OAK RIDGE NATIONAL LABORATORY FACT SHEET
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

ORNL's Unsurpassed Expertise with Geothermal Heat Pumps

If designed properly, GHPs save energy and cost less to maintain.

The small white box left of the porch is the only outdoor evidence of the new GHP system that provides heating, cooling, and hot water in this military family residence.

A growing number of federal agency sites are turning to geothermal heat pumps (GHPs, or ground-source heat pumps) to improve their facilities, reduce energy and maintenance costs, and meet energy goals. The Department of Defense alone has invested more than $400 million to install an estimated 21,000 GHP units in their facilities, the majority in military family housing.

Replacing conventional heating and cooling equipment with GHPs typically saves up to 25% of total building energy use in nonresidential buildings and up to 40% in residential buildings. GHPs can significantly reduce peak electrical demand as well. Low maintenance cost, owing to their simpler technology and indoor placement, is another important advantage of GHPs.

Engage ORNL to guarantee a successful GHP project

ORNL's unsurpassed expertise has helped many agencies develop and implement GHP projects that are delivering maximum value and long-term savings to their facilities. The ORNL GHP team provides authoritative, objective technical assistance at any level — from initial feasibility screenings, to ensuring that contractor-designed GHP systems are priced right and perform as expected.

ORNL provides the following kinds of technical assistance for GHP retrofits or new construction:

- Feasibility studies
- Life-cycle-cost studies
- Review of technical and price proposals
- Review of system design
- Interpretation of thermal properties tests
- Review of bore field sizing
- Baseline and energy savings estimates/calculations
- Review of pricing
- Development of building simulation models
- Development of measurement and verification plans

ORNL's timely independent design review and simulation modeling for residential GHP systems for Marine Corps Air Station Beaufort, South Carolina ("Fightertown") contributed to the success of the project.

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