



## Walthamstowe & Chingford Almshouse delivers low-cost heat with Minus7

With their youngest residents aged 55, good levels of consistent, affordable heating was a priority for Walthamstow and Chingford Almshouse Charity.

When they decided to demolish their existing 1950s building and start anew, there was a moment of opportunity to completely transform how heat was generated and delivered in

sheltered housing.

Using Minus7's award-winning renewable heating technology they have been rewarded with a low-cost, low-carbon secure supply of heat that is fit for the 21<sup>st</sup> century.

Providing six 1-bedroom apartments, one 2-bedroom apartment and a community room for retirees, Walthamstow and Chingford

Almshouse have enabled residents to retain their independence and live in their local community, whilst heavily reducing the landlord's heating bills and carbon footprint.

### **How does it work?**

As Minus7 tileplanks are more robust, durable and aesthetically pleasing than slate, whilst being similar in look and weight, they were chosen to provide the entire southern roof

finish – 85m<sup>2</sup> in total. As the building faced south, only 40m<sup>2</sup> of tileplanks were required to be activated as a solar endothermic collector capable of harvesting energy day and night down to temperatures of -7°C.

Flooded with a heat transfer fluid, the activated tileplank in combination with two of Minus7's Solar Energy Processors, two 4.6m<sup>3</sup> thermal stores and one 3m<sup>3</sup> thermal store, has created a powerful thermal energy source capable of delivering the high load space-heating requirements for the entire building.

Minus7's in-house design team sited both Solar Energy Processors and the thermal stores at the back of the building in a fenced off area.

The heat from the thermal stores reaches the building via insulated pipes that run under the paving and enter the building in the community room.

Here it is divided into 2 thermal ring circuits – one for the ground floor and one for the first floor.



The ground floor is comprised of two 1-bedroom apartments – each with floor area of 45m<sup>2</sup>, one 2-bedroom apartment with a floor area of 70m<sup>2</sup> and a communal area with a floor area of 25m<sup>2</sup>. The top floor consists of four 1-bedroom apartments – each with floor area of 45m<sup>2</sup>.

#### **Heat Transfer Units**

Heat Transfer Units (HTU) are fitted in kitchen cupboards in each apartment and the communal space. These HTUs extract heat from the thermal ring main and distribute it through the under-floor heating circuits. The HTU also provides pre-heat to the domestic hot water system, which is then topped up by an immersion heater

when it reaches their hot water cylinder.

With one disabled resident and four elderly tenants now in residence there is a high demand for heating and hot water. The system is fitted with remote monitoring.

#### **Cost**

The Minus7 system has demonstrated running costs of **just £1736 per year** using 15,120kWh of electricity to run the heat pump element of Minus7's hybrid system at 11.48p per unit.

For more information please contact [info@minus7.co.uk](mailto:info@minus7.co.uk)