

Category 1 Standard

1-067 Tunnel and Public Area Ventilation London Underground

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MAYOR OF LONDON

Tunnel & Public Area Ventilation

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1 Purpose

- 1.1 The purpose of this Standard is to define the requirements for tunnel and station public area ventilation.

This standard is based on a substantial amount of research and LU's strategic approach to tunnel and public area ventilation. It is expected that those applying this standard will make use of all available research material in the preparation of system designs.

2 Scope

- 2.1 This standard applies to all LU enclosed sub-surface locations to which the public have access, and to all LU tunnels.
- 2.2 This standard explains the application of the principles from NFPA130 on the LU network.
- 2.3 The Underground railway ventilation system shall provide:
- a) Draught relief to avoid excessive air velocities and pressures caused by train movement that would otherwise compromise the safety of passengers and staff;
 - b) Sufficient quantities of air at acceptable air temperatures and cleanliness to meet physiological requirements;
 - c) And for new systems the mitigation of fire risk by smoke control and smoke extraction to that required by As Low As Reasonably Practicable (ALARP) criteria.
- 2.4 This standard details the minimum requirements for alterations of, extensions to and all new works to tunnel and station ventilation assets. Whilst it is recognised that the restrictions of existing infrastructure may make compliance with some criteria onerous, LU will apply this standard selectively to pre-existing assets by contract. In such cases the requirements for the scale and scope of works will be individually identified.
- 2.5 This standard does not apply to cooling plant located at stations for the control of temperatures in individual rooms. LU category 1 standard 1-068 covers these assets.

3 Requirements

The aim of the following requirements is to achieve airflow across the network that encourages and facilitates evaporative cooling.

3.1 Ventilation, Draught Relief Infrastructure and Assets

- 3.1.1 All plant that introduces heat to the underground network shall be considered holistically when any existing individual system element is to be altered, or a new one introduced.
- 3.1.2 All replacement ventilation fans and upgraded ventilation shafts shall be suitable for cold smoke extraction. Where determined by the fire strategy (as per LU category 1 standard 1-080) and where practicable these shall also be suitable for hot smoke extraction of a minimum 300°C for 1 hour.
- 3.1.3 All new ventilation shafts containing a fan installation shall be suitable for smoke control.
- 3.1.4. It shall be possible to access all plant within new ventilation shafts from the surface, without interruption to the train service and provision shall be made at the shaft head for the fixing of any required lifting equipment.
- 3.1.5. New ventilation shafts shall be fully partitioned and sufficiently ventilated such that they cannot be defined as confined spaces.