Western Cooling Efficiency Center Research Update

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Next Generation Heat Pump Testing

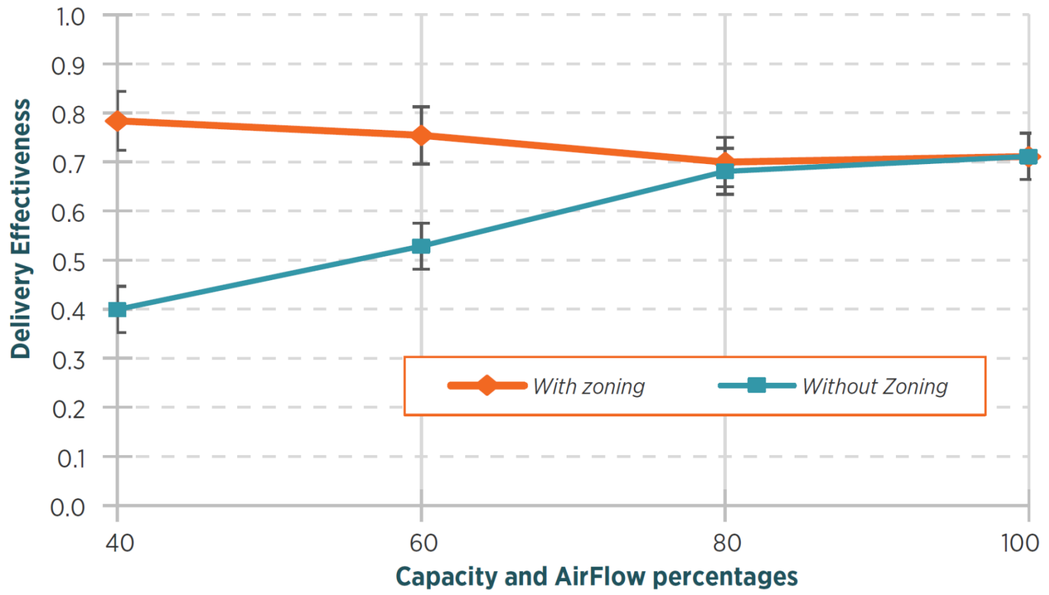
UC Davis Project for Electric Power Research Institute
Sponsored by California Energy Commission

Three-phase project
» Variable-speed, single-zone lab testing
» Variable-speed, multi-zone lab testing
» Field testing **(in process)**

UC Davis Objectives
» **Lab Testing of variable capacity equipment**
- Impact of R-6 duct system in unconditioned space
- Impact of zoning controls

» **Develop/test model of equipment and ducts**

System COP versus duct-zone temperature for different operating modes. Setting refers to capacity/airflow percentages



Low-Cost Shallow Bore Ground-Source Heat Pump

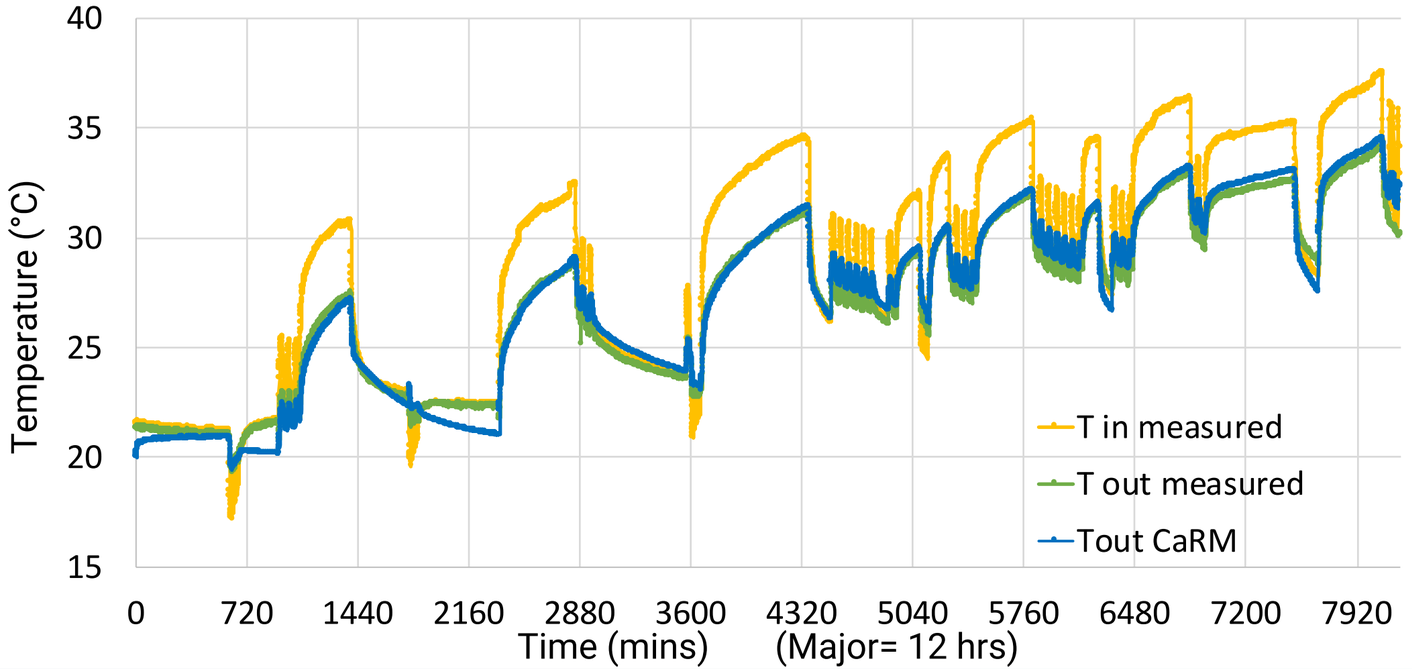
UC Davis (Prime), Frontier Energy, Whitebox
Sponsored by California Energy Commission

Overall Objective

- Develop tools to facilitate market acceptance of low-cost ground heat exchangers
  - HE design guidelines
  - Installation best practices
  - Modeling tools
- Facilitate market acceptance of GHEs
- Provide T24 compliance tools

Status

- Detailed models developed
- Lab testing this summer



Residential Retrofits

UC Davis (Prime), Electric Power Research Institute
Sponsored by California Energy Commission

Overall Objective

- Develop retrofit packages for existing homes
  - Cooling system replaced with SWEC
  - Aerosol envelope sealing
  - Whole house ventilation
- Measure performance
  - Energy use
  - Indoor air quality

Status

- Baseline data collected
- Aerosol envelope sealing completed in Fall 2018
- Ventilation system and SWEC install in Spring 2019