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Project: Heat Pumps Integrated with Thermal Energy Storage Systems
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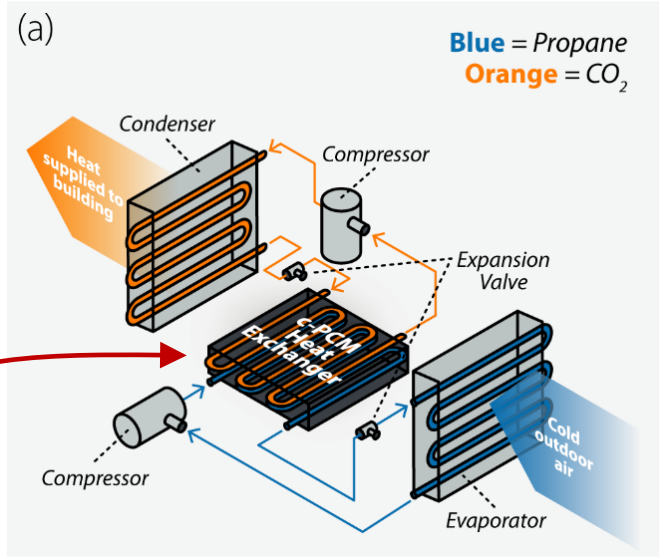
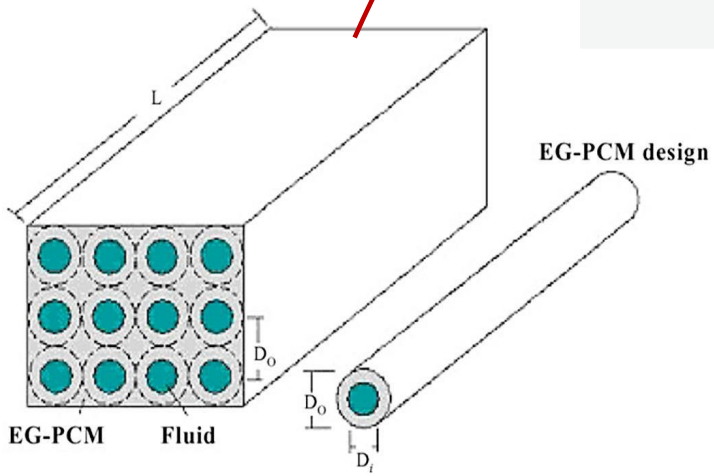
Background

- Our goal is to develop systems to reduce CO_2 emissions from buildings
- Heating systems operate continuously in buildings while electrical power generation is intermittent from most zero-carbon sources (such as solar and wind)
- We must store energy produced by these intermittent sources if we want to fully decarbonize building equipment. This will allow us to run all necessary equipment even when intermittent energy sources are not available

Project Goals

- Create a model of the thermal energy storage system and investigate how geometry and the thermophysical properties of the material influence system performance
- simulate the entire system (heat pump and energy storage components) and determine how it can best design and control the system





Morris et al., as cited in Crespo et al. (2019)