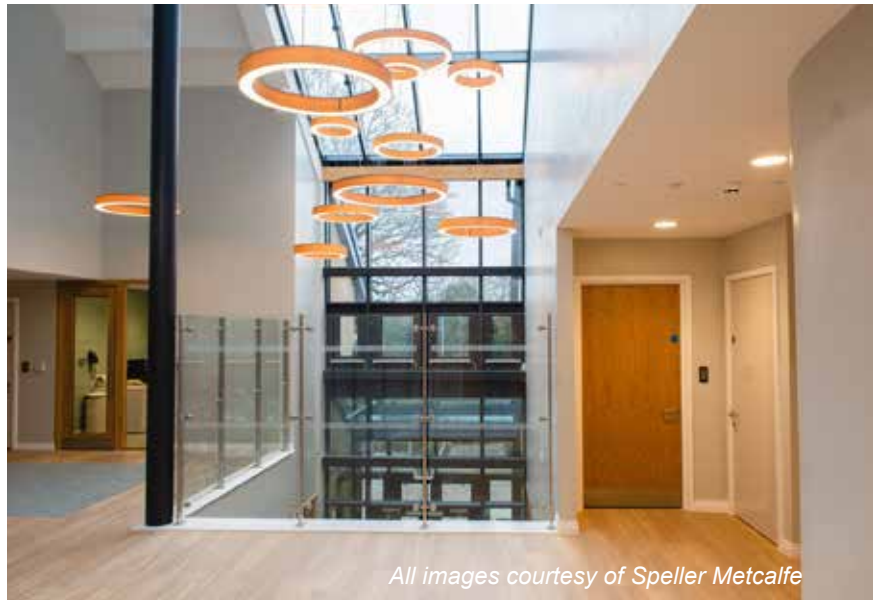


Tanworth Lane Dementia and Extra Care Facility



All images courtesy of Speller Metcalfe

Project name:

Tanworth Lane Dementia and Extra Care Facility

Location:

Shirley, West Midlands

Value:

£7.5M new build

Services:

Building Services (M&E)
Civil & Structural Engineering

The Brief

Commissioned by Solihull Metropolitan Borough Council, and working with their internal architectural team, ONE's brief was centred around delivering a highly sustainable and efficient A rated 2-storey 60 bed care facility that would act as an exemplar building for the council in supporting people living with dementia.

Project Overview

ONE Creative Environments Ltd. (ONE) provided full engineering capabilities for this award-winning project including mechanical, electrical, civil and structural services for RIBA work stages 2 to 4 for the concept, detailed design (Tender Design) and construction stage monitoring duties.

Opened in 2019, the new-build care home in Shirley replaced an existing facility in the borough and provides the highest level of care to residents to allow them to live as independently as possible, regardless of their age or condition. The home provides 60 apartments, bistro/café, central seating area, multi-purpose room, laundry and administration offices.

With the client strongly focused on quality of care, sustainability and long-term investment to ensure an energy efficient building was delivered, ONE's Mechanical & Electrical (M&E) team played a key role in the application of sustainable features with long term benefits in terms of cost and performance for both the owner and occupiers and, as required the project was successfully delivered to BIM Level 2.



The team incorporated guidance within the EPBD (Energy Performance of Buildings Directive) and NZEB (Nearly Zero Energy Buildings). Specifically, after a “fabric first” approach to the building with air permeability, other elements included a full roof of integrated solar photovoltaics generating up to 147kW/hr of electricity, reversible ground source heat pumps (GSHP) for both heating and active cooling applications with desuperheaters for hot water generation (approximately 215,000 kWh per annum of heat). Ground loops in excess of 100m deep allowed for passive cooling by rejecting the buildings heat into the ground during ideal conditions. All opportunities to improve the building’s sustainability were considered including ridge mounted wind turbines, solar hot water generation, passive underfloor cooling and adaptive shading while research into the DSDC Stirling University guides for dementia friendly lighting resulted in the use of circadian rhythm low energy LED lighting to mimic natural daylight patterns internally.

The result achieved for the client was a highly efficient building. By offering technology that provided payback over its lifespan i.e. GSHP and Photovoltaics, the initial capital costs could be stretched. This has resulted in a sizable reduction in carbon emissions emanating from the built environment and a standard which has been set for future developments of this kind with the local authority. This project was awarded Healthcare Estates’ Sustainable Achievement 2019 award.

Full M & E services were provided by ONE which included tender evaluation, site inspection and handover duties. In detail, services include:

- Incoming statutory supplies.
- External site services incl. lighting and watering points.
- Electrical distribution and small power installation.
- Fire alarm and smoke control systems.
- ICT services.
- Access control & CCTV.
- Nurse call and accessible alarm.
- Lighting and emergency lighting.
- Lightning protection.
- Domestic piped services.
- Heating and cooling (Underfloor heating).
- Ventilation, including commercial kitchen extract.
- Communal heating system (Heat Interface Units).
- Ground Source heat pump and solar PV.

“One’s Mechanical and Electrical Engineering team delivered our vision for a long-term energy efficient building as well as providing expert advice relating to the requirements of the dementia care sector.”

Antonios Marinou, Architect, Solihull Metropolitan Borough Council



The Benefits

- **A highly efficient building** with an EPC rating of 17A and a reduction of 48.6 tonnes CO₂/annum with payback periods of 7 years. Solar photovoltaics provide up to 147kWp and ground source heat pump technology provide approximately 215,000 kWh per annum of heat generation. A high level of building control and automation will measure and optimise the ongoing energy efficiency of the building.
- **Expert advice and an exemplar for further development** – the client benefitted from ONE’s extensive M & E knowledge as well as their experience in the dementia care sector. Valuable advice on best practice and Stirling Guide requirements resulted in a building that will act as an exemplar for the authority and which can be replicated in the healthcare sector.
- **Building Information Modelling** – as part of ONE’s standard workflow and internal Quality Assurance systems, the project successfully met the client’s brief of delivering to BIM Level 2.



For further information
please contact:
One Creative Environments Ltd
T: 01905 362300 www.oneltd.com