The Building Environment Division within the National Institute of Standards and Technology (NIST) is recruiting staff for immediate openings in the following areas:

- Fault detection and diagnostics for HVAC&R systems
- Simulation and analysis of building mechanical equipment and controls
- Information modeling of building mechanical equipment and controls
- Intelligent agents for HVAC control
- Photovoltaic module/system measurement science
- Building and construction information and communication systems
- Information systems integration
- Evaluation of alternative cooling and heating HVAC&R technologies
- Airflow and contaminant transport modeling
- Characterization of indoor contaminant exposure
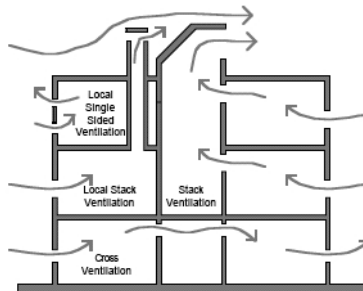
NIST is interested in recent graduates with an **M.S. or Ph.D. degree**, as well as candidates with some years of experience in research and/or practice. The division is part of the Building and Fire Research Laboratory, which is one of the Nation's primary federal laboratories serving the construction and building industries and has statutory responsibilities for fire prevention and control, earthquake hazards reduction, windstorm impact reduction, and building and fire safety investigations.
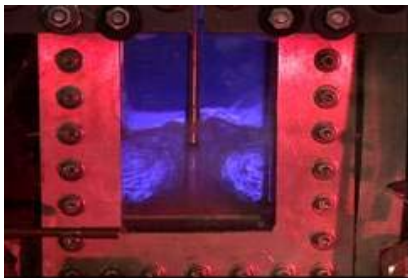
Please address inquiries or send résumés to:

Hunter Fanney, Division Chief
100 Bureau Drive, Stop 8630
Gaithersburg, MD 20899-8630
Phone #: (301) 975-5851
Fax #: (301) 975-5433
email: hunter.fanney@nist.gov

Additional information about the Building Environment Division, the Building and Fire Research Laboratory, and NIST is available at the following websites: www.bfrl.nist.gov/863 and www.nist.gov.

NIST collects applications for current and future job openings in an automated Applicant Supply File (ASF) system for a period of 90 days. Applicants are considered when filling a Direct Hire vacancy. To submit an application, please go to http://asf.nist.gov. NIST encourages applications from women and underrepresented groups. U.S. Citizenship required.

www.nist.gov   www.bfrl.nist.gov/863

Research within the Building Environment Division at NIST:

The Building Environment Division develops measurement science, predictive models, and performance metrics to improve the energy efficiency of building components and systems, reduce building related CO_2 emissions, enhance the quality of the indoor environment, and improve the building design, construction, and operation processes through the integration of information, communications, sensing, and automation technologies. Most of the Division's research is carried out in three main programs. Those programs and their objectives are:

- *Cybernetic Building Systems* – To develop, test, integrate, and demonstrate open intelligent building automation and control systems for energy conservation, life cycle cost savings, improved occupant productivity, safety, and satisfaction, and support U.S. market leadership in developing and using the technology.
- *CONSIAT* – To develop measurement science, methods, protocols, and standards to improve construction productivity with the integration of information and automation technologies. This work is planned and conducted in close cooperation with the U.S. building industry, suppliers of advanced technologies, standards development organizations, and the international research community.
- *Healthy and Sustainable Buildings* – To provide the measurement science, performance metrics, assessment tools, and fundamental data critical for the development and implementation of technology needed to reduce greenhouse gases associated with the life-cycle operation of buildings while maintaining a healthy and productive indoor environment.

The Division is organized into these groups:

Computer Integrated Building Processes Group

This group promotes advancements in the capabilities of the U.S. building industry by developing measurement science, methods, protocols and testbeds related to information, communication, sensing and automation technologies and improved work processes. Research topics include: building information modeling and interoperability; building controls and emergency management; construction productivity; product data standards and project data standards, e.g., IFCs and CIS/2; intelligent and automated construction job site; integrated and automated project delivery; real-time project control; semantic modeling, systems integration, validation testing and conformance testing. The group works with industry and the research community to apply research results to improving the design, construction and operation of the built environment.

www.bfrl.nist.gov/863

Heat Transfer & Alternative Energy Systems Group

This group serves the on-site energy generation and energy conservation sectors by advancing measurement science, standards, and technology related to energy utilization in buildings. Research topics include: investigation of measurement issues associated with photovoltaic systems; development of measurement techniques for assessing the performance of fuel cell units; maintenance of the nation's measurement standard for thermal building insulation; support of the development and modification of test procedures for water heaters and heat pumps; and development of methods to enable the use of advanced sensor technology in buildings.

HVAC&R Equipment Performance Group

This group expands the scientific knowledge of air-conditioning, heat pumping, and refrigeration technology. The group's focus is to improve the energy efficiency of HVAC&R equipment, which is the predominant end-user of energy in buildings. Research topics include: innovative and fundamental heat transfer measurements of refrigerants; experimental and analytical studies of systems and components; development of advanced modeling and optimization tools; research of novel applicable technologies; and formulation of test and rating methods for refrigerators and "mixed" air conditioners and heat pumps.

Indoor Air Quality & Ventilation Group

This group supports the design, construction and operation of high performance, sustainable buildings with good indoor environments and low levels of energy consumption. Research topics include: the measurement and prediction of airflow and contaminant transport in commercial and residential buildings; methods to assess energy and IAQ impacts of different ventilation strategies and IAQ controls; and, technology, guidance and predictive tools for enhanced building protection against chemical/biological/radiological agents. Current projects address mechanical ventilation in residential buildings, indoor exposures to nanoparticles, and the development of advanced building airflow models.

Mechanical Systems & Controls Group

This group improves and lowers the cost of building services by fostering the development and use of intelligent, integrated, and optimized building mechanical systems and controls. It also develops standard communication protocols for exchanging information between building management and control systems. Research topics include: automated fault detection and diagnostics; automated commissioning tools; intelligent agent-based control optimization; and information modeling to integrate design and operation of building systems.