

1 ENGINEERING SERVICES - GENERAL

General

- 1.1.00 This Guideline is performance oriented for desired results. It is assumed that accepted engineering practice, relevant codes and statutory regulations will be observed as part of normal professional services and that these aspects require no specific reference.

This Guideline is not intended to restrict innovation. In some circumstances it may be desirable to exceed the prescribed minimum standard.

- 1.2.00 Engineering services in health care facilities shall satisfy general comfort demands, health procedure and patient care relevant requirements.

- 1.3.00 An important role of engineering services is controlling specific risks characteristics within a particular Health Care Facility. Engineering services become part of the complex risk management environment which includes many other factors such as maintenance and management. The optimal solution is the structuring of risk management to suit the potential risks specifically for the facility and financial circumstances (that will vary among projects).

This guideline cannot cover all engineering options or define the requirements of a risk management system for engineering services. These systems should be developed during the design phase of the project.

- 1.4.00 As energy efficient solutions are becoming increasingly important further requirements are proposed for inclusion in the BCA in the near future. Some energy efficient solutions based on good engineering and general project development approach do not necessarily increase capital costs.

The provision of most energy recovery equipment does increase capital costs of the project, therefore life cycle cost analysis will be required to justify additional expenditure and application of this equipment will depend on budget.

- 1.5.00 It is not the intention of the Guideline to cover every aspect of public and private health facilities. Project specific issues that are expected to be covered in the project brief include:
- Involvement of affected stakeholders
 - Nomination, listing of critical and sterile areas, including unacceptable risks
 - Application of energy recovery systems, life cycle cost analysis and other financial requirements
 - Provisions for foreseeable modifications
 - Emergency power distribution
 - Facility specific requirements
 - Specific risks and risk management policy
 - Trade wastes
 - Service requirements for health care equipment
 - Specific Management and Maintenance requirements
 - Critical safety and performance parameters required being included into the maintenance regime.

- 1.6.00 Healthcare procedure specific equipment is excluded from the engineering services as the service contractors usually do not provide them. Engineering services shall be provided as necessary to suit equipment.

General

- 1.7.00 The engineering services are divided to the following main categories (in alphabetical order) in the Guideline:
- Ancillary mechanical services
 - Communication
 - Electrical power
 - Fire Services
 - HVAC (Heating, Ventilation, Air-conditioning) Services
 - Hydraulic services
 - Lift and escalator services
 - Lighting
 - Medical gases
 - Security
 - Structural
- 1.8.00 Types of services shall be easily identifiable.
- 1.9.00 Engineering services shall comply with relevant, applicable legislations and this Guideline. For a list of relevant legislation pertaining to HVAC, Medical Gases and Hydraulic Services refer to Enclosure E2.
- 1.10.00 Other guidelines are mandatory by other authorities. For a comprehensive list refer to Enclosure E2.
- 1.11.00 Services, or their loss, shall not cause any unacceptable hazard. The particular risks involved with patients and healthcare procedures shall be considered. Where loss of service could cause unacceptable risk (including post disaster function), services shall be continuously available and provide reliable operation.
- 1.12.00 All services shall satisfy the facility specific healthcare procedure requirements, patients' and other occupants' needs. All services shall be designed and installed in a manner that will minimise the opportunities for patient self-harm.
- All services shall satisfy comfort requirements as determined in Enclosure E1, including acceptable noise.
- 1.13.00 All services shall be designed for safe usage and maintenance. Maintenance shall only cause acceptable minimal disruption to healthcare procedures and minimal disturbance to patients.
- 1.14.00 Access points are recommended to be located outside patient areas and thoroughfares to avoid patient disturbance and frequent traffic.
- 1.15.00 No services shall create a hazard to or damage the environment.
- 1.16.00 Services shall be designed for minimal dust collection and easy cleaning.

Part E- Building Services and Environmental Design

General

- 1.17.00 All services shall be energy and cost efficient within the budgetary limits of the project. The requirements of Energy Efficient Government Buildings - Sustainable Energy Authority Victoria should be incorporated into all aspects of the design and construction whenever possible.

- 1.18.00 Operation, monitoring and control of services shall suit the specific patient and healthcare procedures needs of the area serviced. Controls generally shall be tamperproof.

As-built drawings and detailed Operation and Maintenance Manuals shall be supplied at the end of a project. The drawings shall be clearly marked "AS BUILT" in large lettering and submitted to the health care facility.

At the completion of the works, or section of the works, testing shall be carried out to prove the suitability and operation of the works or section of the works and that the installation complies in full with the requirements specified. Tests shall be conducted to NEBB or equivalent standard and complete and detailed results shall be submitted for review.

- 1.19.00 All equipment shall be suitable for the environment where they are located and operate (including temperature and pressure) and for the material they handle.

General acoustic requirements, acceptable noise levels shall comply with AS2107.