

**SECTION 3 OF PART 8 OF THE SCHEDULE:
TRUST'S CONSTRUCTION REQUIREMENTS**

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1. Introduction

This section sets out the Trust's Construction Requirements for the Facilities. Project Co has provided design information that supports their ability to produce and develop affordable and innovative design solutions in response to the clinical and non-clinical service objectives for the Project.

This section must be read in conjunction with the Project Agreement. In particular attention is drawn to those sections that relate to the technical requirements of the Trust's Construction Requirements.

Where any discrepancy arises between this schedule and the Project Agreement the Project Agreement shall prevail. However, it is the duty of Project Co to bring any discrepancy to the attention of the Trust at the earliest possible time.

Health and Safety and Quality Assurance issues are covered elsewhere in the Project Agreement.

2. General Requirements and Responsibilities of Project Co

2.1 Project Co shall design and construct the Facilities to provide the accommodation as detailed in the Accommodation Schedule and Room Data Sheets.

2.2 Project Co shall obtain all statutory consents required for construction of the Works to be lawfully carried out and shall provide to the Trust copies of all such consents obtained including but not limited to the following:

- 2.2.1 planning permission;
- 2.2.2 building warrant;
- 2.2.3 pre-construction health & safety plan;
- 2.2.4 other local authority consents.

in each case prior to commencement of any part or parts of the Works in respect of which the same is required.

2.3 Project Co shall:

- 2.3.1 pursue and obtain the Consents to enable the Works to be completed by the Completion Date;

- 2.3.2 pay all fees, give all notices and comply with all requirements of the Consents including but not limited to planning permissions, building warrants and completion certificates.

3. Information Requirements

3.1 Site Signage

- 3.1.1 Project Co shall provide site sign(s) no later than two weeks after financial close and shall maintain the sign(s) in a safe and clean condition for the duration of the construction programme.
- 3.1.2 The sign(s) shall display the Trust's corporate identity, the name of the project and the Completion Date.
- 3.1.3 Only the name of Project Co may appear on the sign(s), reflecting the partnership approach affected between the Trust and Project Co. The names of individual contractors may not be displayed without the Trust's consent (such consent not to be unreasonably withheld).

4. Minimum Standards

4.1 Legislation and Standards

- 4.1.1 Project Co is required to comply with all Legislation and appropriate standards including all mandatory and advisory publications including but not limited to those set out at paragraph 4.2 and 4.3 below. Where they exist, Scottish versions of the documents take precedence.

4.2 Mandatory:

- 4.2.1 Health and Safety Legislation, including the CDM Regulations;
- 4.2.2 The Technical Standards complying with the Building Standards (Scotland) Regulations 1990 as amended by all subsequent Amendment Regulations;
- 4.2.3 All Legislation– e.g. Environmental Protection Act 1990;
- 4.2.4 Disability Discrimination Act 1995;
- 4.2.5 Current British Standards, European Standards, and Codes of Practice, as appropriate;
- 4.2.6 Firecode.

4.3 Advisory:

- 4.3.1 Health Building Notes. ("HBNs")
- 4.3.2 Health Technical Memoranda ("HTMs")
- 4.3.3 Scottish Health Technical Memoranda ("SHTMs")
- 4.3.4 Scottish Health Guidance Notes ("SHGNs")
- 4.3.5 Scottish Health Planning Notes ("SHPNs")
- 4.3.6 Scottish Health Technical Notes ("SHTNs")
- 4.3.7 Health Facilities Notes ("HFNs")
- 4.3.8 Greencode Environmental Management System
- 4.3.9 SHHD "Guidance to the Control of Legionella in Health Care Premises"
- 4.3.10 Health Guidance Notes

to the extent current at the time of specification of the relevant part or parts of the Works; and

- 4.3.11 Trust Approved Codes of Practice, Procedure and Policy documents
 - (i) to the extent disclosed to Project Co by the Trust and/or as otherwise publicised and available to Project Co; and
 - (ii) to the extent current at the time of specification of the relevant part or parts of the Works.

HBNs provide guidance on the planning and servicing of departments. Project Co shall exercise the degree of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that room sizes are commensurate with their function and purpose. The accommodation schedule provided in the Trust Accommodation Schedule and Room Data Sheets is provided as a general guide to the Trust's minimum requirements. The exact sizes shall be determined by Project Co exercising the degree of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the operational requirements of the Trust are met.

- 4.4 HTMs give advice on the briefing and design implications of Department of Health policy. Attention is paid to the relationship between the design of a given department and its subsequent management. This highlights the important implications that a design has on capital and running costs which, in turn, allows informed design decisions to be made.
- 4.5 HFNs provide insight only into topical subjects; they do not include formal policy from the Department of Health. An indication of where HFNs have been used shall be identified.

4.6 Any departure from recognised guidance and recommended minimum standards shall be identified, and shall only be accepted by specific agreement with the Trust.

4.7 Fire Safety

4.7.1 Fire safety in the Facilities shall be in accordance with the requirements of Building Regulations, HTM FireCode ("FireCode"), and Fire Practice Notes, subject to approval by the Trust's Fire Safety Advisor.

4.7.2 Project Co shall comply with the requirements of these publications, as a minimum standard, although it is recognised that alternative solutions based on a fire engineering approach may be more appropriate to Project Co's design. Should Project Co pursue an alternative approach it shall be responsible for meeting the minimum standards set out in the publications, fully satisfying the regulatory authorities of the appropriateness of its proposals and obtaining the necessary approvals.

4.7.3 Project Co shall prepare a Fire Safety Strategy document, including Fire Strategy drawings to demonstrate compliance with the relevant regulations. This document shall cover all aspects of fire safety, fire fighting and building management, including compartmentation and the ventilation implications of the Facilities.

4.7.4 Project Co shall ensure that all premises to be occupied by the Trust have been appraised prior to occupation by competent persons (identity to be agreed) for compliance with FireCode and all Legislation are being met.

4.8 Other documents:

4.8.1 All mandatory and advisory standards shall be read in conjunction with all other documents issued by the Trust to Project Co in relation to the Project, in particular (but without limitation) the following:

- (i) Trust Policies
- (ii) Operational Policies, e.g. Legionella, Medical Gases, LV Policy etc.

5. Building Performance - Design Life

5.1 Functional Life and Planned Maintenance

5.1.1 The Facilities shall be designed for an appropriate fully functional life from the Payment Commencement Date having regard to the Handback Requirements and (in relation to structural elements) the provisions of Section 8.24.1 below. A

maintenance programme shall be produced by Project Co which will be updated on a quarterly basis and will be agreed between the Trust and Project Co.

6. Energy Policy

- 6.1 Project Co shall exercise the degree of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the Facilities are designed in a manner that supports the continuous demand for energy required for the environmental services and to conserve energy and utilise energy to the maximum extent.
- 6.2 In particular the Trust requires Project Co to exercise the degree of skill and care referred to in Clause 17.2 of the Project Agreement when preparing the design to reflect the following principles:
- 6.2.1 minimise internal areas requiring mechanical ventilation;
 - 6.2.2 minimise direct solar gain to avoid the requirement for air conditioning / comfort cooling;
 - 6.2.3 maximise daylight factor in patient areas;
 - 6.2.4 maximise control and flexibility of the installations.
- 6.3 Project Co shall exercise the degree of skill and care referred to in Clause 17.2 of the Project Agreement to design a low energy high-insulated structure, where revenue energy savings can be realised. The Facilities shall comply with Building Standards and achieve an overall energy performance of no more than 50gj/100m³.
- 6.4 The achievement of energy savings requires a structured approach based on a good understanding of the processes that convert and use energy.
- 6.5 Project Co shall:
- 6.5.1 Ensure that equipment supplied by Project Co has the capacity to be controlled to meet the required loads and to be switched off when not required;
 - 6.5.2 Specify equipment, plant and machinery that has the capacity to convert energy more efficiently by for example using high efficiency motors and lamps;
 - 6.5.3 Specify equipment, plant and machinery that has the capacity to undertake high level monitoring and targeting;
 - 6.5.4 Provide an approved energy management system compatible with the existing Trust energy management system (Trend);

- 6.5.5 Provide accurately calibrated meters to monitor all fuel and water consumption.
The Trust reserves the right to verify meter calibrations as and when necessary.

7. Commissioning

- 7.1 Commissioning shall occur in two distinct phases:

- 7.1.1 Project Co's Pre-Completion Commissioning;
7.1.2 Project Co's Post Completion Commissioning

7.2 Technical Commissioning

- 7.2.1 Project Co's Pre-Completion Commissioning of the Facilities, and of equipment supplied and/or installed by Project Co under the Project Agreement shall be undertaken to ascertain whether the Facilities or such equipment shall comply with the quality and performance specifications set out in these Trust Construction Requirements and that all systems operate in accordance with all requirements set out in the same.

- 7.2.2 Project Co shall prepare a record of the outcomes of all tests and other activities undertaken as part of Project Co's Pre-Completion Commissioning and Project Co's Post Completion Commissioning. Such records shall be signed by all parties attending the relevant tests or other activities and shall be retained by Project Co in accordance with the provisions of Part 25 of the Schedule.

7.3 Project Co's Post Completion Commissioning – Training

- 7.3.1 Project Co Pre-Completion Commissioning shall cover the process of training all Project Co and Trust staff to operate and maintain the Facilities' systems. This aspect of the commissioning process shall be clearly identified within Project Co's programme and shall be completed in accordance with the transfer requirements. Successful completion of Project Co Pre-Completion Commissioning shall be a condition precedent to certification of Practical Completion and commencing physical transfer to the Facility.

7.4 Commissioning – General Standards

- 7.4.1 It is essential that the Trust are assured that all pre-commissioning checks and commissioning trials are conducted in accordance with Good Industry Practice.

- 7.4.2 The minimum standard of commissioning acceptable shall be in accordance with the Chartered Institute of Building Services Engineers (C.I.B.S.E.) Current Commissioning Codes.
- 7.4.3 All electrical testing and commissioning shall be in accordance with the current Edition of the I.E.E Regulations (BS 7671)
- 7.4.4 All commissioning shall be undertaken in conjunction with HTMs guidance.

8. Detailed Design and Construction Requirements

General Requirements

8.1 Design Responsibility and Liability

- 8.1.1 Project Co shall undertake and execute the design of the whole of the Works on behalf of the Trust on the Site in accordance with the Trust's Construction Requirements .
- 8.1.2 Project Co shall be responsible for all aspects of the design of the whole of the Works outlined by the Trust's Construction Requirements .
- 8.1.3 Project Co shall liaise with the Trust during the development of the details of the design and shall afford every reasonable facility to the Trust to be appraised of all aspects of the design as it is being developed and to input to the process.
- 8.1.4 Project Co shall, prior to commencement of service delivery, certify to the Trust that Project Co has exercised the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the design has been undertaken in accordance with the Trust's Construction Requirements.

8.2 Statutory Reference

- 8.2.1 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that all workmanship and materials utilised in the Works shall comply with the current British Standards, National and Scottish Building Notes and Guidance, NHS Model Specifications and in relation to performance and safety standards, with the appropriate HTMs, taking due cognisance of Scottish Law interpretations.
- 8.2.2 Furthermore, where precedence of European standards apply, compliance with such standards shall be expected and any reference to British Standards shall

include any amendments/additions superseding those referred to in this document.

8.3 **Materials**

- 8.3.1 Project Co shall ensure that the whole quantity of each material used is of a consistent kind, size, quality and overall appearance and reasonably fit for its intended purpose.
- 8.3.2 Workmanship for all construction and component assemblies shall be consistent with Good Industry Practice and appropriate to the nature of the Works in every respect. Work is to be true to detail, and free from defects, marks, waves or flaws of any nature impairing strength, performance or appearance.
- 8.3.3 All selected materials shall be compatible with each other. The external materials shall be subject to the approval of the local Planning Authority as part of the planning approval process.
- 8.3.4 The Trust does not wish to list prohibited materials but Project Co must pay particular attention to the Building Research Establishment Digest's Good Practice Guide to the use of materials in construction.
- 8.3.5 Project Co is expected to comply with all HBNs and HTMs with respect to recommended materials and prohibited materials.
- 8.3.6 Project Co shall handle, store, prepare and use or fix products in accordance with all (if any) applicable manufacturers' written instructions or recommendations.
- 8.3.7 Environmental Considerations: The Trust is committed to best practice in terms of environmental management. Project Co shall not:
- (i) Use products associated with the destruction of tropical rainforest or threatened animal species;
 - (ii) Use products or manufacturing processes which cause the emission of pollutants, harmful radiation or ozone layer depleting chemicals as identified in the Montreal Protocol;
 - (iii) Use of noxious substances, especially DoE "RED LIST" and EC "LIST 1" substances without the written consent of the Trust.
- 8.3.8 Project Co shall certify at Practical Completion to the Trust that Project Co has exercised the standard of skill and care referred to in Clause 17.2 of the Project

Agreement to ensure that no such materials have been used in the Works, other than where specific written consent of the Trust is provided.

8.4 Works by Public and Statutory Bodies

8.4.1 Project Co shall allow for providing all necessary temporary works and services and all attendances required by such bodies.

8.4.2 Project Co shall be responsible for arranging, ordering, co-ordinating and supervising the whole of the Works (including works to be carried out by public and statutory bodies) in connection with the execution of the Construction Contract.

8.5 Safety

8.5.1 Project Co shall take all reasonable steps (having regard to Good Industry Practice) to ensure that the operation of any neighbouring occupied buildings is not unduly or unreasonably disrupted by the Works and that all necessary safety precautions are in place prior to and during construction.

8.5.2 In particular Project Co shall pay particular attention to pedestrian and vehicular safety, site security, the minimisation of noise in relation to occupied buildings and site fire safety. Project Co must segregate the Site from the remainder of the Facilities. Access for site construction traffic and deliveries will require to be separate from the access to the occupied buildings.

8.5.3 Project Co shall comply with the guidance contained in the Trust's Fire Safety Guidance for Contractors, which will be supplied to Project Co.

Building Design Principles

8.6 Introduction

8.6.1 Design will be central to the success of the Facilities, and designers shall work with the Trust to produce design solutions that are in accordance with the Trust's Construction Requirements.

8.7 Design Philosophy

8.7.1 Key overall design requirements for the Facilities include:

- (i) There shall be an obvious main entrance, and the entrance and subsequent waiting areas shall be light, spacious and welcoming;
- (ii) An atmosphere and environment throughout the Facilities that is predominantly domestic in nature and scale. The design shall reflect a

- calm, safe working environment and shall develop this through the considered selection of materials and colours;
- (iii) All areas to be accessible to wheelchair users and people with sensory impairment, including areas for use by staff;
 - (iv) Where appropriate, the special needs of patient groups likely to be using individual facilities within the Facilities shall be taken into account. These are detailed as appropriate for the individual facilities in Trust's Accommodation Requirements and Room Data Sheets.
 - (v) All patient areas shall have an outlook on to a landscaped area (where appropriate);
 - (vi) All patient and staff areas likely to be occupied continuously for more than 2 hours in any 24 hours shall have natural light;
 - (vii) Flexibility in design and operation;
 - (viii) The Facilities shall be designed with staff and building security in mind. The designers are advised to seek guidance from the Police Architectural Security Advisor;
 - (ix) The Facilities are to be designed such that maintenance procedures can be carried out practically, efficiently and effectively with minimum disruption to the operation of the Facilities and Trust's operational services within;
 - (x) Easy access shall be provided for ambulances, fire appliances and for hearses;
 - (xi) Safe and easy access, separate from the main entrance, shall be provided for goods, supplies, deliveries and for waste disposal.

and Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement ensure that the above design requirements are met.

8.7.2 Details on facility requirements and environmental standards are described in Trust's Accommodation Requirements and Room Data Sheets.

8.7.3 More detailed information on the Trust's minimum requirements for Architectural and Environmental standards relating to design and construction of the Facilities are set out at Trust's Accommodation Requirements and Room Data Sheets.

8.8 General Planning Principles

8.8.1 The designed disposition of rooms and other spaces shall be clear and coherent and reflect the critical and desired adjacencies stated within the Trust's Accommodation Requirements and Room Data Sheets.

8.9 Building Form

8.9.1 The building form, construction and scale of the Facilities shall be in keeping with both operational and patient requirements, with due consideration given to the following:

- (i) Constraints and requirements imposed by Planning Authority;
- (ii) Site topography;
- (iii) Site infrastructure needs including vehicular and pedestrian access;
- (iv) Internal activity relationships and nurse management requirements.

8.10 Access For All

8.10.1 Any areas within the Facilities or grounds, which are designed to be accessible, shall be designed so as to be accessible to all users including those with disabilities. Access to the Facilities and areas within the Facilities shall be designed to meet the requirements of Part II of the Building Standards (Scotland) Regulations 1990 and all subsequent amendments.

8.10.2 The design and access to the Facilities and areas within the Facilities shall comply with the relevant Legislation and with the "Disabled Access Guide" October 1993 edition published by Disability Scotland and subsequent issues.

8.10.3 Project Co shall ensure that the design fully complies with, and embraces the requirements of, the Disability Discrimination Act 1995. Project Co shall ensure that the design is fully sympathetic to the needs of people with disabilities including wheelchair users, frail people or those with limited mobility, and those who are visually or aurally impaired. Project Co shall ensure that the design is sensitive to the needs of children and of the frail and/or elderly.

8.11 Floor to Ceiling Heights

8.11.1 The floor to ceiling heights to be as required by the nature and use of the accommodation, provided that this shall not be less than 2.4m in any area. Principal patient spaces and other large rooms and major public communication spaces shall have a minimum floor to ceiling height of 2.7m irrespective of

location. Circulation spaces within departments to have a minimum floor to ceiling height of 2.4m. Certain special rooms may have to exceed 2.7m, but it shall be Project Co's responsibility to determine the actual height required. e.g. Physiotherapy Gym, X-Ray Room, etc.

8.11.2 Ceiling voids shall be capable of ensuring appropriate space for maintenance and must allow provision for future expansion of services having regard to the requirements of Good Industry Practice.

8.11.3 Design solutions may be proposed which do not require ceiling voids for services provision. If this is the case a dedicated space allowance shall be made for future services and ceilings shall be installed in a manner that will maintain flexibility of the spaces having regard to the requirements of Good Industry Practice.

8.11.4 Project Co shall must ensure that corridor widths between departments and within individual departments are suitable for the safe and unrestricted movement of people (including ambulant and recumbent patients), materials, equipment and services provisions. A minimum corridor width of 2.3m shall be required between departments and along main communications corridors.

8.12 **Acoustic Performance**

8.12.1 Acoustic requirements will vary in accordance with the designated uses of the various spaces. Project Co shall ensure that acoustic performance accords with the relevant HTMs, and shall provide the Trust with appropriate information with the Room Data Sheets.

8.12.2 Consideration shall be given to the sound insulation between adjacent spaces and the sound absorption of the ceiling. In particular, Project Co shall address the specific acoustic requirements of the clinical examination room to be used for audiology and it shall be Project Co's responsibility to ascertain and ensure that the acoustic environment and performance of this room meets the operational requirements.

8.12.3 Rooms will be tested to ensure compliance with appropriate standards of performance as determined by the relevant HBNS and HTMs.

8.13 **X-ray Radiation Protection and Other Requirements**

8.13.1 It shall be Project Co's responsibility to contact the local Radiation Protection Officer (RPA), Dr David Gentle, Health Physics, North Glasgow University

Hospitals NHS Trust, who will advise and confirm level of radiation protection required within the X-ray Room. Radiation upwards from ceiling mounted gantries also to be taken account of.

8.13.2 The extent of radiation protection is dependent on the geometry and the equipment layout of the room. Until such time as that has been quantified and agreed with the RPA, Project Co shall assume the following areas in a general radiographic x-ray room require protection:

- (i) walls up to a height of 2m (except external walls above ground floor level;
- (ii) doors;
- (iii) windows if they extend to less than 2m above ground floor level;
- (iv) a protective screen for the control area;

8.13.3 Protection equivalent to at least 1.8 mm of lead is required for these areas.

8.13.4 In addition to the lead protection, illuminated warning signs and notices will be required at each entrance, and emergency stop buttons will be required within the room as will an Earth Reference Terminal (ERT).

8.13.5 The equipment suppliers may also have their own requirements for air conditioning and electrical supply which shall be complied with (typically 3 phase 100 amp). It shall be Project Co's responsibility to ascertain all requirements.

8.14 **Storage and Distribution of Resources**

8.14.1 The Trust requires a design solution that embodies the principles of logical efficiency in the arrangements for the distribution and storage of the materials and resources necessary to support its core clinical activity.

8.14.2 Proposals shall also include a co-ordinated approach to the secure storage of waste categorised as general waste, clinical waste and soiled linen.

8.15 **External Works**

8.15.1 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the Facilities provide an external environment that will provide for the following:

- (i) Access and circulation for people and vehicles (incorporating disabled access)
- (ii) Parking for staff, public and service vehicles, both staff and public;

- (iii) Protection against noise and environmental pollution;
 - (iv) Imaginative use of planting and landscaping to provide an attractive environment for all users of the Facilities;
 - (v) Suitable means of shelter against adverse weather conditions at entrances;
 - (vi) Secured landscaped garden dedicated for the use of the in-patients;
 - (vii) Other aspects such as services areas, plant rooms, access for building maintenance, security and lighting, and any requirements laid down by the Local Authority (such as boundary tree planting) and Local Fire Department (such as emergency access) shall form a part of the Project Co's solution;
 - (viii) External lighting shall be designed not only to enhance the appearance of all external spaces, but also to facilitate their use after dark and to satisfy safety and security conditions.
- 8.15.2 The construction, materials and plant selections shall be environmentally appropriate.
- 8.15.3 Hard landscaping areas to be designed and constructed to last for the projected life span of the Facilities.
- 8.15.4 Shrub beds, trees and planted areas shall be self-maintaining or requiring low maintenance. Physically hazardous or poisonous plant species shall not be specified
- 8.15.5 Drainage of hard and soft landscaped areas to be designed to allow safe use of all grounds at all times.

Building Components

8.16 Doors

- 8.16.1 Automatic doors shall be provided at the main entrance to the Facilities.
- 8.16.2 Where possible, and where not contravening security requirements, fire separation doors shall be on electro-magnetic hold-open catches activated by the fire alarm, security and power failure systems.
- 8.16.3 All doors to all bedded areas shall be in width a minimum of one-and-a-half size openings, with double width doors in to the in-patient and out-patient areas.

8.16.4 The entrance doors to all areas unoccupied outwith normal working hours shall be capable of being locked off. All doors to stores and workshops, clinical and treatment rooms, preparation and utility rooms, offices and interview rooms shall have locks controlled in master suite arrangements to accord with operational requirements. All staff areas and staff rooms to be secured with key pad operated security locks.

8.17 **Windows and Glazing**

8.17.1 External windows and doors shall be double glazed.

8.17.2 Windows and roof lights above ground floor level shall be designed to be safely cleaned from inside the Facilities in accordance with Clauses 10.2, 10.3 and 10.4 of BS8213: Part 1: 1991.

8.17.3 All windows shall be designed and installed to prevent hazard to patients, staff or public. All windows to be fitted with limiting stays. Internal sill heights shall be such that residents can comfortably see out of any appropriate windows while seated.

8.17.4 All glazing accessible to residents shall be toughened or laminated.

8.18 **Roofs and Canopies**

8.18.1 Shall preferably be of a pitched design. The selection of materials and the design of roofs shall be appropriate to a building of the nature of the Facilities and shall relate well to the site context and surrounding buildings. Roofs shall be constructed and finished in materials appropriate to the protected life span of the Facilities and the materials specification and construction design shall have regard to the relevant requirements of Good Industry Practice with the objective of providing for low maintenance during the protected life span of the Facilities. A canopy shall be provided at the main entrance.

8.19 **Finishes, Interior and Exterior Design**

8.19.1 In addition to the general and special considerations consistent with good hospital design, designers and planners exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to see that the design will recognise:

- (i) the Trust's requirement for the Facilities to meet high standards of quality, efficiency, and cleanliness, the requirements of the staff for an attractive and pleasant environment in which to work;

- (ii) the need for internal and external finishes to meet the standards set out within the relevant HTMs, and HBNs and Building Standards. Finishes must be thoughtfully and imaginatively utilised to maximise aesthetic quality and ease and efficiency of maintenance in use;
 - (iii) the interior and exterior design must reflect an environment appropriate to a healthcare building of this type. It is envisaged that extensive consultation with user representatives shall be undertaken to ensure the finished building is responsive to the Trust's Construction Requirements, both operationally and aesthetically, as well as maintaining the clinical and corporate requirements of the Trust;
 - (iv) the Trust's requirement to ensure designs recognise environmental and ecological issues;
- 8.19.2 It is important to create individual identities to the main departments within the overall Facilities design. This will help patients identify and orientate themselves within the Facilities but will also help foster a sense of ownership among staff.
- 8.19.3 The selection of floor finishes shall be appropriate to the use of individual building areas. Soft floor coverings are to be fitted in all public areas with the exception of wet areas, e.g. Bathrooms, Kitchens etc., which shall have anti-slip vinyl flooring suitability welded and sealed.
- 8.19.4 Care shall be taken in the selection of the appropriate soft floor coverings. Primary and secondary barrier flooring shall be provided at all entrances to the unit. The soft floor coverings shall be impervious, stain resistant, anti-static and patterned, and meet the demands of frail, elderly residents.
- 8.19.5 Consideration shall be given to the use of hard flooring in areas that may be subject to frequent soiling e.g. dining rooms. Experience has shown that soft floor coverings in such areas, despite regular cleaning, rapidly become stained and have to be replaced frequently in order to maintain a cared-for appearance.

Civil And Structural Engineering Principles:

8.20 **General**

- 8.20.1 All structural and civil elements shall be designed in accordance with the current relevant British Standards and shall fully comply with the Building Regulations,

and all other Legislation. The requirements of NHSiS Firecode shall be incorporated in the design.

8.20.2 Any specific requirements of the Fire Service or Building Control Officer in applying current and applicable Legislation shall be met in full. The design shall comply with all EU Construction directives including those relating to Health and Safety. Full account shall be taken of the CDM Regulations.

8.20.3 All design shall be carried out in accordance with accepted good practice and to commonly regarded industry standards.

8.20.4 Drawings, calculations and specifications for civil and structural elements shall be provided for review during the course of construction. The specification for the works shall be produced in the NBS format amended as necessary.

8.21 **Materials**

8.21.1 Project Co referred to paragraph 8.3 Materials. Test certificates will be required for samples of all materials used.

8.22 **Loadings**

8.22.1 All loadings including dead, live and wind loads shall be in accordance with the relevant British Standards and Codes of Practice. Allowance shall be made for actual loads of plant items, suspended ceilings or special requirements and fixtures such as mechanical archive storage systems when these impose higher loads.

8.22.2 A general partition allowance of 1.0kN/m^2 shall be made. Where actual weights are in excess of this the higher value shall be taken.

8.22.3 The minimum allowable blanket services load shall be 0.25kN/m^2 . This loading shall be increased if actual services requirements dictate.

8.22.4 Additional allowance is required for local support for ceiling mounted suspension frames in physiotherapy areas and for ceiling mounted x-ray gantries in the X-ray room.

8.23 **Ground Conditions**

8.23.1 An initial outline ground investigation has been conducted on the site and details **were** included in the documentation issued by the Trust to Project Co. This information was provided for guidance only and no guarantee is or was given or implied as to its accuracy. Project Co shall fully satisfy itself as to the ground

conditions and all aspects including services. The Trust shall not be bound by the results of the test drilling carried out in 1997. Access to the site can be arranged by contacting the Trust's representative.

8.23.2 Project Co shall carry out a full site investigation prior to commencement of construction in order to ensure adequate information is available for the design and construction of the works.

8.23.3 Due allowance shall be made for any variations between the information obtained or available and the actual conditions encountered on site.

8.23.4 All works and costs thereof associated with any remedial action caused by adverse ground conditions shall be borne by Project Co.

8.24 **Design Life**

8.24.1 All civil and structural elements shall be designed to provide a minimum life expectancy of 50 years.

8.25 **Fire Resistance**

8.25.1 All civil and structural elements shall have a fire resistance in accordance with the Building Regulations and to meet the specific requirements of the Fire Service Officer and the Building Insurers.

8.25.2 Any externally applied fire protection shall be durable and in accordance with the design life of the members in question. All such surfaces shall be capable of decoration and compatible with any other materials with which they will be in contact.

8.26 **Foundations**

8.26.1 The foundations shall be designed and constructed having regard to the prevailing ground conditions and the superstructure above.

8.26.2 Due consideration shall be given to the interface with below ground services which will be fully protected as necessary. Penetrations shall be sealed to prevent the ingress of water or rodents.

8.26.3 Foundations shall be designed using the standard of skill and care referred to in Clause 17.2 of the Project Agreement with the objective of achieving overall stability of the structure and have sufficient strength to carry the applied loads from the superstructure above with a sufficient factor of safety and without any damage or visible distress.

- 8.26.4 Overall settlement shall not exceed 20 mm.
- 8.26.5 Differential settlement shall be limited to ensure no redistribution of load resulting in the over stressing of the structure or foundations. Settlement shall be restricted to ensure no visible distress is caused to the structure and that no damage is caused to internal finishes or services.
- 8.26.6 Building settlement shall not effect the continued operation or serviceability of the facility.
- 8.26.7 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the foundations shall be designed in a manner, which results in no maintenance requirements for the period of their design life.
- 8.26.8 Earthworks shall be carried out fully in accordance with the relevant British Standards and good working practice. "Geotextiles" may be used where necessary strictly in accordance with the manufacturer's instructions.
- 8.26.9 All earthwork movement forming part of the Works shall be carried out in a manner to ensure the continuing stability of the Site, surrounding buildings and infrastructure.
- 8.26.10 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that retaining walls, basement construction and lift pits shall be designed as water tight to ensure that moisture penetration does not occur. Any joints in concrete construction must be specified to achieve this. Where necessary appropriate drainage shall be provided.

8.27 **Superstructure**

- 8.27.1 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the superstructure shall be designed and constructed in order to achieve overall stability of the Facilities and to carry the applied loads with a sufficient factor of safety both during the temporary and permanent condition.
- 8.27.2 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that all design shall ensure the completed structure is suitably robust and durable in order to meet design lift criteria.

- 8.27.3 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that structure shall be fully integrated with building services and shall retain flexibility for future changes in services and service routes including provision for knock out areas adjacent to all columns.
- 8.27.4 Flat soffit construction is preferred for ease of services distribution and maximum flexibility.
- 8.27.5 All floors shall be in concrete to meet appropriate thermal and noise insulation criteria.
- 8.27.6 Suitable provision shall be made for movement in the structure to suit the materials used and construction methods adopted. Structural movement joints shall not be located through treatment and examination rooms, x-ray and imaging rooms, kitchen and food preparation areas, nor in any other room requiring a sterile environment or where there is a risk of biological or other environmental hazard.
- 8.27.7 All external walls and internal partitions shall have provision made for movement and suitable joint details specified.
- 8.27.8 Roof construction shall be fully weatherproof and designed for minimum maintenance. Suitable drainage shall be provided in order to avoid standing water and minimise maintenance.
- 8.28 **Below Ground Drainage**
- 8.28.1 A separate foul water and storm water drainage system shall be designed fully in accordance with Local Authority adoptable standards.
- 8.28.2 Prior written agreement shall be obtained in detail from the Local Authority for discharge to the public system including confirmation of the existing system capacity to accept the increased discharge and negotiation of any wayleaves required.
- 8.28.3 Where necessary, full and detailed surveys, inspections and appraisals of all existing systems shall be carried out including use of CCTV where required.
- 8.28.4 Provision shall be made for the diversion of any existing below ground drainage or other services which may be necessary.
- 8.28.5 Inspection chambers and maintenance access shall be provided as required.

8.28.6 Project Co shall insure that the local Water Authority and the local Planning Authority shall permit the planned methodology for surface water drainage.

8.28.7 Project Co shall ensure the efficacy and sound condition of any existing drainage which it is proposed to utilise.

8.29 Access Roads And Parking

8.29.1 Service roads, access roads and footpaths shall be designed to Local Authority adoptable standards and shall be capable of carrying the maximum axle loading permitted by the Department of Transport for normal road use. Particular attention to be paid to the construction and access for heavy vehicles e.g. clinical waste, mobile transfusion unit, delivery vehicles, cleansing vehicles etc.

8.29.2 Footpaths, turning areas, hard standings and car parking shall be designated to provide a durable and robust construction suitable for their purpose and fully in accordance with relevant British Standards, Department of Transport and Local Authority design guidance. Pedestrian safety on the site is an essential design factor. Footpaths and crossing points to be designed with safety in mind and well lit. Segregation of pedestrians from vehicular traffic shall be considered.

8.29.3 The number of car parking spaces provided shall be based on the requirements of the Planning Approval. This is partially based on the maximum number of staff in the development at peak times, taking into consideration increased numbers at the change-over of shifts. The provision of disabled spaces to be in accordance with the requirements of the Building Standards (Scotland) Regulations 1990. The minimum size of car parking spaces shall be 4.8 metres x 2.4 metres. Car parking areas shall be well lit. In addition, the requirements of the Local Planning Authority shall be met.

8.29.4 Clearly marked and direct access to appropriate areas of the buildings is required for cars and taxis for setting down and picking up residents. Clearly marked, direct access and, where appropriate, discrete access is required for ambulances and funeral hearses.

8.29.5 Service vehicle access is required to appropriate areas of the building, preferably separated from the public main entrance, for supplying and removing goods to and from the kitchen, laundry, plant rooms, waste holding areas, etc. A controlled,

separate, service yard would be beneficial. Routes for service traffic shall not conflict with safe, public, pedestrian access to the buildings.

8.29.6 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that materials specification shall be suitable for traffic loadings, frequency, ground conditions and vehicle movements. Air entrainment shall be used for all concrete surfaces.

8.29.7 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that drainage of sufficient capacity shall be provided to ensure that no permanent standing water occurs at the Site and minimum maintenance. Drainage shall be effected by gullies with heavy duty iron gratings or a proprietary system of channels. Selection of channel systems shall have regard for maintenance.

8.29.8 Petrol and oil interceptors shall be provided to storm water drainage systems as required by the Statutory Authorities.

8.29.9 All external areas shall be provided with a high standard of lighting, barriers, handrails and signage fully in accordance with the relevant British Standards.

8.29.10 All new access roads shall be linked to the existing hospital in an agreed manner.

8.29.11 Prior written agreement shall be obtained in detail from the Statutory Authorities for any road connections necessary to the public highway. This shall include layout and construction issues.

8.29.12 The design life and maintenance requirements for the chosen wearing surfaces of all hard standings shall be confirmed and agreed.

8.30 **Flexibility Of Design**

8.30.1 All Civil and Structural elements shall be designed to allow for so far as possible (having regard to Good Industry Practice) future changes. Car parking expansion space shall be a design consideration.

8.31 **Maintenance**

8.31.1 When construction elements are likely to require maintenance either periodic or regularly the need and frequency of such shall be advised together with the operational effect this is likely to have.

9. Technical Requirements – Engineering Services

9.1 Introduction

9.1.1 This section describes the minimum requirements that must be met in relation to the engineering services for the Facilities.

9.1.2 Project Co shall (in questions with the Trust) be responsible for the design, installation, testing, commissioning, operation and maintenance of the building services throughout the duration of the Construction Contract.

9.2 Operational Requirements

9.2.1 Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the design, specification and final installation shall be capable of meeting the needs of the Trust in every respect. Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the services installations shall allow all building services to operate:

- (i) efficiently and with continuity without interruption, disruption or nuisance caused by services failure or inadequate design.
- (ii) in a manner that is compliant with all relevant UK and European Laws and Legislation
- (iii) in a manner that is compliant with all HTMsSHTMs AND SHTNs dealing with engineering services, FireCode, and Fire Practice Notes.
- (iv) in a manner that is consistent with other relevant NHS publications, policies, guidance and codes including HTMs and SHTMs (other than engineering HTMs and SHTMs), HBNs, SHGNs and SHPNs.

9.2.2 Special consideration is required in order to ensure that the risk of patients, visitors or staff injuring themselves on exposed engineering installations is minimised (having regard to Good Industry Practice). Indication and control of most items shall be restricted to staff areas. Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that the surface temperatures shall not exceed 50° C. Sharp corners and projections on equipment shall be avoided, and Project Co shall exercise the standard of skill and care referred to in Clause 17.2 of the Project Agreement to ensure that a safe

domestic hot water temperature of 43° C is not exceeded except where specifically required.

Services' Design Principles

9.3 Heating

9.3.1 A low pressure hot water heating system with low surface temperature emitters is preferred throughout the Facilities. Consideration may be given to the use of alternative methods of heating but justification will be required on economic, operational and maintenance grounds before acceptance will be given.

9.3.2 The following considerations apply to the heating systems:

- (i) single heating circuits to be provided where the heated volume does not exceed 800m³;
- (ii) where more than one circuit is required in a ground floor only building, circuits shall correspond to the building orientation, i.e. south zone, north zone etc.;
- (iii) where the Facilities have more than one floor, circuits shall first be split by floor level and then by it's orientation as detailed above for the single floor building;
- (iv) no single heating zone shall be greater than 800m³;
- (v) circuits shall use a 3 port mixing valve, pumped secondary circuits with optimum start/stop using inside/outside temperatures and, after start up, be controlled on inside temperature.;
- (vi) where the boilerplant is used solely for heating and consists of only one circuit, the heating control shall be applied directly to the boilers removing the need for a 3 port mixing valve.
- (vii) where there is more than one heating circuit, a flow and return header shall be provided with 3 port mixing valves and secondary pumps for each circuit.
- (viii) weather compensation;
- (ix) all radiators to be fitted with Thermostatic Radiator Valves (TRV) fitted horizontally with remote sensors where the TRV is located inside a low surface temperature guard.
- (x) room thermostats;

- (xi) boiler sequence control;
- (xii) night setback control;
- (xiii) switch off secondary pumps in response to thermostat control, and ambient temperature sensors;

9.3.3 Boilerplant and DHW systems shall be controlled by the building EMS system approved by the Trust. The EMS system shall, as a minimum, control:

- (i) boilers start / stop
- (ii) all heating, DHW and boiler pumps;
- (iii) mixing and diverting valves;
- (iv) DHW control, start/stop;
- (v) all ventilation plant;
- (vi) hand off auto switches provided all plant;
- (vii) run and trip indication for all plant,

and monitor:

- (viii) boiler flow and return (immersion type sensors);
- (ix) outside air;
- (x) each heating circuit flow (immersion type sensors);
- (xi) building space temperature (minimum of 1 sensor to each heating circuit);
- (xii) DHW storage, flow and return located at least 3m from storage cylinder (immersion type sensors);
- (xiii) each cold water storage tank (immersion type sensors);
- (xiv) but do not include boiler make up tanks.

9.3.4 None of the above facilities shall compromise the operation of building fabric or plant frost protection controls.

9.3.5 Plant and equipment noise levels are important considerations where in-patients are concerned. Transmitted noise and vibration is not acceptable.

9.4 Ventilation

9.4.1 The Facilities shall be designed from the outset to maximise natural ventilation from windows to all areas particularly in-patient accommodation, offices, receptions and consulting rooms where the occupancy is almost continuous.

9.4.2 Mechanical ventilation shall only be used as a last resort and where used shall include a recuperator, speed control and must be controlled by the building EMS system. Mechanical extraction shall be kept to a minimum and only used in areas such as X ray, toilets, etc where natural ventilation may not be sufficient and must be controlled by the Building EMS system. Consideration to be given to variable speed controls and/or “soft starts” on fans and pumps.

9.4.3 The proposed ventilation system shall comply with the Building Regulation Technical Standards and with FireCode.

9.5 **Electrical Services: Power Installations**

9.5.1 The installation shall include wiring and fittings for general and special lighting, small power, heating and ventilation power control, nurse call and security systems, special equipment i.e. cooker, disposal unit, telephone and TV/radio systems at appropriate locations (having regard to Good Industry Practice).

9.5.2 In areas where earth leakage may constitute a danger consideration shall be given to the use of Residual Current Circuit Devices as a secondary means of protection.

9.5.3 The installation shall comply with the current fully amended edition of the regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers.

9.5.4 Local switch gear and distribution boards shall be sited at appropriate locations (having regard to Good Industry Practice) to minimise the length of circuit wiring. They shall be in well ventilated positions, sited for ease of access and safety during maintenance and repair operations in designated, lockable enclosures only accessible to authorised maintenance engineers. These areas shall be identified as maintenance areas fitted with suitable locks and doors with approved European signage.

9.5.5 Shaver sockets shall comply as a minimum with BS4573. However, when considering supplying this facility within areas where extra isolation/protection is required (e.g. Bathrooms) compliance shall be to BS3535 BRT1.

9.5.6 T.V. aerial sockets shall be provided in all bedrooms, sitting rooms and dining areas. The UHF video signals required for each television set shall be derived from a common aerial installation. Signal boosting amplifiers and attenuators shall

also be given careful consideration to ensure adequate signal strength and balance at each aerial outlet.

9.6 Lighting

- 9.6.1 The Facilities shall be designed to include natural light from windows to all areas, particularly receptions, offices, bedrooms, dayrooms, and consulting rooms, where occupancy is almost continuous.
- 9.6.2 Lighting shall be provided in a manner that enhances the quality of the accommodation contributing to a relaxed and domestic character, thus avoiding an institutional atmosphere. Where appropriate lighting of a domestic character shall be installed.
- 9.6.3 The design shall be compatible with the Chartered Institution of Building Services Engineers' Lighting Guide, "Hospitals and Health Care Buildings".
- 9.6.4 The lighting installation shall be designed for economy in running and maintenance costs. Lighting levels shall not exceed current Building Standards for all internal and external requirements.
- 9.6.5 In the event of power supply loss to lighting circuits the Emergency Lighting System shall provide minimum lighting levels as recommended in BS5266 and within the Room Technical data Sheets. The guidance given in the HTM covering Emergency Electrical Services shall be followed.
- 9.6.6 The following requirements relate to the switching of lights in offices, reception and waiting areas, consulting and treatment rooms:
- (i) Up to a maximum of 3 fittings per switch where the combined wattage does not exceed 210 W.
 - (ii) Where there is more than 3 fittings or the combined wattage is greater than 210W, one switch shall be provided for every two fittings.
 - (iii) Switches to be positioned relevant to the lights they control and not centralised.
- 9.6.7 The following requirements relate to the switching of lights in corridors:
- (i) Up to a maximum of 5 fittings per switch where the combined wattage does not exceed 210W.

- (ii) Where there are more than 5 fittings or the combined wattage exceeds 201W, install additional switches at the rate of up to 4 fittings per switch.
- (iii) Where more than one switch is required, the circuits are to be arranged such that every alternative light are on the same circuit.
- (iv) Where natural daylight exists, fittings in the daylight area must have separate switching.

9.6.8 Entrance areas to have lighting with separate switching not exceeding the limits set out for waiting areas above.

9.6.9 Control of external lighting to incorporate:

- (i) Where external light switches are provided, the switches shall be **yellow** in colour for ease of identification;
- (ii) Use solar time clocks for installation where there are more than 8 fittings or a minimum of 400W; and
- (iii) Use photocells for installation of less than 8 fittings or less than 400W.

9.7 **Emergency Electrical Services**

9.7.1 Emergency electrical services shall be provided the extent of which is contained within HTM11. In the case of standby/emergency lighting in addition to the HTM11 requires to comply with European Standard Directive. A stand-by generator shall provide total back-up in the event of a mains electricity failure.

9.8 **Security, Alarms and Call Systems**

9.8.1 A complete intruder detection system shall be provided throughout all areas unoccupied outwith the normal working day. This system shall comply with the NACOSS Code of Practice, BS 4737, Part 1 and with NACP11. All external doors shall incorporate door contacts with passive infra-red detection on all circulation routes. Monitoring of the system shall be to a remote monitoring location via digital communicator.

9.8.2 The main entrance shall have an electronically controlled door entry system covered by a CCTV camera linked to the main Nurses' Base in the in-patient accommodation to allow controlled entry outwith normal hours. CCTV monitors shall have good colour and high picture resolution.

- 9.8.3 A stand-alone infra-red, cylinder trigger, staff panic attack system shall be supplied to staff as a Group 3 item of equipment, as referred to in the equipment lists. This system will not require a services' infrastructure to support it.
- 9.8.4 Automatic fire detection is required in every patient room and corridor in accordance with BS 5839 and HTM82, with an analogue addressable control/indicator panel and shall be compatible for fully integrated Fire Alarm and Intruder Alarm/Panel System.
- 9.8.5 A nurse call system is to be provided. This system shall have the capacity to allow a nurse working alone in one sub-section to summon assistance from staff in any other areas. The nurse call system shall be designed so that the same may only be cancelled by a nurse, after entering the room. The patient nurse call system shall be voice activated in the In-patient Bedrooms.
- 9.8.6 All alarm systems (i.e. fire, nurse call, panic) shall be co-ordinated with the IT systems to provide an overall installation in which all systems are compatible with each other. All systems shall be supplied from dedicated circuits from the essential distribution board.

9.9 **Bedhead Services**

- 9.9.1 The bedhead services including patients' calling devices and handsets shall be designed in accordance with guidance given in SHTM 2015. The bedhead unit shall be capable of housing the nurse call provision, patient radio facilities, power sockets and bedhead controllable lighting. A proprietary trunking system to enclose the services with no exposed pipework shall be acceptable. The design of the bedhead services shall be aesthetically pleasing and ergonomically designed.

9.10 **Water**

- 9.10.1 The design and installation of the water supply systems shall be in accordance with West of Scotland Water byelaws.
- 9.10.2 Cold water storage must not exceed 24 hours' provision. The quantity of water per bed/day must satisfy statutory requirements including any bye-law compliance and, in the absence of statutory compliance, 230 litres/bed/day shall be allowed when calculating cold water storage requirements.
- 9.10.3 Drinking water outlets shall be provided in treatment rooms, preparation rooms, servery / pantry, in-patient day / dining patient areas and out-patient waiting areas.

Supplies shall be taken direct from the mains or from a potable water storage system.

9.10.4 The cold water storage and distribution system shall be insulated to enable the temperature to be held below 20°C. Domestic hot water storage sufficient for 45 litres/bed/day shall be provided and it shall be stored, distributed and delivered consistent with the Approved Code of Practice and Guidance relating to Legionnaires Disease: The Control of Legionella – Bacteria in Water Systems (L8).

9.10.5 Care shall be taken to ensure that the water pressure and pipe sizing on both hot and cold supplies is sufficient to overcome the resistance of thermostatic control valves to ensure adequate flow rates at the point of supply.

9.10.6 Minimum required flow rates and pressures for specialist baths and the like shall be obtained from the manufacturer.

9.10.7 Thermostatic control valves complying with the requirements of DO8 shall be fitted to all domestic hot water outlets, except in areas where there is a requirement for hot water in excess of 43°C.

9.10.8 Manufacturers' guidelines and recommendations shall be followed in relation to materials, flow rates, dynamic and static pressure ranges. Manufacturers shall be consulted to ensure the pressure parameters available will comply with acceptable operational tolerances.

9.11 **Medical Gases**

9.11.1 There is no requirement for piped oxygen and vacuum at the bedheads in the in-patient accommodation.

9.12 **Lightning Protection**

9.12.1 The need for lightning protection shall be assessed in accordance with BS 6651. Where found to be required a lightning protection system shall be installed which fully complies with BS 6651 and is connected to the electrical system earth. Suitable transient over-voltage protection shall be provided to protect mains power, data, communications, CCTV, and UPS systems where required.

9.12.2 The protection system shall be specialist designed and installed, and shall be unobtrusive in appearance as far as possible and incorporate air terminations, down conductors, links and earth terminations.

9.13 Information Technology Structured Cabling

9.13.1 Project Co shall provide structured cabling throughout the Facilities to accommodate the voice and data services requirements of the Trust. The Trust shall be responsible for the supply, installation, support, maintenance, insurance and replacement of all IT equipment within the Facilities, unless otherwise agreed prior to contract signature.

9.13.2 The cleaning of local VDUs, keypads, and printers shall be the responsibility of the user of the equipment.

9.14 Plant Areas and Access to Services

9.14.1 All Services' Plant, including local distribution boards, etc., shall be located within secure, lockable, plant rooms and other appropriate enclosures, separated and independent of any patient and non-maintenance staff area.

9.14.2 Access to services contained within roof voids shall be by way of secure, controlled, lockable access routes separated and independent of any patient area.

9.15 Metering, Monitoring and Targeting

9.15.1 As a minimum all utilities shall be metered. All meters shall be located beside the main switchboard, preferably in the boilerhouse.

9.15.2 Project Co shall be responsible for implementing regular monitoring and reporting procedures. The installation of sub-metering is essential and must be introduced to obtain accurate departmental costing information.

9.15.3 The Trust believes that the feedback of information on consumption levels is essential to ensure that any adverse variances are recognised and a course of remedial action initiated.

9.15.4 Building Energy Management systems shall be provided.

10. Information Technology Requirements

10.1 Objectives and Scope

10.1.1 The Trust recognises the national IM&T Strategy for the NHS in Scotland. The Trust shares a common infrastructure with Lanarkshire Health Board and the Lanarkshire Acute NHS Trust. This network and the Trust's IT support services in general are currently provided by the Trust IT Department. Any changes, additions or developments to the Trust's infrastructure must fit with existing

standards and be compatible with the Trust's existing IT infrastructure. These standards are currently co-ordinated through the Trust IT Department.

10.1.2 The following parts of this section set out minimum standards for the Facilities' IT and telecommunications infrastructure. They are not exhaustive and Project Co shall confirm requirements with the Lanarkshire NHS IT Agency prior to commissioning. Meeting these standards shall be the responsibility of the chosen Service Company as shall be the need to provide the latest upgrades on the infrastructure throughout the life of the Facilities, with a technical review and decision taking place every four years. The chosen supplier will be required to demonstrate that the implementation is carried out in accordance with IEEE/ISO Standards in relation to data and voice networks. The rest of this section falls under the following headings:

- (i) IT infrastructure;
- (ii) Facilities management;
- (iii) Disaster recovery;
- (iv) Tele-medicine and videoconferencing;
- (v) Equipment.
- (vi) Telecommunications requirements and specifications are covered in Section 11 below.

10.2 IT Infrastructure

10.2.1 Project Co shall provide centralised IT & Telecommunication rooms that shall act as the hub for all internal communications wiring and the interface point for external systems and networks. The communications rooms shall also have the capacity to house both telecommunications and IT systems equipment, together with other network nodes in the Facilities. The equipment within the communication room to have power supply protection through the use of uninterruptible power supplies (UPSs).

10.2.2 To this end emergency generators shall be installed to provide a back up power supply to communication rooms and other IT/emergency call equipment throughout the Facilities e.g. at nurse stations and clinical work areas.

10.2.3 The emergency power system shall be capable of supplying power down to sub-circuit level so that no IT equipment or emergency nurse call equipment is left

- without power for a period of more than 2 hours. Moreover the electricity supply to all IT installations shall be 'smoothed' to offer the fullest protection from any external voltage variations.
- 10.2.4 The cabling infrastructure shall comply with the Commercial Building Wiring Standard E1A 567. There is a need to provide air conditioning in the central communication room. Such air conditioning shall be appropriate having regard to the equipment which will be located there.
- 10.2.5 The structured cabling and installation provided shall be a minimum of Category 5e unshielded twisted-pair (UTP) cable conforming to EIA / TIA 568A and be capable of supporting data transmission rates of up to 100Mbps/sec.
- 10.2.6 The Trust is aware that a new international standard of Category 6 cable is soon to be ratified. Project Co shall acknowledge this possibility and include appropriate costs within their proposals.
- 10.2.7 The structured cabling shall connect all outlet ports back to a patch panel/frame in the central communications room. All patch panels / frames should be housed in wiring cabinets of sufficient size to accommodate all cable terminations as well as all other communications equipment to be specified by the Trust IT Department. The outlets shall be of the RJ45 type or equivalent and approved and be capable of supporting services such as: telephone, patient monitoring, fax, PCs, nurse call, entertainment etc.
- 10.2.8 Outlet ports are required in all of the following areas:
- (i) At each bed within Clinical Area;
 - (ii) Clinical treatment areas;
 - (iii) Service / functional areas e.g. Serveries / Kitchens;
 - (iv) Administration areas (floor wired grid system);
 - (v) Staff work bases;
 - (vi) Clinical offices, consulting rooms; and
 - (vii) Meeting rooms
- 10.2.9 In addition to the CAT 5e structured cabling, co-axial cable suitable for carrying television signals shall be provided to patient areas including bedrooms, day rooms, quiet rooms, recreational rooms, meeting rooms, conference rooms, and on-call overnight stay.

10.2.10 The Facilities should be equipped with a switched data network. The details to be supplied by the Trust IT Department.

10.3 **Facilities Management**

10.3.1 Given the operational importance of the IT system for the Facilities, the cable infrastructure shall be fully tested and commissioned in accordance with the agreed commissioning procedure set out in the Project Agreement.

10.3.2 During this transfer period Project Co shall liaise with and co-ordinate with all the parties concerned in the movement and re-provision of hospital services. This shall include those in the Trust with responsibility for services, British Telecom (or their successors), the Trust in-house IT function and any other relevant parties.

10.3.3 During the post-commissioning phase it shall be the responsibility of Project Co to manage any changes or re-configuration to their communications infrastructure. For instance, a request to move outlets or provide extra outlets shall be managed by Project Co who shall have responsibility for co-ordinating all work on behalf of the Trust or its agents.

10.4 **Disaster Recovery**

10.4.1 The IT infrastructure provided by Project Co shall be failsafe and operate with a redundant back-up system for identified critical services, so that a single point of failure cannot disrupt the other functions.

10.4.2 The needs of all patients shall be taken into account and the described plans must reflect this.

11. **Telecommunications Requirements**

11.1 **Objectives and scope**

11.1.1 This section sets out the minimum requirements for the telecommunications infrastructure.

11.1.2 With regard to voice communications the Trust requires an efficient, high quality, telecommunications service provided to both its internal and external customers on a 24-hour basis.

System requirements

11.2 PABX System Requirements

- 11.2.1 The PABX system and other equipment shall be approved for installation and connection to the Public Switched Telephone Network (PSTN)
- 11.2.2 The system shall switch traffic between extensions, inter-PABX lines, and incoming and outgoing exchange lines. The system shall operate in a Direct Inward Dialling (DID) environment and shall be designed for mixed analogue and digital working on extensions, private trunks and exchange trunks.
- 11.2.3 The PABX equipment shall be digital, operated under stored program control and of a modular design.
- 11.2.4 Within the common control elements of the system, redundancy shall be provided such that there is no single point of failure that shall cause the complete system to stop working.
- 11.2.5 The system shall be capable of being extended to its maximum installed cabinet capacity, without reconfiguration of the software, by the addition of appropriate circuit boards.
- 11.2.6 The system shall be wired at the time of installation to provide spare capacity for expansion to the systems maximum size offered.
- 11.2.7 The equipment shall be wired to a Test Jack Frame (TJF) fitted adjacent to the equipment. The TJF shall provide a break and test point with high voltage surge protection as appropriate.

11.3 Interfacing

- 11.3.1 All analogue and digital interfaces shall be integral to the system.

11.4 Extensions

- 11.4.1 The system shall be fully compatible with any BAPT/BSI approved telephone instrument without requiring alteration to the instrument or the equipment.
- 11.4.2 Extension signalling shall be compatible with the UK standard DTMF.
- 11.4.3 The system shall be capable of supporting a fully hybrid mix of DTMF and digital extensions.

11.5 Performance

- 11.5.1 The grade of performance within the PABX shall not be worse than one lost call in one hundred (1 in 100).

11.6 PABX software

11.6.1 The software provided shall provide for the maximum capacity of the PABX system size proposed and shall be capable of operating in the networking environment.

11.6.2 The operating system shall offer maximum protection against failure and shall consolidate all data changes at least once every 24 hours. In the event of a total power failure, or other major failure, the processor shall, upon boot up, automatically reload the memory without loss of configuration or detriment to the system operation.

11.7 System Expansion

11.7.1 The system shall be equipped with suitable hardware and software to support common channel signalling over 2Mbit/s digital bearers and shall provide both DPNSS and DASS2 or equivalent (I 421) functionality.

11.8 Payphones

11.8.1 Payphone access for use by staff, patients and visitors shall be provided.

APPENDIX 1

Stonehouse Hospital Schedule of Accommodation

Ref No	Room	No	Area m ²	Department
A01/01	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/02	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/03	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/04	Single B/room with WC en suite	1	16	In Patient Accommodation
A01/05	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/06	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/07	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/08	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/09	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/10	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/11	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/12	Double B/room with WC en-suite	1	22	In Patient Accommodation
A01/13	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/14	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/15	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/16	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/17	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/18	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/19	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/20	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/21	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/22	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/23	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/24	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/25	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/26	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/27	Single B/room with WC en-suite	1	16	In Patient Accommodation

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Ref No	Room	No	Area m ²	Department
A01/28	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/29	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/30	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/31	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/32	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/33	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/34	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/35	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/36	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/37	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/38	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/39	Single B/room with WC en-suite	1	16	In Patient Accommodation
A01/40	Single B/room with WC en-suite	1	16	In Patient Accommodation
A02/01	Day/Dining room	1	50.3	In Patient Accommodation
A02/02	Day/Dining room	1	58.9	In Patient Accommodation
A02/03	Day/Dining room	1	18.3	In Patient Accommodation
A02/04	Day/Dining room	1	15.1	In Patient Accommodation
A02/05	Day/Dining room	1	30.3	In Patient Accommodation
A02/06	Day/Dining room	1	19.5	In Patient Accommodation
A03/01	Assisted Bathroom	1	14	In Patient Accommodation
A03/02	Assisted Bathroom	1	14	In Patient Accommodation
A04	Assisted Showers	1	10	In Patient Accommodation
A05/01	Assisted WC	1	5.5	In Patient Accommodation
A05/02	Assisted WC	1	5.5	In Patient Accommodation
A05/03	Assisted WC	1	5.5	In Patient Accommodation
A05/04	Assisted WC	1	5.5	In Patient Accommodation
A06	Snoezelen Room	1	12	In Patient Accommodation
A07	Ward Office	1	10	In Patient Accommodation
A08/01	Disposal/Sluice Room	1	12	In Patient Accommodation
A08/02	Disposal/Sluice Room	1	12	In Patient Accommodation

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Ref No	Room	No	Area m ²	Department
A09	Preparation Room	1	16	In Patient Accommodation
A10/01	Linen Store- clean	1	9	In Patient Accommodation
A10/02	Linen Store – dirty	1	5.6	In Patient Accommodation
A11	Nurse Station/reception	1	17.4	In Patient Accommodation
A12/01	Satellite Base	1	2.9	In Patient Accommodation
A12/02	Satellite Base	1	2.9	In Patient Accommodation
A13	Ward Pantry	1	16	In Patient Accommodation
A14	DSR	1	10	In Patient Accommodation
A15/01	Staff Toilet	1	5	In Patient Accommodation
A15/02	Staff Toilet	1	5	In Patient Accommodation
A16	Disposal Hold	1	8	In Patient Accommodation
A17	Hairdressers Room	1	8	In Patient Accommodation
A18	Store Room	1	21.2	In Patient Accommodation
A19	Re-charging Area	3	12.4	In Patient Accommodation
A20	Mattress Store	1	1.2	In Patient Accommodation
B01	Kitchen/Servery	1	45	Core Accommodation
B02	Over Night Accom/en-suite WC	1	16	Core Accommodation
B03	Personal Laundry	1	24	Core Accommodation
B04	DSR	1	6	Core Accommodation
B05	Reception	1	24	Core Accommodation
B06	Staff Dining room	1	21.1	Core Accommodation
B07	Staff Changing room-female/male	1	25	Core Accommodation
B08	Multi-purpose Room	1	24	Core Accommodation
B09	Office	1	10	Core Accommodation
B10	Medical Physics Room	1	8	Core Accommodation
B11	FM Storage	1	6.3	Core Accommodation
C01	Clinic waiting area	1	47.7	Out-patient Accommodation
C02/01	WC	1	3	Out-patient Accommodation
C02/02	WC	1	3	Out-patient Accommodation
C03	Disabled WC	1	4	Out-patient Accommodation

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Ref No	Room	No	Area m ²	Department
C04	Baby Feeding/Changing Room	1	4	Out-patient Accommodation
C05	OPD office	1	10	Out-patient Accommodation
C06/01	Clinical/Examination Rooms	1	15.5	Out-patient Accommodation
C06/02	Clinical/Examination Rooms	1	15.5	Out-patient Accommodation
C06/03	Clinical/Examination Rooms	1	14.5	Out-patient Accommodation
C06/04	Clinical/Examination Rooms	1	14.5	Out-patient Accommodation
C06/05	Clinical/Examination Rooms	1	15.5	Out-patient Accommodation
C07	Clinical/Examination Rooms –Audio	1	14	Out-patient Accommodation
C08	Clinical/Examination Rooms – Optical	1	18	Out-patient Accommodation
	Store Cupboard	1	0.8	Out-patient Accommodation
C09	Interview Room	1	8.5	Out-patient Accommodation
C10	Treatment Room	1	20	Out-patient Accommodation
C11/01	Physiotherapy Cubical	1	10	Out-patient Accommodation
C11/02	Physiotherapy Cubical	1	10	Out-patient Accommodation
	Common Physiotherapy area	1	2.8	Out-patient Accommodation
C11/03	Physiotherapy Cubical	1	10	Out-patient Accommodation
C12	Physiotherapy Exercise Area/Gym	1	42	Out-patient Accommodation
C13	Physiotherapy Consulting Room	1	14	Out-patient Accommodation
C14	Physiotherapy Store	1	14	Out-patient Accommodation
C15	Patient Shower	1	6	Out-patient Accommodation
C16	Nurses Station	1	4.9	Out-patient Accommodation
C17	Office for Clinical Staff	1	16	Out-patient Accommodation
C18	General X ray Room/Viewing Room	1	45	Out-patient Accommodation
C19	Records Storage (20,000)	1	12	Out-patient Accommodation
C20/01	Changing Areas	1	4	Out-patient Accommodation
C20/02	Changing Areas	1	1.5	Out-patient Accommodation
C20/03	Changing Areas	1	1.5	Out-patient Accommodation
C20/04	Changing Areas	1	1.5	Out-patient Accommodation
C20/05	Changing Areas	1	1.5	Out-patient Accommodation
C20/06	Changing Areas	1	3.5	Out-patient Accommodation

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Ref No	Room	No	Area m ²	Department
C21	Ultra Sound Examination Room	1	20	Out-patient Accommodation
C22/01	Patient WC	1	2.5	Out-patient Accommodation
C22/02	Patient WC	1	4.8	Out-patient Accommodation
C23	OPD Treatment Room	1	11.5	Out-patient Accommodation
C24	Test Room	1	5.7	Out-patient Accommodation
C25	DSR	1	6	Out-patient Accommodation
C26	disposal Hold	1	3.4	Out-patient Accommodation
C27	General Equipment Store	1	13	Out-patient Accommodation
C28	Store	1	6.6	Out-patient Accommodation
C29	Patient WC	1	2.9	Out-patient Accommodation
C30	Staff Toilet	1	3	Out-patient Accommodation
C31	Occupational Therapy	1	10.5	Out-patient Accommodation
D01	Plant room	1	30	Plant Accommodation
D02	Office for Clinical Staff	1	11.7	Plant Accommodation
D03	medical Gases	1	4.8	Plant Accommodation
D04	IT Room	1	4.8	Plant Accommodation