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
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

Aerosol Sealing Profile