ENERGY STATEMENT REPORT

FRANKHAM

QUEEN MARY'S HOSPITAL FROGNAL AVENUE, SIDCUP KENT, DA14 6LT

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DOCUMENT VERIFICATION

ENERGY STATEMENT REPORT

ON: **QUEEN MARYS HOSPITAL**

FOR: **OXLEAS NHS FOUNDATION TRUST**

FRANKHAM PROJECT NO.: **522380**

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1.0 SITE DESCRIPTION

Queen Mary's Hospital is an acute district general hospital serving the London Borough of Bexley, initially opened in 1917 to provide essential care to wounded soldiers during the First World War, before being reopened as a general hospital in 1930. The hospital was transferred to Oxleas NHS Foundation Trust on the 1st of October 2013.

The project involves the remodelling and refurbishment of a chosen brownfield healthcare facility on site. As increased reliance is placed upon new imaging and diagnostic facilities within healthcare services, Oxleas NHS Foundation Trust have allocated this area as a proposed Community Diagnostic Centre (CDC, hereafter). The newly refurbished CDC area shall be set within an existing and extended single storey section of the main building (Block A, see Figure 1), and shall comprise new CT scan, Xray and MRI facilities along with new reception, patient waiting, staff and ancillary support areas.

The proposed project area is highlighted in Figure 1 below.

Figure.1 Location Plan

2.0 STRATEGY OVERVIEW

The current strategy for the CDC extension is to use the existing energy centre and district heating system, the system is currently feed via gas boilers supplement by an onsite incinerator.

Current systems will be re-used and re-purposed to feed the heating and hot water services in the new refurbished area and extension.

3.0 BUILDING STRUCTURE U-VALUES (NON-DOMESTIC)

Pitched roofs (rafter level):	0.18 W/m^2 x °K
Pitched roofs (ceiling level):	0.16 W/m^2 x °K
Flat roofs:	0.18 W/m^2 x °K
Walls:	0.26 W/m^2 x °K
Floors:	0.18 W/m^2 x °K
Window, roof lights, curtain walling:	1.6 W/m^2 x °K

4.0 VENTILATION

The All-Air Air Handling Unit system will provide constant discharge temperatures throughout the year, the basis of design is determined by the requirements of the NHS building standards, in particular Health Technical Memorandum (HTM) 03 Specialised Ventilation for healthcare buildings.

We will be meeting the requirements of Part F and Part L of the Building regulations to keep electrical power requirements to a practical minimum.

The AHU will consist of duct mounted attenuators, thermal wheel, filters, LTHW Fog coil, LTHW heating coil, and supply/extract fans (with duty/standby motors) within the AHU. Heat will be reclaimed using a thermal wheel.

5.0 AIR PERMEABILITY

The design stage assessments have been set to 8m^3 /hm^2.

6.0 HEATING

Un-vented, Low Temperature Hot Water (LTHW) heating installation will be provided by re-utilizing the existing LTHW flow and return connections and connecting them to a new LTHW pipework distribution system for the demise.

The LTHW system will be arranged for fully automatic control on an unattended basis.

The heating capacity from the existing energy centre will be utilised to allow for a single point of use, rather than a fragmented design, in doing so this will make the whole hospital system more efficient by using spare capacity in current plant rather than designing in additional capacity.

LTHW flow and return pipework shall be, as minimum, capable of offsetting all fabric heat losses, infiltration due to air leakage and ventilation losses within the building.

The LTHW heating system will consist of a primary flow and return heating circuit supplying LTHW to a low loss header, which will in turn feed LTHW to the following variable temperature (VT) and constant temperature (CT) pumped secondary heating circuits:

- VT secondary circuit to serve LTHW radiators.
- CT secondary circuit to serve the AHU's fog and heating coils.

7.0 HEATING CONTROLS

Local wall / TRV sensors throughout the system to provide individual room and zonal control.

8.0 LOW-ENERGY LIGHTING

New LED lighting and emergency lighting will be provided throughout the new CDC area. Illumination levels will be in accordance with the CIBSE SLL lighting guides and HTM Regulations.

Within waiting areas, receptions areas, administrative offices, and control rooms the lighting will be provided with glare control as the recommendations of CIBSE LG7. Luminaires have been selected in compliance with the requirements of HTM Guidelines and Client advised preferred manufacturers.

The illuminance levels are noted on the room data sheets and will generally be in accordance with the CIBSE Lighting Guides and HTM Guidelines unless otherwise stated.

Average luminous efficacy for the extension is 109.8 lm/w. This results in 5.00W/m^2 across the scheme.

9.0 COOLING

Cooling will be provided to the project spaces via the ail-air AHU that sill supply conditioned air through dedicated ductwork and supply control air diffusers installed within and on the suspended ceiling level respectively. The system will be designed following the guidance set out by the requirements of the NHS building standards in particular Health Technical Memorandums.

The chillers have high energy efficiency while maintain its operational conditions uninterrupted at a temperature range from +20°C and up to 46°C. The units are capable to operate under the -20’C and are also equipped with an additional water exchanger to protect them from frost, while being shielded with anti-corrosion protection.

The units are integrated with heat pumps utilizing low GWP R32 refrigerant (GWP=675 & ODP=0) and achieving a cooling efficiency of 2.87, complying with EN14511-3:2022.