

**Design note
08-Dec-2014**

I think it is prudent to outline initially that Great Ormond Street Hospital and the Great Ormond Street Children's Charity are separate entities and the district CHP system is owned by Great Ormond Street Hospital. The client team also includes University College London.

Connecting to the district CHP system of a third party was unacceptable to the Charity and client team due to the severe financial implications to the project of doing so and the risks it brought to the very viability of the scheme.

Before the above had been clarified with the Charity, we investigated connecting to the existing CHP network at an early stage of the project as, initially, this seemed like a reasonable approach that would, possibly, enable the existing central CHP to maximise its overall usage and base load but there were some fundamental issues that made this approach inappropriate.

Initially, it is important to note that the closest existing CHP district heat pipework is serving the Morgan Stanley Building located to the south of the proposed site, on Great Ormond Street. We investigated the possibility of extending the pipework from this location but unfortunately the pipework infrastructure serving this facility does not possess any spare capacity to serve our new development. This would make it necessary to extend pipework back to the energy centre to be able to obtain the necessary capacity. This pipework length would be in excess of 300m for flow and return pipework. This would lead to additional heat losses and additional pump pressure drop and thus additional energy usage.

CHP is generally efficient and cost effective when an annual run time of 5000+ hours is achieved, this means that the base load (usually in summer) should be maximised. As the domestic and process hot water heating load in the new building, which contributes to the CHP base load in Summer, is not particularly high in a research facility of this type, there is no major advantage to the existing system in extending the district system to serve our site. i.e. not a significant increase in base load or run time.

Following a detailed review it was decided that the installation was unattractive.

This coupled with the additional control requirements necessary on the existing installation, significant new pipework installation, concerns due to the presence of vaults under the street and the associated installation issues prompted the team to decide that the proposal was unfeasible.

To add to this it is also important to state that we have been informed that the Hospital currently has a master plan for their site which involves the extension of the district CHP to serve other buildings and there it is envisaged that there will be insufficient capacity to serve the CRRDC.

Within the planning application we stated that connecting to the existing system would hinder our CRRDC's ability to achieve compliance with local and national energy and carbon emission targets. This is due to the fact that, unfortunately, energy savings on another, separate building or site, are not considered within the new building's Part L model and thus additional renewable and LZC solutions would need to be incorporated within the CRRDC, attracting additional cost.

We have already maximised the site's ability to accommodate photovoltaic panels and have, in conjunction with the architectural team, selected an external façade that will mean that this building is the most efficient in the Charity's portfolio. We are also proposing a base load sized CHP for the scheme.

The measure outlined above have enabled us to not only achieve the energy targets identified within Part L but also to exceed the onerous targets set by local planning regulations.

Having said all of the above, we will be providing capped connections to the LTHW system, within the new building, that will enable the site to be connected to a district system at a future date, should there be a significant change to circumstances and it proves attractive to do so.



Design note
08-Dec-2014

I am more than happy to discuss in detail and if you have any queries please do not hesitate to contact me.

Kind regards
David Behan
Executive Mechanical Engineer