



MINISTRY OF INVESTMENT, TRADE AND INDUSTRY
DEPARTMENT OF STANDARDS MALAYSIA

HIGHLIGHTING MS 1780:2017 SMOKE CONTROL SYSTEM USING NATURAL (DISPLACEMENT) OR POWERED (EXTRACTION) VENTILATION (FIRST REVISION) IN CONJUNCTION WITH THE WORLD STANDARDS DAY 2024: SMOKE KILLS MORE PEOPLE THAN FIRE

On average, about 6,000 premises are destroyed by fire every year nationwide. About 40 per cent of these involve residential, while the remaining 60 per cent involve other types of buildings such as offices, factories, schools, and shop-houses. The idioms, “there is no smoke without fire” and “smoke kills more people than fires” are well entrenched. In fact, smoke kills more people during fires than heat, flames or structural collapse, and statistically, smoke inhalation injuries cause 50 to 80% of fire deaths!

The global study on smoke control is continuously evolving and Malaysia has developed local standards and guidelines on Smoke Control Design

and Application over the last 3 decades. In conjunction with this very dynamic subject, it is informative to understand the significant milestones achieved for fire protection in Malaysia.



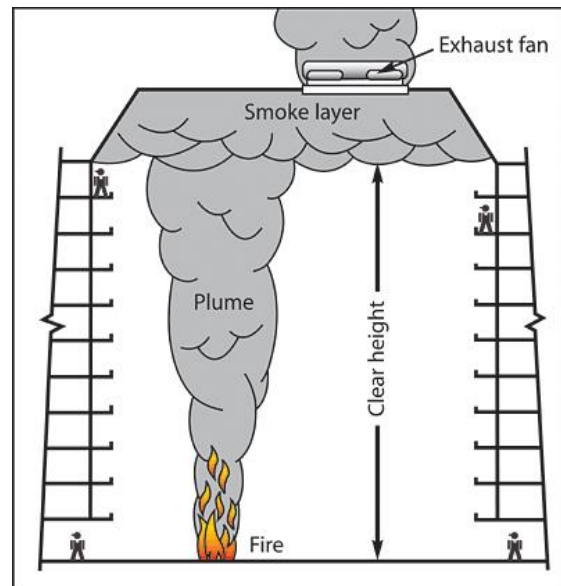
Up till 1999, smoke control requirements for local projects were designed mainly on the basis of the Uniform Building By-Laws (UBBL) 1984 and Sarawak Building Ordinance (SBO) 1994 as well as other established Standards/ Codes/ Guidelines & Performance Based Approach. The need for a uniform smoke control standard was recognized by the industry and

Malaysia is proud to be one of the earliest (if not the first) country to publish such a national standard, MS 1780 in 2005 and revised in 2017.



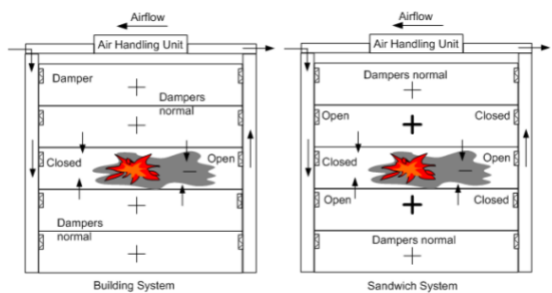
In other countries, such smoke control literatures are published as Codes of Practice or Guides. MS 1780 enables engineers to refer to established Fire Sizes to calculate smoke extraction rates and this Standard effectively describes smoke control by means of natural (displacement) ventilation, powered (extraction which includes exhaust and depressurisation) ventilation or a combination of both. Meanwhile, smoke control by means of pressurisation is described separately under MS 1472:2017 Fire precautions in the design of buildings - Smoke control in protected escape routes using pressurization - Code of practice (First revision).

The fact that smoke obscures visibility and can also contribute to fatalities in a fire incident is indisputable, and it is recognised that occupant safety in a fire can be greatly improved by providing an efficient smoke control system. Moreover, such systems can limit property damage, both directly by reducing the spread of smoke, and indirectly by providing better visibility to facilitate easier access to the seat of the fire for fire fighters. However, it needs to be emphasised that smoke control is one of the tools which the fire safety engineer may use to ensure adequate fire safety within a building.



As such it should not be considered in isolation, but as an integral part of the total package of fire safety measures designed for the building. Thus the need for smoke control in any building

should be designed in conjunction with the means of escape, compartmentation and active suppression systems.



Smoke extraction for life safety purposes is of benefit in buildings where means of escape to the open air cannot be achieved within a short period of time and in which the means of escape could be severely contaminated with smoke and become impassable. Examples include shopping malls, atrium buildings and high rise buildings with phased evacuation i.e. where a proportion of the occupants are expected to stay in the building throughout the duration of fire.

Smoke Extraction for Fire Fighter Access is applicable to buildings where fire brigade access is difficult, e.g. basements and high rise buildings, or where rapid attack on fire is desirable to reduce fire spread and property damage e.g. high value warehouses.

Buildings where smoke clearance by natural means may be difficult (e.g. basements, windowless buildings and high-rise buildings without openable windows) will require a powered smoke purging-system.

MS 1780 comprehensively explains all the various smoke control techniques that may be effectively used for smoke control such as Smoke Containment, Smoke Dilution, Smoke Reservoir Exhaust Ventilation, Zoned Smoke Control System, Sandwich Pressurisation & Depressurisation Systems, and Pressurisation.



Concerns to be addressed when applying these techniques are amplified together with different design approach to suit each application. The importance of proper Testing & Commissioning Procedures is also aptly emphasized.



Malaysia is certainly fortunate to have a comprehensive smoke control design standard with equally effective enforcement to safeguard life safety and mitigate property protection.

The Department of Standards Malaysia (JSM), an agency under Ministry of Investment, Trade and Industry was established on 28 August 1996 under the Standards of Malaysia Act 1996 (Act 549). JSM is the National Standards and Accreditation Body responsible for developing and promoting Malaysian Standards (MS); as well as providing accreditation services to conformity assessment bodies.

JSM works closely with more than 3000 experts in establishing Malaysian Standards for ensuring safety, health and quality products and services as well as environment protection. JSM

support the National Quality Infrastructure through efficient delivery of Malaysian Standards cutting across various sectors and subject matters to support trade facilitation and drive the country's economic growth. To date JSM has developed more than 4500 Malaysian Standard which can be accessed via the Malaysian Standards Online portal <http://mysol.jsm.gov.my/>.



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