

**Position Announcements within the
Building Environment Division
National Institute of Standards and Technology**

The Building and Fire Research Laboratory (BFRL) <http://www.bfrl.nist.gov/> within the National Institute of Standards (NIST) <http://www.nist.gov/> is recruiting staff in the following areas:

1. Fault Detection and Diagnostics for HVAC Systems

The candidate will conduct research leading to the development and demonstration of methods for performing automated fault detection and diagnostics (FDD) on a broad range of equipment and controls used for air-conditioning, heating, and refrigeration. This work supports the BFRL strategic priority in Measurement Science for Building Energy Technologies and will involve theoretical analysis, laboratory testing and field demonstrations. Experience in the development of simulation models is desirable.
<http://www.bfrl.nist.gov/863/HVAC/fault_detection.htm>

2. Simulation and Analysis of Building Mechanical Equipment and Controls

The candidate will perform computer simulations for building energy consumption, HVAC systems, and controls in support of the BFRL strategic priority in Measurement Science for Building Energy Technologies.
< <http://www.bfrl.nist.gov/863/bc.html>>

3. Information Modeling of Building Mechanical Equipment and Controls

The candidate will conduct research leading to the development of building information models (BIM) that enable the exchange of information concerning building equipment components and controls. This work supports the BFRL strategic priorities in Measurement Science for Building Energy Technologies and Measurement Science for Improving Construction Productivity.
<<http://cic.nist.gov/>> and <<http://www.bfrl.nist.gov/863/bc.html>>

4. Intelligent Agents for HVAC Control

The candidate will conduct research in applications for intelligent software agents that can “observe” the building system operation and environment, and respond through control actions in order to optimize the energy performance of central plant and building HVAC systems. This work supports the BFRL strategic priority in Measurement Science for Building Energy Technologies
<<http://www.bfrl.nist.gov/863/bc.html>>

5. Performance Characterization of Photovoltaic Panels

The candidate will investigate the performance of photovoltaic panels under a variety of conditions that aim to replicate those seen in outdoor operation and strive to develop improved methods of test. Research responsibilities include characterization of photovoltaic modules using an outdoor test facility and a state-of-the-art solar simulator and the evaluation of computer simulation tools used to

predict the performance of solar energy and other alternative energy systems.
<<http://www.bfrl.nist.gov/863/bipv/>>

6. **Building and Construction Information and Communication Systems**
The candidate will conduct research on the integration of building and construction information systems and on the development of test suites for validating interoperability specifications related to building and construction information systems. The candidate will also work with industry initiatives that are developing interoperability standards. <<http://cic.nist.gov>>
7. **Information Systems Integration**
The candidate will pursue advances in information modeling, data model integration, and alignment of data dictionaries relevant to building design, engineering and construction information systems, and geospatial information systems. Research responsibilities will include developing methods and metrics for defining and measuring data model congruency and for aligning ontologies relevant to building design, engineering and construction information and communication systems. <<http://cic.nist.gov>>
8. **Evaluation of Alternative Cooling and Heating HVAC&R Technologies**
The candidate will screen promising alternative cooling and heating HVAC&R technologies, develop testing methodologies to measure their performance characteristics, evaluate their performance merits in relation to competing technologies, and research technical issues to improve the energy efficiency. This position requires strong theoretical and laboratory skills.
< <http://www.bfrl.nist.gov/863/HVAC/>>
9. **Airflow and Contaminant Transport Modeling**
The candidate will participate in the development of advanced simulation models of multi-zone building airflow and contaminant dispersal. Research will address improved aerosol transport models, coupled airflow and thermal modeling, indoor chemistry and integration of computational fluid dynamics models into full-scale building models. <<http://www.bfrl.nist.gov/IAQanalysis/>>
10. **Indoor Contaminant Exposure**
The candidate will conduct experiments to characterize indoor contaminant concentrations for a range of indoor and outdoor sources in support of BFRL's strategic priority in Measurement Science for Building Energy Technologies. This work will be performed in laboratory facilities and various field locations. The research will focus initially on ultra-fine particles, gaseous air cleaner performance and combustion products, but is expected to expand into moisture and other contaminants of interest. <<http://www.bfrl.nist.gov/IAQanalysis/>>

The positions are in BFRL's Building Environment Division. NIST is interested in recent graduates with an M.S., Ph.D. degree or equivalent experience, as well as candidates with experience in research and/or practice. These areas will likely be filled at the ZP III (GS 11 and 12) level or ZP IV (GS 13 and 14) level.

These are excellent opportunities for individuals with strong technical credentials in academia or industry who want to consider public service and are interested in a challenging career in research. For those already in government service, this is an excellent opportunity to work in a premier federal science agency with top-notch scientific and engineering researchers. The NIST staff includes three Nobel laureates, a MacArthur Fellow winner, a National Medal of Science winner, an astronaut who has flown twice on the space shuttle as a mission specialist, and several members of the National Academies. NIST is integral to the American Competitiveness Initiative (ACI) announced by the President in February 2006. The ACI calls for a doubling of the inflation-adjusted budget for NIST's core laboratory and facilities programs over the next decade. BFRL is one of the Nation's primary federal laboratories serving the construction and building industries and has statutory responsibilities for fire prevention and control, earthquake hazards reduction, windstorm impact reduction, and building and fire safety investigations.

NIST will entertain applications until the positions are filled. While U.S. citizenship is required for permanent NIST positions, non-U.S. citizens employed by U.S. universities may be considered for assignments to NIST under the Intergovernmental Personnel Act (IPA).

Interested applicants should submit resumes with contact information and the area in which they are interested to Paula Svincek, email: paula.svincek@nist.gov telephone: 301-975-5851.

Employment Information

- **Salary and Bonuses**

Salary will be determined based on the qualifications and experience of the selected candidate. The 2007 annual salary for a ZP III position ranges from \$55,706 to \$88,565, and for a ZP IV position from \$79,397 to \$121,967. Salary limits are typically modified each year based on approved cost of living adjustments. NIST employees are also considered for performance-related pay increases and bonuses as part of the annual performance appraisal process.

- **Benefits**

Federal employees are offered a wide choice of health insurance plans, group life insurance, flexible spending accounts for dependent care and medical care, health savings accounts, long-term care insurance, and retirement plan (with a tax-deferred 401K savings plan). Detailed information on these benefit programs may be found at www.opm.gov. A child care center is available on the NIST campus.

- **Location**

NIST is located on a 578-acre campus about 25 miles from the center of Washington, D.C., in Gaithersburg, MD, just off Interstate 270 in Montgomery County. NIST has free parking on site and is well connected to the Metro (subway) system via a shuttle service for official visitors and staff.

- **Relocation**

Where appropriate, NIST will cover relocation expenses in accordance with

federal regulations, such as moving household goods, travel to NIST for the employee and immediate family members, house hunting trip, and temporary living quarters and per diem expenses. NIST will not cover costs associated with real estate transactions such as the purchase or sale of a house.

NIST, Department of Commerce, is an Equal Employment Opportunity employer that values, celebrates, and thrives on the rich diversity, abilities, and perspectives of its staff. NIST pledges equal access to employment, facilities, and programs regardless of race, color, religion, gender, disability status, age, national origin, or veteran status