Guideline

Department of Health, NSW
73 Miller Street North Sydney NSW 2060
Locked Mail Bag 961 North Sydney NSW 2059
Telephone (02) 9391 9000 Fax (02) 9391 9101
http://www.health.nsw.gov.au/policies/

Technical Series TS11 - Engineering Services & Sustainable Development Guidelines

Document Number GL2008_002

Publication date 09-Jan-2008

Functional Sub group Corporate Administration - Asset Management
Corporate Administration - Finance
Personnel/Workforce - Occupational Health & Safety

Summary The Engineering Services and Sustainable Development Guidelines are intended as a handbook to be used during the briefing and design process. This guideline containing a summary and the full TS 11 document can be accessed on the www.healthfacilityguidelines.com.au/reference.htm . Engineering services account for approximately 35-40% of the capital costs in the construction of health care facilities. Given the significance of this investment, NSW Health is seeking to improve the delivery of these services by adopting a more innovative approach to engineering services design.

Author Branch Asset and Contract Services

Branch contact Nina Ceh 9391 9443

Applies to Area Health Services/Chief Executive Governed Statutory Health Corporation, Board Governed Statutory Health Corporations, Affiliated Health Organisations - Non Declared, Affiliated Health Organisations - Declared, Public Health System Support Division, Community Health Centres, NSW Dept of Health, Public Health Units

Audience Administration and all staff

Distributed to Public Health System, Community Health Centres, Dental Schools and Clinics, NSW Ambulance Service, NSW Department of Health, Public Health Units, Public Hospitals

Review date 09-Jan-2013

File No. 03/7793-2

Status Active

Director-General

ENGINEERING SERVICES AND SUSTAINABLE DEVELOPMENT GUIDELINES

Technical Series TS11

Engineering services account for approximately 35-40% of the capital costs in the construction of health care facilities. Given the significance of this investment, NSW Health is seeking to improve the delivery of these services by adopting a more innovative approach to engineering services design.

The requirement for all health care design is that it facilitates high quality patient care for the most cost effective capital and recurrent costs.

These Engineering Services and Sustainable Development Guidelines are intended as a handbook to be used during the briefing and design process.

The objectives of this document are:

- To allow the flexibility to facilitate creative/lateral thinking and innovation rather than adopting a prescriptive approach to design.
- To continually achieve better ways of delivering engineering services and sustainable development taking advantage of advances in technology.
- To drive cost efficiency in the provision of engineering services to achieve better value for money.

Structure of the Guidelines

This document contains a section entitled Design Process, generally covering all engineering disciplines, followed by sections for each individual discipline - Mechanical, Electrical, Communications, Lifts, Hydraulics and Fire Services.

The section for each discipline defines the provisions for the service and, in addition, the criteria and process for justifying departures.

Where a standard or code governs the design, the reference will be placed in a text box as below:

- Building Code of Australia (BCA)
- AS/NZS 3000 - Electrical Installations.

In addition, specific industry publications are referenced within the document. These references are given as additional guidance to designers.

Sustainable Development

The NSW Government aims to make buildings healthier and more affordable. It also aims to reduce the impact of buildings on the environment by reducing the demand on non-renewable resources such as energy and water, and reducing pollutants and greenhouse gas emissions.

NSW Health requires sustainable development principles and strategies to be applied to health facilities in accordance with Premier's Memorandum No 2003-2 High Environmental Performance for Buildings and the requirements of the Environmental Performance Guide for Buildings (EPGB).

The Government Energy Management Policy (GEMP) has set a target to reduce the State-wide total energy consumption of government buildings (both government-owned and leased) by 25% from 1995 to 2005. The policy requires new buildings and accommodation to be energy-efficient and cost-effective.

NSW Health is committed to achieving these targets.

All the sustainability issues and associated strategies described in the EPGB are to be addressed in the design, construction and operation of the works. The EPGB sustainability issues and associated strategies are available in detail on the website: http://asset.gov.com.au/environmentguide/

All the performance areas and associated strategies described in the EPGB are to be addressed in the Design of the Works.

NSW Health wishes to leverage its significant achievements in energy management to be a best practice energy management agency.

OBJECTIVES

The key sustainable development objectives are:

- comfortable and healthy indoor environment (in terms of thermal comfort, visual comfort and indoor air quality)
- minimised non-renewable resource consumption (e.g. energy, water) and environmental impacts (e.g. greenhouse, other air and water emissions, solid waste)
- cost-effectiveness over its whole life cycle.

SUSTAINABLE DEVELOPMENT DRIVERS

These objectives are underpinned by a number of sustainable development drivers including:

- Government Energy Management Policy (GEMP)
- objectives of the NSW Government's Sustainability Advisory Council
- NSW Water Conservation Strategy
- NSW Government's Waste Reduction and Purchasing Policy (WRAPP).

SUSTAINABLE BUILDING DESIGN

Some specific issues and requirements include:

- In conjunction with the functional requirements, the building form shall incorporate passive design considerations to minimise the intervention of engineering services, and to minimise energy use.
- The building's passive design and engineering services shall complement each other through an integrated design process involving all disciplines right from the beginning, to achieve the sustainable design outcomes for the whole building.
- The required sustainable design outcomes include thermal comfort, visual comfort and acoustic comfort for the building users, as well as ensuring good indoor air quality.
- The building form (including the shape, size, depth and orientation of the floor plates, etc.) shall be optimised to minimise solar heat gain, maximise natural daylight benefits and optimum access to diffuse natural light, and provide optimum HVAC outcomes.
- The mechanical services and building passive design shall complement each other in design and operation to jointly achieve the functional outcomes for the building, including providing an energy-efficient, healthy, thermally comfortable and acoustically acceptable indoor environment.
- Water conservation and water cycle management are to be included in the design (e.g. rainwater reuse, stormwater management, water recycling).
- Environmentally-sound materials (with minimal impact on the environment, minimised use of non-renewable resources, non-hazardous substances, minimised impact on indoor air quality and high recycled/recyclable content) are to be used wherever possible.
- The development shall be designed to improve upon the minimum requirement of Section J of the Building Code of Australia. It is a requirement of NSW Health that energy modelling be undertaken for all projects larger than

$10m. The energy modelling shall be undertaken in accordance with either verification method JV2 or JV3 from the BCA. The facility shall be designed such that the designed energy performance achieves a minimum of 10% improvement when compared with either the "stated value" or the deemed to satisfy reference building.

- For all projects greater than $10m an independent commissioning agent shall be engaged such as to ensure that all mechanical services and automated control systems are commissioned to meet the required function and for minimum energy use. The process shall follow the proforma identified in Greenstar, with appropriate adjustment to suit healthcare.

- For all projects greater than $10m the project shall undergo the Greenstar rating process, using the Greenstar Pilot Healthcare Tool, such as to achieve a minimum 4 star rating.

ENVIRONMENTAL OUTCOMES AND PERFORMANCE REPORTING

The required environmental outcomes to be achieved must be developed, identified and adopted in the development of the design to suit the strategies outlines in the EPGB. Consultants need to demonstrate how the design, including the proposed building services, will achieve the environmental outcomes required.

The consultant must provide a specific Environmental Performance Report (EPR) at the completion of the part of the design for each milestone in the form of electronic Excel files or included in the EPGM. The scope of the EPR reporting will be advised in the brief.

Responsibility

This document aims to achieve greater definition of engineering services at an earlier stage of the project and to clearly define the responsibilities of both user groups/briefing teams and the engineering designers.

The consultant team, in consultation with the user groups, are required to justify (in terms of clinical service need) any engineering service that are not in accordance with the Guidelines.

The designers are required similarly to justify any decisions not in accordance with the Guidelines and to demonstrate the logic (through life cycle costing analysis) of the systems proposed.

Engineering designers are also required to report their costs in a set cost format that requires a close focus on the actual design, rather than relying on per square metre rates or other broad bases of cost estimation. It is assumed that accepted engineering practice, relevant codes and statutory regulations will be observed as part of normal professional services.

- TS11- Engineering Services and Sustainable Development Guidelines can be accessed on http://www.healthfacilityguidelines.com.au/reference.htm
- Comment http://www.healthfacilityguidelines.com.au/contact.htm
- Questions can be emailed to HFG@DOH.HEALTH.NSW.GOV.AU

Professor Debora Picone AM
Director-General