

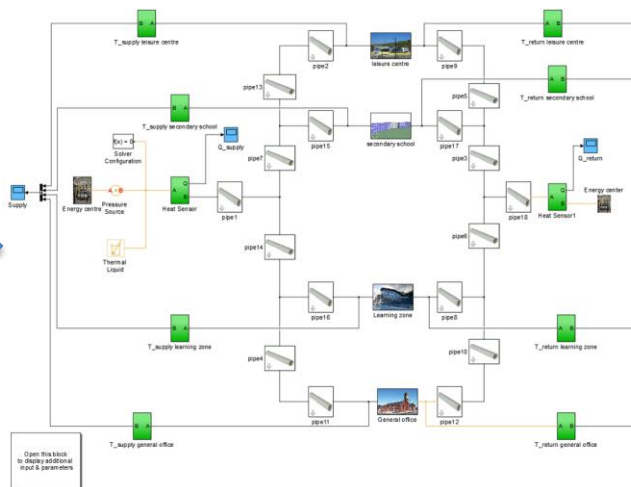
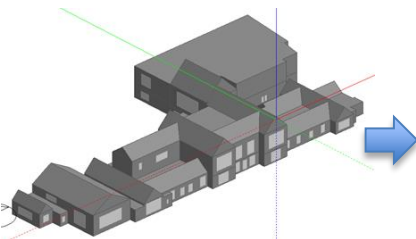
Key Facts and Research Gap

- Building sector is responsible for 40% of energy consumption in Europe (Grözinger, 2014)
- DHC is a good solution to present energy and environmental issues (Rezaie, 2011)
- DHC does not receive large-scale worldwide acceptance
- Optimization is the most effective way to improve the performance of DHC networks (Powell, 2013)

Research Questions

- What is DHC system? What is the next generation of DHC system?
- What is the dynamic variation of heat loss in DHC? How to improve the efficiency of the system?
- How to reduce carbon emission from DHC systems?
- How to integrate renewable and surplus energy into DHC?
- How to migrate existing DHC into smart DHC generation?

Building simulation



Optimization algorithms for smart control

Research Methodology

- Literature review
- Energy modeling
 - Building simulation
 - District level simulation
- Optimization based on algorithms

Research outputs

- Knowledge on 100% sustainable energy DHC system
- Smart DHC with intelligent control
- Optimization DHC towards the next generation