BuroHappold Engineering has worked closely with the University of Glasgow since 2012 to develop a replacement district energy scheme for the main Gilmorehill campus, with added future flexibility to be connected to adjacent developments in Glasgow. The key aim of the scheme was to replace the aging steam heating infrastructure with a modern system that will complement the wider city masterplan as it is implemented over the forthcoming years.

The work began with early pre-feasibility through to tender documentation, construction and commissioning, to ongoing secondary side system optimisation.

We initially worked closely with the university’s estates department to create a detailed feasibility study to guide our work. Significant analysis was given to assessing current and future building loads for a diverse building stock, both in terms of age and typology. Thought was given to change secondary side systems to improve the efficiency of the overall district heating system, such as reduce flow and return temperatures to benefit lower carbon technologies and reduce heat losses, and to increase the differential temperature across the network to reduce pump power and plant efficiency.

The new system that was finally designed and installed provides heating across the campus and electricity via a private HV network, giving it greater resilience and making a significant contribution to the university’s carbon management targets.

The final installation has seen the installation of a 3.5MWe gas fired CHP, a highly efficient low temperature hot water heating system and system allowance for transition to other technologies including water and air sourced heat pumps, so that both the university and additional will achieve required building regulations and planning compliance into the future.
Our experience of the district heating sector and stakeholder engagement has helped us identify wider opportunities for the university. The Sustainable Glasgow initiative has proposed a large scale heat network across the west end of the city, and through our discussions with Glasgow City Council we have opened up the possibility of linking into this larger scheme. Not only would this assist our client to maximise the efficiency of their campus and increase the commercial opportunity, but also to support wider carbon reduction aims for the city.

In the meantime, our knowledge of implementing similar strategies for other organisations in the UK has ensured we will provide our client with a district scheme that delivers the best value for money, carbon savings and long term flexibility.