10 MEDICAL GAS SYSTEMS

Minimum Standards

- 10.1.00 The minimum requirements for the provision of medical gas systems in Health Care Facilities shall be:
 - AS 1169 Minimising of combustion hazards arising from the use of flammable anaesthetic agents
 - AS 2568 Medical gases Purity of compressed medical breathing air
 - AS 2896 Medical gas systems Installation and testing of non-flammable medical gases pipeline systems.

All clauses outlined in the following section shall be in addition to statutory requirements

General

- 10.2.00 Medical gas systems include the following services:
 - Oxygen
 - Nitrous oxide
 - Medical breathing air
 - Surgical tool gas
 - Mixtures of medical gases
 - Carbon dioxide
 - Medical suction

Medical suction systems can be:

- Central vacuum
- Venturi ejector operated type

The major difference between the two types of suction systems is that the available pressure difference in venturi system discharge pipes is low and consequently discharged (contaminated) gases are difficult to filter and pipe runs are recommended to be kept short.

10.3.00 Each medical gas is recommended to emanate from a central storage or generation point and reticulated to outlets throughout the hospital.

Medical oxygen, compressed air and nitrous oxide multi-bottle storage manifolds shall be arranged in a 'Duty' and 'Reserve' configuration incorporating automatic change-over facility. Each manifold is recommended to include sufficient bottle storage to meet two days demand with additional bottles held in storage to meet three days or holiday period demand. All medical gas bottle manifolds are recommended to be sited adjacent to each other in a location which facilitates ease of access for bottle delivery and pickup.

10.4.00 The medical gases installation shall incorporate an appropriate low and high pressure audible and visual alarms for each medical gas system and vacuum system respectively. The alarm system shall also be hard wired from the essential power supply if available with status indication panels sited strategically throughout the hospital on a master and slave arrangement. The master panel shall be in a permanently manned location such as the Emergency Unit with slave panels sited in critical areas such as Operating Unit and Intensive Care Unit. Alternatively, an independent alarm panel can be provided for Operating Unit and Intensive Care Unit. These panels would sense pressures in gas pipelines serving each respective area by means of pressure switches located downstream of isolation valves.

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General

- 10.5.00 Readily accessible isolation valves shall be provided in each main gas branch pipe to special areas such as Operating Unit and Intensive Care Unit. Valves shall be located in a wall mounted dedicated valve box incorporating a clear Perspex cover and suitably labelled.
- 10.6.00 Patient rooms shall have oxygen and suction from a fully reticulated system. The minimum provision shall be an oxygen and suction point provided to each single bedroom and shared oxygen and suction points between two beds within multiple bedrooms.
- 10.7.00 An active aspirated gas scavenging system shall be provided where anaesthetic gases are administered. This requirement does not apply to areas where analgesic gases are administered and adequate ventilation is provided.
- 10.8.00 Vacuum (suction) systems utilising central vacuum is recommended to be reticulated to each point, except for suction scavenging points which will scavenge flammable anaesthetic gases or a high content of oxygen. These are recommended to utilise Venturi-suction with discharges as per requirements for suction pump discharges in AS 2896 'Medical gas systems -Installation and testing of non-flammable medical gas pipeline systems'.
- 10.9.00 Venturi type suction systems shall not be used in rooms where infection control is required.

Room / Area Specific Requirements

10.10.00 SPECIALISED EQUIPMENT FOR NITROUS OXIDE SEDATION

When nitrous oxide is being used to provide sedation an appropriate method for scavenging of expired gases shall be provided. The risks of chronic exposure to nitrous oxide is recommended to be considered.

10.11.00 Each Recovery bed space shall be provided with an oxygen outlet and medical suction outlet.

