升降机机厢的最低限度尺寸应为 1 400 毫米 × 2 400 毫米。辅助紧急入口的消防员升降机的最低限度尺寸一般须符合《消防安全守则》所订的订明规定，但前提是该车站的指定紧急入口能提供通道前往车站所有楼层／范围。
- (xiii) 须遵照《消防安全守则》的规定。
- (xiv) 视乎车站使用的性质而定。

- (xv) (a) Required for above ground portion of the station exceeding 30 m above the point of staircase exit to open air at ground floor level or ultimate place of safety where:-
- (1) natural venting of staircase is not provided for above ground portion of the station;
 - (2) the cubical extent of the above ground portion of the station exceeds 28 000 cubic metres; and
 - (3) the aggregate area of openable windows of the above ground station does not exceed 6.25% of the floor area of the station, calculated on a floor by floor basis or such windows are not so situated that effective cross ventilation can be provided.
- (b) Required for the basement portion of the station where:-
- (1) no open air access routes to the basement portion for firemen are provided; and
 - (2) the cubical extent of the basement portion exceeds 7 000 cubic metres.
- (c) The number of pressurized staircases to be provided shall be determined by the table stipulated under the definition of “Pressurization of staircase” in Part II of the FSI Code and the number of pressurized staircases required shall not exceed the total number of staircases as required by the FS Code.

(xv) (a) 如车站地面部分在通往地面层露天地方或最终安全地点的楼梯出口之上超过 30 米，或属以下情况，须为楼梯增压：

(1) 车站地面部分没有自然通风的楼梯；

(2) 车站地面部分的立体空间超过 28 000 立方米；及

(3) 地面车站的可开启窗口总面积按层计不超过车站楼面面积的 6.25%，或该等窗口因所在位置不能达至有效的对流通风效果。

(b) 如车站地库部分：

(1) 没有通往地库部分的露天通道供消防员使用；及

(2) 立体空间超过 7 000 立方米，则须为楼梯增压。

(c) 须予增压的楼梯数目按《消防装置守则》内《最限度之消防装置及设备守则》第二部「楼梯增压」一词的释义项下的列表所厘定，惟所需增压的楼梯数目不得超逾《消防安全守则》规定的楼梯总数。

(xvi) Required to cover all parts of the station except above ground plant rooms and areas covered by (iii) above.

(xvii) (a) Required for:

(1) atrium of the station, if the compartment of the atrium exceeds 28 000 cubic metres, or any basement level or floor of the station forming part of that compartment; or

(2) any fire compartment exceeding 7 000 cubic metres in the station where:-

- the aggregate area of openable windows of the compartment does not exceed 6.25% of the floor area of that compartment; or

- such windows are not so situated that effective cross ventilation can be provided.

(3) station public areas at any basement level; or

(4) station non-public areas, including all back-of-house areas and plant rooms (except service ducts, plenums, plant rooms with gas flooding protection system and small plant rooms with site constraints, etc.), at the basement of three or more levels; or

(xvi) 须覆盖车站各个部分的范围，但上述第(iii)项的装置所覆盖的地面机房及地方则属除外。

(xvii) (a) 在以下地方须予装设：

(1) 车站中庭，如该中庭的隔室体积超过 28 000 立方米；或属隔室一部分的任何车站地库层或楼层；或

(2) 车站任何体积超过 7 000 立方米的隔室，如：

— 该隔室内可开启窗口的总面积不超过该隔室楼面面积的 6.25%；或

— 该等窗口因所在位置不能达至有效的对流通风效果。

(3) 车站任何地库层的公众地方；或

(4) 3 层或以上地库内的非公众地方，包括所有后勤地方和机房（喉管槽、吸音槽、有气体涌灭系统的机房、受场地限制的小机房等除外）；或

- (5) basement, irrespective of the number of levels, exceeding a depth of 30 m from the floor level of the ground storey above the basement to the floor level of the lowest storey in the basement, except service ducts, plenums, plant rooms with gas flooding protection system and small plant rooms with site constraints, etc.
- (b) Hot smoke test will be required for the following compartments if considered necessary by FSD:
 - (1) with a headroom of 12 m or more; or
 - (2) with irregular geometrical dimensions or extraordinary large size or long length.
- (xviii) Spacing between fire hydrants should be 100 m staggered on alternate sides of the roadway wherever applicable. Wherever possible, there should be at least two street fire hydrants within the site of the station concerned and they should be strategically fixed within 30 m as far as possible but not less than 6 m from the DEE/SEE of the station they are intended to protect.
- (xix) As required by FSD.
- (xx) When a ventilation/air conditioning control system to the station is provided, it shall stop the mechanically induced air movement within a designated fire compartment.

(5) 地库，不论层数多少，只要由该地库之上的地面楼层的楼面水平至地库最底楼层的楼面水平（喉管槽、吸音槽、有气体涌灭系统的机房、受场地限制的小机房等除外），深度超过 30 米。

(b) 消防处如认为有需要，会要求为隔室进行热烟测试：

(1) 净空高度达 12 米或以上的隔室；或

(2) 形状不规则或面积特大或特长的隔室。

(xviii) 如情况合适，应于街道两旁每隔 100 米交错地安装街道消防栓。如情况许可，有关车站的范围内应设置最少两个街道消防栓，两者距离应策略性地定于 30 米范围内，但应距离所保障车站的指定或辅助紧急入口不少于 6 米。

(xix) 须遵照消防处的规定。

(xx) 如车站内装设有通风／空气调节控制系统，则该系统须能阻止指定隔火室内由机械引发的气流。

Additional Requirements

- (i) All concession areas in the station shall be protected by the Cabin Concept as described in Appendix I(a).
- (ii) All linings for acoustic and thermal insulation purposes in ductings and concealed locations shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (iii) All linings for acoustic, thermal insulation and decorative purposes within the protected means of escape shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (iv) In general, dangerous goods shall not be used or stored in the station. Any intended use or storage of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong shall make separate application to FSD for approval.
- (v) The glazing (solar control tempered glass panel) shall not be of the type which melts and forms burning droplets under fire situation. Also, when it is shattered, it does not form sharp and harmful pieces.

额外规定

- (i) 车站所有专营范围均受附录（一）（甲）所载的「舱房概念」所防护。
- (ii) 管道及隐蔽位置内所有作隔音及隔热用途的物料均须达英国标准 476：第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (iii) 防护逃生途径内所有作隔音、隔热及装饰用途的物料均须达英国标准 476：第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (iv) 一般而言，车站不应使用或贮存危险品。如拟使用或贮存香港法例第 295 章界定为危险品的物品，须另行向消防处申请批准。
- (v) 窗玻璃（隔热强化玻璃嵌板）不得为遇火时会熔化成灼热液滴的类别，碎裂时亦不会构成锋利及有害的碎片。

2.1.2 Means of Escape (MoE)

- (i) There shall be adequate means of escape for all calculated population under the worst scenario, as agreed in STIC and SSCC Stage 1 Submissions, to escape safely from the fire scene to an adjacent Place of Safe Passage within 4.5 minutes without being overwhelmed by the effects of fire and smoke. Inside the passage, a smoke clear height of not less than 2.5 m is maintained by the smoke extraction system for a minimum period of 60 minutes for evacuation. This will normally be on the floor immediately above or below or an area adjacent to where a fire occurred. Place of Safe Passage shall be provided with stairway and/or escalator to the next level or Ultimate Place of Safety.
- (ii) The maximum travel distance in public areas, including platform, concourse, paid area, unpaid area and concession area, from the egress point to the foot of the stair or escalator or other Points of Safety, leading to the Place of Safe Passage at another level or the Ultimate Place of Safety, shall not be more than 50 m (25 m for dead end situation) measured in actual walking distance. This principle is not applied by just reaching an adjacent smoke zone maintained as a Place of Safe Passage. In case there are site constraints rendering it impossible to fully comply with the above requirements, an alternative approach will be adopted on a case-by-case basis, such as the case of long adit scenario. (Examples showing special MoE arrangements are enclosed at Appendix I(b) for reference.)
- (iii) The maximum travel distance in unoccupied non-public areas to the Point of Safety shall not be more than 50 m (25 m for dead end situation).

2.1.2 逃生途径

- (i) 须有足够的逃生途径供在最恶劣的情况下，提供所有预计人口在 4.5 分钟内安全地逃离火警现场，到达邻近的安全通道而不致被烟火笼罩。「最恶劣情况」的预计人口在车站及运输综合委员会和安全及保安统筹委员会的第一阶段审批项目已有订明。在安全信道内，以排烟系统维持不少于 2.5 米的无烟净空高度最少达 60 分钟，以供疏散。此等通道一般会位于紧接火警地点的上一层或下一层，或毗连发生火警的区域。安全通道须设有楼梯及／或自动梯，通往最紧接的楼层或最终安全地点。

- (ii) 于公众地方（包括月台、大堂、已付车费区域、非付费区域和专营范围），从出口点前往通往位于另一层的安全通道或最终安全地点的楼梯或自动梯的底部或其他安全通道，最长行走距离（以实际步行距离计算）不得多于 50 米（在尽头路的情况下，则为 25 米）。如仅是到达附近充当安全通道的烟雾区，则此原则并不适用。若受制于场地环境而无法完全遵从上述规定，须视乎个别情况（例如长通道情况），采取实际可行的方法。（附录（一）（乙）载有逃生途径特别措施的例子，以供参考。）

- (iii) 从未占用的非公众地方前往安全地点的最长行走距离不得多于 50 米（在尽头路的情况下，则为 25 米）。

- (iv) The maximum travel distance in occupied non-public areas, such as government offices, station staff offices and staff/administrative rooms in railway terminus (except typical station), shall comply with the prescriptive requirements of the FS Code.

- (v) A long adit, apart from forming part of the Place of Safe Passage, also serves as an escape route from the station. It may connect various areas of the station via a series of smoke zones, e.g. platform and concourse or concourse and entrance. The long adit shall be constructed of low combustible materials and finishes due to long travel distance. Setting up of vending machines and concession areas along the long adit or in any of the related lift lobby areas are not desirable. The types, numbers and positions of advertising panels shall be restricted and limited to the minimum in the long adit. Previously agreed requirements for long adit in the West Island Line are listed below for reference:
 - (a) Non-LCD/Plasma or similar type;

 - (b) In 4-sheet size [1 115 mm (W) × 1 640 mm (H) × 150 mm (Thick)]; and

 - (c) The 4-sheet advertising panels will be mounted in pair. Spacing between each pair of advertising panels on the same wall will not be less than 6 m whereas the spacing to the opposite pair will not be less than 4.5 m. They are also designed with almost zero combustibles (metal frame and toughened glass) and comply with high standard of electrical installation requirements.

- (iv) 从占用的非公众地方，例如政府办公室、车站职员办公室和位于铁路总站的职员室／行政室（典型车站除外），前往安全地点的最长行走距离，须遵照《消防安全守则》的订明规定。

- (v) 长信道不但构成安全信道的一部分，也是离开车站的逃生路线，可以透过多个烟雾区与车站的各个区域连接（例如：月台与车站大堂连接，或车站大堂与车站入口连接）。由于行走距离较长，长通道应以低燃物料和饰面建造。沿着长通道或在任何相关的升降机大堂范围设置售卖机或专营范围的做法是不可取。长通道内广告板的种类、数目和摆放位置应受限制，并尽可能减至最少。现将先前就西港岛线的长通道议定的规定臚列如下，以供参考：
 - (a) 须为非液晶显示屏／等离子显示屏，或类似显示屏；

 - (b) 须为四封大小〔1 115 毫米（阔）× 1 640 毫米（高）× 150 毫米（厚）〕；及

 - (c) 四封广告灯箱须成对地安装。在同一堵墙上，每对广告灯箱之间须留有不少于 6 米的空位，与对面一对的距离则须不少于 4.5 米。这些广告灯箱并须以近乎不含可燃物料（即以金属框架和强化玻璃）制造，同时须遵从高标准的电力装置规定。

2.1.3 Means of Access (MoA)

- (i) At least one designated emergency entrance (DEE) and one supplementary emergency entrance (SEE) shall be provided from street level. Additional DEE/SEE may be required due to unique layout or topographic nature.
- (ii) Parking spaces for 7 numbers of 12 m long fire appliances shall be provided near the DEE/SEE of the station.
- (iii) Every part of the station shall be within the distance of 60 m from the door of the lobby to the Firefighting and Rescue Stairway (FRS) or fireman access point measured along actual passages. Provision of fire separated corridors extending from the FRS as a mitigation measure shall be subject to the acceptance of FSD on a case-by-case basis and other enhancement measures may be required as considered necessary.
- (iv) The configuration of the fireman's lift and fireman's staircase shall adhere to the FS Code for FRS. Fireman's lift shall be provided when any above ground floor exceeds 15 m or when any basement floor exceeds 9 m from the mean level of the lowest street.
- (v) The fireman's lift and fireman's staircase at the DEE, if required, shall lead from the entrance at ground level to the station control room or fire control room.

2.1.3 进出途径

- (i) 须于路面至少设置一个指定紧急入口及一个辅助紧急入口，因应车站的独特布局或地形性质，或须设置额外的指定紧急入口／辅助紧急入口。
- (ii) 在车站的指定紧急入口或辅助紧急入口附近，须设置 7 个可供 12 米长消防车辆停泊的停车位。
- (iii) 沿实际通道量度，车站各部分与通往消防和救援楼梯间门廊的门或消防员入口处的距离须在 60 米范围内。如拟设置从消防和救援楼梯间延伸的隔火走廊作为缓解措施，须得到消防处按个别情况而决定接纳与否，也可能同时需要采取其他改善措施。
- (iv) 消防员升降机及消防员专用楼梯的设计须遵照《消防安全守则》有关消防和救援楼梯间的规定。如由最低街道的平均水平起计，任何地面层的高度超逾 15 米，或任何地库层的深度超逾 9 米，则须设置消防员升降机。
- (v) 如规定须于指定紧急入口设置消防员升降机和消防员专用楼梯，则此二者须能由地面层的入口通往车站控制室或消防控制中心。

- (vi) Horizontal MoA route connection by fire separated corridor will be provided between FRS and station control room or fire control room. (Examples showing special MoA arrangements are enclosed at Appendix I(b) for reference.)
- (vii) Fire protection facilities such as Fire Services inlets, sprinkler inlets, Fire Services control panels, automatic fire alarm panels, FSD telephone panel and remote unlocking devices will be located in the vicinity of DEE/SEE.

2.1.4 Fire Resisting Construction (FRC)

- (i) All elements of construction of the basement as well as fire barriers forming the fire compartment between the ground storey and a basement shall have an FRR of not less than 4 hours. This includes all required staircases serving the basement.
- (ii) Fire barriers forming fire compartment walls within basements shall have an FRR of not less than 2 hours.
- (iii) Ventilation ducts, ventilation shafts and plenums extending from tunnels or underground areas to discharge outlets shall have an FRR of not less than 4 hours.
- (iv) Overhead track extraction ducts along the station trackside shall have an FRR of not less than 2 hours provided that such ducts will not run across any fire compartment with an FRR greater than 2 hours.
- (v) Separation at the integrated entrance which leads directly from the adjoining property development area shall be provided with an FRR of not less than 4 hours.

- (vi) 消防和救援楼梯间和车站控制室或消防控制中心之间须设置以隔火走廊形式连接的横向进出途径。(附录(一)(乙)载有进出途径特别措施的例子,以供参考。)
- (vii) 防火设施如消防入水掣、花洒入水掣、消防控制板、自动火警警报控制板、消防处电话控制板及遥控解锁装置会位于指定紧急入口/辅助紧急入口附近。

2.1.4 耐火结构

- (i) 地库的所有建筑构件,以及构成地面楼层和地库之间隔火室的所有建筑构件须有不少于 4 小时的耐火时效。地库所有规定设置的楼梯亦须符合此规定。
- (ii) 地库内构成隔火墙分隔的防火屏障须有不少于 2 小时的耐火时效。
- (iii) 从隧道或地底范围通往排烟出口的通风槽、通风井和吸音槽须有不少于 4 小时的耐火时效。
- (iv) 车站轨旁的高架轨道抽气槽须有不少于 2 小时的耐火时效,但前提是这些抽气槽并非跨越任何耐火时效高于 2 小时的隔火室。
- (v) 直接从毗邻物业发展范围延伸至综合车站出入口的分隔设施须有不少于 4 小时的耐火时效。

- (vi) Doors in openings of compartment walls shall have an FRR of not less than that of the walls.
- (vii) All removal panels or dampers provided in the compartment wall or on the floor shall have the same FRR as that of the wall or floor.
- (viii) All station non-public areas shall be separated from public areas with a separation having an FRR of not less than 2 hours and each plant room shall form a separate compartment.
- (ix) For concession areas, separation walls between cabins and back of the house area as well as the cabin's enclosure walls shall have an FRR of not less than 2 hours.
- (x) Transformer and the associated switchboards of different supply sources shall be separated from each other in different fire compartments.
- (xi) All transformers and high hazard utilities associated with high fire or electrical hazard should be located in the periphery of the station box at ground floor level as far as practicable, while transformers fed from the internal power transmission network of the railway line have to be located underground due to electrical design considerations. Besides, low-fire-risk transformers should be used in rooms with FRR of not less than 4 hours and equipped with gas flooding protection system.

2.1.5 A checklist of FS Requirements for Station is enclosed at Appendix II for reference.

- (vi) 在分隔墙开口所装设的门，耐火时效不可低于分隔墙。
- (vii) 在分隔墙或地板开设的所有检修门或调节风门，耐火时效须与分隔墙或地板相同。
- (viii) 车站所有公众地方须以分隔设施与非公众地方分隔，该设施须有不少于 2 小时的耐火时效。此外，任何机房均须构成独立的隔室。
- (ix) 在专营范围，舱房和后勤地方之间的隔火墙，以及舱房本身的围封墙，两者须有不少于 2 小时的耐火时效。
- (x) 各个供电电源的变压器及相关的电掣板须互相分隔，设置于不同的隔火室。
- (xi) 所有变压器和具高度火警或电力危险的高危公用设施应设于车站外围的地面楼层。然而，基于电力设计的考虑，由铁路线的内部输电网络供电的变压器必须置于地底。此外，低火警风险的变压器应在耐火时效不少于 4 小时且装有气体涌灭系统的房间使用。

2.1.5 附录（二）载有铁路车站消防安全规定核对表，以供参考。

2.2 Depot

2.2.1 Fire Service Installations (FSI)

Requirements – Systems/Installations/Equipment for:

- (i) Automatic actuating devices
- (ii) Automatic fixed installation other than water
- (iii) Emergency power supply
- (iv) Emergency lighting
- (v) Exit sign
- (vi) Fire alarm system
- (vii) Fire control centre
- (viii) Fire detection system
- (ix) Fire hydrant/hose reel system
- (x) Fire Services communication system
- (xi) Fireman's lift
- (xii) Firefighting and rescue stairway
- (xiii) Portable hand-operated approved appliance
- (xiv) Pressurization of staircase
- (xv) Ring main system with fixed pump
- (xvi) Sprinkler system
- (xvii) Static or dynamic smoke extraction system
- (xviii) Street fire hydrant system
- (xix) Special equipment/requirement
- (xx) Ventilation/air conditioning control system

2.2 车厂

2.2.1 消防装置

须装设的系统／装置／设备：

- (i) 自动启动装置
- (ii) 不含水的灭火剂自动固定装置
- (iii) 应急供电设备
- (iv) 应急照明系统
- (v) 出口指示牌
- (vi) 火警警报系统
- (vii) 消防控制中心
- (viii) 火警侦测系统
- (ix) 消防栓／喉辘系统
- (x) 消防通讯系统
- (xi) 消防员升降机
- (xii) 消防和救援楼梯间
- (xiii) 认可的人手操作手提器具
- (xiv) 楼梯增压
- (xv) 装有固定水泵的环形水管系统
- (xvi) 花洒系统
- (xvii) 静态式或机械式排烟系统
- (xviii) 街道消防栓系统
- (xix) 特别设备／规定
- (xx) 通风／空气调节控制系统

Extent

- (i) As required by that equipment which requires to be automatically actuated.
- (ii) To be provided to areas where the use of water is undesirable for the risk.
- (iii) An independently powered generator or dual power supply from two independent primary substations (zone substations) of sufficient electrical capacity to meet the essential services it is required to provide.
- (iv) Emergency lighting shall be provided throughout the entire depot and all exit routes leading to the Ultimate Place of Safety. In addition, such lighting shall also be provided to ensure adequate external illumination to permit safe evacuation to the outside of the site boundary.
- (v) Sufficient directional and exit signs shall be provided to ensure that all exit routes from any floor/premises within the depot are clearly indicated as required by the configuration of escape routes serving the depot.
- (vi) One actuating point and one audio warning device are to be located at each hose reel point. Visual alarm signals shall be provided where necessary in accordance with the current Design Manual - Barrier Free Access. This actuating point should include facilities for starting fire pump and initiating audio/visual warning device.

应用范围

- (i) 配合须自动启动的设备。
- (ii) 设置在不宜用水救火的地方。
- (iii) 须设置发电量充足的独立发电机或由两个独立主配电站（分区配电站）双重供电，为各项必要服务提供所需的电力。
- (iv) 整个车厂及通往最终安全地点的所有出口路线均须安装应急照明系统。此外，亦须安装应急照明系统，以确保车厂外部光线充足，方便逃生者安全撤往厂址范围以外的地方。
- (v) 须按照车厂的逃生路线设计，设置足够的方向指示牌及出口指示牌，以确保清楚指示车厂内各个楼层／处所的所有出口路线。
- (vi) 车厂内每个消防喉辘装置处均须安装启动按钮及声响警报装置各一个。如有需要，须遵照现行《设计手册：畅通无阻的信道》的规定提供视像火警信号。启动按钮必须可以启动消防泵及声响／视像警报装置。

- (vii) Minimum of one, additional to be provided according to the complexity of the depot. It shall normally be located at ground floor level on the main face of the building, preferably adjacent to the main entrance, and be continuously manned by trained personnel/promptly attended by trained personnel in case of emergency.
- (viii) The entire depot area shall be covered by a fire detection system, except above ground lavatory where automatic fixed installation is provided.
- (ix) There shall be sufficient fire hydrants (with twin-hydrant outlets or two single-hydrant outlets) and hose reels to ensure that every part of the depot can be reached by a length of not more than 30 m of Fire Services hose and hose reel tubing.
- (x) To be provided to enable three separate talk groups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk radio communication within the depot simultaneously. In addition, the radio coverage shall also be extended to the area within a radius of 50 m from each emergency entrance of the depot at grade level. Direct line telephone housed in a dedicated FSD telephone panel at the entrances of DEE, SEE and trackside EAP shall be provided for communication with the Depot Control Centre.
- (xi) As required by the FS Code.
- (xii) As required by the FS Code.

- (vii) 须至少设立一个消防控制中心，并视乎车厂的复杂程度增设。消防控制中心一般须设于建筑物正面的地面层水平，最好邻近主要入口，并由受过训练的人员持续驻守／由受过训练的人员在紧急时迅速前往该中心。
- (viii) 火警侦测系统须覆盖整个车厂范围，但设有自动固定装置的地面洗手间除外。
- (ix) 须设有足够消防栓（具备双出水口或两个单出水口）及消防喉轆，以确保长度不超过30米的灭火喉及喉轆胶喉可达至车厂的任何部分。
- (x) 所设通讯系统须能供3个独立通话组别的消防人员于同一时间在车厂内以所携的消防处无线电设备进行有效而具效率的集束无线电通讯。此外，该车厂的无线电覆盖范围亦须达车厂地面各个紧急入口50米半径范围。位于指定紧急入口、辅助紧急入口及轨旁的紧急救援入口的消防处专用电话控制板须设置直线电话，以便与车厂控制中心联络。
- (xi) 须遵照《消防安全守则》的规定。
- (xii) 须遵照《消防安全守则》的规定。

- (xiii) As required by the occupancy.
- (xiv) (a) Required where:-
 - (1) natural venting of staircase or open air access route for firemen is not provided;
 - (2) the cubical extent of the above ground level exceeds 28 000 cubic metres or basement of three or more levels exceeds 7 000 cubic metres; and
 - (3) the aggregate area of openable windows of rooms/units of the above ground depot does not exceed 6.25% of the floor area of those rooms/units, calculated on a floor by floor basis or such windows are not so situated that effective cross ventilation can be provided.
- (b) The number of pressurized staircases to be provided shall be determined by the table stipulated under the definition of “Pressurization of staircase” in Part II of the FSI Code and the number of pressurized staircases required shall not exceed the total number of staircases as required by the FS Code.
- (xv) To be provided to cover those areas of the building not adequately served by the public water mains.
- (xvi) Required to cover all parts of the building within the depot except above ground plant rooms and areas covered by (ii) above.

- (xiii) 视乎车厂使用的性质而定。
- (xiv) (a) 如属以下情况，须为楼梯增压：
 - (1) 没有自然通风的楼梯，或没有露天通道供消防员使用；
 - (2) 地面层的立体空间超过 28 000 立方米，或层数达 3 层或以上的地库的立体空间超过 7 000 立方米；及
 - (3) 地面车房的房间／单位内的可开启窗口总面积按层计不超过该等房间／单位楼面面积的 6.25%，或该等窗口因所在位置不能达至有效的对流通风效果。
- (b) 须予增压的楼梯数目按《消防装置守则》内《最低限度之消防装置及设备守则》第二部「楼梯增压」一词的释义项下的列表所厘定，惟所需增压的楼梯数目不得超逾《消防安全守则》规定的楼梯总数。
- (xv) 为建筑物内公共水源不足的地方供水。
- (xvi) 花洒系统须覆盖车厂内建筑物的各个部分，但上述第(ii)项的装置所覆盖的地面机房及地方则属除外。

(xvii) (a) Required for:

(1) any fire compartment of above ground level exceeding 7 000 cubic metres in the building where:

- the aggregate area of openable windows of the compartment does not exceed 6.25% of the floor area of that compartment; or
- such windows are not so situated that effective cross ventilation can be provided; or

(2) any fire compartment exceeding 7 000 cubic metres in the basement with a total floor area exceeding 230 m².

(b) Hot smoke test will be required for the following compartments if considered necessary by FSD:

(1) with a headroom of 12 m or more; or

(2) with irregular geometrical dimensions or extraordinary large size or long length.

(xviii) Spacing between fire hydrants should be 100 m staggered on alternate sides of the roadway wherever applicable. Wherever possible, there should be at least two street fire hydrants within the site of the depot concerned and they should be strategically fixed within 30 m as far as possible but not less than 6 m from the designated emergency entrance of the depot they are intended to protect.

(xvii) (a) 在以下地方须予装设：

(1) 在建筑物内的地面层任何体积超过 7 000 立方米的隔室，如：

- 该隔室内的可开启窗口总面积不超过该隔室楼面面积的 6.25%；或
- 该等窗口因所在位置不能达至有效对流通风效果；或

(2) 地库内任何体积超过 7 000 立方米的隔火室，而地库的总楼面面积超过 230 平方米。

(b) 消防处如认为有需要，会要求为下列隔室进行热烟测试：

(1) 净空高度达 12 米或以上的隔室；或

(2) 形状不规则或面积特大或特长的隔室。

(xviii) 如情况合适，应于街道两旁每隔 100 米交错地安装街道消防栓。如情况许可，有关车厂的范围内应设置最少两个街道消防栓，两者距离应策略性地定于 30 米范围内，但应距离所保障车厂的指定或辅助紧急入口不少于 6 米。

- (xix) As required by FSD.
- (xx) When a ventilation/air conditioning control system to the building is provided, it shall stop the mechanically induced air movement within a designated fire compartment.

Additional Requirements

- (i) All linings for acoustic and thermal insulation purposes in ductings and concealed locations shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (ii) All linings for acoustic, thermal insulation and decorative purposes within the protected means of escape shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (iii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong shall make separate application to FSD for approval.

- (xix) 须遵照消防处的规定。
- (xx) 如建筑物内装设有通风／空气调节控制系统，则该系统须能阻止指定隔火室内由机械引发的气流。

额外规定

- (i) 管道及隐蔽位置内所有作隔音及隔热用途的物料均须达英国标准 476 :第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (ii) 防护逃生途径内所有作隔音、隔热及装饰用途的物料均须达英国标准 476 :第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (iii) 如拟贮存或使用香港法例第 295 章界定为危险品的物品，须另行向消防处申请批准。

2.2.2 Means of Escape (MoE)

- (i) The maximum travel distance in unoccupied areas to the Point of Safety shall not more than 50 m (25 m for dead end situation).
- (ii) The maximum travel distance in occupied areas shall comply with the prescriptive requirements of the FS Code.

2.2.3 Means of Access (MoA)

- (i) At least one designated emergency entrance (DEE) and one supplementary emergency entrance (SEE) shall be provided from street level. Additional DEE/SEE may be required due to unique layout or topographic nature.
- (ii) Parking spaces for 7 numbers of 12 m long fire appliances shall be provided near the DEE/SEE of the depot.
- (iii) At least two EAPs shall be provided at the perimeter of the depot. These two points shall lead to a designated EVA within the depot which will enable firemen to reach various areas of the depot.
- (iv) A fireman's access route leading from the entrance of DEE at street level to the Depot Control Centre shall be provided.
- (v) Every part of the depot shall be within the distance of 60 m from the door of the lobby to the FRS or fireman access point measured along actual passage.

2.2.2 逃生途径

- (i) 从未占用区域前往安全地点的最长行走距离不得超过 50 米（在尽头路的情况下，则为 25 米）。
- (ii) 从占用区域前往安全地点的最长行走距离，须遵照《消防安全守则》的订明规定。

2.2.3 进出途径

- (i) 须于路面至少设置一个指定紧急入口及一个辅助紧急入口，因应车厂的独特布局或地形性质，或须设置额外的指定紧急入口／辅助紧急入口。
- (ii) 在车厂的指定紧急入口或辅助紧急入口附近，须设置 7 个可供 12 米长消防车辆停泊的停车位。
- (iii) 车厂外围须至少设置两个紧急救援入口，通往车厂内的一个指定紧急车辆通道，让消防员可以到达车厂的各个区域。
- (iv) 指定紧急入口须设置从路面入口通往车厂控制中心的消防员通道。
- (v) 沿实际通道量度，车厂各部分与通往消防和救援楼梯间门廊的门或消防员入口处的距离须在 60 米范围内。

- (vi) The configuration of the fireman's lift and fireman's staircase shall adhere to the FS Code for FRS. Fireman's lift shall be provided when any above ground floor exceeds 15 m or when any basement floor exceeds 9 m from the mean level of the lowest street.
- (vii) Crossing facilities shall be provided along the fireman's access route from EVA to track areas.
- (viii) All crossing facilities shall be hard paved.
- (ix) Fire protection facilities such as Fire Services inlets, sprinkler inlets, Fire Services control panels, automatic fire alarm panels, FSD telephone panel and remote unlocking devices will be located in the vicinity of DEE/SEE.

2.2.4 Fire Resisting Construction (FRC)

- (i) Every element of construction, compartment wall, compartment floor in the basement and the separation between the depot and the adjoining storey shall have an FRR of not less than 4 hours.
- (ii) All offices and plant rooms shall be separated by an element of construction having an FRR of not less than 2 hours from the rest of the depot areas and each plant room shall form a separate compartment.
- (iii) Doors in openings of compartment wall shall have an FRR of not less than that of the wall.

- (vi) 消防员升降机及消防员专用楼梯的设计须遵照《消防安全守则》有关消防和救援楼梯间的规定。如由最低街道的平均水平起计，任何地面层的高度超逾 15 米，或任何地库层的深度超逾 9 米，则须设置消防员升降机。
- (vii) 紧急车辆信道至轨道区域的消防员信道沿途须设置横跨设施。
- (viii) 所有横跨设施须用坚固物料铺设。
- (ix) 防火设施如消防入水掣、花洒入水掣、消防控制板、自动火警警报控制板、消防处电话控制板及遥控解锁装置会位于指定紧急入口／辅助紧急入口附近。

2.2.4 耐火结构

- (i) 地库的每个建筑构件、分隔墙及分隔地板，以及车厂与毗连楼层之间的隔火设施须有不少于 4 小时的耐火时效。
- (ii) 所有办公室及机房均须以耐火时效不少于 2 小时的建筑构件与车厂其他地方分隔，而每个机房须构成独立隔室。
- (iii) 在分隔墙开口所装设的门，耐火时效不可低于分隔墙。

- (iv) All removal panels or dampers provided in the compartment wall or on the floor shall have the same FRR as that of the wall or floor.
- (v) Transformer and the associated switchboards of different supply sources shall be separated from each other in different fire compartments.
- (vi) All transformers and high hazard utilities associated with high fire or electrical hazard should be located in the periphery of the building at ground floor level.

2.2.5 A checklist of FS Requirements for Depot/Ancillary Building is enclosed at Appendix III for reference.

- (iv) 在分隔墙或地板开设的所有检修门或调节风门，耐火时效须与分隔墙或地板相同。
- (v) 各个供电电源的变压器及相关的电掣板须互相分隔，设置于不同的隔火室。
- (vi) 所有变压器和具高度火警或电力危险的高危公用设施应设于建筑物外围的地面楼层。

2.2.5 附录(三)载有车厂／附属建筑物消防安全规定核对表，以供参考。

2.3 Ancillary Building

2.3.1 Fire Service Installations (FSI)

Requirements – Systems/Installations/Equipment for:

- (i) Automatic actuating devices
- (ii) Automatic fixed installation other than water
- (iii) Emergency power supply
- (iv) Emergency lighting
- (v) Exit sign
- (vi) Fire alarm system
- (vii) Fire control centre
- (viii) Fire detection system
- (ix) Fire hydrant/hose reel system
- (x) Fire Services communication system
- (xi) Fireman's lift
- (xii) Firefighting and rescue stairway
- (xiii) Portable hand-operated approved appliance
- (xiv) Pressurization of staircase
- (xv) Sprinkler system
- (xvi) Static or dynamic smoke extraction system
- (xvii) Street fire hydrant system
- (xviii) Special equipment/requirement
- (xix) Ventilation/air conditioning control system

2.3 附属建筑物

2.3.1 消防装置

须装设的系统／装置／设备：

- (i) 自动启动装置
- (ii) 不含水的灭火剂自动固定装置
- (iii) 应急供电设备
- (iv) 应急照明系统
- (v) 出口指示牌
- (vi) 火警警报系统
- (vii) 消防控制中心
- (viii) 火警侦测系统
- (ix) 消防栓／喉辘系统
- (x) 消防通讯系统
- (xi) 消防员升降机
- (xii) 消防和救援楼梯间
- (xiii) 认可的人手操作手提器具
- (xiv) 楼梯增压
- (xv) 花洒系统
- (xvi) 静态式或机械式排烟系统
- (xvii) 街道消防栓系统
- (xviii) 特别设备／规定
- (xix) 通风／空气调节控制系统

Extent

- (i) As required by that equipment which requires to be automatically actuated.
- (ii) To be provided to areas where the use of water is undesirable for the risk.
- (iii) An independently powered generator or dual power supply from two independent primary substations (zone substations) of sufficient electrical capacity to meet the essential services it is required to provide.
- (iv) Emergency lighting shall be provided throughout the entire building and all exit routes leading to the Ultimate Place of Safety.
- (v) Sufficient directional and exit signs shall be provided to ensure that all exit routes from any floor/premises within the building are clearly indicated as required by the configuration of escape routes serving the building.
- (vi) One actuating point and one audio warning device are to be located at each hose reel point. Visual alarm signals shall be provided where necessary in accordance with the current Design Manual - Barrier Free Access. This actuating point should include facilities for starting fire pump and initiating audio/visual warning device.
- (vii) Minimum of one, additional to be provided according to the complexity of the building.
- (viii) The entire building area shall be covered by a fire detection system.

应用范围

- (i) 配合该设备的规定并须自动启动。
- (ii) 设置在不宜用水救火的地方。
- (iii) 须设置发电量充足的独立发电机或由两个独立主配电站（分区配电站）双重供电，为各项必要设备及系统提供所需的电力。
- (iv) 整座建筑物及通往最终安全地点的所有出口路线均须安装应急照明系统。
- (v) 须按照建筑物的逃生路线设计，设置足够的方向指示牌及出口指示牌，以确保清楚指示建筑物内各个楼层／处所的所有出口路线。
- (vi) 附属建筑物内每个消防喉轆装置处均须安装启动按钮及声响警报装置各一个。如有需要，须遵照现行《设计手册：畅通无阻的信道》的规定提供视像火警信号。启动按钮必须可以启动消防泵及声响／视像警报装置。
- (vii) 须至少设立一个消防控制中心，并视乎建筑物的复杂程度增设。
- (viii) 火警侦测系统须覆盖整座建筑物范围。

- (ix) (a) There shall be sufficient fire hydrants (with twin-hydrant outlets or two single-hydrant outlets) and hose reels to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose and hose reel tubing.
- (b) When the building is used as the Emergency Access Point (EAP) of underground trackways, the fire hydrant/hose reel system shall also serve the tunnel fire hydrant system.
- (x) To be provided to enable three separate talk groups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk radio communication within the building simultaneously. In addition, the radio coverage shall also be extended to the area within a radius of 50 m from each emergency entrance of the building at grade level. Direct line telephone housed in a dedicated FSD telephone panel at the entrances of DEE, SEE and trackside EAP shall be provided for communication with the Operations Control Centre and Station Control Room.
- (xi) As required by the FS Code. In addition, the car of a fireman's lift should have a minimum internal floor area of 1 400 mm × 2 400 mm.
- (xii) As required by the FS Code.
- (xiii) As required by the occupancy.

- (ix) (a) 须有足够消防栓（具备双出水口或两个单出水口）及消防喉辘，以确保长度不超过 30 米的灭火喉及喉辘胶喉可达至建筑物的任何部分。
- (b) 当建筑物用作地下轨道的紧急救援入口，其消防栓／喉辘系统亦须供有关隧道的消防栓系统使用。
- (x) 所设通讯系统须能供 3 个独立通话组别的消防人员于同一时间在建筑物内以所携的消防处无线电设备进行有效而具效率的集束无线电通讯。此外，该建筑物的无线电覆盖范围亦须达建筑物地面各个紧急入口 50 米半径范围。位于指定紧急入口、辅助紧急入口及轨旁的紧急救援入口的消防处专用电话控制面板须设置直线电话，以便与车务控制中心和车站控制室联络。
- (xi) 须遵照《消防安全守则》的规定。此外，消防员升降机的机厢内部面积最少应为 1 400 毫米 × 2 400 毫米。
- (xii) 须遵照《消防安全守则》的规定。
- (xiii) 视乎建筑物使用的性质而定。

- (xiv) (a) Required where:
- (1) natural venting of staircase or open air access route for firemen is not provided;
 - (2) the cubical extent of the above ground level exceeds 28 000 cubic metres or basement of three or more levels exceeds 7 000 cubic metres; and
 - (3) the aggregate area of openable windows of rooms/units of the above ground depot does not exceed 6.25% of the floor area of those rooms/units, calculated on a floor by floor basis or such windows are not so situated that effective cross ventilation can be provided.
- (b) The number of pressurized staircases to be provided shall be determined by the table stipulated under the definition of “Pressurization of staircase” in the Code of Practice for Minimum Fire Service Installations and Equipment Part II of the FSI Code and the number of pressurized staircases required shall not exceed the total number of staircases required by the FS Code.
- (xv) To be provided to the entire building except above ground plant rooms and areas covered by (ii) above.

(xiv) (a) 如属以下情况，须为楼梯增压：

- (1) 没有自然通风的楼梯，或没有露天通道供消防员使用；
- (2) 地面层的立体空间超过 28 000 立方米，或层数达 3 层或以上的地库的立体空间超过 7 000 立方米；及
- (3) 地面车房的房间／单位内的可开启窗口总面积按层计不超过该等房间／单位楼面面积的 6.25%，或该等窗口因在位置不能达至有效的对流通风效果。

(b) 须予增压的楼梯数目按《消防装置守则》内《最低限度之消防装置及设备守则》第二部「楼梯增压」一词的释义项下的列表所厘定，惟所需增压的楼梯数目不得超逾《消防安全守则》规定的楼梯总数。

(xv) 须覆盖整座建筑物的范围，但上述第(ii)项的装置所覆盖的地面机房及地方则属除外。

(xvi) (a) Required for:

(1) any fire compartment of above ground level exceeding 7 000 cubic metres in that building where:-

- the aggregate area of openable windows of the compartment does not exceed 6.25% of the floor area of that compartment; or
- such windows are not so situated that effective cross ventilation can be provided; or

(2) any fire compartment exceeding 7 000 cubic metres in the basement with a total floor area exceeding 230 m².

(b) Hot smoke test will be required for the following compartments if considered necessary by FSD:

(1) with a headroom of 12 m or more; or

(2) with irregular geometrical dimensions or extraordinary large size or long length.

(xvii) Spacing between fire hydrants should be 100 m staggered on alternate sides of the roadway wherever applicable. Wherever possible, there should be at least two street fire hydrants within the site of the ancillary building concerned and they should be strategically fixed within 30 m as far as possible but not less than 6 m from the designated emergency entrance of the ancillary building they are intended to protect.

(xvi) (a) 在以下地方须予装置：

(1) 在建筑物内的地面层任何体积超过 7 000 立方米的隔火室，如：

- 该隔室内可开启窗口的总面积不超过该隔室楼面面积的 6.25%；或
- 该等窗口因所在位置不能达至有效对流通风效果；或

(2) 地库内任何体积超过 7 000 立方米的隔火室，而地库的总楼面面积超过 230 平方米。

(b) 消防处如认为有需要，会要求为下列隔室进行热烟测试：

(1) 净空高度达 12 米或以上的隔室；或

(2) 形状不规则或面积特大或特长的隔室。

(xvii) 如情况合适，应于街道两旁每隔 100 米交错地安装街道消防栓。如情况许可，有关附属建筑物范围内应设置最少两个街道消防栓，两者距离应策略性地定于 30 米范围内，但应距离所保障附属建筑物的指定或辅助紧急入口不少于 6 米。

- (xviii) As required by FSD.
- (xix) When a ventilation/air conditioning control system to the building is provided, it shall stop the mechanically induced air movement within a designated fire compartment.

Additional Requirements

- (i) All linings for acoustic and thermal insulation purposes in ductings and concealed locations shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (ii) All linings for acoustic, thermal insulation and decorative purposes within the protected means of escape shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (iii) In general, dangerous goods shall not be used or stored in ancillary buildings. Any intended use or storage of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong shall make separate application to FSD for approval.

- (xviii) 须遵照消防处的规定。
- (xix) 如建筑物内装设有通风／空气调节控制系统，则该系统须能阻止指定隔火室内由机械引发的气流。

额外规定

- (i) 管道及隐蔽位置内所有作隔音及隔热用途的物料均须达英国标准 476 :第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (ii) 防护逃生途径内所有作隔音、隔热及装饰用途的物料均须达英国标准 476 :第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (iii) 一般而言，附属建筑物不得使用或贮存危险品。如拟使用或贮存香港法例第 295 章界定为危险品的物品，须另行向消防处申请批准。

2.3.2 Means of Escape (MoE)

- (i) The maximum travel distance in unoccupied areas to the Point of Safety shall not be more than 50 m (25 m for dead end situation).
- (ii) The maximum travel distance in occupied areas shall comply with the prescriptive requirements of the FS Code.

2.3.3 Means of Access (MoA)

- (i) Parking spaces for 7 numbers of 12 m long fire appliances shall be provided near the DEE of the building.
- (ii) A fireman's access route leading from the entrance at street level to the fire control room shall be provided at the DEE.
- (iii) Every part of the building shall be within the distance of 60 m from the door of the lobby to the FRS or a fireman access point measured along actual passage.
- (iv) The configuration of the fireman's lift and fireman's staircase shall adhere to the FS Code for FRS. Fireman's lift shall be provided when any above ground floor exceeds 15 m or when any basement floor exceeds 9 m from the mean level of the lowest street.
- (v) Fire protection facilities such as Fire Services inlets, sprinkler inlets, Fire Services control panels, automatic fire alarm panels, FSD telephone panel and remote unlocking devices will be located in the vicinity of DEE.

2.3.2 逃生途径

- (i) 从未占用区域前往安全地点的最长行走距离不得超过 50 米（在尽头路的情况下，则为 25 米）。
- (ii) 从占用区域前往安全地点的最长行走距离，须遵照《消防安全守则》的订明规定。

2.3.3 进出途径

- (i) 在建筑物的指定紧急入口附近，须设置 7 个可供 12 米长消防车辆停泊的停车位。
- (ii) 指定紧急入口须设置从路面入口通往消防控制室的消防员通道。
- (iii) 沿实际通道量度，建筑物各部分与通往消防和救援楼梯间门廊的门或消防员入口处的距离须在 60 米范围内。
- (iv) 消防员升降机及消防员专用楼梯的设计须遵照《消防安全守则》有关消防和救援楼梯间的规定。当任何地面层与最低街道的平均水平高度超逾 15 米，或任何地库层与该水平的深度超逾 9 米，则须设置消防员升降机。
- (v) 防火设施如消防入水掣、花洒入水掣、消防控制板、自动火警警报控制板、消防处电话控制板及遥控解锁装置会位于指定紧急入口附近。

2.3.4 Fire Resisting Construction (FRC)

- (i) Every element of construction, compartment wall, compartment floor in the basement and the separation between the basement and the adjoining storey shall have an FRR of not less than 4 hours.
- (ii) Ventilation ducts, ventilation shafts and plenums extending from tunnels or underground areas to discharge outlets shall have an FRR of not less than 4 hours.
- (iii) Doors in openings of compartment walls shall have an FRR of not less than that of the walls.
- (iv) All removal panels or dampers provided in the compartment wall or on the floor shall have the same FRR as that of the wall or floor.

2.3.5 A checklist of FS Requirements for Depot/Ancillary building is enclosed at Appendix III for reference.

2.3.4 耐火结构

- (i) 地库的每个建筑构件、分隔墙及分隔地板，以及地库与毗连楼层之间的隔火设施须有不少于 4 小时的耐火时效。
- (ii) 从隧道或地底范围通往排烟出口的通风槽、通风井和吸音槽须有不少于 4 小时的耐火时效。
- (iii) 在分隔墙开口所装设的门，耐火时效不可低于分隔墙。
- (iv) 在分隔墙或地板开设的所有检修门或调节风门，耐火时效须与分隔墙或地板相同。

2.3.5 附录（三）载有车厂／附属建筑物消防安全规定核对表，以供参考。

2.4 Trackside Area

2.4.1 Fire Service Installations (FSI)

Requirements – Systems/Installations/Equipment for:

- (i) Closed circuit television system
- (ii) Emergency power supply
- (iii) Emergency lighting
- (iv) Exit sign
- (v) Fire Services communication system
- (vi) Trackside fire hydrant system
- (vii) Special equipment/requirement
- (viii) Tunnel ventilation system

Extent

- (i) To be provided at the track level at each Emergency Access Point (EAP) of a long or deep underground tunnel such that firemen can have a visual observation of the tunnel situation before getting into the tunnel.
- (ii) An independently powered generator or dual power supply from two independent primary substations (zone substations) of sufficient electrical capacity to meet the essential services it is required to provide.
- (iii) (a) Emergency lighting shall be provided throughout the entire trackway and all exit routes leading to the Ultimate Place of Safety.

2.4 轨旁区域

2.4.1 消防装置

须装设的系统／装置／设备：

- (i) 闭路电视系统
- (ii) 应急供电设备
- (iii) 应急照明系统
- (iv) 出口指示牌
- (v) 消防通讯系统
- (vi) 轨旁的消防栓系统
- (vii) 特别设备／规定
- (viii) 隧道通风系统

应用范围

- (i) 设于每条长或深入的地下隧道轨道层的紧急救援入口，以便消防员在进入隧道之前先目测观察隧道内的情况。
- (ii) 须设置发电量充足的独立发电机或由两个独立主配电站（分区配电站）双重供电，为各项必要服务提供所需的电力。
- (iii) (a) 轨道全线范围及通往最终安全地点的所有出口路线均须安装应急照明系统。

- (b) Illumination levels of trackside emergency lighting which shall be provided at strategic locations are as follows:
 - (1) Evacuation walkway : 5 lux (minimum)
 - (2) Hydrant location : 10 lux (minimum)
 - (3) Signage location : 20 lux (minimum)
 - (4) Ramp and cross-passage : 10 lux (minimum)
 - (5) Power socket : 1.6 lux (minimum)

- (iv) (a) Sufficient directional (reflective type) and exit signs (hidden type) shall be provided along the evacuation walkway and all exit routes leading to the Ultimate Place of Safety.

- (b) Directional signs (reflective type) indicating the direction of the station or portal shall be provided throughout the entire trackway at 25 m intervals.

- (v) (a) To be provided to enable three separate talk groups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk radio communication within each station and its associated trackside area simultaneously. In addition, the radio coverage shall also be extended to the area within a radius of 50 m from any emergency entrance at grade level.

- (b) Emergency telephones connected directly to the Operations Control Centre (OCC) shall be provided in suitable locations including any cross-passages and trackway access points.

(b) 须设于重点位置的轨旁应急照明系统的照明度如下：

- (1) 疏散通道 ： 5 勒克斯（最低亮度）
- (2) 消防栓位置 ： 10 勒克斯（最低亮度）
- (3) 指示牌位置 ： 20 勒克斯（最低亮度）
- (4) 斜路及横向通道 ： 10 勒克斯（最低亮度）
- (5) 电源插座 ： 1.6 勒克斯（最低亮度）

(iv) (a) 疏散旁道及前往最终安全地点的所有出口路线，沿途均须设有足够数量的方向指示牌（反光式）及出口指示牌（隐藏式）。

(b) 轨道全线范围均须每隔 25 米设置一个方向指示牌（反光式），显示车站或隧道入口方向。

(v) (a) 所设通讯系统须能供 3 个独立通话组别的消防人员于同一时间在每个车站及其相关轨道旁边范围以所携的消防处无线电设备进行有效而具效率的集束无线电通讯。此外，有关的无线电覆盖范围亦须达地面各个紧急入口 50 米半径范围。

(b) 应在合适地点，包括任何横向通道及轨旁入口处设置紧急电话，直接接驳至车务控制中心。

- (vi) To be provided throughout the tunnel or viaduct with twin-hydrant outlets or two single-hydrant outlets at 60 m intervals and located on the same side of the elevated evacuation/fireman's walkway.
- (vii) As required by FSD.
- (viii) (a) To be provided inside tunnel or enclosed trackway, to maintain a smoke free path for emergency evacuation and fireman's access in case of fire. For longitudinal type tunnel ventilation system, sufficient critical velocity shall be maintained to prevent the back-layering of smoke and control the direction of smoke movement inside the tunnel. Dynamic smoke extraction systems shall be provided for underground trackway next to the platform to prevent smoke from spreading to platforms and other tunnel sections. Besides, a separate smoke zone with the smallest possible size should be assigned to the crossover and its adjoining tunnel sections to prevent smoke from spreading to other unaffected areas unless it can be demonstrated that smoke will not spread to adjacent tunnel(s) through the crossover.
 - (b) The tunnel ventilation system should be so designed that a positive airflow from a non-incident tunnel to an incident tunnel through cross-passage doors located at the down-stream of the fire should be maintained to avoid smoke spread when those doors are opened for evacuation.

- (vi) 须在隧道或高架铁路全线每隔 60 米设置一个双出水口消防栓或两个单出水口消防栓。消防栓须设于高架疏散旁道 / 消防员旁道的同一边。
- (vii) 须遵照消防处的规定。
- (viii) (a) 须设于隧道或密封轨道内，以便在火警发生时，保持一条无烟通道，供紧急疏散及消防员进入。就纵向型隧道通风系统，须保持足够的临界风速，以防止烟雾层积及方便控制隧道内烟雾移动的方向。至于月台侧的地下轨道，须设有机械式排烟系统，防止烟雾蔓延至月台及其他隧道部分。此外，应在渡线及其毗连隧道部分划设一个体积极少的独立烟雾区，防止烟雾蔓延至其他未受影响范围。但若展示烟雾不会通过渡线蔓延至相连隧道，则无此需要。
- (b) 隧道通风系统的设计，应可营造一道正压气压到事故隧道，以免当该横向通道门开启供疏散之时，烟雾由此蔓延。

Additional Requirements

- (i) All linings for acoustic and thermal insulation purposes in ductings and concealed locations shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (ii) All cable installations inside tunnel shall be of low smoke zero halogen type and fire retardant. Cable for fire service installations shall be fire resistant and comply with section 5.15 and Appendix 6 of the FSI Code.

2.4.2 Means of Escape (MoE)

- (i) Within underground or enclosed trackways, the maximum distance between exits (i.e. Emergency Egress Point (EEP)) shall not exceed 762 m. Otherwise, cross-passages shall be provided. Please see Figure 1 for illustration.

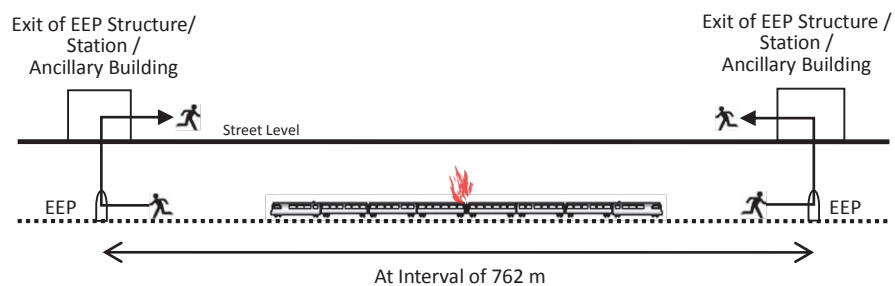


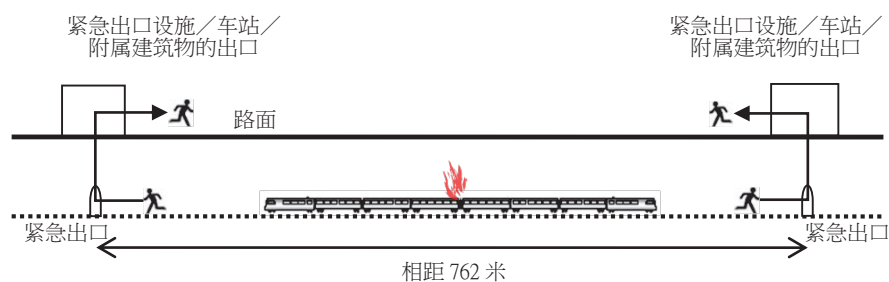
Figure 1: Sketch showing EEP at interval with maximum distance of 762 m

额外规定

- (i) 管道及隐蔽位置内所有作隔音及隔热用途的物料均须达英国标准 476 :第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等标准，或利用认可的抗火产品提高水平至同等标准。
- (ii) 隧道内所有电缆装置，须为低烟无卤类别及具防火功能。消防装置的电缆必须耐火并符合《消防装置守则》第 5.15 段及附录 6 的规定。

2.4.2 逃生途径

- (i) 在地下或密封轨道，出口（即紧急出口）之间的最大距离不得超过 762 米。否则，应该设置横向通道。有关图解请参阅图一。



图一：显示紧急出口之间的最大距离为 762 米的简图

- (ii) Cross-passages (CP) shall be permitted to be used in lieu of emergency exit stairways to the surface where trackways in tunnels are divided by walls having an FRR of not less than 4 hours or where trackways are in twin bores.
- (iii) Cross-passages shall not normally be farther than 244 m apart from each other and from the station or tunnel portal. Please see Figure 2 for illustration.

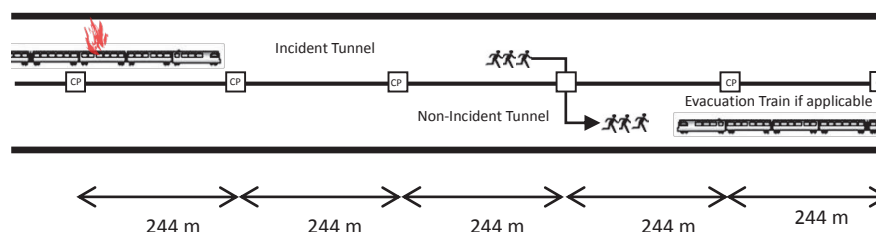
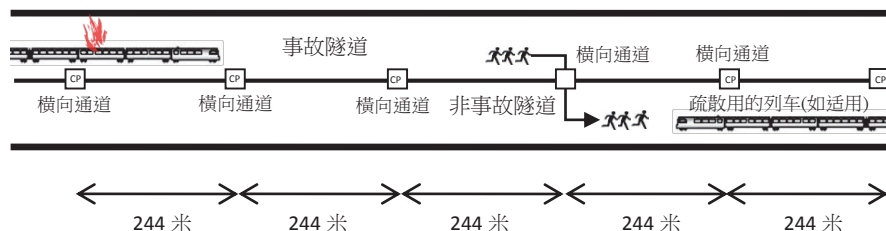


Figure 2: Sketch showing CP at interval with maximum distance of 244 m within underground and enclosed trackways

- (iv) Cross-passages shall have a minimum of 1 800 mm in clear width and 2 200 mm in clear height.
- (v) If any locking device is installed at the cross-passage door, a manual override device for unlocking the door shall be provided at the entrance of each cross-passage and the locking device shall be of fail-safe design.
- (vi) Provisions shall be made for evacuating passengers via the non-incident trackway to a nearby station or other emergency exits.

- (ii) 如隧道内的轨道以耐火时效不少于 4 小时的墙所分隔，或轨道位于双钻孔隧道内，则可准许使用横向通道，以代替通往地面的紧急出口楼梯。
- (iii) 横向通道之间及与车站或隧道入口之间，一般不得相距超过 244 米。有关图解请参阅图二。



图二：显示地下及密封轨道内的横向通道之间的最大距离为 244 米的简图

- (iv) 横向通道的最少净阔度及净高度应分别为 1 800 毫米及 2 200 毫米。
- (v) 如隧道分隔门装有任何锁定装置，则每道分隔门的入口须设有开启门锁的手动超越控装置，而该锁定装置须属故障安全装置。
- (vi) 容许逃生乘客由非事故轨道前往就近车站或其他紧急出口。

- (vii) Evacuation side walkway which is also used as fireman's walkway shall be provided throughout the entire trackway leading to the place of safety and shall have a minimum clear width of 850 mm and a clear height of 2 200 mm. The design of the side walkway shall take into account the floor height and stepping distance from all types of train running along the tunnel. In general, the vertical step height shall be no greater than 250 mm and the horizontal step distance shall be no more than 200 mm for a typical straight section. Any change in level should be achieved by ramps with a gradient not steeper than 1 in 12. Please see Figure 4 for reference.

2.4.3 Means of Access (MoA)

- (i) Access to the trackway shall be from the station or EAP.
- (ii) EAP shall be at regular intervals along the trackway and the maximum distance between each EAP shall not exceed 1 km. Please see Figure 3 for illustration. In the case of tunnels going under the sea, under a mountain, or through areas where vehicular access cannot be arranged, distance between EAPs can be extended with appropriate mitigation measures in place such as Emergency Rail Bus (ERB) or Backup Access Vehicle (BAV).

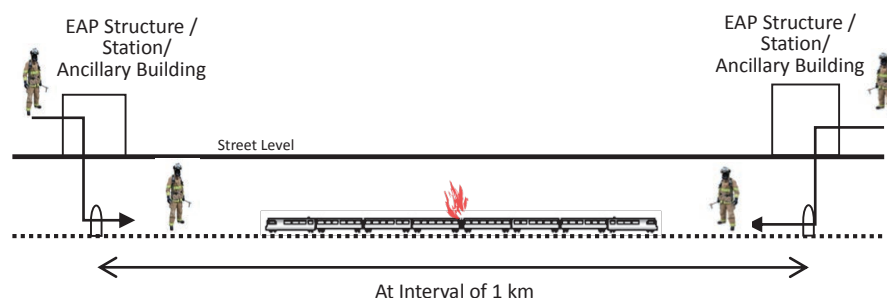


Figure 3: Sketch showing EAP at interval with maximum distance of 1 km along underground and enclosed trackways

- (vii) 轨道全线范围须设有通往安全地点的疏散旁道，该旁道亦用作消防员通道，而其最少净阔度须为 850 毫米，净高度则须为 2 200 毫米。旁道的设计须顾及地面高度及从各类使用隧道的列车下车的步距。一般来说，就典型笔直路段而言，垂直踏脚高度不应大于 250 毫米，而横向踏脚距离不应超过 200 毫米。任何高度改变，应采用斜度不超过 1 比 12 的斜路。详情请参阅图四。

2.4.3 进出途径

- (i) 应从车站或紧急救援入口进出轨道。
- (ii) 应沿轨道固定距离设置紧急救援入口，而每个紧急救援入口的最大距离不得超过 1 千米。有关图解请参阅图三。如隧道行经海底、穿越山岭或行经无法安排车辆进出的地方，则紧急救援入口的距离可以延长，惟须提供合适的缓解措施，如紧急救援车或后备进出车辆。



图三：显示地下及密封轨道内的紧急救援入口之间的最大距离为 1 千米的简图

- (iii) The configuration of fireman's lift and fireman's staircase shall adhere to the FS Code for FRS. Fireman's lift shall be provided when any viaduct exceeds 15 m in height or when any underground tunnel exceeds 9 m in depth from the mean level of the lowest street.

- (iv) Fireman's side walkway which is also used as evacuation walkway shall be provided throughout the entire trackway leading to the place of safety and shall have a minimum clear width of 850 mm and a clear height of 2 200 mm. In the case of a short extension, e.g. West Island Line and Kwun Tong Line Extension, to the existing urban lines, the existing evacuation arrangements of the original line can be adopted.

- (v) There shall be an access path at approximately the same level as the railway and on the side opposite to the evacuation/fireman's side walkway. The path shall be free of obstruction, at least 450 mm wide at foot level, 800 mm wide at shoulder level and 2 000 mm high. This path will be used for maintenance purpose under normal situation and can be used as an access for rescue purpose in case of emergency. Please see Figure 4 for reference.

- (iii) 消防员升降机及消防员专用楼梯的设计须遵照《消防安全守则》有关消防和救援楼梯间的规定。如由最低街道的平均水平起计，任何高架道高度超逾 15 米，或任何地下隧道的深度超逾 9 米，则须设置消防员升降机。
- (iv) 整条轨道须设有通往安全地点的消防员旁道，该旁道亦用作疏散通道，而其净阔最少为 850 毫米，净高度则须为 2 200 毫米。如属接驳现有铁路之短程延线，例如是西港岛线及观塘线延线，可采用原有干线现行的疏散安排。
- (v) 在铁路相若水平及疏散旁道／消防员旁道的另一边，须设有接达路径。路径应毫无障碍物，脚部范围最少阔 450 毫米，肩部范围最少阔 800 毫米，高度最少为 2 000 毫米。此路径在一般情况下会作维修之用，遇上紧急情况，则会用作救援进出途径。详情请参阅图四。

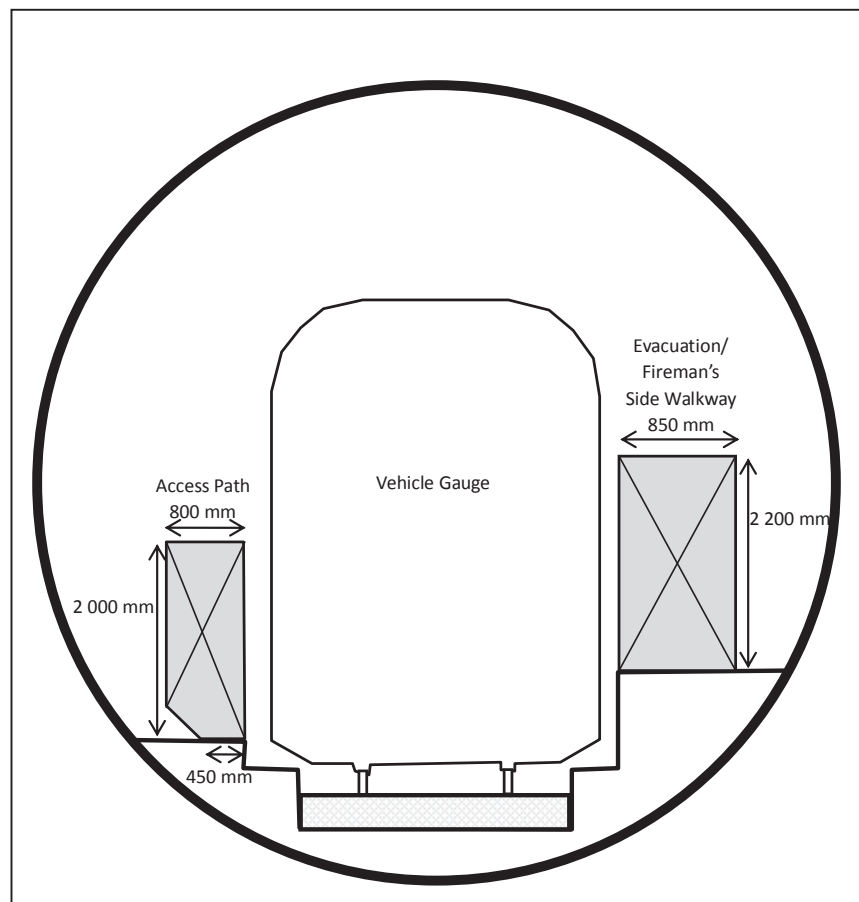
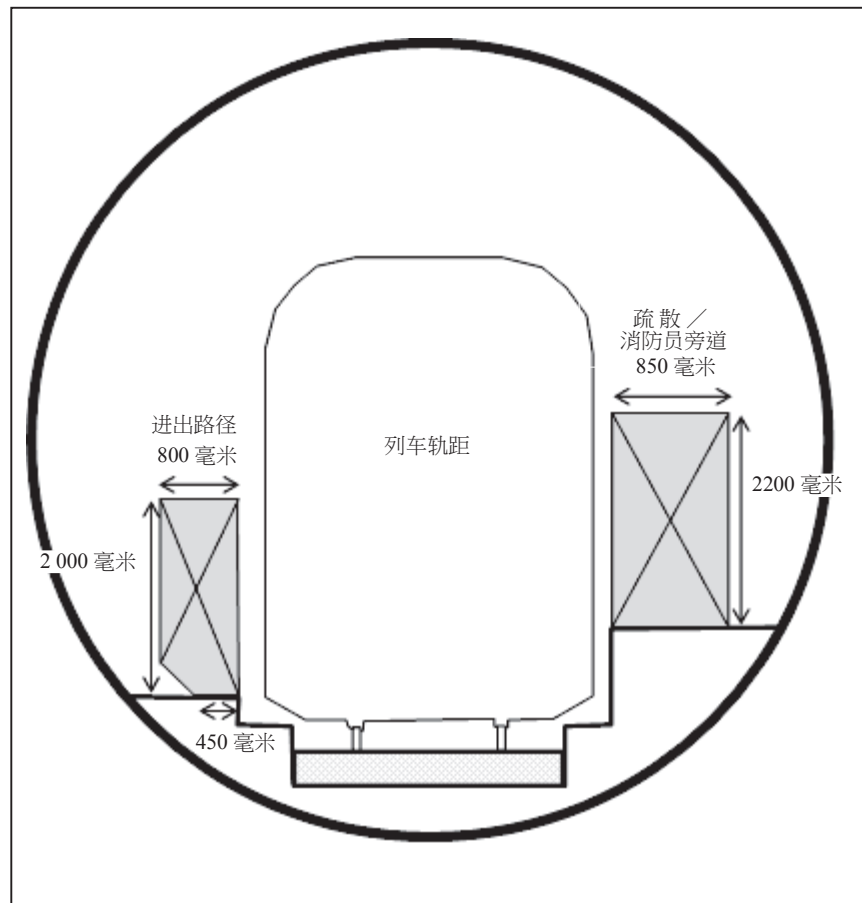


Figure 4: Tunnel evacuation/fireman's side walkway and access space

2.4.4 Fire Resisting Construction (FRC)

- (i) Elements of construction of underground trackway and box structure shall have an FRR of not less than 4 hours.
- (ii) Partition walls and associated doors between underground trackways shall have an FRR of not less than 4 hours.
- (iii) 4-hour fire separation shall be maintained between uptrack and downtrack tunnels. If for any reasons a 4-hour FRR partition wall could not be provided, justifications and mitigation measures shall be provided.



图四： 隧道内的疏散 / 消防员旁道及进出空间

2.4.4 耐火结构

- (i) 地下轨道及箱形结构的建筑构件，须有不少于 4 小时的耐火时效。
- (ii) 地下轨道之间的间隔墙及相关门户，须有不少于 4 小时的耐火时效。
- (iii) 上行及下行隧道之间须保持 4 小时隔火设施。如基于某些原因无法提供 4 小时耐火时效的间隔墙，须提供理据及缓解措施。

- (iv) Should proper fire separation at crossover section could not be achieved, mitigation measure(s) with sufficient justification to prevent smoke spreading at the crossover shall be in place.

2.4.5 A checklist of FS Requirements for Trackside Area is enclosed at Appendix IV for reference.

- (iv) 如无法在渡线路段提供合适的隔火设施，须提供理据充分的缓解措施，防止烟雾在渡线路段蔓延。

2.4.5 附录（四）载有轨旁区域消防安全规定核对表，以供参考。

Cabin Concept for Concession Area in Station

1. Background

- 1.1 “Cabin Concept” has been adopted for the fire safety design in a number of developments, such as Osaka Bay International Airport in Japan, Stansted International Airport in London, Hong Kong International Airport and railway stations in Hong Kong. The basic principle of “Cabin Concept” is to provide protection to high fire load areas while allowing flexibility in the use of large space without physical compartment walls.
- 1.2 Shops or concession areas are generally provided at station concourses of new railway stations for the convenience of commuters. Open type cabin concept is commonly applied to concession areas because these areas are identified as areas of higher fire load and fire risk as compared to general station circulation areas.

2. Design Parameters

- 2.1 Open type cabin concept relies on a combination of fire detection, sprinkler and smoke extraction systems. A sketch of the cabin concept is provided in Figure 5. For concession areas design using the cabin concept, the provisions are:

铁路站專營範圍的艙房概念

1. 背景

- 1.1 在多个发展项目，例如日本大阪湾国际机场、伦敦 Stansted 国际机场、香港国际机场及香港铁路站，消防安全设计均已采用「艙房概念」。「艙房概念」的基本原理是为高燃烧负荷量的区域提供保障，但又无须设置实体分隔墙，让大面积的空间得以灵活运用。

- 1.2 店铺或专营范围通常设于新铁路站的大堂，以方便乘客。与车站的一般通道地方相比，专营范围被视为燃烧负荷量及火警风险较高的区域，所以通常采用开敞式「艙房概念」。

2. 设计规范

- 2.1 开敞式「艙房概念」建基于火警侦测系统、花洒系统及排烟系统的配合。图五为「艙房概念」的简图。至于按「艙房概念」而设计的专营范围，艙房内的设施如下：

- (i) fire detection and alarm systems;
- (ii) sprinkler system with fast response type sprinkler heads;
- (iii) sprinkler apron between the station areas and the shop areas to protect shopfronts;
- (iv) fire rated smoke bulkhead to contain smoke above the apron of concession areas is to be fixed at 15° from shop demise (shutter) line;
- (v) dedicated smoke extraction system which is independent of the smoke extraction system for the station public areas; and
- (vi) portable hand-operated approved appliances.

2.2 A fire within a cabin shall be detected at an early stage by a smoke detector at ceiling level. This shall automatically switch on the smoke extraction system. The cabin shall be fitted with smoke barriers at its boundaries to create a reservoir to prevent the smoke from spreading outside the cabin. Under the protection of the sprinkler system, the fire occurred inside the cabin shall be limited to a design fire size of not exceeding 2 MW.

2.3 In general, the maximum area of a single cabin shall not exceed 100 m². A dedicated smoke extraction system, which is independent of the smoke extraction system for the station public areas, shall be provided for the open cabin. The protected area may be a single concession area or a group of concession areas served by a common smoke reservoir. One smoke reservoir will serve a maximum area of 100 m² cabin zone. However, one smoke extraction system may serve several cabin zones without exceeding a total smoke zone area of 2 000 m².

- (i) 火警侦测及警报系统；
- (ii) 配备快速感应型消防花洒头的花洒系统；
- (iii) 车站与店铺区域之间用以保护铺面的花洒隔挡；
- (iv) 用以阻挡专营范围花洒隔挡上方烟雾、具抗火效能的防烟隔墙，安装位置须与店铺批租的界限（卷闸）成 15 度角；
- (v) 独立于车站公众地方排烟系统的专用排烟系统；及
- (vi) 认可的人手操作手提器具。

2.2 舱房内的火警须于起火初期被设于天花板层的烟雾侦测器侦测到，继而自动启动排烟系统。舱房须于其界线设置隔烟屏障以构成集烟间，防止烟雾蔓延至舱房外面。在花洒系统的保护下，舱房内发生的火警，其设定规模不得超逾 2 兆瓦。

2.3 一般而言，一个舱房的最大面积不可超过 100 平方米。开敞式舱房须配置专用排烟系统，而该排烟系统须独立于车站公众地方。受保护区域可以是一个或多个专营范围，并设有一个共享的集烟间。一个集烟间须在面积最大为 100 平方米的舱房区域发挥效用。不过，一个排烟系统可供几个舱房区域使用，但不得超出烟雾控制区总面积 2 000 平方米的范围。

- 2.4 The separation walls between different cabin zones and other back-of-house areas will be in full height with an FRR of not less than 1 hour and 2 hours respectively. Non-full height separation wall of not lower than the designed smoke clear height with an FRR of not less than 1 hour is allowed for separating different concession areas within the same cabin zone while sharing the same smoke reservoir. The enclosure wall, if any, separating the concession area and station public area, will have an FRR of not less than 2 hours. The shopfront will not have any fire rated separation provision under open cabin design. However, a passage having a minimum width of 6 m in the front of the concession area measuring from the shop demise line should be maintained.
- 2.5 Apart from the above provisions, only trades approved by SSCC shall be permitted in the concession areas. All trading activities shall be contained within the protected concession area (cabin) and no combustibles are allowed to be placed or protruded out of the designated shopfront area.
- 2.6 Practical smoke tests shall be carried out in the cabin to the satisfaction of FSD.
- 2.7 The previously agreed trade list is enclosed in Appendix V for reference. Future trade list should be agreed on a case-by-case basis.

- 2.4 各个舱房区域之间及其他后勤区域之间的分隔墙须是全高度的，而耐火时效分别不可少于 1 及 2 小时。同一舱房区域内的各个专营范围，可采用不低于设定无烟净空高度及不少于 1 小时耐火时效的非全高度分隔墙来互相分隔，并共享一个集烟间。若有分隔专营范围及车站公众地方的围墙，其耐火时效须不少于 2 小时。根据开敞式舱房设计，铺面没有任何具抗火效能的分隔设施。不过，专营范围区域前（由店铺批租界限起计）应保持一条最少阔 6 米的通道。
- 2.5 除以上规定外，只有安全及保安统筹委员会核准的行业才可在专营范围经营。所有交易活动须局限于受保护的专营范围（舱房）内进行，任何可燃物品均不得放置于或伸出指定的铺面区域以外。
- 2.6 在舱房内进行的实地烟雾测试，须达至消防处满意的程度。
- 2.7 附录（五）载有早前协议的行业一览表，以供参考。日后会按个别情况制订行业一览表。

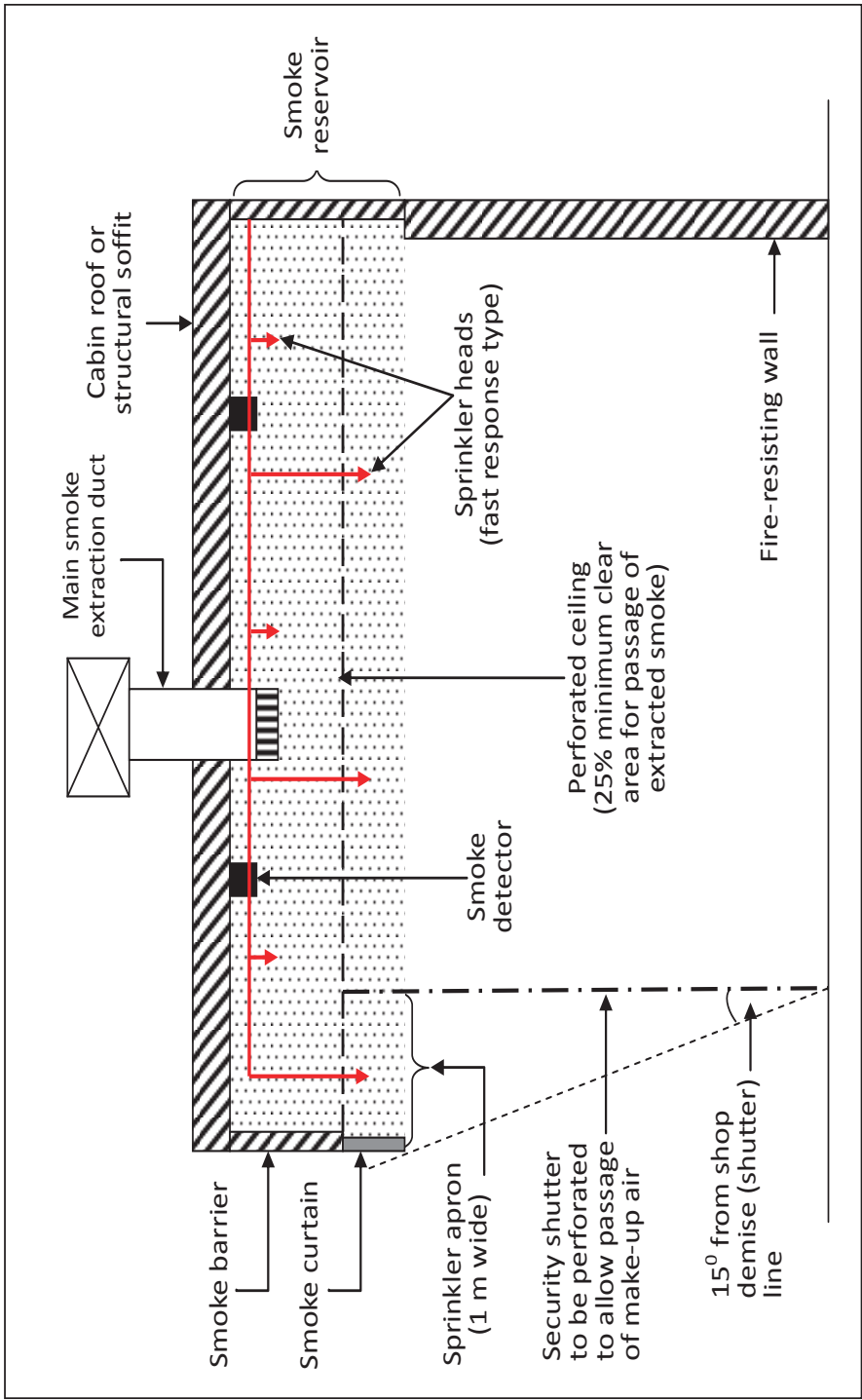
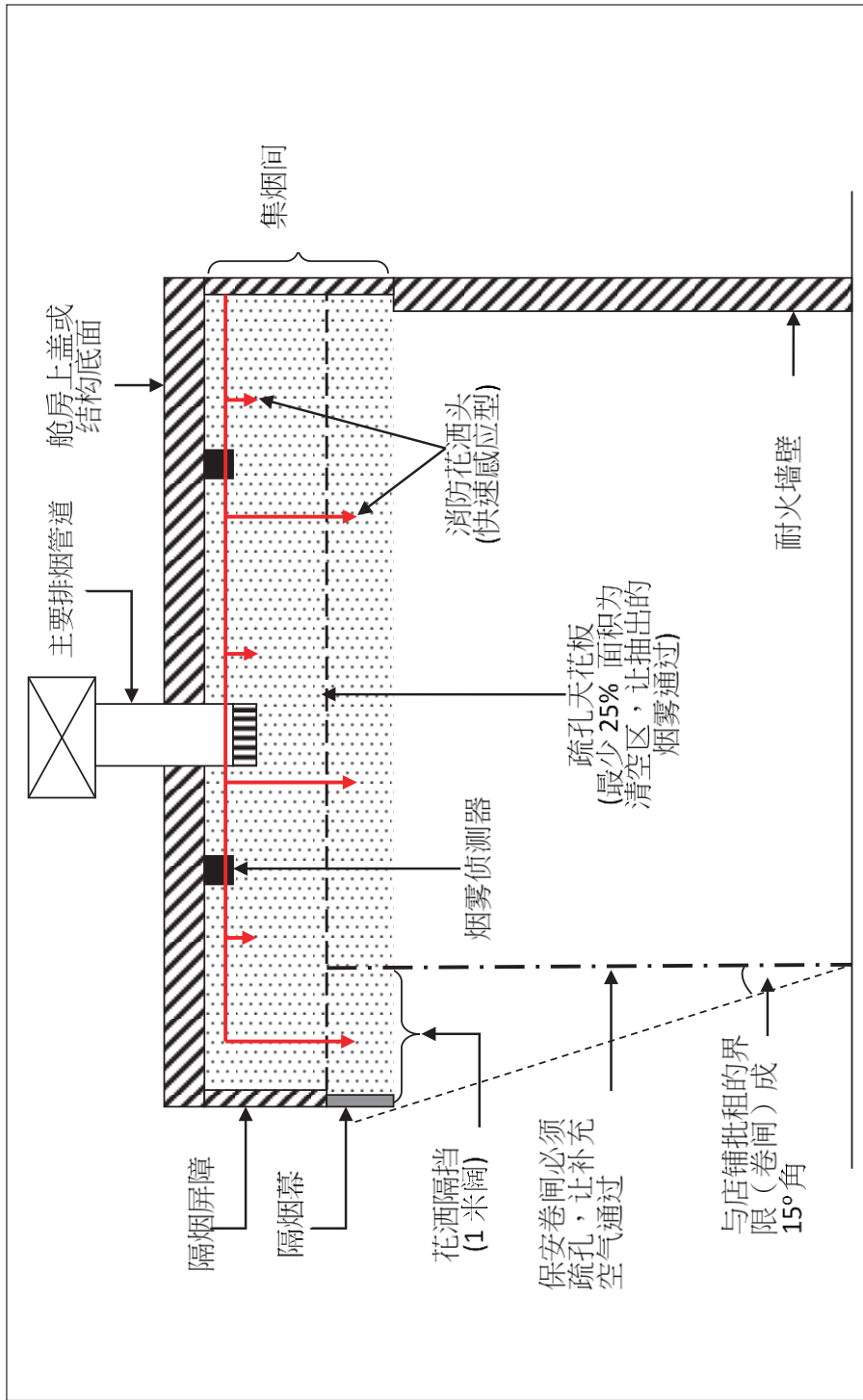


Figure 5: Sketch of the Cabin Concept



图五：「舱房概念」的简图

Examples of Special MoE Arrangements in Station
(Lift-assisted Evacuation & Long Adit)

1. Introduction

- 1.1 For very deep-sited stations (e.g. Sai Ying Pui Station (SYP) and Hong Kong University (HKU) Station of WIL as well as Lei Tung Station (LET) of SIL(E)), lift-assisted evacuation is considered as a supplementary MoE provision for public safety.
- 1.2 Evacuation lifts are designed for pedestrians in the long adit only, while the evacuation population for other areas of the station is handled by other station entrance/exits in case of a fire.
- 1.3 Long adits may be utilized to connect station concourse to various entrances and all long adits shall be designed as Place of Safe Passage.
- 1.4 The above special provision may be adopted on a case-by-case basis taking into consideration of special circumstances including site constraints.

2. Lift-assisted Evacuation

- 2.1 Lift-assisted evacuation will typically only be adopted to evacuate those pedestrians at the Long Adits leading to the lift-only entrance, however may also be appropriate for other small evacuation populations. A protected staircase adjoining to the lift should always be provided for the lift-assisted evacuation.
- 2.2 Passengers at the adits near the concourse lift lobby will evacuate into the protected staircase at the adit end. The staircase connects to the refuge lift lobby typically located one level above and passenger will use the high capacity lifts for evacuation to the final exit level (i.e. ground level). Figure 6 and Figure 7 show the example layout of lift lobby on concourse level and refuge lift lobby at one level above for reference.

铁路车站逃生途径特别措施的例子
(以升降机辅助疏散及长通道)

1. 简介

- 1.1 就深入地底的铁路车站（例如西港岛线的西营盘站和香港大学站及南港岛线（东段）的利东站）而言，以升降机辅助疏散视为有关逃生途径的补充规定，目的是保障公众安全。
- 1.2 疏散用升降机仅为长通道的行人而设。在发生火警时，在车站其他范围的人群，会由车站其他入口／出口疏散。
- 1.3 长通道可用以连接车站大堂至各个出入口，而所有长通道均须设计为安全通道。
- 1.4 可因应个别情况的特殊环境，包括场地限制，采取上述特别措施。

2. 以升降机辅助疏散

- 2.1 以升降机辅助疏散的方式，通常仅用于疏散身处只有升降机连接出入口的长通道之内的行人，但亦可用以疏散其他少量人群。在毗邻升降机的地方，应经常设有防护楼梯，以供进行以升降机辅助疏散之用。
- 2.2 在长通道内升降机大堂附近的乘客，会疏散至长通道末端的防护楼梯。该楼梯通往通常设于上一层的避火升降机大堂，而乘客会使用载客量大的升降机疏散至最终出口层（即地面层）。图六及图七显示车站大堂层的升降机大堂及设于上一层的避火升降机大堂的典型设计图，以供参考。

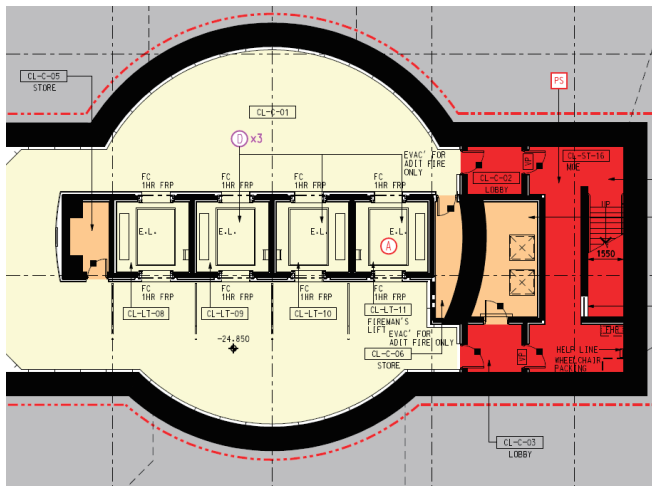


Figure 6: Example Layout of Lift Lobby at Concourse Level

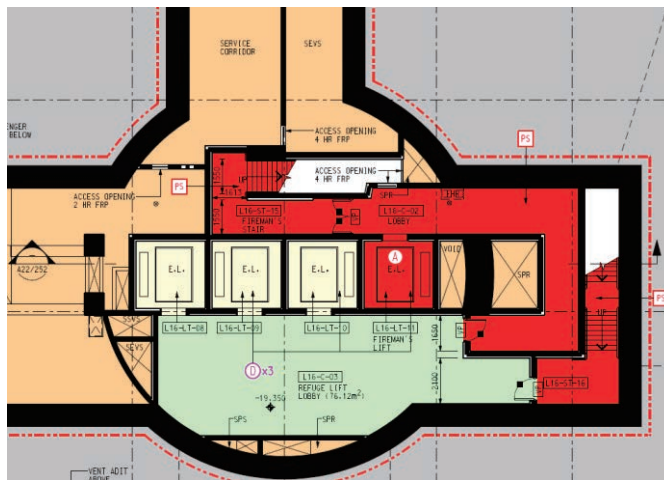


Figure 7: Example Layout of Refuge Lift Lobby

- 2.3 The protected staircase is in two sections, the lower section of the staircase between the lift lobby at concourse level and the refuge lift lobby above; and the upper section of the staircase connecting the refuge lift lobby and the final exit level for discharge. The two sections of the staircase are disconnected at the refuge lift lobby.
- 2.4 Suitable warning signs, PA messages and flashing exit signage shall be incorporated into the design of station public areas (including the adits and lift lobbies) to adequately advise passengers on the use of the lift for evacuation when required.

2.5 While this system has been designed as self-help in nature without relying on staff to operate, station management of railway corporation will assign dedicated staff to assist passengers wherever necessary.

3. Operation of High Capacity Lifts Associated with Lift-assisted Evacuation

3.1 Normal Mode Operation

Under normal situation, the high capacity lifts are used as normal passenger lift travelling between the concourse level (i.e. adit ends) and the exit level (i.e. ground level). Daily operation of high capacity lifts is categorized as “Normal Mode Operation”.

3.2 Evacuation Mode Operation

3.2.1 Activation of “Evacuation Mode Operation” where lift-assisted evacuation enables all evacuation lift cars travelling towards the final exit level (i.e. G/F) shall continue the journey to the final exit level for discharge, then moving to the refuge lift lobby level (i.e. a level above the concourse level) to start the evacuation cycle (only between refuge lift lobby level and final exit level).

3.2.2 The evacuation lift cars travelling toward the concourse level shall stop at the nearest landing without door open and then return to the final exit level for discharge. The lift will then move to the refuge lift lobby to start the evacuation cycle.

4. Operation of High Capacity Lifts Associated with Lift-assisted Evacuation

4.1 The refuge lift lobby provides a safe place for evacuees to wait for lifts during evacuation. Clear signage and public announcement will advise passengers to use lifts instead of using the stair provided.

4.2 The protected stair and refuge lift lobby are positively pressurized so as to prevent ingress of smoke to these protected areas. The pressurization system should be designed in accordance with the design principles of BS5588: Part 4.

- 2.5 车站的公众地方（包括长通道及升降机大堂）的设计，须包含适当的警示牌、公众广播信息及闪动的出口指示牌，以便在有需要时，适当地提醒乘客使用升降机疏散。

3. 升降机辅助疏散的运作

3.1 一般模式运作

在正常情况下，载客量大的升降机用作一般的乘客升降机，来往车站大堂层（即通道末端）及出口层（即地面层）。载客量大的升降机的日常运作归类为「一般模式运作」。

3.2 疏散模式运作

- 3.2.1 在启动须以升降机辅助疏散的「疏散模式运作」时，所有正前往最终出口层（即地面）的疏散用升降机机厢必须继续运行，并前往最终出口层，让乘客离开，其后升降机会前往避火升降机大堂层（即车站大堂层的上一层），并开始来回进行疏散行动（只会来回避火升降机大堂层及最终出口层）。

- 3.2.2 正前往车站大堂层的疏散用升降机机厢，须于最近一层停下，但门不会打开，然后返回最终出口层，让乘客离开。其后，升降机会前往避火升降机大堂，并开始来回进行疏散行动。

4. 对辅助疏散的升降机系统的防护

- 4.1 避火升降机大堂为疏散者提供安全的地方，让他们在疏散期间等候接载。清晰的指示牌及公众广播会建议乘客使用所提供的升降机而非楼梯。

- 4.2 防护楼梯及避火升降机大堂已加入正压，防止烟雾进入这些防护范围。增压系统应按照英国标准 5588 第 4 部分所述的设计原则予以设计。

4.3 In addition to pressurization provision, the refuge areas are all protected with automatic sprinkler system, smoke detection, fire hydrants and hose reels which are in-line with other public areas of the same station.

4.4 In summary, FSIs in addition to smoke control systems for the areas associated with Lift-assisted Evacuation System are tabulated as below. The FSI provision shall be accepted on a case-by-case basis in view of the actual condition and the fire safety level of the proposal which shall not be inferior to that provided by prescriptive requirements.

Area	Fire Hydrants and Hose Reel Coverage	Automatic Fire Suppression	Fire Detection (optical type smoke detector)	Portable Extinguishers
Adit	✓	✓	✓	✓
Lift Lobby	✓	✓	✓	✓
Lift Machine Room (Aboveground)	-	-	✓	✓
Protected Staircase	✓ (FH only)	✓	✓	-
Refuge Lift Lobby	✓	✓	✓	-
Refuge Landing	✓ (FH only)	✓	✓	-

4.5 The high capacity lift cars are also provided with specific safety measures as follows:

4.5.1 Each lift car will run within its lift shaft with 2-hour fire resistance separation from other lift shafts and adjacent occupancies.

4.3 除增压设施外，各避火范围均受自动花洒系统、烟雾侦测系统、消防栓及消防喉轆所防护，并与同一车站其他公众地方相配合。

4.4 除了烟雾控制系统外，相关范围亦须装设的消防装置撮述于下表。消防处会按实际情况，并因应个案情况决定是否接纳所提供的消防装置，而建议中的消防安全水平不得逊于订明规定所达至的消防安全水平。

范围	受消防栓及消防喉轆覆盖	自动灭火系统	火警侦测 (感光式烟雾侦测器)	手提灭火筒
通道	✓	✓	✓	✓
升降机大堂	✓	✓	✓	✓
升降机机房 (地面)	-	-	✓	✓
防护楼梯	✓ (只有消防栓)	✓	✓	-
避火升降机 大堂	✓	✓	✓	-
避火楼梯平台	✓ (只有消防栓)	✓	✓	-

4.5 车站亦会提供载客量大的升降机机厢，并采取下列的特别安全措施：

4.5.1 每个升降机机厢均会在各自的升降机槽内运行，而升降机槽亦具 2 小时耐火时效，与其他升降机槽和毗邻的占用部分分隔。

- 4.5.2 The lift doors should have an FRR of not less than 2-hour, with additional fire curtains with not less than 1-hour FRR at concourse level to fully separate the lift shafts and the concourse public area.
- 4.5.3 The machine rooms of high capacity lifts are also another important component of the entire system. The machine rooms of high capacity lifts will be located aboveground and will not be affected by any fire within the underground station box. Lift machine room typically is divided into 2 parts to minimize operational impact in the event of a lift machine room fire, so as to limit only half of the lifts affected.
- 4.5.4 The machine room will be protected with smoke detection. In case a fire is detected in the motor room, the corresponding lifts of the same entrance will home to the concourse level with door open, and not used for evacuation.
- 4.5.5 Power supply reliability is also a key design parameter for the lift system. Railway stations are typically provided with dual feed power supply in order to maintain uninterrupted lift services for emergency.
- 4.5.6 While designing the power arrangement of the Lift-assisted Evacuation System, reference is made to general provisions for fireman's lifts which are also intended to operate during fire.
- 4.5.7 All power cables shall follow the relevant requirements stated in Appendix 8 of FSI Code for fireman's lifts. Besides, all cables shall be protected from physical damage.

5. Long Adits

- 5.1 The essential features of the long adits connecting station concourses and station entrances are as follows:
- (i) The long adits will serve only as pedestrian circulation routes between the station concourse and the related entrance;
 - (ii) Long adits may be utilized to connect station concourse to various entrances and all long adits shall be designed as Place of Safe Passage;

- 4.5.2 各升降机门的耐火时效须不少于 2 小时，车站大堂层另设具 1 小时耐火时效的防火幕，以便完全分隔升降机槽及车站大堂的公众地方。
- 4.5.3 载客量大的升降机的机房是整个系统另一个重要组成部分。载客量大的升降机的机房位于地面，不受地底车站发生的任何火警影响。升降机的机房通常分为两部分，以便在机房发生火警时，尽量减低对升降机运作的影响，藉以将受影响的升降机数目限制在只有一半。
- 4.5.4 机房受烟雾侦测系统所保护。如侦测到机房发生火警，则同一出口的相关升降机会返回车站大堂层并打开门，不作疏散之用。
- 4.5.5 供电的稳定性亦是升降机系统的主要设计规范。铁路站通常会有双重供电，令升降机在紧急情况下不会中断服务。
- 4.5.6 为辅助疏散的升降机系统设计电力安排时，应参考有关消防员升降机的一般规定，该等升降机在火警发生时亦会继续运作。
- 4.5.7 所有电缆均须符合《消防装置守则》附录 8 所述有关消防员升降机的相关要求。此外，所有电缆须免受任何实质破坏。

5. 长通道

- 5.1 用以连接车站大堂及车站入口的长通道的主要特点如下：
- (i) 长通道只用作车站大堂与相关出入口之间的行人公众通路；
 - (ii) 长通道可用以连接车站大堂至各个出入口，而所有长通道均须设计为安全通道；

- (iii) All long adits will be designed as station public areas which shall be constructed with a minimum of combustible materials;
- (iv) Concession areas, vending machines or other high fire risk activities shall not be contained along the long adit;
- (v) The smoke extraction system complete with smoke barriers shall be designed to maintain a smoke clear height for evacuation and prevent smoke from spreading along the entire adit. Actuation of system shall be by a smoke detector installation serving the area. Where considered appropriate and to reduce false alarms it is preferable that cross zoned smoke detector systems be utilized. Where a sprinkler system is provided and as appropriate, a flow switch for the smoke zone shall also activate the system. The long adits are divided into multiple smoke zones for effective smoke control and each smoke zone shall not be longer than 60 m. Nevertheless, the maximum travel distances as specified in Part II item 2.1.2 should be complied with;
- (vi) Another key element of safety design for these long adits is the provision of the audio/visual advisory system, the function of which shall be integrated with that incorporated in the station design;
- (vii) Similarly, the station safety management system shall address the emergency evacuation processes for the long adits.

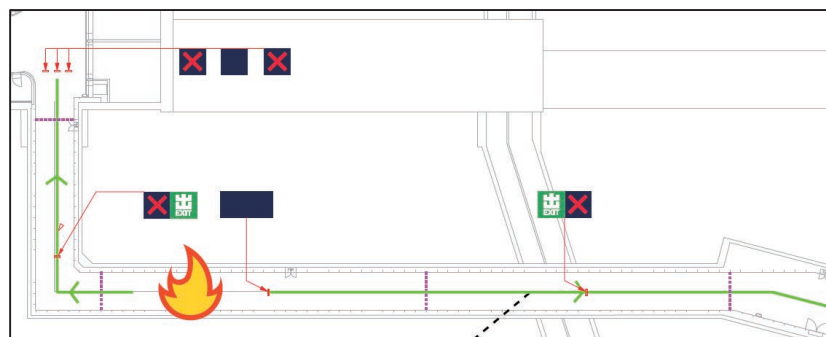
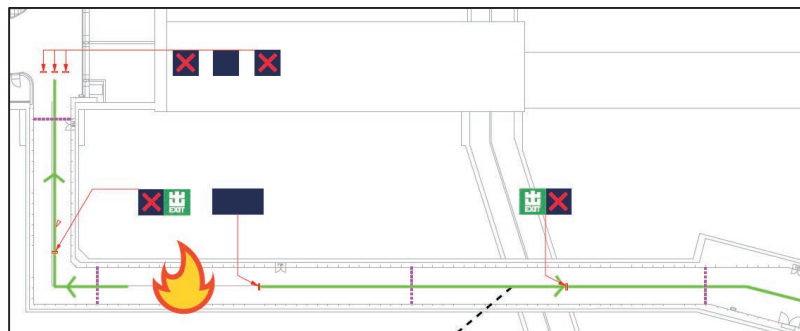


Figure 8: Variable Exit Signage at Long Adit

- (iii) 所有长通道均须设计为车站的公众地方，并须尽量减少以易燃物料建造；
- (iv) 不得在长通道设置专营范围、售卖机或进行其他高火警风险的活动；
- (v) 须以附连隔烟屏障的排烟系统维持无烟净空高度，以供疏散，并防止烟雾沿整条通道扩散。该系统会由有关范围的烟雾侦测装置启动。如认为情况适合，并为了减少误鸣，最好使用交叉区域的烟雾侦测系统。如设有花洒系统且情况适合，烟雾区的花洒流量掣亦须能启动该系统。长通道会分为多个烟雾区，以便有效控制烟雾，而每个烟雾区的长度不得超过 60 米，但仍须遵从第二部第 2.1.2 项所订有关最长行走距离的规定；
- (vi) 这些长通道的另一个安全设计要点，就是设置声响／视像警报系统，并在功能上作为车站设计所含系统的一部分；
- (vii) 同样地，车站的安全管理系统须向长信道广播有关紧急疏散的程序。



图八：长通道的可变换出口指示牌

Examples of Special MoA Arrangements in Station

6. Fire Separated Corridor

6.1 Where a corridor not used by the public is required to provide access to the SCR or FCR or forms part of the fireman’s access to Station box and Non-public Areas from the DEE, such a corridor shall be designed as a Fire Separated Corridor. A Fire Separated Corridor shall include the following provisions:

- (i) Sprinkler and smoke detection systems;
- (ii) The Fire Separated Corridor shall have an FRR enclosure of not less than 2 hours (not less than 4 hours if located underground); and
- (iii) Cabling located within the corridor shall be of the low smoke, zero halogen (LS0H) type or enclosed in metal conduit or cable trunking. All non-armoured building services electrical cables located within the corridor shall be enclosed in metal conduit/trunking or with similar measures.

6.2 No building services other than those required for fire service installations and lighting shall be installed in the Fire Separated Corridor unless they are encased in a fire rated enclosure of a rating not less than that required for the perimeter enclosing walls.

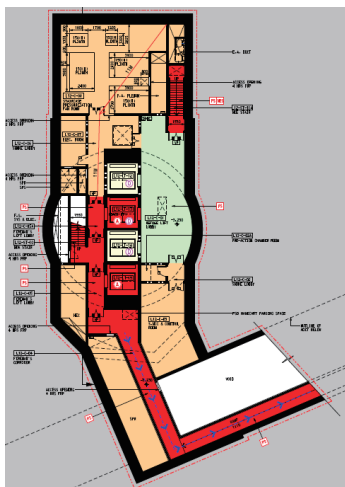


Figure 9: Example Layout of Fireman’s Lift Lobby Leading to Fire Separated Corridor

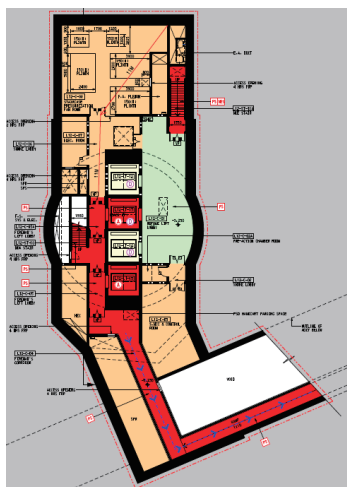
铁路车站进出途径特别措施的例子

6. 隔火走廊

6.1 如须设置不对公众开放的走廊，以便通往车站控制室或消防控制室，或成为消防员通道的一部分，以便由指定紧急入口前往车站外壳及非公众地方，则该走廊须设计为隔火走廊。隔火走廊须包括以下各种设备：

- (i) 花洒及烟雾侦测系统；
- (ii) 隔火走廊须设有耐火时效不少于 2 小时（如在地底则不少于 4 小时）的隔火墙；及
- (iii) 位于走廊内的电缆须为低烟无卤类别，或由金属导管或线槽围封。所有走廊内的无装甲屋宇装备电缆，须以金属导管／线槽或类似的方法围封。

6.2 除了所需的消防装置及照明设备外，隔火走廊不得安装其他屋宇装备，除非该等设备以隔火墙包封，而且其耐火时效不低于外围墙所须达至的标准。



图九：通往隔火走廊的消防员升降机大堂的设计图例子

Checklist of FS Requirements for Station
(for reference only)

(Please refer to FSI Code, relevant Standards and Circular Letters for details)

1 Audio/Visual Advisory System			
A	Flashing exit signs / directional signs	Shall be provided in station public areas as part of audio/visual advisory system to direct passengers towards the designated exits	<input type="checkbox"/>
2 Automatic Actuating Devices			
A	Fire Shutter	(i) Having a sufficient fire resisting rating (ii) Provided with smoke detector(s) and manual control device(s) on both sides of the openings for automatic and manual operation respectively (iii) The detectors shall be installed in accordance with LPC Rules for Automatic Fire Detection and Alarm Installations for the Protection of Property and BS 5839: Part 1: 2002+A2:2008 and FSD Circular Letter No. 1/2009 and No. 3/2010	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3 Automatic Fire Detection			
A	All fire alarm signals including fire detectors, flow switches and manual fire alarm	(i) Shall be linked to CFATS by a direct telephone line (ii) Repeated to SCR/FCR of station	<input type="checkbox"/> <input type="checkbox"/>
B	An 'Acknowledgement' and 'Confirm' button	Shall be provided on the local Integrated Backup Control Panel	<input type="checkbox"/>
C	Automatic fire alarm panel	(i) Provided in SCR/FCR to receive all fire alarm signals of the entire station including smoke detectors, heat detectors, break-glass units and flow switches (ii) All fire alarm signals shall be repeated to AFA panels at DEE, SEE and OCC	<input type="checkbox"/> <input type="checkbox"/>
D	Automatic fire detection	Shall be addressable (BS 5839: Part 1: 2002+A2: 2008 and FSD Circular Letter No. 1/2009 and No. 3/2010)	<input type="checkbox"/>

铁路车站消防安全规定核对表 (仅供参考)

(详情请参阅《消防装置守则》、相关的标准及消防处通函)

1 声响／视像警报系统		
A	闪动的出口指示牌／方向指示牌	须设置于车站的公众地方，作为声响／视像警报系统的一部分，以便引领乘客前往指定出口 <input type="checkbox"/>
2 自动启动装置		
A	防火卷闸	(i) 具备充分的耐火时效 <input type="checkbox"/> (ii) 须在墙壁开口内外两边设置烟雾侦测器及手动控制器，分别供自动及人手操作之用 <input type="checkbox"/> (iii) 须按照《英国防损委员会准则》内有关安装自动火警侦测与警报装置以保障财产的规则、《英国标准 5839：第 1 部分：2002+A2：2008》，以及消防处通函第 1/2009 及 3/2010 号安装侦测器 <input type="checkbox"/>
3 自动火警侦测		
A	所有火警警报信号，包括来自火警侦测器、花洒流量掣及手动火警钟的信号	(i) 须以直线电话线连接火警警报计算机传送系统 <input type="checkbox"/> (ii) 重复传送至车站的车站控制室／消防控制室 <input type="checkbox"/>
B	「知悉」掣及「确认」掣	须设置于车站的综合后援控制台 <input type="checkbox"/>
C	自动火警警报控制板	(i) 设置于车站控制室／消防控制室内，用以接收整个车站的所有火警警报信号，包括来自烟雾侦测器、热力侦测器、警报玻璃箱及花洒流量掣的信号 <input type="checkbox"/> (ii) 所有火警警报信号须重复传送至指定紧急入口、辅助紧急入口及车务控制中心的自动火警警报控制板 <input type="checkbox"/>
D	自动火警侦测	须可显示位置(《英国标准 5839：第 1 部分：2002+A2：2008》及消防处通函第 1/2009 及 3/2010 号) <input type="checkbox"/>

Checklist of FS Requirements for Station
(for reference only)

4 Automatic Sprinkler System			
A	Automatic fixed installations other than water	Provided for areas where the use of water is undesirable for the occupancy (section 4.4(ii) of FSI Code)	<input type="checkbox"/>
B	Automatic sprinkler system (OH III)	Provided for all areas of the station except above ground plant rooms (section 5.24 of the FSI Code, LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845: 2003 and FSD Circular Letter No. 3/2006 and No. 3/2012)	<input type="checkbox"/>
C	Fast response type sprinkler heads	Provided for all underground sprinkler protected areas	<input type="checkbox"/>
D	Re-cycling pre-action sprinkler system	Comply with LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845: 2003 and FSD Circular Letter No. 3/2006 and No. 3/2012	<input type="checkbox"/>
E	Sprinkler alarm	(i) Linked to CFATS by a direct telephone line	<input type="checkbox"/>
		(ii) All sprinkler alarm signals shall also be transmitted to the fire control panel in SCR & FCR and repeated to AFA panels at DEE, SEE and OCC	<input type="checkbox"/>
F	Sprinkler inlets	Provided at DEE/SEE and be interconnected	<input type="checkbox"/>
G	Sprinkler pumps (one duty & one standby) and one jockey pump	Provided in Sprinkler Pump Room	<input type="checkbox"/>
H	Water tank	(i) Sufficient Capacity (e.g. 124 m ³)	<input type="checkbox"/>
		(ii) Single end feed water supply	<input type="checkbox"/>
5 Emergency Lighting			
A	All batteries in UPS room	comply with BS 6290: Part 4	<input type="checkbox"/>
B	Emergency lighting	(i) Backed up by UPS and capable of maintaining function for a period of not less than 2 hours in case of power failure	<input type="checkbox"/>
		(ii) Provided throughout the station and all exit routes leading to place of ultimate safety (BS 5266: Part 1, BS EN 1838 and section 5.9 of FSI Code)	<input type="checkbox"/>
C	Independent mechanical ventilation system	Shall be provided as stipulated in section 8, Part XI of FSD Circular Letter No. 4/1996	<input type="checkbox"/>

铁路车站消防安全规定核对表
(仅供参考)

4 自动花洒系统			
A	不含水的灭火剂自动固定装置	安装在占用部分内不宜用水救火的地方 (《消防装置守则》第 4.4(ii)段)	<input type="checkbox"/>
B	自动花洒系统(普通危险程度第三组)	设置于车站各个部分,但地面机房除外(《消防装置守则》第 5.24 段、《英国防损委员会准则》内包含《英国标准 EN 12845: 2003》的自动花洒装置规定,以及消防处通函第 3/2006 及 3/2012 号)	<input type="checkbox"/>
C	快速感应型消防花洒头	设置于所有受消防花洒保障的地底范围	<input type="checkbox"/>
D	重复启闭预作用花洒系统	符合《英国防损委员会准则》内包含《英国标准 EN 12845: 2003》的自动花洒装置规定,以及消防处通函第 3/2006 及 3/2012 号	<input type="checkbox"/>
E	花洒警报	(i) 以直线电话线连接火警警报计算机传送系统 (ii) 所有花洒警报信号亦须传送至车站控制室及消防控制室的消防控制板,并重复传送至指定紧急入口、辅助紧急入口及车务控制中心的自动火警警报控制板	<input type="checkbox"/> <input type="checkbox"/>
F	花洒入水掣	设置于指定紧急入口/辅助紧急入口,并互相连接	<input type="checkbox"/>
G	花洒泵(一个主泵及一个备用泵)及一个操控水泵	设置于花洒泵房	<input type="checkbox"/>
H	水缸	(i) 足够容量(例如 124 立方米) (ii) 单端供水	<input type="checkbox"/> <input type="checkbox"/>
5 应急照明系统			
A	不间断电源供应器室的所有电池	符合《英国标准 6290: 第 4 部分》	<input type="checkbox"/>
B	应急照明系统	(i) 以不间断电源供应器作后备电源,于电力故障时可维持功能不少于 2 小时 (ii) 设置于整个车站及通往最终安全地点的所有出口通道(《英国标准 5266: 第 1 部分》、《英国标准 EN 1838》及《消防装置守则》第 5.9 段)	<input type="checkbox"/> <input type="checkbox"/>
C	独立机械通风系统	须按照消防处通函第 4/1996 号第 XI 部第 8 段装设	<input type="checkbox"/>

Checklist of FS Requirements for Station
(for reference only)

6 Emergency Power Supply			
A	Dual feed power supply from two independent primary substations (zone substation)	(i)	Capable of supporting all essential services running simultaneously <input type="checkbox"/>
		(ii)	Single point of failure shall be avoided by means of separate routing for distance separation, or by means of FRR and mechanical separation <input type="checkbox"/>
B	Transformer and the associated switchboards of different supply sources	Separated from each other in different fire compartments <input type="checkbox"/>	
7 Exit Signs / Directional Exit Signs			
A	All exit signs in non-public areas	Internally illuminated with English and Chinese character of not less than 125 mm high with 15 mm wide strokes (section 5.10 of FSI Code and FSD Circular Letter No. 5/2008) <input type="checkbox"/>	
B	All exit signs / directional exit signs in public areas	(i)	Shall be of flashing type and internally illuminated <input type="checkbox"/>
		(ii)	Shall be switched on and flashing to indicate the appropriate exit route to the place of ultimate safety during emergency evacuation <input type="checkbox"/>
		(iii)	Hidden-type flashing exit signs shall be provided for the escalators which normally run counter to the direction of escape <input type="checkbox"/>
C	Exit signs / directional exit signs	(i)	Backed up by UPS and capable of maintaining function for a period of not less than 2 hours in case of power failure <input type="checkbox"/>
		(ii)	Provided throughout the station <input type="checkbox"/>
		(iii)	Provided to ensure all exit routes from any area within the station are clearly indicated as required by the configuration of escape routes serving the station <input type="checkbox"/>
8 Fire Alarm System			
A	Fire alarm bells	(i)	Provided at back-of-house areas except SCR, FCR and fire separated corridor <input type="checkbox"/>
		(ii)	For station public areas, all fire alarm signals shall be connected to the PA system for fire evacuation announcement <input type="checkbox"/>

铁路车站消防安全规定核对表 (仅供参考)

6 应急供电设备			
A	由两个独立主配电站（分区配电站） 双重供电	(i) 能够支持所有必要服务同时运作	<input type="checkbox"/>
		(ii) 须凭借独立线路达至距离分隔，或凭借耐火时效及机械分隔，避免出现单一故障点	<input type="checkbox"/>
B	各个供电电源的变压器及相关的电掣板	互相分隔，设置于不同的隔火间	<input type="checkbox"/>
7 出口指示牌／方向指示牌			
A	非公众地方的所有出口指示牌	设有内部照明装置，中英文字体高度不少于125毫米及阔15毫米（《消防装置守则》第5.10段及消防处通函第5/2008号）	<input type="checkbox"/>
B	公众地方的所有出口指示牌／方向指示牌	(i) 须设有内部照明装置，并能够闪动	<input type="checkbox"/>
		(ii) 当紧急疏散时，须亮着并闪动，以指示前往最终安全地点的适当出口通道	<input type="checkbox"/>
		(iii) 在行走方向通常与逃生路线相反的自动梯，须设置「隐藏式闪动出口指示牌」	<input type="checkbox"/>
C	出口指示牌／方向指示牌	(i) 以不间断电源供应器作后备电源，并于电力故障时可维持功能不少于2小时	<input type="checkbox"/>
		(ii) 设置于整个车站	<input type="checkbox"/>
		(iii) 须按照车站的逃生路线设计来设置，以确保清楚指示车站内任何地方的所有出口通道	<input type="checkbox"/>
8 火警警报系统			
A	火警钟	(i) 设置于后勤区域，但车站控制室、消防控制室及隔火通道除外	<input type="checkbox"/>
		(ii) 在车站的公众地方，所有火警警报信号须传送至广播系统，用以宣布疏散	<input type="checkbox"/>

Checklist of FS Requirements for Station
(for reference only)

B	Manual fire alarm system	(i) As an integral part of the fire detection system and linked with CFATS via direct telephone line	<input type="checkbox"/>
		(ii) Provided throughout the station and incorporated into each hose reel point of the FH/HR system	<input type="checkbox"/>
		(iii) The actuation point shall start the fire pump and initiate alarm bells in non-public area	<input type="checkbox"/>
9 Fire Hydrant/Hose Reel System			
A	Fixed fire pumps (one duty & one standby) and one jockey pump located at FS Pump Room	Maintain a system running pressure between 350 kPa and 850 kPa with an aggregate flow of not less than 1 350 litres/minute from any three fire hydrant outlets i.e. each with a flow of not less than 450 litres/minute at a running pressure of not less than 350 kPa operating simultaneously	<input type="checkbox"/>
B	Fire hydrant/hose reel system	All areas in the station can be reached by a length of not more than 30 m of Fire Services hose and hose reel tubing (section 5.14 of FSI Code)	<input type="checkbox"/>
C	Fire hydrant outlets	(i) Each rising main shall be connected to an independent Fire Service inlet	<input type="checkbox"/>
		(ii) Provided in fireman's staircases	<input type="checkbox"/>
		(iii) Where there are several rising mains in the system, such inlets shall be interconnected	<input type="checkbox"/>
D	Fire main	Fitted with twin hydrant outlets or two single outlets and individually controlled by a wheel-operated screw valve	<input type="checkbox"/>
E	Fire pumps	Started by actuation of break-glass unit at any hose reel point or a fall in water pressure of any fire hydrant outlet	<input type="checkbox"/>
F	Fire Service inlets	(i) Provided at DEE and SEE	<input type="checkbox"/>
		(ii) All Fire Service inlets shall be interconnected	<input type="checkbox"/>
G	Intermediate booster pump	Capable of maintaining sufficient pressure and flow (section 5.14 of FSI Code)	<input type="checkbox"/>
H	Motorized isolation valve	(i) Normally opened and located at the headwall and tailwall units of the station	<input type="checkbox"/>
		(ii) Remote open/closed status indication of MIV shall be provided at SCR / FCR	<input type="checkbox"/>

铁路车站消防安全规定核对表
(仅供参考)

B	手动火警警报系统	(i) 作为火警侦测系统不可缺少的组成部分，以直线电话线连接火警警报计算机传送系统 (ii) 遍布整个车站，安装在消防栓／喉辘系统的各个消防喉辘装置处之内 (iii) 在非公众地方，启动按钮必须可以启动消防泵及火警钟	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9	消防栓／喉辘系统		
A	设置于消防泵房的固定消防泵（一个主泵及一个备用泵）及一个操控水泵	维持系统的运行压力于350至850千帕斯卡（kPa）之间，任何三个消防栓出水口同时运作时，总水量不能少于每分钟1350升，即每个出水口的水量为不少于每分钟450升，而运行压力不少于350千帕斯卡	<input type="checkbox"/>
B	消防栓／喉辘系统	长度不超过30米的灭火喉及喉辘胶喉可伸展至车站的任何部分（《消防装置守则》第5.14段）	<input type="checkbox"/>
C	消防栓出水口	(i) 每条上水喉管均须连接一个独立的消防入水掣 (ii) 设置于消防员专用楼梯 (iii) 如系统设有多条上水喉管，有关的消防入水掣须互相连接	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
D	消防喉管	配备消防栓双出水口或两个单出水口，每个出水口须各自由輪式操作螺旋开关阀控制	<input type="checkbox"/>
E	消防泵	任何消防喉辘装置处的警报玻璃箱被按动或任何消防栓出水口水压下降，均可启动消防泵	<input type="checkbox"/>
F	消防入水掣	(i) 设置于指定紧急入口及辅助紧急入口 (ii) 所有消防入水掣须互相连接	<input type="checkbox"/> <input type="checkbox"/>
G	中途泵	能够维持足够压力和水量（《消防装置守则》第5.14段）	<input type="checkbox"/>
H	机动开关阀	(i) 通常开启并设置于车站的头端墙和尾端墙 (ii) 车站控制室／消防控制室须设置机动开关阀的遥控开关状态显示	<input type="checkbox"/> <input type="checkbox"/>

Checklist of FS Requirements for Station
(for reference only)

I	Self-contained pressure reducing type fire hydrant(s) or pressure reducing valve	Provided whenever the system pressure at any fire hydrant outlet exceeds 850 kPa	<input type="checkbox"/>
J	Water supply	<ul style="list-style-type: none"> (i) Provided from 2 separate sources <input type="checkbox"/> (ii) Provided as indicated on plans to serve the tunnel fire hydrants of long turnback and refuge siding tunnel <input type="checkbox"/> (iii) All tunnel and station Fire Service inlets shall be interconnected <input type="checkbox"/> 	
K	Water tank	Sufficient Capacity (e.g. 36 m ³)	<input type="checkbox"/>
10 Fire Resisting Cable for Fire Service Installations			
		Comply with section 5.15 and Appendix 6 of the FSI Code	<input type="checkbox"/>
11 Fire Services Communication System			
A	Digital Trunked Radio System (DTRS)	<ul style="list-style-type: none"> (i) Equipped with at least one base station with one carrier (i.e. one control channel and three voice channels) to enable 3 separate talkgroups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk mode radio communication at the enclosed area of the station <input type="checkbox"/> (ii) Radio coverage shall also be extended to a range within the radius of 50m from DEE/SEE of the station at grade level <input type="checkbox"/> 	
B	Telephone panels	<ul style="list-style-type: none"> (i) For dedicated use by FSD personnel to communicate with SCR or FCR of stations and OCC <input type="checkbox"/> (ii) shall be provided at DEE/SEE of the station at grade level <input type="checkbox"/> (iii) Telephone is available in the headwall & tailwall units for railway operation which can be used for communication between SCR/FCR/OCC <input type="checkbox"/> 	
12 Fireman's Lift			
		Shall be provided and marked as 'A' on plan	<input type="checkbox"/>

铁路车站消防安全规定核对表 (仅供参考)

I	独立的减压式消防栓或减压阀	当任何消防栓出水口的系统压力超过 850 千帕斯卡就须设置	<input type="checkbox"/>
J	供水	(i) 由两个独立水源提供 (ii) 按照图则部署，为设置于长程掉头及列车避险隧道内的消防栓供水 (iii) 所有隧道及车站的消防入水掣均须互相连接	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
K	水缸	须具足够贮水量（例如 36 立方米）	<input type="checkbox"/>
10 消防装置防火电缆			
		符合《消防装置守则》第 5.15 段及附录 6 的规定	<input type="checkbox"/>
11 消防通讯系统			
A	数码集束无线电系统	(i) 配备最少一个提供一个载波（即一个控制频道和三个话音频道）的发射站，供三个独立通话组别的消防处人员在车站的密封区域以所携的消防处无线电设备进行有效而具效率的集束无线电通讯 (ii) 无线电覆盖范围亦须达车站地面各个指定紧急入口／辅助紧急入口 50 米半径范围	<input type="checkbox"/> <input type="checkbox"/>
B	电话仪表板	(i) 消防处人员专用，以便与车站的车站控制室／消防控制室或车务控制中心联络 (ii) 须设置于车站地面各个指定紧急入口／辅助紧急入口 (iii) 头端墙和尾端墙设置供铁路营运之用的电话，可接通车站控制室、消防控制室及车务控制中心	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12 消防员升降机			
		须设置并于图则上以「A」标示	<input type="checkbox"/>

Checklist of FS Requirements for Station
(for reference only)

13 FM200 Gas Flooding Fire Extinguishing System			
A	FM200 gas flooding fire extinguishing system	(i)	Installed in accordance with NFPA 2001 <input type="checkbox"/>
		(ii)	Provided with smoke detectors of cross-zoned arrangement for the protected area for automatic operation <input type="checkbox"/>
		(iii)	Provided with a manual release unit at the entrance of the protected area for emergency manual operation <input type="checkbox"/>
14 Portable Hand-operated Approved Appliance			
			Provided for all plant rooms and the locations as indicated on plans <input type="checkbox"/>
15 Pressurization of Staircase			
A	Mechanical ventilation (Pressurization)		Provided for the fireman's staircases and corresponding staircase lobbies and fireman's lift lobbies (FS Code) <input type="checkbox"/>
		B	Staircase pressurization system <input type="checkbox"/>
			Provided as indicated on plans in accordance with the latest edition of BS 5588: Part 4, section 5.21 of FSI Code and FSD Circular Letter No. 2/2006
16 Smoke Extraction System			
A	Mechanical smoke extraction system	(i)	Provided for station public areas and concession areas (sections 2.2 and 5.23 of the FSI Code) <input type="checkbox"/>
		(ii)	The smoke extraction system shall be activated by any two smoke detectors or sprinkler of the incident smoke zone <input type="checkbox"/>
17 Ventilation / Air Conditioning Control System			
A	Ventilation / air conditioning control panel		Provided in SCR and FCR of the station <input type="checkbox"/>
B	Ventilation / air conditioning control system		Comply with section 5.27 of the FSI Code and FSD Circular Letter No. 2/2005 <input type="checkbox"/>

铁路车站消防安全规定核对表
(仅供参考)

13 FM200 气体涌灭系统			
A	FM200 气体涌灭系统	(i) 按照美国防火协会 (NFPA 2001) 的规定安装	<input type="checkbox"/>
		(ii) 在受保护区域设置交叉区域编排的烟雾侦测器, 以便系统自动运作	<input type="checkbox"/>
		(iii) 在受保护区域的入口设置手动放气装置, 于紧急情况时以人手操作系统	<input type="checkbox"/>
14 认可的人手操作手提器具			
		放置于所有机房及图则指示的位置	<input type="checkbox"/>
15 楼梯增压			
A	机械通风 (增压)	须为消防员专用楼梯及相关楼梯门廊, 以及消防员升降机大堂设置 (《消防安全守则》)	<input type="checkbox"/>
B	楼梯增压系统	根据最新版本的《英国标准 5588: 第 4 部分》、《消防装置守则》第 5.21 段, 以及消防处通函第 2/2006 号, 按照图则指示设置	<input type="checkbox"/>
16 排烟系统			
A	机械排烟系统	(i) 设置于车站公众地方及专营范围 (《消防装置守则》第 2.2 及 5.23 段)	<input type="checkbox"/>
		(ii) 排烟系统须由事故现场烟雾控制区的任何两个烟雾侦测器或花洒启动	<input type="checkbox"/>
17 通风/空气调节控制系统			
A	通风/空气调节控制板	设置于车站的车站控制室/消防控制室	<input type="checkbox"/>
B	通风/空气调节控制系统	符合《消防装置守则》第 5.27 段及消防处通函第 2/2005 号的规定	<input type="checkbox"/>

Checklist of FS Requirements for Station
(for reference only)

18 Requirements (Additional)			
A	All linings for acoustic and thermal insulation purposes in ducting and concealed locations	Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product	<input type="checkbox"/>
B	All linings for acoustic, thermal insulation and decorative purposes within protected means of escape	Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product	<input type="checkbox"/>
C	No dangerous goods shall be used or stored	Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong shall be separately notified to the Director of FSD	<input type="checkbox"/>
D	Glazing (solar control tempered glass panel)	(i) Shall not be of type which melts and forms burning droplets under fire situation (ii) When it is shattered, it does not form sharp and harmful pieces	<input type="checkbox"/> <input type="checkbox"/>

铁路车站消防安全规定核对表
(仅供参考)

18 额外规定			
A	管道及隐蔽位置内所有作隔音及隔热用途的衬层	须达《英国标准 476：第 7 部分》指定表面火焰蔓延率第 1 级或第 2 级或同等国际标准，或利用认可的抗火产品提高水平至同等标准	<input type="checkbox"/>
B	防护逃生途径内所有作隔音、隔热及装饰用途的衬层	须达《英国标准 476：第 7 部分》指定表面火焰蔓延率第 1 级或第 2 级或同等国际标准，或利用认可的抗火产品提高水平至同等标准	<input type="checkbox"/>
C	不得使用或贮存危险品	如拟贮存或使用香港法例第 295 章界定为危险品的物品，须另行通知消防处处长	<input type="checkbox"/>
D	玻璃门窗（隔热强化玻璃嵌板）	(i) 不得为遇火时会熔化成灼热液滴的类别	<input type="checkbox"/>
		(ii) 碎裂时不会构成锋利及有害的碎片	<input type="checkbox"/>

Checklist of FS Requirements for Depot/Ancillary Building
(for reference only)

(Please refer to FSI Code, relevant Standards and Circular Letters for details)

1 Automatic Actuating Devices			
A	Fire Shutter	(i) Having a sufficient fire resisting rating	<input type="checkbox"/>
		(ii) Provided with smoke detector(s) and manual control device(s) on both sides of the openings for automatic and manual operation respectively	<input type="checkbox"/>
		(iii) The detectors shall be installed in accordance with LPC Rules for Automatic Fire Detection and Alarm Installations for the Protection of Property and BS 5839: Part 1: 2002+A2: 2008 and FSD Circular Letter No. 1/2009 and No. 3/2010	<input type="checkbox"/>
2 Automatic Fire Detection			
A	All fire alarm signals including fire detectors, flow switches and manual fire alarm	(i) Shall be linked to CFATS by a direct telephone line	<input type="checkbox"/>
		(ii) Repeated to SCR/FCR of station(s) and FCR of depot/ancillary building and OCC	<input type="checkbox"/>
B	Automatic fire alarm panel	Provided in FCR to receive all fire alarm signals of the entire depot/ancillary building including smoke detectors, heat detectors, break-glass units and flow switches	<input type="checkbox"/>
C	Automatic fire detection	Shall be addressable (BS 5839: Part 1: 2002+A2: 2008 and FSD Circular Letter No. 1/2009 and No. 3/2010)	<input type="checkbox"/>
3 Automatic Sprinkler System			
A	Automatic fixed installations other than water	Provided for areas where the use of water is undesirable for the occupancy (section 4.4(ii) of FSI Code)	<input type="checkbox"/>
B	Automatic sprinkler system (OH III)	Provided for all areas of the depot/ancillary building except above ground plant rooms (section 5.24 of the FSI Code, LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845: 2003 and FSD Circular Letter No. 3/2006 and No. 3/2012)	<input type="checkbox"/>
C	Fast response type sprinkler heads	Provided for all underground sprinkler protected areas	<input type="checkbox"/>

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（仅供参考）

（详情请参阅《消防装置守则》、相关的标准及消防处通函）

1 自动启动装置			
A	防火卷闸	(i) 具备充分的耐火时效 (ii) 须在墙壁开口内外两边设置烟雾侦测器及手动控制器，分别供自动及人手操作之用 (iii) 须按照《英国防损委员会准则》内有关安装自动火警侦测与警报装置以保障财产的规则、《英国标准 5839：第 1 部分：2002+A2:2008》，以及消防处通函第 1/2009 及 3/2010 号安装侦测器	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2 自动火警侦测			
A	所有火警警报信号，包括来自火警侦测器、花洒流量掣及手动火警钟的信号	(i) 须以直线电话线连接火警警报计算机传送系统 (ii) 重复传送至车站的车站控制室／消防控制室、车厂／附属建筑物的消防控制室，以及车务控制中心	<input type="checkbox"/> <input type="checkbox"/>
B	自动火警警报控制板	设置于消防控制室，接收整个车厂／附属建筑物的所有火警警报信号，包括来自烟雾侦测器、热力侦测器、警报玻璃箱及花洒流量掣的信号	<input type="checkbox"/>
C	自动火警侦测	须可显示位置（《英国标准 5839：第 1 部分：2002+A2:2008》及消防处通函第 1/2009 及 3/2010 号）	<input type="checkbox"/>
3 自动花洒系统			
A	不含水灭火剂的自动固定装置	安装在占用部分内不宜用水救火的地方（《消防装置守则》第 4.4(ii)段）	<input type="checkbox"/>
B	自动花洒系统（普通危险程度第三组）	设置于车厂／附属建筑物的各个部分，但地面机房除外（《消防装置守则》第 5.24 段、《英国防损委员会准则》内包含《英国标准 EN 12845:2003》的自动花洒装置规定，以及消防处通函第 3/2006 及 3/2012 号）	<input type="checkbox"/>
C	快速感应型消防花洒头	设置于所有受消防花洒保障的地底范围	<input type="checkbox"/>

Checklist of FS Requirements for Depot/Ancillary Building
(for reference only)

D	Re-cycling pre-action sprinkler system	Comply with LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845: 2003 and FSD Circular Letter No. 3/2006 and No. 3/2012	<input type="checkbox"/>
E	Sprinkler alarm	(i) Linked to CFATS by a direct telephone line	<input type="checkbox"/>
		(ii) All sprinkler alarm signals shall also be transmitted to the fire control panel in SCR/FCR of station(s) and FCR of depot/ancillary building and repeated to OCC	<input type="checkbox"/>
F	Sprinkler inlets	Shall be interconnected	<input type="checkbox"/>
G	Sprinkler pumps (one duty & one standby) and one jockey pump	Provided in Sprinkler Pump Room	<input type="checkbox"/>
H	Water tank	(i) Sufficient Capacity (e.g. 124 m ³)	<input type="checkbox"/>
		(ii) Single end feed water supply	<input type="checkbox"/>
4 Emergency Lighting			
A	All batteries in UPS room	Comply with BS 6290 Part 4	<input type="checkbox"/>
B	Emergency lighting	(i) Backed up by UPS and capable of maintaining function for a period of not less than 2 hours in case of power failure	<input type="checkbox"/>
		(ii) Provided throughout the depot/ancillary building and all exit routes leading to place of ultimate safety (BS 5266: Part 1, BS EN 1838 and section 5.9 of FSI Code)	<input type="checkbox"/>
C	Independent mechanical ventilation system	Shall be provided as stipulated in section 8, Part XI of FSD Circular Letter No. 4/1996	<input type="checkbox"/>
5 Emergency Power Supply			
A	Dual feed power supply from two independent primary substations (zone substation)	(i) Capable of supporting all essential services running simultaneously	<input type="checkbox"/>
		(ii) Single point of failure shall be avoided by means of separate routing for distance separation, or by means of FRR and mechanical separation	<input type="checkbox"/>
B	Transformer and the associated switchboards of different supply sources	Separated from each other in different fire compartments	<input type="checkbox"/>

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D	重复启闭预作用花洒系统	符合《英国防损委员会准则》内包含《英国标准 EN 12845: 2003》的自动花洒装置规定，以及消防处通函第 3/2006 及 3/2012 号	<input type="checkbox"/>
E	花洒警报	(i) 以直线电话线连接火警警报计算机传送系统 (ii) 所有花洒警报信号亦须传送至车站的车站控制室／消防控制室及车厂／附属建筑物消防控制室的消防控制板，并重复传送至车务控制中心	<input type="checkbox"/> <input type="checkbox"/>
F	花洒入水掣	须互相连接	<input type="checkbox"/>
G	花洒泵（一个主泵及一个备用泵）及一个操控水泵	设置于花洒泵房	<input type="checkbox"/>
H	水缸	(i) 足够容量（例如 124 立方米） (ii) 单端供水	<input type="checkbox"/> <input type="checkbox"/>
4 应急照明系统			
A	不间断电源供应器室的所有电池	符合《英国标准 6290：第 4 部分》	<input type="checkbox"/>
B	应急照明系统	(i) 以不间断电源供应器作后备电源，于电力故障时可维持功能不少于 2 小时 (ii) 设置于整个车厂／附属建筑物及通往最终安全地点的所有出口通道（《英国标准 5266：第 1 部分》、《英国标准 EN1838》及《消防装置守则》第 5.9 段）	<input type="checkbox"/> <input type="checkbox"/>
C	独立机械通风系统	须按照消防处通函第 4/1996 号第 XI 部第 8 段装设	<input type="checkbox"/>
5 应急供电设备			
A	由两个独立主配电站（分区配电站）双重供电	(i) 能够支持所有必要服务同时运作 (ii) 须凭借独立线路达至距离分隔，或凭借耐火时效及机械分隔，避免出现单一故障点	<input type="checkbox"/> <input type="checkbox"/>
B	各个供电电源的变压器及相关的电掣板	互相分隔，设置于不同的隔火间	<input type="checkbox"/>

Checklist of FS Requirements for Depot/Ancillary Building
(for reference only)

6 Exit Signs / Directional Exit Signs			
A	Exit signs / directional exit signs	(i)	Backed up by UPS and capable of maintaining function for a period of not less than 2 hours in case of power failure <input type="checkbox"/>
		(ii)	Provided throughout the depot/ancillary building (section 5.10 of FSI Code and FSD Circular Letter No. 5/2008) <input type="checkbox"/>
		(iii)	Provided to ensure all exit routes from any area within the depot/ancillary building are clearly indicated as required by the configuration of escape routes serving the depot/ancillary building <input type="checkbox"/>
7. Fire Alarm System			
A	Manual fire alarm system	(i)	As an integral part of the fire detection system and linked with CFATS via direct telephone line <input type="checkbox"/>
		(ii)	Provided throughout the depot/ancillary building and incorporated into each hose reel point of the FH/HR system <input type="checkbox"/>
		(iii)	The actuation point shall start the fire pump and initiate audio warning device <input type="checkbox"/>
8 Fire Hydrant/Hose Reel System			
A	Fire hydrant/hose reel system		All areas in the depot/ancillary building can be reached by a length of not more than 30 m of Fire Services hose and hose reel tubing (section 5.14 of FSI Code) <input type="checkbox"/>
B	Fire hydrant outlets	(i)	Each rising main shall be connected to an independent Fire Service inlet <input type="checkbox"/>
		(ii)	Provided in fireman's staircases <input type="checkbox"/>
		(iii)	Where there are several rising mains in the system, such inlets shall be interconnected <input type="checkbox"/>
C	Fire pumps		Started by actuation of break-glass unit at any hose reel point or a fall in water pressure of any fire hydrant outlet <input type="checkbox"/>

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(仅供参考)

6 出口指示牌／方向指示牌	
A	<p>出口指示牌／方向指示牌</p> <p>(i) 以不间断电源供应器作后备电源，并于电力故障时可维持功能不少于 2 小时 <input type="checkbox"/></p> <p>(ii) 设置于整个车厂／附属建筑物(《消防装置守则》第 5.10 段及消防处通函第 5/2008 号) <input type="checkbox"/></p> <p>(iii) 须按照车厂／附属建筑物的逃生路线设计来设置，以确保清楚指示车厂／附属建筑物内任何地方的所有出口通道 <input type="checkbox"/></p>
7 火警警报系统	
A	<p>手动火警警报系统</p> <p>(i) 作为火警侦测系统不可缺少的组成部分，以直线电话线连接火警警报计算机传送系统 <input type="checkbox"/></p> <p>(ii) 遍布整个车厂／附属建筑物，安装在消防栓／喉辘系统的各个消防喉辘装置处之内 <input type="checkbox"/></p> <p>(iii) 启动按钮必须可以启动消防泵及声响警报装置 <input type="checkbox"/></p>
8 消防栓／喉辘系统	
A	<p>消防栓／喉辘系统</p> <p>长度不超过 30 米的灭火喉及喉辘软管可伸展至车厂／附属建筑物的任何部分(《消防装置守则》第 5.14 段) <input type="checkbox"/></p>
B	<p>消防栓出水口</p> <p>(i) 每条上水喉管均须连接一个独立的消防入水掣 <input type="checkbox"/></p> <p>(ii) 设置于消防员专用楼梯 <input type="checkbox"/></p> <p>(iii) 如系统设有多条上水喉管，有关的消防入水掣须互相连接 <input type="checkbox"/></p>
C	<p>消防泵</p> <p>任何消防喉辘装置处的警报玻璃箱被按动或任何消防栓出水口水压下降，均可启动消防泵 <input type="checkbox"/></p>

Checklist of FS Requirements for Depot/Ancillary Building
(for reference only)

D	Fixed fire pumps (one duty & one standby) and one jockey pump located at FS Pump Room	Maintain a system running pressure between 350 kPa and 850 kPa with an aggregate flow of not less than 1 350 litres/minute from any three fire hydrant outlets i.e. each with a flow of not less than 450 litres/minute at a running pressure of not less than 350 kPa operating simultaneously	<input type="checkbox"/>
E	Fire Service inlets	Provided at the locations on plans	<input type="checkbox"/>
F	Fire main	Fitted with twin hydrant outlets or two single outlets and individually controlled by a wheel-operated screw valve	<input type="checkbox"/>
G	Intermediate booster pump	Capable of maintaining sufficient pressure and flow (section 5.14 of FSI Code)	<input type="checkbox"/>
H	Motorized isolation valve (MIV)	(i) Normally opened and located at the MIV cabinet (ii) Remote open/closed status indication of MIV shall be provided at the SCR/FCR of station(s) and the FCR of depot/ancillary building.	<input type="checkbox"/> <input type="checkbox"/>
I	Self-contained pressure reducing type fire hydrant(s) or pressure reducing valve	Provided whenever the system pressure at any fire hydrant outlet exceeds 850 kPa	<input type="checkbox"/>
J	Water tank	Sufficient Capacity	<input type="checkbox"/>
9 Fireman's Lift			
A	Fireman's lift	Shall be provided and marked as 'A' on plan	<input type="checkbox"/>
10 Fire Resisting Cable for Fire Service Installations			
		Comply with section 5.15 and Appendix 6 of the FSI Code	<input type="checkbox"/>

车厂／附属建筑物消防安全规定核对表
(仅供参考)

D	设置于消防泵房的固定消防泵（一个主泵及一个备用泵）及一个操控水泵	维持系统的运行压力于 350 至 850 千帕斯卡（kPa）之间，任何三个消防栓出水口同时运作时，总水量不能少于每分钟 1 350 升，即每个出水口的水量为不少于每分钟 450 升，而运行压力不少于 350 千帕斯卡	<input type="checkbox"/>
E	消防入水掣	设置于图则指示的位置	<input type="checkbox"/>
F	消防喉管	配备消防栓双出水口或两个单出水口，每个出水口须各自由手式操作螺旋开关阀控制	<input type="checkbox"/>
G	中途泵	能够维持足够压力和水量（《消防装置守则》第 5.14 段）	<input type="checkbox"/>
H	机动开关阀	(i) 通常开启并设置于机动开关阀柜 (ii) 车站的车站控制室／消防控制室及车厂／附属建筑物的消防控制室须设置机动开关阀的遥控开关状态显示	<input type="checkbox"/> <input type="checkbox"/>
I	独立的减压式消防栓或减压阀	当任何消防栓出水口的系统压力超逾 850 千帕斯卡就须设置	<input type="checkbox"/>
J	水缸	须具足够贮水量	<input type="checkbox"/>
9 消防员升降机			
A	消防员升降机	须设置并于图则上以「A」标示	<input type="checkbox"/>
10 消防装置防火电缆			
		符合《消防装置守则》第 5.15 段及附录 6 的规定	<input type="checkbox"/>

Checklist of FS Requirements for Depot/Ancillary Building
(for reference only)

11 Fire Services Communication System			
A	Digital Trunked Radio System (DTRS)	(i)	Equipped with at least one base station with one carrier (i.e. one control channel and three voice channels) to enable 3 separate talkgroups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk mode radio communication at the enclosed area of the depot/ancillary building <input type="checkbox"/>
		(ii)	Radio coverage shall also be extended to a range within the radius of 50 m from DEE/EAP of the depot/ancillary building at grade level <input type="checkbox"/>
B	Telephone panels	(i)	For dedicated use by FSD personnel to communicate with FCR of depot/ancillary building and OCC <input type="checkbox"/>
		(ii)	shall be provided at DEE/EAP of the depot/ancillary building at grade level <input type="checkbox"/>
12 FM200 Gas Flooding Fire Extinguishing System			
A	FM200 gas flooding fire extinguishing system	(i)	Installed in accordance with NFPA 2001 <input type="checkbox"/>
		(ii)	Provided with smoke detectors of cross-zoned arrangement for the protected area for automatic operation <input type="checkbox"/>
		(iii)	Provided with a manual release unit at the entrance of the protected area for emergency manual operation <input type="checkbox"/>
13 Portable Hand-operated Approved Appliance			
			Provided for all plant rooms and the locations as indicated on plans <input type="checkbox"/>
14 Pressurization of Staircase			
A	Mechanical ventilation (Pressurization)	Provided for the fireman's staircases and corresponding staircase lobbies and fireman's lift lobbies (FS Code) <input type="checkbox"/>	
		B	Staircase pressurization system

车厂／附属建筑物消防安全规定核对表
(仅供参考)

11 消防通讯系统		
A	数码集束无线电系统	(i) 配备最少一个提供一个载波（即一个控制频道和三个话音频道）的发射站，供三个独立通话组别的消防处人员在车厂／附属建筑物的密封区域以所携的消防处无线电设备进行有效而具效率的集束无线电通讯 <input type="checkbox"/>
		(ii) 无线电覆盖范围亦须达车厂／附属建筑物地面各个指定紧急入口／紧急救援入口 50 米半径范围 <input type="checkbox"/>
B	电话仪表盘	(i) 消防处人员专用，以便与车厂／附属建筑物的消防控制室及车务控制中心联络 <input type="checkbox"/>
		(ii) 须设置于车厂／附属建筑物地面各个指定紧急入口／紧急救援入口 <input type="checkbox"/>
12 FM200 气体涌灭系统		
A	FM200 气体涌灭系统	(i) 按照美国防火协会（NFPA 2001）的规定安装 <input type="checkbox"/>
		(ii) 在受保护区域设置交叉区域编排的烟雾侦测器，以便系统自动运作 <input type="checkbox"/>
		(iii) 在受保护区域的入口设置手动放气装置，于紧急情况时以人手操作系统 <input type="checkbox"/>
13 认可的人手操作手提器具		
		放置于所有机房及图则指示的位置 <input type="checkbox"/>
14 楼梯增压		
A	机械通风（增压）	须为消防员专用楼梯及相关楼梯门廊，以及消防员升降机大堂设置（《消防安全守则》） <input type="checkbox"/>
B	楼梯增压系统	根据最新版本的《英国标准 5588：第 4 部分》、《消防装置守则》第 5.21 段，以及消防处通函第 2/2006 号，按照图则指示设置 <input type="checkbox"/>

Checklist of FS Requirements for Depot/Ancillary Building
(for reference only)

15 Ventilation / Air Conditioning Control System			
A	Ventilation / air conditioning control system	Comply with section 5.27 of the FSI Code and FSD Circular Letter No. 2/2005	<input type="checkbox"/>
B	Ventilation / air conditioning control panel	Provided in FCR of the depot/ancillary building	<input type="checkbox"/>
16 Requirements (Additional)			
A	All linings for acoustic and thermal insulation purposes in ducting and concealed locations	Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product	<input type="checkbox"/>
B	All linings for acoustic, thermal insulation and decorative purposes within protected means of escape	Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product	<input type="checkbox"/>
C	No dangerous goods shall be used or stored	Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong shall be separately notified to the Director of FSD	<input type="checkbox"/>

车厂／附属建筑物消防安全规定核对表
(仅供参考)

15 通风／空气调节控制系统			
A	通风／空气调节控制系统	符合《消防装置守则》第 5.27 段及消防处通函第 2/2005 号的规定	<input type="checkbox"/>
B	通风／空气调节控制板	设置于车厂／附属建筑物的消防控制室	<input type="checkbox"/>
16 额外规定			
A	管道及隐蔽位置内所有作隔音及隔热用途的衬层	须达《英国标准 476：第 7 部分》指定表面火焰蔓延率第 1 级或第 2 级或同等国际标准，或利用认可的抗火产品提高水平至同等标准	<input type="checkbox"/>
B	防护逃生途径内所有作隔音、隔热及装饰用途的衬层	须达《英国标准 476：第 7 部分》指定表面火焰蔓延率第 1 级或第 2 级或同等国际标准，或利用认可的抗火产品提高水平至同等标准	<input type="checkbox"/>
C	不得使用或贮存危险品	如拟贮存或使用香港法例第 295 章界定为危险品的物品，须另行通知消防处处长	<input type="checkbox"/>

Checklist of FS Requirements for Trackside Area
(for reference only)

(Please refer to FSI Code, relevant Standards and Circular Letters for details)

1 Electrical Power Points			
A	Water-proof type power socket outlets	(i)	13A/240V or 220VAC <input type="checkbox"/>
		(ii)	Permanent type and no additional adapter would be required for F.S. equipment <input type="checkbox"/>
		(iii)	Provided at a maximum interval of 120 m along the running track, at headwall and tailwall units of each platform end and the fireman's trackside access points to tunnels. <input type="checkbox"/>
2 Emergency Lighting			
A	Emergency lighting	(i)	Provided throughout the entire trackside areas (BS 5266: Part 1, BS EN 1838 and section 5.9 of FSI Code) <input type="checkbox"/>
		(ii)	Dual feed power supply <input type="checkbox"/>
		(iii)	Automatically switched on when there is tripping of power supply of the overhead line and could also be switched on by OCC in case of emergency for the entire trackside <input type="checkbox"/>
B	Emergency lighting for tunnel / viaducts with noise enclosure	Backed up by UPS and capable of maintaining function for a period of not less than 2 hours in case of power failure	<input type="checkbox"/>
C	Emergency lighting for at grade / elevated sections	Fed from essential power supply of adjacent stations	<input type="checkbox"/>
D	Manual local control switches	Provided at the headwall and tailwall units of station(s) and at the trackside access point of ancillary buildings / overrun tunnel	<input type="checkbox"/>
E	Remote control switches	Provided for each tunnel section inside SCR/FCR of station(s)	<input type="checkbox"/>
F	The standard of luminance level	Evacuation and access walkway	- 5 lux (min) <input type="checkbox"/>
		Hydrant location	- 10 lux (min) <input type="checkbox"/>
		Signage location	- 20 lux (min) <input type="checkbox"/>
		Ramp, steps and cross-passage	- 10 lux (min) <input type="checkbox"/>
		Power socket	- 1.6 lux (min) <input type="checkbox"/>

轨旁区域消防安全规定核对表
(仅供参考)

(详情请参阅《消防装置守则》、相关的标准及消防处通函)

1 电插座			
A	防水型电源插座	(i) 13 安培 / 240 伏特或 220 伏特交流电	<input type="checkbox"/>
		(ii) 永久型及消防设备无需另加适配接头	<input type="checkbox"/>
		(iii) 沿行车轨道每隔不超过 120 米，以及于月台两端的头端墙和尾端墙及轨旁区域的消防员专用轨旁入口处设置	<input type="checkbox"/>
2 应急照明系统			
A	应急照明系统	(i) 设置于整个轨旁区域(《英国标准 5266 : 第 1 部分》、《英国标准 EN1838》及《消防装置守则》第 5.9 段)	<input type="checkbox"/>
		(ii) 双重供电	<input type="checkbox"/>
		(iii) 当架空电缆的电源跳掣时自动启动，亦可于紧急情况时由车务控制中心启动整个轨旁区域的应急照明系统	<input type="checkbox"/>
B	设有隔音罩的隧道 / 高架铁路的应急照明系统	以不间断电源供应器作后备电源，于电力故障时可维持功能不少于 2 小时	<input type="checkbox"/>
C	地面 / 高架路段的应急照明系统	由毗连车站的必要电源供电	<input type="checkbox"/>
D	手动现场控制开关掣	设置于车站的头端墙和尾端墙，以及位于轨旁区域的附属建筑物 / 掉车隧道入口处	<input type="checkbox"/>
E	遥控开关掣	在车站的车站控制室 / 消防控制室为各隧道部分设置	<input type="checkbox"/>
F	亮度标准	疏散及进出通道	- 5 勒克斯 (最低亮度) <input type="checkbox"/>
		消防栓位置	- 10 勒克斯 (最低亮度) <input type="checkbox"/>
		指示牌位置	- 20 勒克斯 (最低亮度) <input type="checkbox"/>
		斜路、梯级及横向通道	- 10 勒克斯 (最低亮度) <input type="checkbox"/>
		电源插座	- 1.6 勒克斯 (最低亮度) <input type="checkbox"/>

Checklist of FS Requirements for Trackside Area
(for reference only)

3 Exit Signs / Directional Exit Signs			
A	Exit signs	Provided throughout the trackside areas (section 5.10 of FSI Code and FSD Circular Letter No. 5/2008)	<input type="checkbox"/>
B	Hidden-type exit signs	(i) Provided above or beside the unlocked cross-wall/cross passage doors (ii) Provided for all egress points at station platform ends and at any other emergency egress points along the track-way (iii) shall be switched on by local switch or remotely by OCC when the non-incident tunnel has been cleared and it is safe for evacuees to enter the cross-wall/cross-passage doors	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
C	Reflective directional exit signs	Provided at 25 m intervals along the entire tunnel	<input type="checkbox"/>
4 Fire Hydrant System			
A	Double end feed tunnel fire hydrant system	(i) Installed for entire tunnel including running tracks, turn back tunnel and refuge siding (ii) Water supply of trackside fire hydrant system shall be fed from the FH/HR system of stations/ancillary buildings at both end of each tunnel section	<input type="checkbox"/> <input type="checkbox"/>
B	Fire pumps	Started by a fall in water pressure of the tunnel fire hydrant system	<input type="checkbox"/>
C	Motorized isolation valve	(i) Normally opened and located at the headwall and tailwall units of the station(s) or inside MIV cabinet of ancillary building(s) (ii) Remote open/closed status indication of MIV shall be provided at the SCR / FCR of station(s) and FCR of ancillary building(s) on both sides of such tunnel section	<input type="checkbox"/> <input type="checkbox"/>
D	Self-contained pressure reducing type fire hydrant(s) or pressure reducing valve	Provided whenever the system pressure at any fire hydrant outlet exceeds 850 kPa	<input type="checkbox"/>

轨旁区域消防安全规定核对表
(仅供参考)

3 出口指示牌 / 方向指示牌			
A	出口指示牌	设置于整个轨旁区域（《消防装置守则》第 5.10 段及消防处通函第 5/2008 号）	<input type="checkbox"/>
B	隐藏式出口指示牌	(i) 设置于没有上锁的横墙 / 横向通道的门上方或旁边 <input type="checkbox"/> (ii) 设置于车站月台两端的所有出口及轨道沿途的任何其他紧急出口 <input type="checkbox"/> (iii) 当非事故隧道已畅通无阻，疏散人士可安全通过横墙 / 横向通道的门，就须以现场开关掣或由车务控制中心遥控开启 <input type="checkbox"/>	
C	反光式方向指示牌	隧道全线范围均须每隔 25 米设置	<input type="checkbox"/>
4 消防栓系统			
A	双端供水的隧道消防栓系统	(i) 设置于隧道全线范围，包括行车轨道、掉头隧道及列车避险隧道 <input type="checkbox"/> (ii) 轨旁的消防栓系统须由各隧道部分两端的车站 / 附属建筑物的消防栓 / 喉辘系统供水 <input type="checkbox"/>	
B	消防泵	隧道消防栓系统水压下降即可启动	<input type="checkbox"/>
C	机动开关阀	(i) 通常开启并设置于车站的头端墙和尾端墙或附属建筑物的机动开关阀柜内 <input type="checkbox"/> (ii) 车站的车站控制室 / 消防控制室及有关隧道部分两旁附属建筑物的消防控制室须设置机动开关阀的遥控开关状态显示 <input type="checkbox"/>	
D	独立的减压式消防栓或减压阀	当任何消防栓出水口的系统压力超逾 850 千帕斯卡就须设置	<input type="checkbox"/>

Checklist of FS Requirements for Trackside Area
(for reference only)

E	Trackside fire hydrant system	<ul style="list-style-type: none"> (i) comply with section 5.14 of FSI Code and Trackside Fire Safety Strategy <input type="checkbox"/> (ii) Sufficient fire hydrants shall be provided to ensure that every part of tunnels (except trackway along station platform) can be reached by a length of not more than 30 m of Fire Services hose <input type="checkbox"/>
F	Tunnel fire main with fire hydrant outlets	<ul style="list-style-type: none"> (i) Provided at 60 m intervals at low level and on the same side of the fireman's access walkway along all tunnels including running tracks, overrun tunnel, turn back tunnel and refuge siding <input type="checkbox"/> (ii) The hydrant outlets shall be not less than 800mm and not more than 1 200 mm above the finished floor level of fireman's access walkway <input type="checkbox"/> (iii) The fire main at each fire point shall be fitted with twin hydrant outlets or two single outlets and be individually controlled by a wheel-operated screw valve <input type="checkbox"/>
G	Tunnel fire hydrant system	Capable of delivering an aggregate flow of not less than 1 350 litres/minute from any three fire hydrant outlets i.e. each with a flow of not less than 450 litres/minute at a running pressure of not less than 350 kPa operating simultaneously. The pressure at any fire hydrant outlet shall not exceed 850 kPa <input type="checkbox"/>
5 Fire Services Communication System		
A	Digital Trunked Radio System (DTRS)	<ul style="list-style-type: none"> (i) Equipped with at least one base station with one carrier (i.e. one control channel and three voice channels) to enable 3 separate talkgroups of FSD personnel to communicate effectively and efficiently by using their FSD radio equipment for trunk mode radio communication at the enclosed area of the trackside <input type="checkbox"/> (ii) Radio coverage shall also be extended to a range within the radius of 50 m from EAP at grade level <input type="checkbox"/>

轨旁区域消防安全规定核对表
(仅供参考)

E	轨旁的消防栓系统	<ul style="list-style-type: none"> (i) 符合《消防装置守则》第 5.14 段及轨旁消防安全策略的规定 <input type="checkbox"/> (ii) 须设置足够消防栓，以确保长度不超过 30 米的灭火喉可伸展至隧道的任何部分（沿车站月台的轨道除外） <input type="checkbox"/>
F	配备消防栓出水口的隧道消防喉管	<ul style="list-style-type: none"> (i) 沿着所有隧道，包括行车轨道、掉车隧道、掉头隧道及列车避险隧道，在消防员进出通道的同一边于低位置每隔 60 米设置 <input type="checkbox"/> (ii) 消防栓出水口的位置须高于消防员进出通道的完工地面不少于 800 毫米，但不超过 1 200 毫米 <input type="checkbox"/> (iii) 每个火警钟掣位置的消防喉管须配备消防栓双出水口或两个单出水口，每个出水口须各自由輪式操作螺旋开关阀控制 <input type="checkbox"/>
G	隧道消防栓系统	任何三个消防栓出水口同时运作时，能够提供总水量不少于每分钟 1 350 升，即每个出水口的水量为不少于每分钟 450 升，而运行压力不少于 350 千帕斯卡。任何一个出水口的压力不得超过 850 千帕斯卡 <input type="checkbox"/>
5 消防通讯系统		
A	数码集束无线电系统	<ul style="list-style-type: none"> (i) 配备最少一个提供一个载波（即一个控制频道和三个话音频道）的发射站，供三个独立通话组别的消防处人员在轨旁的密封区域以所携的消防处无线电设备进行有效而具效率的集束无线电通讯 <input type="checkbox"/> (ii) 无线电覆盖范围亦须达地面紧急救援入口 50 米半径范围 <input type="checkbox"/>

Checklist of FS Requirements for Trackside Area
(for reference only)

B	Telephone panels	(i) For dedicated use by FSD personnel to communicate with SCR or FCR of stations and OCC (ii) shall be provided at the entrance of EAP at grade level and at the track access points (iii) Telephone is available in the headwall & tailwall units for railway operation which can be used for communication between SCR/FCR/OCC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6 Requirements (Additional)			
A	All cable installation inside tunnel	Low smoke zero halogen type	<input type="checkbox"/>
B	All linings for acoustic and thermal insulation purposes in ducting and concealed locations	Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product	<input type="checkbox"/>
C	Fire resisting cable for FSI	Comply with section 5.15 and Appendix 6 of FSI code	<input type="checkbox"/>
7 Tunnel Ventilation Systems			
		Shall be provided as per details stipulated in TSSC Stage 3 submission	<input type="checkbox"/>

轨旁区域消防安全规定核对表
(仅供参考)

B	电话仪表板	(i) 消防处人员专用，以便与车站的车站控制室／消防控制室或车务控制中心联络 (ii) 须设置于地面紧急救援入口及轨旁入口处 (iii) 头端墙和尾端墙设置供铁路营运之用的电话，可接通车站控制室、消防控制室及车务控制中心	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6 额外规定			
A	隧道内的所有电缆装置	须为低烟无卤类别	<input type="checkbox"/>
B	管道及隐蔽位置内所有作隔音及隔热用途的衬层	须达《英国标准 476：第 7 部分》指定表面火焰蔓延率第 1 级或第 2 级或同等国际标准，或利用认可的抗火产品提高水平至同等标准	<input type="checkbox"/>
C	消防装置防火电缆	符合《消防装置守则》第 5.15 段及附录 6 的规定	<input type="checkbox"/>
7 隧道通风系统			
		须按轨道安全及保安委员会第 3 期建议书规定的细则设置	<input type="checkbox"/>

Previously Agreed Trade List

Trade	Restriction
<u>Fashions and Apparels</u>	
Travel goods and accessories	Propose new trade for agreement with SSCC, with proposed restriction for selling of travel cases, bags and other travel related accessories
Apparels and Accessories (e.g. ties, belts, socks, fur, hat, scarves, gloves, umbrella, lingerie, earring and bracelets)	For East Tsim Sha Tsui Station with no restriction imposed
Boutique (male and female)/casual wear/children's wear/sport wear	For West Rail Stations with no restriction imposed
Tailors	For West Rail Stations with no restriction imposed
Shoes & Handbags	For West Rail Stations with no restriction imposed
Jewellery & Accessories	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • A licensed security company (Type III) must be employed to design, install, maintain or repair security system • Functional security specifications and layout plans must be submitted to Crime Prevention Bureau for endorsement. These should including items in relation to physical security, access control, intruder alarm systems, CCTV systems and lighting system, etc.
Watches and Timepieces	For West Rail Stations with no restriction imposed
<u>Foods and Beverages</u>	
Cakes, bakeries, Cookies	Trade agrees with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • On-site baking shall not be allowed
Cigarettes and Tobacco	For West Rail Stations with no restriction imposed

早前协定的行业一览表

行业	限制
时装及成衣	
旅行用品及配件	向安全及保安统筹委员会提出并协定新设此行业，并建议就销售行李箱、旅行袋及其他旅行相关配件设定限制
成衣及配件（例如领带、腰带、袜、毛皮制品、帽、围巾、手套、伞、女用内衣、耳环及手镯）	对港铁尖东站不设限制
时装精品（男装及女装）／休闲服／童装／运动服	对西铁站不设限制
裁缝	对西铁站不设限制
鞋及手袋	对西铁站不设限制
首饰及配饰	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> • 必须雇用持牌保安公司（第三类别）设计、安装、保养及维修保安系统 • 须向防止罪案科呈交系统的功能安全规格数据及布置图，其中包括与实质保安、进出监控、防盗警报系统、闭路电视系统及照明系统等相关的数据，以供批署
钟表	对西铁站不设限制
饮食	
蛋糕、面包及曲奇饼	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> • 不得在场内烘烤
香烟及烟草	对西铁站不设限制

Confectioneries (e.g. sweets and candies)	For West Rail Stations with no restriction imposed
Delicatessens	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • Only pre-packed food would be sold and no on-site food preparation would be permitted • The upper limit of storage and display of wines and spirits should not exceed 75 litres
Light Refreshment Foods	Location as shown in the endorsed SSCC drawings with the following proposed restriction: <ul style="list-style-type: none"> • No kitchen and no naked fire in the food preparation area • No seating shall be provides
Pre-packed Food and Drinks	For West Rail Stations with no restriction imposed
Preserved Products	For East Tsim Sha Tsui Station with no restriction imposed
Wines and Spirits	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • Storage of wine & spirits shall not exceed 75 litres
Health and Personal Care	
Baby Care Products	For East Tsim Sha Tsui Station with no restriction imposed
Bath and Body Shop	For West Rail Stations with no restriction imposed
Beauty Products/Cosmetics	For West Rail Stations with no restriction imposed
Beauty Salons	For West Rail Stations with no restriction imposed
Hair Salons	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • Flammable aerosol shall not be used

甜食（例如糖类制品及糖果）	对西铁站不设限制
熟食	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> 只可售卖预先包装食品及不得在场内制备食品 不得贮存及展示超过 75 公升葡萄酒及烈酒
小食	店铺位置按安全及保安统筹委员会批署的图则所示，并建议设定以下限制： <ul style="list-style-type: none"> 在制备食品场地不设厨房及不得使用明火 不设座位
预先包装食品及饮品	对西铁站不设限制
经防腐加工产品	对港铁尖东站不设限制
葡萄酒及烈酒	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> 不得贮存超过 75 公升葡萄酒及烈酒
健康及个人护理	
婴儿护理产品	对港铁尖东站不设限制
沐浴及身体护理产品	对西铁站不设限制
美容产品／化妆品	对西铁站不设限制
美容院	对西铁站不设限制
发廊	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> 不得使用易燃喷雾剂

Medical Equipment & Supplies	For West Rail Stations with no restriction imposed
Optical	For West Rail Stations with no restriction imposed
Personal & Health Care (e.g. diet & weight control)	For West Rail Stations with no restriction imposed
Pharmacies	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • A licensed security company (Type III) must be employed to design, install, maintain or repair security systems. • Functional security specifications and layout plans must be submitted to Crime Prevention Bureau for endorsement. These should include items in relation to physical security, access control, intruder alarm system, CCTV systems and lighting systems, etc.
Sporting Goods, Hobbies, Collectibles, Books, Music and Paints	
Arts and Crafts Items	For West Rail Stations with no restriction imposed
Cards and Novelties	For West Rail Stations with no restriction imposed
Collectibles (e.g. coins & currencies, stamps, crystals, silver & glass products and antique)	For West Rail Stations with no restriction imposed
Hobbies and Games	For West Rail Stations with no restriction imposed
Musical Instruments & Supplier	For West Rail Stations with no restriction imposed
Newspapers and Magazines	For West Rail Stations with no restriction imposed
Posters and Paintings	For West Rail Stations with no restriction imposed

医疗器材及用品	对西铁站不设限制
眼镜	对西铁站不设限制
个人及健康护理（例如食疗及体重控制）	对西铁站不设限制
药房	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> • 必须雇用持牌保安公司(第三类别)设计、安装、保养及维修保安系统 • 须向防止罪案科呈交系统的功能安全规格数据及布置图，其中包括与实质保安、进出监控、防盗警报系统、闭路电视系统及照明系统等相关的数据，以供批署
体育用品、消闲品、收藏品、书籍、音乐产品及画	
工艺品	对西铁站不设限制
贺卡及小饰物	对西铁站不设限制
收藏品（例如钱币、钞票、邮票、水晶、银及玻璃制品、古董）	对西铁站不设限制
消闲品及游戏产品	对西铁站不设限制
乐器及音乐用品	对西铁站不设限制
报刊及杂志	对西铁站不设限制
海报及画	对西铁站不设限制

Sale and rental of pre-recorded tapes, compact discs & records (e.g. video tapes, tapes, CDs, LDs, MDs, VCDs, DVDs, etc.)	For West Rail Stations with no restriction imposed
Sewing & Needlework	For East Tsim Sha Tsui Station with no restriction imposed
Souvenirs, Gifts and Soft Toys	For West Rail Stations with no restriction imposed
Sporting Goods	For West Rail Stations with no restriction imposed
Stationeries and Books	For West Rail Stations with no restriction imposed
Interest Class	Trade agreed with SSCC for West Rail Stations with restriction for registration only
<u>Household Goods</u>	
Electrical Home Applications	For West Rail Stations with no restriction imposed
Household Goods & Sundries	For West Rail Stations with no restriction imposed
Interior Design & Decoration (with interior Furniture setup)	For West Rail Stations with no restriction imposed
Kitchenware & Tableware	For West Rail Stations with no restriction imposed
<u>Electronics and Appliances</u>	
Computers	For West Rail Stations with no restriction imposed
Electrical Appliances	For West Rail Stations with no restriction imposed
Telecommunication Products and Services	For West Rail Stations with no restriction imposed
<u>Others</u>	
Automobile Accessories (e.g. car radio, alarm, automobile products)	For West Rail Stations with no restriction imposed

销售及租赁预录磁带、光盘及唱片 (例如录像带、录音带、CD、 LD、MD、VCD 及 DVD 等)	对西铁站不设限制
缝纫制品	对港铁尖东站不设限制
纪念品、礼品及毛公仔	对西铁站不设限制
体育用品	对西铁站不设限制
文具及书籍	对西铁站不设限制
兴趣班	业界与安全及保安统筹委员会就西 铁站协议只限注册者
家居用品	
家庭电器用品	对西铁站不设限制
家居及杂项用品	对西铁站不设限制
室内设计及装饰(连室内家具安装)	对西铁站不设限制
厨具及餐具	对西铁站不设限制
电子产品及电器	
计算机	对西铁站不设限制
电器	对西铁站不设限制
电讯产品及服务	对西铁站不设限制
其他	
汽车配件(例如汽车收音机、警报器 及汽车用品)	对西铁站不设限制

Convenience Stores	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • Food preparation or heating of food not permitted
Florists	For West Rail Stations with no restriction imposed
Groceries	For West Rail Stations with no restriction imposed
Photo-finishing and related products	Trade agreed with SSCC for East Tsim Sha Tsui Station with the following restriction: <ul style="list-style-type: none"> • For digital photo processing and collection services only • For conventional photo finishing, approval shall be sought from SSCC on a case by case basis
Travel/Visitor Services	
Money Exchange Services	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • A licensed security company (Type III) must be employed to design, install, maintain or repair security systems. • Functional security specifications and layout plans must be submitted to Crime Prevention Bureau for endorsement. These should include items in relation to physical security, access control, intruder alarm systems, CCTV systems and lighting systems, etc.
Motor Vehicle Rental Services	For West Rail Stations with no restriction imposed
Ticketing/Booking Services	For West Rail Stations with no restriction imposed

便利店	业界与安全及保安统筹委员会就西 铁站协议以下限制： <ul style="list-style-type: none"> • 不准制备或加热食品
花店	对西铁站不设限制
杂货店	对西铁站不设限制
相片冲晒及相关产品	业界与安全及保安统筹委员会就港 铁尖东站协议以下限制： <ul style="list-style-type: none"> • 只提供数码相片处理及交收服 务 • 就传统的相片冲晒而言，须按 个别情况向安全及保安统筹委 员会申请审批
旅游／旅客服务	
货币兑换服务	业界与安全及保安统筹委员会就西 铁站协议以下限制： <ul style="list-style-type: none"> • 必须雇用持牌保安公司(第三类 别)设计、安装、保养及维修保 安系统，并按照保安设计 • 须向防止罪案科呈交系统的功 能安全规格数据及布置图，其 中包括与实质保安、进出监控、 防盗警报系统、闭路电视系统 及照明系统等相关的数据，以 供批署
汽车租赁服务	对西铁站不设限制
票务／预订服务	对西铁站不设限制

Tourist Information Services	For West Rail Stations with no restriction imposed
Travel Agency/Services	For West Rail Stations with no restriction imposed
<u>Business Services</u>	
Banking Services	For West Rail Stations with no restriction imposed
Business Service Centre (e.g. private mail centre, scanning, photocopying and faxing services)	For East Tsim Sha Tsui Station with no restriction imposed
Certified Public Accounting Services	For East Tsim Sha Tsui Station with no restriction imposed
Courier Services	For West Rail Stations with no restriction imposed
Financial Services	For East Tsim Sha Tsui Station with no restriction imposed
Insurance Services	For East Tsim Sha Tsui Station with no restriction imposed
Legal Assistance and Services	For East Tsim Sha Tsui Station with no restriction imposed
Packaging & Labeling Services	For East Tsim Sha Tsui Station with no restriction imposed
Post Office	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • Restricted to normal postal service only
Estate Agency	Trade agreed with SSCC for West Rail Stations with the following restriction: <ul style="list-style-type: none"> • Promotional activities in public area shall be not be allowed
<u>Consumer/Personal Services</u>	
Catalogue/Mail Order Services	For West Rail Stations with no restriction imposed
Delivery/Collection Point for Laundry and Dry Cleaning Services	For West Rail Stations with no restriction imposed
Employment Services	For West Rail Stations with no restriction imposed

游客信息服务	对西铁站不设限制
旅行社	对西铁站不设限制
商用服务	
银行服务	对西铁站不设限制
商务中心（例如私营递件中心、扫描、影印及传真服务）	对港铁尖东站不设限制
执业会计师服务	对港铁尖东站不设限制
速递服务	对西铁站不设限制
金融服务	对港铁尖东站不设限制
保险服务	对港铁尖东站不设限制
法律协助及服务	对港铁尖东站不设限制
包装及标贴服务	对港铁尖东站不设限制
邮局	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> 只提供一般邮政服务
地产代理	业界与安全及保安统筹委员会就西铁站协议以下限制： <ul style="list-style-type: none"> 不准许在公众地方进行推广活动
消费者／个人服务	
目录／邮购服务	对西铁站不设限制
洗熨及干洗服务交收点	对西铁站不设限制
就业服务	对西铁站不设限制

Key Cutting/Locksmiths Services	For West Rail Stations with no restriction imposed
Marriage Aid Services	For West Rail Stations with no restriction imposed
Shoes Repairing and Polishing Services	For West Rail Stations with no restriction imposed
Therapeutic Services	For East Tsim Sha Tsui Station with no restriction imposed
Counseling/Consultancy Services	For West Rail Stations with no restriction imposed
Medical Service Center (e.g. general out-patient services & special out-patient)	Subject to SSCC's endorsement on case-by-case basis
Self-operated machines, including automatic photo machines, payment express terminal, vending machine and cash dispensing machine, etc.	For West Rail Stations with no restriction imposed
Public Pay Phone	For West Rail Stations with no restriction imposed
Advertising Panel	For West Rail Stations with no restriction imposed

配匙／锁匠服务	对西铁站不设限制
婚姻辅助服务	对西铁站不设限制
补鞋及擦鞋服务	对西铁站不设限制
治疗服务	对港铁尖东站不设限制
辅导／顾问服务	对西铁站不设限制
医务中心（例如普通科及专科门诊服务）	由安全及保安统筹委员会按个别情况批署
自助操作机器，包括自动照相机、付款终端机、售卖机及提款机等	对西铁站不设限制
公众收费电话	对西铁站不设限制
广告板	对西铁站不设限制

**Minimum Fire Service Installations and Equipment for
Construction Site Office (CSO)/Engineering Site Office (ESO)**

Requirements – Systems/Installations/Equipment for:

- (i) Audio/visual advisory system
- (ii) Automatic actuation devices
- (iii) Automatic fixed installation other than water
- (iv) Emergency generator
- (v) Emergency lighting
- (vi) Exit sign
- (vii) Fire alarm system
- (viii) Fire detection system
- (ix) Fire hydrant/hose reel system
- (x) Portable hand-operated approved appliance
- (xi) Sprinkler system
- (xii) Ventilation/air conditioning control system

Extent

- (i) Required for any part or parts of building where the area occupied by any one single occupancy on any one floor exceeds 2 000 square metres AND where the occupants, due to their transient presence either as shoppers, audience or guests, are exposed to risks to require additional advice through such systems.
- (ii) As required by that equipment which needs to be automatically actuated.
- (iii) To be provided to areas where the use of water is undesirable for the occupancy or trade.
- (iv) An independently powered generator of sufficient electrical capacity to meet the fire service installations and fireman's lifts it is required to provide.

建筑地盘办公室及工程工地办公室的
最低限度消防装置及设备

须装设的系统／装置／设备：

- (i) 声响／视像警报系统
- (ii) 自动启动装置
- (iii) 不含水的灭火剂自动固定装置
- (iv) 应急发电机
- (v) 应急照明系统
- (vi) 出口指示牌
- (vii) 火警警报系统
- (viii) 火警侦测系统
- (ix) 消防栓／喉辘系统
- (x) 认可的人手操作手提器具
- (xi) 花洒系统
- (xii) 通风／空气调节控制系统

应用范围

- (i) 如楼宇内任何一个楼层有面积超过 2 000 平方米的部分只作一种用途，而使用人士由于作短暂停留（例如作为购物者、观众或客人）以致会面对风险，则须借助这种系统，额外发出警报。
- (ii) 配合须自动启动的设备。
- (iii) 安装在占用部分或所经营的店铺内不宜用水救火的地方。
- (iv) 须设置发电量足够的独立发电机，为各消防装置及消防员升降机提供所需的电力。

- (v) Emergency lighting shall be provided throughout the entire building and all exit routes leading to ground level.
- (vi) Sufficient directional and exit signs to ensure that all exit routes from any floor within the building are clearly indicated as required by the configuration of staircases serving the building.
- (vii) One actuating point and one audio warning device to be located at each hose reel point. Visual alarm signals shall be provided where necessary in accordance with current Design Manual: Barrier Free Access. This actuating point shall include facilities for fire pump start and audio/visual warning device initiation.
- (viii) To be provided in areas not covered by automatic fixed installations.
- (ix) There shall be sufficient hydrants and hose reels on each floor to ensure that every part of the building can be reached by a length of not more than 30 m of Fire Services hose and hose reel tubing.
- (x) As required by occupancy.
- (xi) Required for buildings with total floor areas exceeding 230 square metres and to cover all parts of the buildings including staircases, common corridors and toilets.
- (xii) When a ventilation/air conditioning control system to a building is provided, it shall stop mechanically induced air movement within a designated fire compartment.

Additional Requirement

- (i) All linings for acoustic and thermal insulation purposes in ductings and concealed locations shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (ii) All linings for acoustic, thermal insulation and decorative purposes within protected means of escape shall be of Class 1 or 2 Rate of Surface Spread of Flame as per British Standard 476: Part 7 or its international equivalent, or be brought up to that standard by use of an approved fire retardant product.
- (iii) Any intended storage or use of dangerous goods as defined in Chapter 295 of the Laws of Hong Kong should be notified to the Director of Fire Services.

- (v) 整幢楼宇及通往地面层的所有出口路线均须安装应急照明系统。
- (vi) 须按照楼宇的楼梯设计安排，提供设置足够的方向指示牌及出口指示牌，确保楼宇内各层的所有出口路线均指示清楚。
- (vii) 每个喉轆放置地点均须安装启动按钮及声响警报装置各一个。如有需要，须遵照现行《设计手册：畅通无阻的信道》的规定提供视像火警信号。启动按钮必须可以启动消防泵及声响／视像警报装置。
- (viii) 设置在自动固定装置不能发挥功效的范围。
- (ix) 每层须设有足够的消防栓及喉轆，确保长度不超过 30 米的灭火喉及喉轆胶喉可到达楼宇的任何部分。
- (x) 视乎建筑物使用的性质而定。
- (xi) 楼宇的总楼面面积如超过 230 平方米便须安装这个系统，发挥效用的范围须包括楼宇所有部分（楼梯、公共走廊及厕所亦计算在内）。
- (xii) 楼宇内装设有通风／空气调节控制系统须能阻止指定隔火间内由机械引发的气流。

额外规定

- (i) 管道及隐蔽位置内所有作隔音及隔热用途的物料均须达英国标准 476：第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等的国际标准，或利用认可的抗火产品提高水平至同等标准。
- (ii) 防护逃生途径内所有作隔音、隔热及装饰用途的物料均须达英国标准 476：第 7 部分指定表面火焰蔓延率第 1 级或第 2 级，或同等的国际标准，或利用认可的抗火产品提高水平至同等标准。
- (iii) 如拟贮存或使用香港法例第 295 章界定为危险品的物品，必须通知消防处处长。

General Design Requirements for Smoke Control Systems

1. The build-up of smoke and heat as a result of a fire can seriously impede the evacuation of the public as well as the operational efficiency of fire-fighters in carrying out rescue and fire-fighting operations. The purposes of a smoke control system are to ensure safe evacuation of commuters and facilitate fire-fighting operation by maintaining a tenable condition at scene.
2. In order to minimize the impact by smoke on egress routes for commuters and access routes for fire-fighters in railway infrastructures, smoke control is an effective means through different systems, i.e. smoke extraction system, pressurization of staircase and tunnel ventilation system. For ease of reference to the Railway Corporations and their consultants/designers, the design guidelines of these systems are provided at Annex (a), (b) and (c) of this Appendix:

Annex (a): Smoke Extraction System

Annex (b): Pressurization of Staircase

Annex (c): Tunnel Ventilation System

烟雾控制系统的一般设计规定

1. 于火警中，烟和热的产生会严重妨碍乘客的疏散及消防人员有效地进行灭火救援工作。烟雾控制系统目的是维持现场在可容受环境下，确保乘客能安全疏散及便利灭火救援工作。
2. 为减低烟雾对乘客在逃生路径及消防人员在进出途径的影响，铁路基础设施通常会透过排烟系统、楼梯增压及隧道通风系统控烟。为方便铁路公司及其顾问／设计人参考，相关设计指引已详述于本附录的附件（甲）、（乙）及（丙）内：

附件（甲）：排烟系统

附件（乙）：楼梯增压

附件（丙）：隧道通风系统

Smoke Extraction System

1. The designer of dynamic smoke extraction system shall be a registered professional engineer under Cap. 409 in the discipline of building services, fire or mechanical engineering. The designer shall be responsible for all submissions. Each drawing and all calculations shall be verified and certified by the designer.
2. All fans of the system forming part of a fire rated duct shall be enclosed in the same fire rated enclosure if no dedicated fan room is allocated for a single smoke extraction system.
3. Equipment handling smoke/make-up air and associated ductwork serving basement/underground level shall be protected by an enclosure having a FRR of not less than 4 hours.
4. Shafts used for smoke extraction purposes shall contain no other services.
5. Smoke exhaust ventilation shaft shall be solely used for smoke extraction system. Motorized fire and smoke damper shall be provided at branch-off section to maintain proper fire compartment in case of fire. This branch-off section from the shaft shall not be deemed as ventilation shaft.
6. Mechanical make-up air for the smoke extraction system shall be taken from supply ventilation shaft. Motorized fire and smoke damper shall be provided at the branch-off section from supply ventilation shaft to maintain proper fire compartment in case of fire. This branch-off section from the shaft shall not be deemed as ventilation shaft.
7. The ventilation shaft shall only be used for either fresh air intake for the mechanical make-up air of the smoke extraction system, or exhaust air discharge.

排烟系统

1. 机械式排烟系统的设计人须为香港法例第 409 章所指的注册专业工程师，并属于屋宇装备、消防或机械工程的专业。设计人负责提交所有文件，并须在每张图表及所有计算文件签署，证明设计人已核实上述文件均为正确无误。
2. 如单一排烟系统没有配置专用风机房，则该系统中的所有风机也属于具抗火效能管道的一部分，须设于同一具抗火效能的围封结构内。
3. 在地库／地面下层，用作处理烟雾／补充空气的设备及其相连管道，须设于具耐火时效不少于 4 小时的围封结构内。
4. 用作排烟的通风井不可充当其他用途。
5. 排烟井只可用于排烟系统。井槽分支须设置由马达驱动的防火防烟闸，使发生火警时能保持适当的隔火间。该井槽的分支亦不应被视为通风井的一部分。
6. 排烟系统的机械式补充空气须取自通风井。连接通风井的分支须设置由马达驱动的防火防烟闸，使发生火警时能保持适当的隔火间。该井槽的分支亦不应被视为通风井的一部分。
7. 通风井只可用于抽取鲜风，为排烟系统作机械式补充空气，或用于排气用途。

8. To prevent recirculation of smoke into the system via ventilation shafts, the smoke discharge outlets and fresh air intake louvers shall be separated by not less than 5m in any direction from all air inlets or other openings into any building. The outlets shall not discharge into any means of escape or fireman's staircase. No discharges shall be at a height above the surrounding horizontal surface of less than 3m to the bottom of the outlet and where below 6m shall not discharge downwards. No discharges shall be under any canopy or overhang. Discharge to openings in adjacent structure and property shall also be considered.
9. Sufficient smoke extraction grilles shall be evenly distributed at a high level to ensure that there is no stagnant smoke within the area during operation.
10. The fan room housing smoke extraction system shall contain no other services. Service/Ductwork other than that of smoke extraction system shall not pass through the fan room of smoke extraction system.
11. When fan room accommodated more than one smoke extraction system, a separate fire rated enclosure shall be provided to each smoke extraction system in order to maintain proper fire compartment of different service spaces.
12. The fan room of smoke extraction system shall be provided with sprinkler system.
13. For parallel arrangement of smoke extraction fans and make-up air fans, motorized fire and smoke dampers shall be provided for both the suction side and the discharge side to avoid system short circuit and recirculation of smoke.
14. For smoke extraction system in concession area, the smoke extraction rate shall be calculated based on a sprinkler controlled fire scenario and impact on sheltering effect shall be taken into account.

8. 为免烟雾经通风井回流至排烟系统，排烟出口和鲜风进气百叶口距离任何鲜风入口或楼宇入口均不得少于 5 米。不可让烟雾排进走火通道或消防员专用楼梯。排烟出口的高度，须以其底部距离周围地面不少于 3 米为准。如高度在 6 米以下，则不可向下方排烟。排烟出口不可设置在檐篷或屋檐下，并须同时顾及邻近构筑物 and 物业的开口。
9. 须有充足的排烟口及平均分布于高位，以确保该范围在运作时没有烟雾停滞的情况。
10. 放置排烟系统的风机房不可设置其他设施。除排烟系统外，其他设备／管道均不可通过排烟系统的风机房。
11. 如风机房放置多于一套排烟系统，每套排烟系统须设于具有抗火效能的独立围封结构内，为各个系统区域保持适当的隔火间。
12. 排烟系统的风机房须设有花洒系统。
13. 若排烟风机和补充风机是以并联方式安装，抽气口和排气口均须设置由马达驱动的防火防烟闸，以防止系统出现短路及烟雾回流的情况。
14. 对于专营范围内的排烟系统，须采用花洒控制火势来计算排烟率，并须同时考虑掩蔽效应的影响。

15. The length of smoke zone shall not be longer than 60m.
16. The length of smoke zone for long adit shall not be longer than 30m.
17. In case that smoke extraction rate is designed by using a fire engineering approach, the maximum area of the smoke reservoir should not be larger than 2 000 square metres.
18. If smoke extraction ductwork passes through another fire compartment with higher FRR, the entire ductwork shall be constructed conforming to higher FRR standard.
19. Ductwork, other than that of smoke extraction system, passing through smoke barrier/wall and within smoke reservoir shall be installed with fire and smoke damper.
20. Fire and smoke damper should be provided to any ductwork opening within smoke reservoir to avoid smoke spillage into a non-incident area. Damper shall be actuated by fire signal through the fire detection or fire alarm system of the incident zone.
21. When make-up air is taken through inlet air ventilators or doors, devices shall be installed to operate such inlet air ventilators or doors automatically upon activation of the smoke extraction system. Fail safe protection is required for the devices.

15. 烟雾区的长度不可超过 60 米。
16. 长通道的烟雾区长度不可超过 30 米。
17. 如果运用消防工程学來厘定排烟率，集烟间的最大面积不应超过 2 000 平方米。
18. 若排烟管道需通过其他耐火时效较高的隔火间，整个管道系统的耐火时效须与较高者相同。
19. 除排烟系统的管道外，其他管道若通过隔烟屏障／墙壁及集烟间，须安装防火防烟闸。
20. 集烟间内所有管道开口均须设置防火防烟闸，以避免烟雾蔓延到非事故区域。闸门必须由事故区域的火警侦测系统或火警警报系统所发出的信号启动。
21. 若补充空气是从进气窗或门进入，这些进气窗或门须设有装置，能在排烟系统启动后自动开启。该装置须配备有「失效保险」。

22. The smoke extraction system and associated ductwork/equipment shall be able to operate at 250°C for not less than one hour. The actual duration shall be justified by technical evaluation to suit the operating environment and conditions. In case the smoke temperature is higher than 250°C, additional smoke extraction rate shall be provided to allow sufficient make-up air inside the smoke zone to be entrained and ensure the airstream temperature inside the system is less than 250°C. Otherwise, fire rated protection with higher FRR shall be applied to the smoke extraction system and associated ductwork/equipment to withstand the smoke temperature and maintain normal operation of the smoke extraction system. The designer shall substantiate the smoke extraction rate and smoke temperature based on the design fire size and smoke clear height.
23. The smoke barrier shall be constructed of substantial non-combustible materials that will resist the passage of smoke and have a FRR of not less than 1 hour when tested to British Standard 476: Parts 20 to 23 inclusive.
24. Smoke extraction system shall be actuated by a smoke detection system. At the same time, the operation of a sprinkler flow switch and manual override facility shall be provided as backup measures when the smoke detection system fails.
25. For boundary fire case in adit, both smoke curtain at the boundary and associated smoke extraction system shall be activated by cross zoned detectors when being triggered.
26. Once started, smoke extraction fans and make-up air fans shall run continuously until stopped manually.

22. 排烟系统及其相关的管道／设备须能在温度摄氏 250 度下持续操作不少于一小时。该设计须按照操作环境和条件作出技术评估，确定实际的操作时间要求。如烟雾温度高于摄氏 250 度，须增加排烟率，使足够的补充空气进入烟雾区，并确保系统内气流的温度是低于摄氏 250 度。否则，须使用较高耐火时效的物料保护排烟系统及其相关的管道／设备，以抵抗高温烟雾和保持排烟系统的正常操作。设计人须根据预算的火灾规模和无烟净空高度，确定排烟率和烟雾温度。

23. 隔烟屏障须使用烟雾不能穿过的不燃性物料制造，并能通过英国标准 476 第 20 至 23 部分规定的测试，具有不少于一小时的耐火时效。

24. 排烟系统必须由烟雾侦测装置启动。同时，须使用花洒的流水掣和手动关止设备作为在烟雾侦测装置失灵时的后备启动措施。

25. 对于通道内分区边界上发生的火警，当交叉区域烟雾侦测装置触发后，边界上的隔烟幕及相关的排烟系统均须启动。

26. 排烟风机和补充空气风机一旦启动，须持续运行，直到手动关上为止。

27. Smoke extraction fans and make-up air fans shall be electrically interlocked such that the failure of the smoke extraction fan shall automatically shut down the corresponding make-up air fan. However, the failure of make-up air fans shall not affect the operation of the smoke extraction fans.
28. A control panel shall be provided for each smoke extraction system. The panel shall be installed adjacent to main fire control panel in station control room (SCR)/fire control room (FCR). When in “fire” mode, no system connected therewith shall be controlled or under the influence of any building management or automation system. Manual override facility shall be of manually reset type. Audio and visual indicators shall be provided to monitor the status of the manual override device. After actuating the manual override device, all smoke extraction systems shall be individually operated via the control panel of smoke extraction system.
29. All equipment serving the smoke extraction and mechanical make-up air systems shall be provided with an electrical supply from essential source.
30. Switchboard for smoke extraction system (e.g. local motor control panel (LMCP), motor control centre (MCC), etc.) shall not be grouped with other services or installations.
31. The switchboard serving the fan/motor/drive sets of smoke extraction system shall be located in the plant room next to the fan room of smoke extraction system. The plant room shall not contain other equipment. Two dedicated electrical supplies shall be routed separately into the plant room and then connected into the switchboard of smoke extraction system.
32. Appropriate motor starting method shall be considered in the design stage to cope with the large starting current and power rating of the motor.

27. 排烟风机和补充空气风机须配备电动联锁装置，如排烟风机发生故障，对应的补充空气风机须能自动关闭，但若补充空气风机发生故障，排烟风机的操作则不可受影响。
28. 所有排烟系统须配备控制板，并设于车站控制室／消防控制室内火警指示仪表盘旁。处于「火警」操作模式时，排烟系统不可受到楼宇管理系统或楼宇自动系统的控制或影响。手动关止设备须属手动重置型。控制板上亦须装上声响及视像显示设备，以监察手动关止掣的状态。启动手动关止掣后，所有排烟系统须能透过排烟系统的控制板作出操控。
29. 排烟及机械式补充空气系统内的所有设备须由紧急电源提供电力。
30. 排烟系统的专用电掣板（如局部电动机控制柜及电动机控制中心等）不可与其他装置或设备在一起。
31. 排烟系统的风机／电动机／传动装置的专用电掣板须置于排烟系统风机房旁边的机房内。该机房不得放置其他设备。两个独立电源的线路须分别驳入机房，然后再接上控制排烟系统的专用电掣板。
32. 设计电动机时，须考虑适当的起动方法，以处理电动机强大的起动电流及额定功率。

33. For a single smoke extraction system, smoke extraction fan shall be installed in duplicate with automatic changeover facility.
34. For premises designed with two smoke zones, two dedicated smoke extraction systems shall be provided. In view of single fire scenario and system reliability, one standby extraction fan with automatic changeover facility shall be treated as a common standby provision for these two smoke extraction systems.
35. Hot smoke test shall be conducted for smoke extraction system in accordance with the requirements as stated in FSD Circular Letter No. 2/2002.

33. 若为单一排烟系统，须安装双重的排烟风机，并备有自动变换设施。
34. 如处所设计涉及两个烟雾区，须提供两个专用的排烟系统。基于单一火警的假设及系统可靠性的考虑，一部备有自动变换设施的备用排烟风机可用作该两个排烟系统的共同后备设备。
35. 须根据消防处通函第 2/2002 号所载的规定，为排烟系统进行热烟测试。

Pressurization of Staircase

1. The designer of pressurization of staircase shall be a registered professional engineer under Cap. 409 in the discipline of building services, fire or mechanical engineering. The designer shall be responsible for all submissions. Each drawing and all calculations shall be verified and certified by the designer.
2. Dedicated plant room and ventilation shaft shall be allocated for pressurization of staircase. Service/Ductwork not serving pressurization of staircase shall not pass through the dedicated plant room.
3. All fans of the pressurization of staircase for serving different fire compartments shall be installed in separate plant rooms with appropriate FRR.
4. All fans of the system forming part of a fire rated duct shall be enclosed in the same fire rated enclosure if no dedicated plant room is allocated for a pressurization of staircase.
5. For parallel arrangement of staircase pressurization fans, motorized fire and smoke dampers shall be provided for both the suction side and the discharge side to avoid system short circuit.
6. To maintain proper fire compartment, dedicated pressurization fans shall be designed for the staircase and protected lobbies. The supply air duct serving the pressurized staircase has to penetrate the staircase enclosure, the portion of the duct where it traverses outside the staircase shall have a fire rated enclosure having the same fire rating as that of the pressurized space or fire compartment passed, whichever is greater. It shall be only fitted with fire and smoke dampers.

楼梯增压

1. 楼梯增压的设计人须为香港法例第 409 章所指的注册专业工程师，并属于屋宇装备、消防或机械工程的专业。设计人负责提交所有文件，并须在每张图表及所有计算文件签署，证明设计人已核实上述文件均为正确无误。
2. 须为楼梯增压设置独立的机房及通风井。不属于楼梯增压的其他设备／管道均不可通过相关机房。
3. 楼梯增压内用于不同隔火间的风机，须分别装设在具有适当耐火时效的独立机房内。
4. 如楼梯增压没有配置专用风机房，则该系统中的所有风机也属于具抗火效能管道的一部分，须设于同一具抗火效能的围封结构内。
5. 若楼梯增压风机是以并联方式安装，抽气口及排气口均须设置由马达驱动的防火防烟闸，以防止系统短路的情况。
6. 为保持适当的隔火间，须为楼梯及防护廊设计独立专用的增压风机。增压楼梯的送气管道必然穿过楼梯围封结构，管道穿出楼梯的部分须以防火物料围封，该防火物料的耐火时效须相等于增压空间或管道所通过的隔火间两者中较高的耐火时效。只可设置防火及防烟闸。

7. To enhance system reliability, duplicate fans instead of dual motors shall be adopted.
8. To prevent “over pressure” of the staircase, barometric pressure relief vents shall be installed.
9. The provision of air release shall be installed to the accommodation and it has to comply with the requirements as stated in BS5588: Part 4 and FSD Circular Letter No. 2/2006.
10. The air release fan, ductwork and other associated equipment shall be suitable for continuous operation for an appropriate period of time and temperature as specified in the BS5588: Part 4 and FSD Circular Letter No. 2/2006.
11. The provision of air release and pressure relief shall be vented by dedicated ventilation shaft. Other services or ductworks shall not be connected or pass through the ventilation shaft for any other purpose.
12. The discharge end/louvre of air release shall not be mixed with other louvre or system. Air release discharge outlets for pressurization of staircase shall be separated by not less than 5m in any direction from all air inlets or other openings into any building. The outlets shall not discharge into any means of escape or fireman’s staircase. No discharges shall be at a height above the surrounding horizontal surface of less than 3m to the bottom of the outlet and where below 6m shall not discharge downwards. No discharges shall be under any canopy or overhang. Discharge to openings in adjacent structure and property shall also be considered.
13. Other non-essential services shall not pass through or be installed at the protected lobby/staircase.

7. 为使系统更可靠，须使用双重风机，而非双重马达。
8. 为防止楼梯出现「超压」，须在增压楼梯间装设具备测量气压功能的放压气闸。
9. 放气设备须在占用范围内安装，此等设备须符合英国标准 5588 第 4 部分及消防处通函第 2/2006 号所载的规定。
10. 放气风机、管道及其他相关装备必须适合在英国标准 5588 第 4 部分及消防处通函第 2/2006 号所指明的适当时间范围内及气温下持续运作。
11. 须使用专用通风井作放气及放压用途。其他用途的设备或管道不可连接或穿过此通风井。
12. 不可将排气口／百叶放气口与其他百叶口或系统装设在一起。楼梯增压的放气口距离任何鲜风入口或楼宇入口均不得少于 5 米。不可让排气进入走火通道或消防员专用楼梯。放气口的高度，须以其底部距离周围地面不少于 3 米为准。如高度在 6 米以下，则不可向下方排气。放气口不可设置在檐篷或屋檐下。并须同时顾及邻近构筑物 and 物业的开口。
13. 其他非紧急装置不可穿过或装设于防护廊／楼梯。

14. The power supply circuit and the motor starting method shall be properly designed to prevent malfunction of circuit breaker during motor starting.
15. Staircase pressurization supervisory panel/Integrated back-up panel (IBP) with indications and hard buttons shall be provided for all pressurization of staircases and located adjacent to main fire control panel in Station Control Room (SCR)/Fire Control Room (FCR). When in “fire” mode, no system connected therewith shall be controlled or under the influence of any building management or automation system.
16. Dedicated switchboard (e.g. local motor control panel (LMCP), motor control centre (MCC), etc.) shall be designed for the pressurization of staircase and shall not be grouped with other systems. The switchboard shall be located in the plant room next to the fan room of the pressurization of staircase. The plant room shall not contain other equipment. Otherwise, the switchboard shall be provided with proper fire rated enclosure. The plant room for the switchboard shall be provided with heat detector.
17. When fire occurs within a pressurized staircase and is detected by smoke detectors, the activation of the associated pressurization system shall be disabled. The pressurization systems of other staircases shall be activated.
18. In the event of a fire excluding the one occurring within the pressurized staircase, the fire alarm signal shall activate the pressurization system. The pressurization system shall be kept in operation even though smoke spills into the pressurized staircase and triggers the smoke detector.
19. Once started, staircase pressurization fans shall run continuously until stopped manually.

14. 须妥善设计供电线路及马达的起动方法，以免断路器在马达起动时失灵。
15. 须在车站控制室／消防控制室内的主火警指示仪表板旁，设置所有楼梯增压的监察控制板／综合后备控制板。控制板须配有指示器及硬按钮操作。处于「火警」操作模式时，所有与其相连的系统不可受到楼宇管理系统或楼宇自动系统的控制或影响。
16. 须为楼梯增压设计专用的电掣板（如局部电动机控制柜及电动机控制中心等），电掣板不可与其他系统设置在一起。电掣板须置于楼梯增压风机房旁边的机房内。该机房不可放置其他设备，否则，电掣板必须以抗火物料妥善围封。置有电掣板的机房须装设热力侦测器。
17. 如烟雾侦测器探得某增压楼梯内发生火警，属于这道楼梯的增压系统须关掉，而其他楼梯的增压系统须自动开启。
18. 如在增压楼梯范围以外发生火警，火警警报讯号须能启动增压系统。即使烟雾及后进入增压楼梯并触发烟雾侦测器，增压系统亦须保持运作。
19. 楼梯增压风机一旦启动，须持续运行，直到手动关上为止。

Tunnel Ventilation System

1. The designer of tunnel ventilation system shall be a registered professional engineer under Cap. 409 in the discipline of building services, fire or mechanical engineering. The designer shall be responsible for all submissions. Each drawing and all calculations shall be verified and certified by the designer.
2. The tunnel ventilation system/trackway ventilation system and associated ductwork/equipment shall be able to operate at 250°C for not less than two hours. The actual duration shall be justified by technical evaluation to suit the operating environment and conditions. In case the smoke temperature is higher than 250°C, additional smoke extraction rate shall be provided to allow sufficient make-up air inside the smoke zone to be entrained and ensure the airstream temperature inside the system is less than 250°C. Otherwise, fire rated protection with higher FRR shall be applied to the tunnel ventilation system/trackway ventilation system and associated ductwork/equipment to withstand the smoke temperature and maintain normal operation of the tunnel ventilation system. The designer shall substantiate the smoke extraction rate and smoke temperature based on the design fire size and critical velocity.
3. Equipment handling smoke/air and associated ductwork serving the basement/underground level shall be protected by an enclosure having a FRR of not less than 4 hours.
4. All fans of the system forming part of a fire rated duct shall be enclosed in the same fire rated enclosure if no dedicated plant room is allocated for a single tunnel ventilation system/trackway ventilation system.

隧道通风系统

1. 隧道通风系统的设计人须为香港法例第 409 章所指的注册专业工程师，并属于屋宇装备、消防或机械工程的专业。设计人负责提交所有文件，并在每张图表及所有计算文件签署，证明设计人已核实上述文件均为正确无误。
2. 隧道通风系统／轨道通风系统及其相连的管道／设备须能在温度摄氏 250 度下持续操作不少于两小时。该设计须按照操作环境及条件作出技术评估，确定实际的操作时间要求。如烟雾温度高于摄氏 250 度，须增加排烟率，使足够的补充空气进入烟雾区，并确保系统内气流的温度是低于摄氏 250 度。否则，须使用较高耐火时效的物料保护隧道通风系统／轨道通风系统及其相连的管道／设备，以抵抗高温烟雾和保持通风系统的正常运作。设计人须根据预算的火灾规模和临界风速，确定排烟率及烟雾温度。
3. 在地库／地面下层，用作处理烟雾／空气的设备及其相连管道，须设于具耐火时效不少于 4 小时的围封结构内。
4. 如单一隧道通风系统／轨道通风系统没有配置专用风机房，则该系统中的所有风机也属于具抗火效能管道的一部分，须置于同一具抗火效能的围封结构内。

5. If a tunnel ventilation system/trackway ventilation system (i.e. one duty tunnel ventilation fan/trackway exhaust fan plus one standby tunnel ventilation fan/trackway exhaust fan) installed at the dedicated plant room where protected by sprinkler system, fire rated enclosure is not required for tunnel ventilation fans/trackway exhaust fans and ductworks which are installed inside the dedicated plant room.
6. The fire rated enclosure required for the ductwork of tunnel ventilation system/trackway ventilation system shall comply with the criteria of stability, integrity and insulation as stated in FS Code to ensure proper protection against the spread of fire. Hence, mild steel plate without documentary proof regardless of thickness shall not be considered as fire rated enclosure.
7. Up-track and down-track of the tunnel shall be considered as different fire compartments.
8. No other services or equipment shall be installed or located inside the tunnel except those as listed below. Essential equipment servicing the tunnel and supporting daily train operation, such equipment shall be installed in a plant room with all necessary fire services provisions and physically separated from the tunnel. The proposal of adopting fire rated enclosure to maintain fire compartment inside the tunnel is not acceptable especially for the equipment generating heat during operation. In case of any other item not listed below, and it is considered as an essential services or equipment which shall have to be installed or located inside the tunnel, separate consent should be sought from FSD.

5. 如装设隧道通风系统／轨道通风系统（即一个主隧道通风机／轨道通风机及一个备用隧道通风机／轨道通风机）的专用风机房有花洒系统保护，该专用风机房内的隧道通风机／轨道通风机及部分管道则毋须使用具抗火效能的材料围封。
6. 在隧道通风系统／轨道通风系统相连管道用作具抗火效能的围封结构的材料须符合《消防安全守则》订明的稳定性、完整性及隔热准则，以防止火势蔓延。因此，如无文件证明，任何厚度的钢板均不能用作具抗火效能的围封结构。
7. 隧道内的上行及下行轨道须被视为不同的隔火间。
8. 除以下所列的设备外，隧道内不可安装或放置其他设备。隧道及列车日常运作必需的设备，须装置在配备一切所需消防设施的机房内，并须与隧道实际分隔开。只采用保持适当隔火间的方法将不被采纳，尤其是用于运作时会发热的设备。倘若是列表以外而有需要安装或放置在隧道内的设备，必须得到消防处的同意。

General

1. Cable
 - Fire retardant, Low Smoke Zero Halogen (LSZH) cable for non-FSI
 - Fire resistant cable for FSI and Tunnel Environmental Control System (TECS)
2. Metallic cable termination box
3. Cable joint
4. Control panel for cross passenger door (with fire rated enclosure)/ Marshaling box
5. Metallic signage plate

Trackside Auxiliary System

1. Tunnel fire hydrant and pipe
2. Tunnel lighting
 - Fire retardant, LSZH cable.
3. Control panel for sump pump
 - It shall be installed inside a separate plant room or fire rated enclosure.
4. Socket outlet for tunnel service and maintenance purpose
 - Fire retardant, LSZH cable.
5. Metallic cable and pipe bracket
6. Metallic cleansing water/drainage pipe
7. Metallic handrail and barrier
8. Metallic earthing tape and terminal

Tunnel Environmental Control System (TECS)

1. Impulse/Jet fan for tunnel ventilation system under emergency
 - It shall be able to operate at 250°C for not less than two hours

Overhead Lines (OHL) System

1. Metallic overhead line
 - The insulator shall be fire retardant type
2. Metallic OHL isolator
3. Motorized OHL isolators control panel with metallic enclosure
4. Neutral section interlock panel with metallic enclosure
5. Metallic balance weight

一般设施

1. 电缆
 - 所有非消防装置，电缆须为阻燃及低烟无卤类别
 - 所有消防装置及隧道环境控制系统的电缆须为耐火类别
2. 金属接线盒
3. 电缆接头
4. 横向通路门之控制板(配有具抗火效能的围封结构)／扁平电缆盒
5. 金属指示牌

轨旁辅助设施系统

1. 隧道消防栓及管道
2. 隧道照明
 - 阻燃及低烟无卤电缆
3. 集水坑泵控制板
 - 控制板须置于独立机房或具抗火效能的围封结构之内
4. 用于隧道维修及保养之电源插座
 - 阻燃及低烟无卤电缆
5. 电缆及管道金属托架
6. 清洗用水／排水金属管
7. 金属扶手及挡板
8. 金属接地带及终端

隧道环境控制系统

1. 应急隧道通风系统中之鼓风机／喷流式风机
 - 能在摄氏 250 度下持续操作不少于两小时

架空电线系统

1. 金属架空电线
 - 绝缘器须为阻燃类别
2. 架空电线金属隔离器
3. 配有金属外壳的电动架空电线隔离器控制板
4. 配有金属外壳的中性区连锁板
5. 金属平衡锤

Signaling System

1. Signal/Point Position indicator/Route indicator
2. Access point (power supply, network switch, modem, antenna) for signaling system with metallic enclosure except for antenna
3. Signaling apparatus box (SAB) with metallic enclosure
4. Point machine with metallic enclosure
5. Axle counter/Wheel sensor/Treadle
6. Track circuit with metallic enclosure
7. Loop Cable (near rail level)
 - Fire retardant, LSZH cable
8. Beacon/tag/balise and Docking device
9. Staff Protection Key switch with metallic enclosure
10. Impedance bond

Communication System

1. Antenna
 - Fire retardant, LSZH cable
2. Closed Circuit Television (CCTV) camera with illuminator with metallic enclosure
3. Trackside telephone with metallic enclosure
4. Radio amplifier and coupler with metallic enclosure
5. In-Cab CCTV transmitter and beacon with metallic enclosure

Trackwork

1. Trackside rail lubricator with metallic enclosure

信号系统

1. 信号／道岔位置指示器／进路指示器
2. 接驳点（电源，网络路由器，调制解调器，天线）。除天线外，全部配有金属外壳
3. 配有金属外壳的信号设备箱
4. 配有金属外壳的转辙机
5. 计轴器／轮轴探测器／轮轴踏板
6. 配有金属外壳的轨道电路
7. 环线（接近路轨面）
 - 阻燃及低烟无卤电缆
8. 灯标／标签／应答器和对接设备
9. 配有金属外壳的员工保护开关
10. 阻抗联接器

通讯系统

1. 天线
 - 阻燃及低烟无卤电缆
2. 配有金属保护壳及照明装置的闭路电视系统摄像机
3. 配有金属保护壳的轨旁电话
4. 配有金属保护壳的无线电功率放大器及耦合器
5. 驾驶室闭路电视发射器及配有金属保护壳的灯标装置

轨道

1. 配有金属保护壳的轨旁导轨润滑器

9. When plant room houses more than one tunnel ventilation system/trackway ventilation system (one duty tunnel ventilation fan/trackway exhaust fan plus one standby tunnel ventilation fan/trackway exhaust fan) to serve “fire” mode operation, separate fire rated enclosure shall be provided to each tunnel ventilation system/trackway ventilation system in order to maintain fire compartment between different protected zones.
10. The fan room of tunnel ventilation system/trackway ventilation system shall be provided with sprinkler system.
11. Shafts used for tunnel ventilation/trackway ventilation purposes shall contain no other services.
12. Ventilation shaft shall be solely used for the tunnel ventilation system/trackway ventilation system. Motorized fire and smoke damper shall be provided at branch-off section to maintain proper fire compartment in case of fire. This branch-off section from the shaft shall not be deemed as ventilation shaft.
13. To prevent recirculation of smoke into the system via ventilation shafts, the smoke discharge outlets shall be separated by not less than 5m in any direction from all air inlets or other openings into any building. The outlets shall not discharge into any means of escape or fireman’s staircase. No discharges shall be at a height above the surrounding horizontal surface of less than 3m to the bottom of the outlet and where below 6m shall not discharge downwards. No discharges shall be under any canopy or overhang. Discharge to openings in adjacent structure and property shall also be considered.
14. For parallel arrangement of tunnel ventilation fans, motorized fire and smoke dampers shall be provided for both the suction side and the discharge side to avoid system short circuit.

9. 如机房设置多于一个在「火警」模式下操作的隧道通风系统／轨道通风系统（一个主隧道通风机／轨道通风机及一个备用隧道通风机／轨道通风机），须提供具抗火效能的独立围封结构给每个隧道通风系统／轨道通风系统，以保持各防护区之间的隔火间。
10. 隧道通风系统／轨道通风系统的风机房须配备花洒系统。
11. 用作隧道通风／轨道通风的井槽不可充当其他用途。
12. 通风井只可用于隧道通风系统／轨道通风系统。井槽分支须设置由马达驱动的防火防烟闸，使发生火警时能保持适当的隔火间。该井槽的分支亦不应被视为通风井的一部分。
13. 为免烟雾经通风井回流进系统，排烟出口距离任何鲜风入口或楼宇入口均不得少于 5 米。不可让烟雾排进走火通道或消防员专用楼梯。排烟口的高度，须以其底部距离周围地面不少于 3 米为准。如高度在 6 米以下，则不可向下方排烟。排烟出口不可设置在檐篷或屋檐下。并须同时顾及邻近构筑物 and 物业的开口。
14. 若隧道通风机是以并联方式安装，抽气口和排气口均须设置由马达驱动的防火防烟闸，以防止系统出现短路的情况。

15. The tunnel ventilation system shall generate sufficient longitudinal air velocity to prevent back-layering of smoke due to tunnel fire. For the calculation of critical velocity, total heat release rate shall be adopted instead of convective heat release rate.
16. The tunnel ventilation system shall be designed to prevent the hot smoke flowing from the incident tunnel to non-incident tunnel via the cross-over area and cross-wall/cross-passage door. Cross-wall or cross-passage doors shall be of fire rated and self-closing type.
17. When tunnel ventilation system/trackway ventilation system starts under “fire” mode, tunnel ventilation fans/trackway exhaust fans shall run continuously until stopped manually. The tunnel ventilation system/trackway ventilation system shall not be controlled or under the influence of any building management or automation system. Overall operating status of related mode of the tunnel ventilation system/trackway ventilation system should be individually monitored by the affected stations.
18. For a dedicated MoA corridor and MoA/EAP staircase near the overrun tunnel/main tunnel, provisions such as a smoke lobby shall be provided to prevent smoke spillage into the MoA corridor and MoA/EAP staircase.
19. Dedicated control panels shall be provided for tunnel ventilation systems/trackway ventilation system and located adjacent to main fire control panel at Station Control Room (SCR)/Fire Control Room (FCR).
20. Switchboard for tunnel ventilation system/trackway ventilation system (e.g. local motor control panel (LMCP), motor control central (MCC), etc.) shall not be grouped with other services or installations.

15. 当隧道发生火警时，隧道通风系统须产生足够的纵向风速，以防止隧道内出现烟雾聚积。计算临界风速时，须采用总热释放率，而非对流热释放率。
16. 隧道通风系统的设计须阻止热烟由事故隧道经渡线路段及横墙／横向通道流进非事故隧道。横墙或横向通道须具耐火效能，并能自动关闭。
17. 当隧道通风系统／轨道通风系统以「火警」操作模式启动后，隧道通风机／轨道通风机须持续运行，直到手动按钮关上。同时，隧道通风系统／轨道通风系统不可受到楼宇管理系统或楼宇自动系统的控制或影响。隧道通风系统／轨道通风系统在相关模式下的全面运作状况，应由受影响的车站各自监控。
18. 越位隧道／主隧道附近设有专用进出途径的走廊及专用进出途径／紧急救援入口的楼梯。须装设防烟廊等设施，以防烟雾进入此等走廊及楼梯。
19. 隧道通风系统／轨道通风系统须配备专用控制板，并设于车站控制室／消防控制室的主消防控制板旁。
20. 隧道通风系统／轨道通风系统的专用电掣板（如局部电动机控制柜及电动机控制中心等）不可与其他系统设置在一起。

21. The switchboard serving the fan/motor/drive sets of tunnel ventilation system/trackway ventilation system shall be located in the plant room next to the fan room of tunnel ventilation fan/trackway exhaust fan. The plant room shall not contain other equipment. Two dedicated electrical supplies shall be routed separately into the plant room and then connected into the switchboard.
22. The plant room housing the switchboard for tunnel ventilation system/trackway ventilation system shall be provided with heat detector and should not contain other services.
23. When tunnel ventilation system activates under “fire” mode, all respective standby tunnel ventilation fans shall be fully utilized in case of any failure of the duty tunnel ventilation fans.

21. 隧道通风系统／轨道通风系统的风机／电动机／传动装置的专用电掣板，须置于隧道通风系统／轨道通风系统风机房旁边的机房内。该机房不得放置其他设备。两个独立电源的线路须分别驳入机房，然后再接上隧道通风系统／轨道通风系统的专用电掣板。

22. 设置隧道通风系统／轨道通风系统电掣板的机房须装设热力侦测器及不应该安置其他设施。

23. 当隧道通风系统以「火警」操作模式启动时，若主隧道通风机有任何故障，所有其备用的隧道通风机都须全面运用。



FIRE SERVICES DEPARTMENT

消防处