

Project Ref – HEN-2399
PROJECT NAME – Brough Park Leisure Centre

27/03/2024

Mechanical & Electrical Services – Sustainability Statement

Sustainability has been considered at all stages of the project development, with the existing building refurbishment and the extension proposals designed, where practicable to have centralised plant. This is to ensure that all efficiencies related to equipment upgrades are shared across both existing and new works. Efforts have been made to ensure that the new works will meet the Council's policies for Sustainable Development SD1, SD2 and SD3. These are summarised below;

SD1 Sustainable Use of Resources

- The proposals have been designed to retain and reuse many areas and structures of the existing leisure centre; minimising the demolition works and therefore waste generated.
- Existing pipework and ductwork, where validated to be in a good condition within the existing building and in sensible routes are to be retained. With these services will be flushed or cleaned, as applicable, in order to provide warranties.

SD2 Renewable/Low-carbon Energy Sources

- Around 200m² of PV panels are planned for renewable energy production, providing around 40kW
- Based on Option B – ASHP's as the primary source of heating, this system will make use of new high efficiency Air Source Heat Pumps to provide heating and hot water to the new and existing areas.

SD3 Sustainability Measures in Development (carbon and/or water saving)

- New areas of construction to meet higher thermal standards than the existing; in line with current Part L.
- All new windows to be double glazed.
- New parking to provide an opportunity for electric vehicle charging points, in line with Part S.
- All water use will be metered to main systems and these systems have been designed in line with flow restrictions, where possible, to ensure correct operation of equipment while attempting to minimise water wastage, where practicable.
- All pumps within the heating system are proposed to be inverter driven and modulate based on demand.
- Within the domestic hot water system we are making use of plate heat exchangers to ensure a large instantaneous load is available, allowing us to limit the amount of hot water storage and thus reducing the associated losses from large storage. The use of high efficiency insulation will be used on the proposed new hot water storage to minimise losses, where storage cannot be avoided.
- At present there are 2 options being investigated for the primary source of heating,
 - Option A – Existing Gas fired boilers will be replaced and upgraded to high efficiency condensing gas fired boiler (this is intended approach only if an additional funding application is not successful)
 - Option B - The preferred approach for this scheme is to install 2 No. ASHP's that will operate in conjunction to meet heating and hot water requirements (Due to funding constraints on the scheme, this option is only possible with additional funding. Currently in negotiation.)
- All new and replacement ventilation air handling units will be provided with variable speed drives to allow accurate commissioning and minimise energy usage.
- These air handling units will also be provided with plate heat exchanger or thermal wheel heat recovery, as applicable, to improve the efficiency of these systems and minimise heat rejection back to the atmosphere.
- A new central building management system is proposed to monitor the requirements of the building and continually adapt the operational of the central plant to meet the requirements of the building in the most efficient operation possible. This system will also record operational data to allow for regular modification of the software to ensure the most efficient strategy of operation.

- Where practical the use of intelligent energy meters shall be installed, monitoring energy consumption based upon designated area type and particular end use, to ensure benchmark energy consumption figures and manufacturer information on energy consumption is not exceeded. Monitoring usage figures will ensure equipment is being used efficiently and not running beyond its recommended service life.
- Efficient LED technology luminaires, selected with high efficacy values in-line with current building regulations, complete with daylight sensing, absence and presence detection will ensure optimum use of artificial lighting to achieve required illumination levels whilst keeping energy usage to a minimum.