

BUILDING ON A DECADE OF STEADY GROWTH



ILLINOIS  
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

# Illinois Fire Service Institute

## ANNUAL REPORT

FY2009



**ON OUR WATCH**  
July 1, 2008 – June 30, 2009



*The Institute took on a new look with a redesigned logo (above).*

*The logo and corresponding changes to our web site help to establish a distinct brand for IFSI within the University.*

## From the Director

I am pleased to be able to present the 2009 Annual Report of the Illinois Fire Service Institute, the statutory Illinois State Fire Academy. This last year has seen the fulfillment of a decade of work to reach our shared vision with partners across the state, nation and world.

Our most significant accomplishment in 2009 was to break the single all-time record for attendance (59,745) and student hours (614,816) reaching more than 85% of all Illinois fire departments with training that was able to help firefighters in every Illinois county better protect their citizens and come home safely at the end of each call.

The new year brings an expanded vision for the Institute with the groundbreaking for our new Learning Resource and Research Center. When the Center is completed in fall 2010, it will give us an extraordinary set of new capabilities for preparing and protecting first responders. In addition to expanding our library, the Center will provide a permanent home for our Firefighter Life Safety Research Center, which has drawn world class researchers from the University of Illinois Colleges of Medicine, Engineering and Applied Health Sciences, Skidmore College, the University of Maryland Fire and Rescue Institute, and Underwriters Laboratories. It will also have a state-of-the-art emergency operations training center for NIMS training for community leaders to unified command staff.

All of us at IFSI appreciate the strong support we receive from the University of Illinois, Illinois firefighters, our partner organizations and the public.

**Richard L. Jaehne**

DIRECTOR

**“ In the coming year and beyond, we plan to continue earning your support by delivering the nation’s most innovative and comprehensive fire-related training, education and research programs. ”**



# From the Provost



Congratulations to the Illinois Fire Service Institute (IFSI) as it celebrates its 85th year of service to first responders and the people of Illinois.

The University is proud to be home to one of the premier fire institutes in the country and thankful for the benefits that come from our affiliation. In addition to sharing resources and expertise, our staffs collaborate on a wide range of interdisciplinary research and academic programs. These efforts will be enhanced with the opening of IFSI's Learning Resource and Research Center. In addition to an expanded library, this new building will offer training facilities and laboratories that will advance firefighter safety research conducted across campus.

IFSI is an invaluable resource on our campus and in communities throughout Illinois and the nation. Thank you to the Institute's staff, its partners and all its participants for their outstanding work.

**Robert A. Easter**

INTERIM CHANCELLOR AND PROVOST  
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



# New in FY2009

## Additions to the Homeland Security Curriculum

IFSI now delivers Incident Command classes on behalf of the Illinois Terrorism Task Force (ITTF) and the Illinois Emergency Management Agency (IEMA). Institute instructors offered 19 Command and General Staff classes in the past year. The other classes that provide training for local Incident Management Teams (IMT) include ICS700, Unified Command, ICS300 and ICS400. These courses are required for communities that participate in the National Incident Management System (NIMS).

## ProBoard Accreditation

IFSI received accreditation from the National Board on Fire Service Professional Qualifications (ProBoard). Eight IFSI courses now meet ProBoard standards and allow students to apply for certification from ProBoard upon successful completion of all IFSI course requirements and prerequisites. This certification makes the courses attractive for military and other firefighters who desire credentials that cross state lines.

In support of our troops and with the ProBoard accreditation, IFSI offered its first Department of Defense-compliant training courses to the National Guard at the Sparta, Ill. military base. The curriculum included two new 40-hour Fire Officer I and II programs. Guardsmen from across the country attended Fire Inspector I & II, Instructor I & II, Fire Apparatus and Mobile Water Supply Apparatus Operator courses.

## Increased Participation by Chicago and Metro-Area Departments

IFSI has sponsored a number of training events and other projects to strengthen its involvement with the city of Chicago public safety agencies. These include two research partnerships studying the effects of structure fire smoke and wind-driven fires on firefighter health and safety. The results are being incorporated in the Incident Safety Officer program IFSI is developing for the Chicago Fire Department.

IFSI's efforts have helped increase Chicago firefighters' participation in Institute classes and we continue to engage every Chicago firefighter in some training activity every year. In FY 2009, our instructors delivered 160 courses to 16,830 enrollees representing 95 percent of all fire departments in the Chicago metro area.







## New Training for Ethanol Emergencies

IFSI has taken a national leadership role in training firefighters for ethanol emergencies. IFSI now offers a full curriculum of courses and resources. The newest additions include:

- ◆ **Ethanol Awareness** is a 10-module, self-paced course available in classroom and online formats. It covers the basics of production, transportation, distribution and use of denatured alcohol and ethanol, as well as fire fighting procedures.
- ◆ **Ethanol Plant Awareness** offers training to help local departments better understand how ethanol is manufactured and the potential problems that can be found in an ethanol processing facility.
- ◆ **Ethanol videos** demonstrate the proper use of alcohol-resistant foams for controlling ethanol fires. The five videos can be viewed on the IFSI web site: <http://www.fsi.illinois.edu>

## New Equipment Acquisitions

- ◆ A tractor and cultivator donated by the Center for Rural Health and Farm Safety at Carle Foundation Hospital. The implements will be used in IFSI's agriculture rescue training.
- ◆ A 1250 GPM Pierce Arrow pumper donated by the Lockport Township Fire Protection District.



# IFSI Training Courses

In FY2009, IFSI registered **59,475** students.

- ◆ 1,145 different courses
- ◆ 18,414 class hours
- ◆ 614,876 student hours
- ◆ 1,004 Illinois fire departments
- ◆ 180 other response organizations
- ◆ 2,113 students in officer training courses

Classes were offered in **311** locations and attended by first responders from all **102** Illinois counties, representing **85** percent of all Illinois fire departments.

Basic Skill programs provided **407** no-cost, hands-on courses to **9,470** firefighters from **800** departments in **97** Illinois counties.

## Sustained Growth

“ *Over the past 12 years – from 1997 to 2009 – IFSI has more than tripled the number of students enrolled in Institute courses.* ”

DAVID CLARK  
DEPUTY DIRECTOR

## A World-Class Faculty & Staff

The IFSI faculty and field staff includes more than 500 of the top professionals in the country. These nationally recognized instructors build their years of experience and expertise into all of IFSI's classroom and hands-on training courses. Most are active duty firefighters and officers, providing a strong connection between IFSI training and current best practices.





# A Dynamic Curriculum

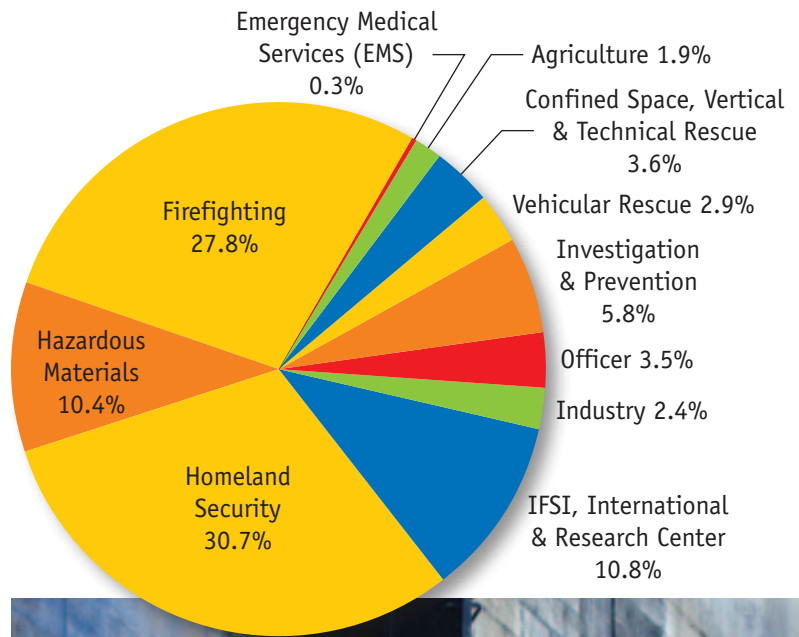
## NEW IN FY2009:

- ◆ Expanded delivery of National Incident Management System (NIMS) courses.
- ◆ Major updates and restructuring of the Fire Prevention Principles and Fire Prevention Officer courses.
- ◆ Fourth installment in the “Down and Dirty” CD/DVD training series — Fireground Support and Aerial Operations. IFSI produced 3,000 DVD sets for distribution to every fire department in Illinois.
- ◆ Two weekend versions of the Fire & Arson Investigation Program, which allow firefighters to take a full 40-hour course with no time commitment on weekdays. The course will be offered twice in this format in 2010.

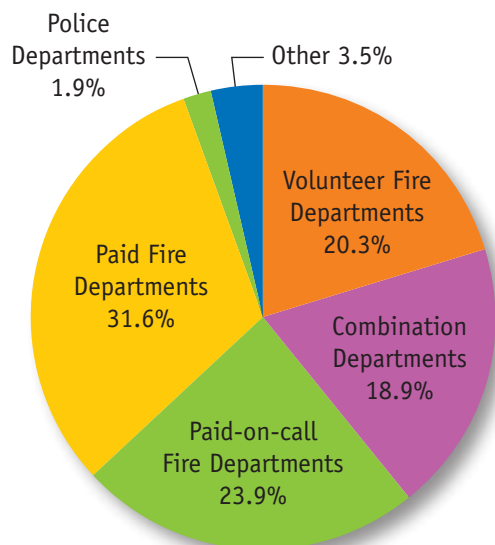
The IFSI web site ([www.fsi.illinois.edu](http://www.fsi.illinois.edu)) offers complete course descriptions and online registration. Visitors can browse the catalog and calendar, or use the online database to search for courses by date, location and content.

The **Virtual Campus** on the IFSI web site ([www.fsi.illinois.edu](http://www.fsi.illinois.edu)) is a central portal for accessing online course information, training videos and other interactive services. The online curriculum now includes Learning-On-Demand formats that allow students to register, complete instruction modules, take exams and even print completion certificates at their convenience.

# Enrollment by Program Area



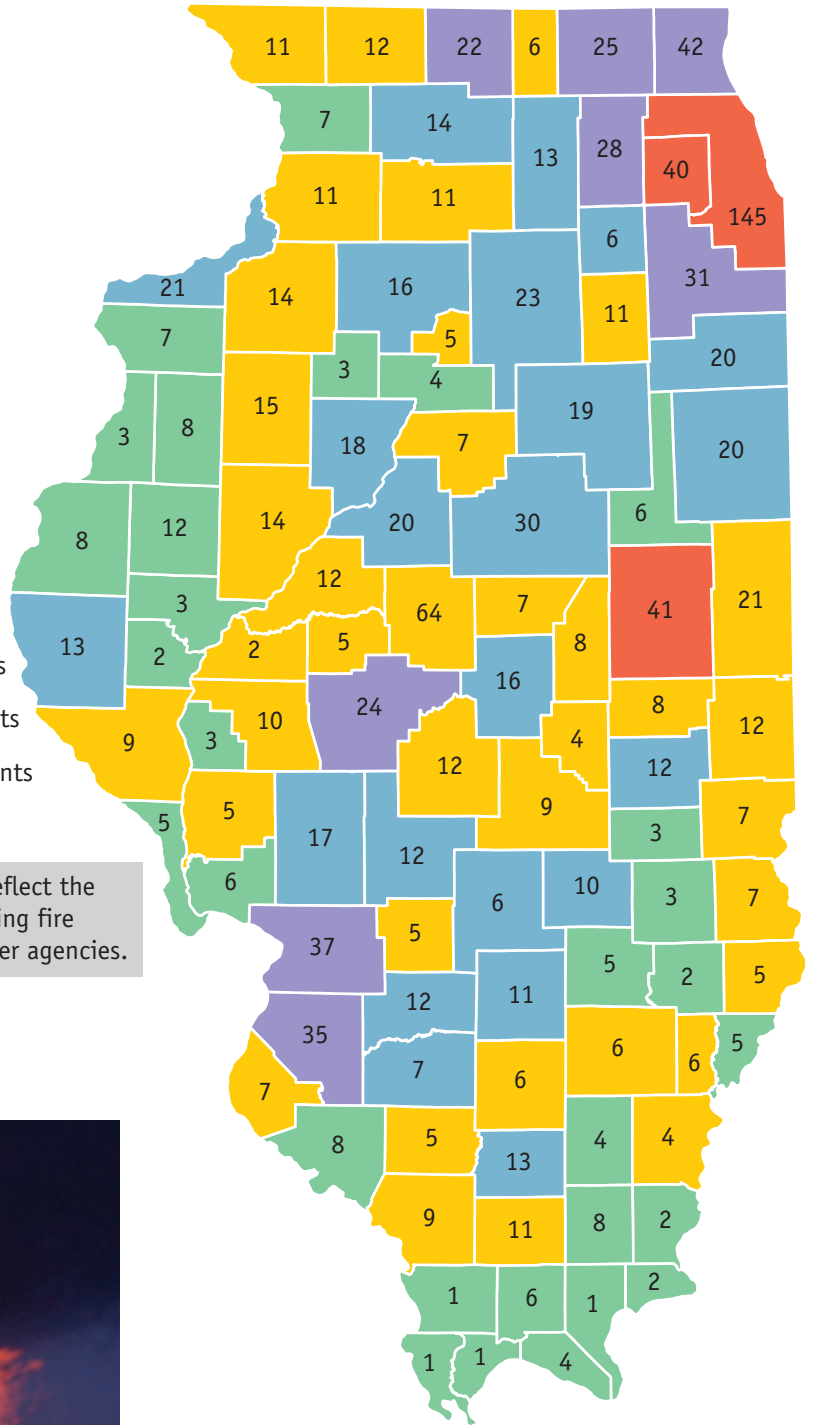
# Enrollment by Career Type



# Student & Department Enrollment By County

- 0 - 50 students
- 51 - 200 students
- 201 - 500 students
- 501 - 1000 students
- 1001+ students

Numbers in county reflect the number of participating fire departments and other agencies.





# Special Events

IFSI's flagship event – the **85th Annual Fire College** – brought more than 900 firefighters and instructors to Champaign Ill., in June for America's oldest continuous fire school. The four-day event featured 24 different classes, featuring hands-on experience with the newest fire fighting equipment, technologies and techniques.

The **14th annual Winter Fire School** offered a full weekend of training in January in Champaign IL. A total of 283 firefighters enrolled in short courses and NFA classes focused on training needs for small and volunteer fire departments.

The **5th Biannual Fire Factor** event was offered in partnership with University of Illinois Campus Housing and the cities of Champaign and Urbana. Two full-day programs featured hands-on experience for 111 University students to help them become fire safety leaders in residence halls and other campus housing. The program was supported by a \$60,000 grant from FEMA.

The **6th annual Fire Explorer and Cadet School** in June offered youth participants a four-day program of hands-on firefighter training and leadership experiences. The event hosted 304 students, ages 14 to 21, from 36 communities in 11 U.S. states and Canada.

The **3rd Industrial Forum** in August 2008 was a multi-state networking event that focused on planning for emergencies in industrial and corporate environments. Emergency responders and representatives from business and industry met to discuss issues related to disaster response.

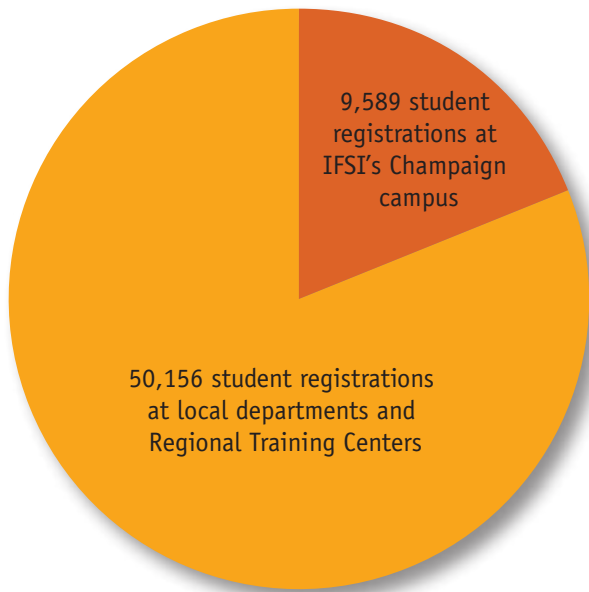


# Outreach and Field Training

## Regional Training Centers

Our network of Regional Training Centers is designed to connect with all the state's firefighters and enable them to receive quality training close to their home departments. Facilities at the Centers range from burn structures to rescue and HazMat training props that are funded by the Illinois Terrorism Task Force.

IFSI expanded its statewide network in 2009 with the opening of a new regional training center in Springfield. Accessible to IFSI and local responders, the center will provide advanced training to firefighters at the local level.



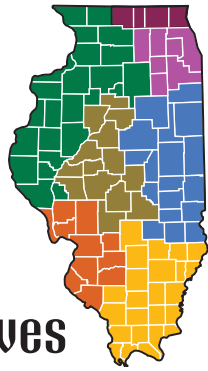
## Student Registrations

More than 83% percent of IFSI training is delivered at local departments and Regional Training Centers throughout the state.





# Cornerstone Program and Regional Representatives



This outreach program offers training in fundamental skills, delivered at no cost to students. Cornerstone courses are presented throughout the state in fire departments' local facilities and at IFSI's regional training centers and fire schools.

IFSI has seven regional representatives who connect with departments in their areas and work to ensure that all Illinois firefighters have access to local training. They also help departments evaluate their needs and apply for federal grants to expand their training and equipment options. In FY2009, IFSI offered Cornerstone classes in 186 locations in 97 of Illinois' 102 counties.

## Answering the Call

IFSI staff maintain a full calendar of scheduled courses and exercises, but they're always ready to respond to emergency training needs. Their work has made an impact at the state, national and international levels:

- ◆ Worked with the Chicago Office of Emergency Management and Communications to plan for the 2008 election-night rally in Grant Park.
- ◆ Assisted the Illinois Department of Public Health with proposals for H1N1 response activities.
- ◆ Assisted the University of Illinois with Incident Action Plans for medical care at large sporting events.

Salem RTC



### CORNERSTONE DELIVERY

372 classes  
785 departments  
9420 students

### ILLINOIS PROPANE EDUCATION AND RESEARCH COUNCIL (IPERC) TRAINING

74 classes  
311 departments  
2227 students

### ILLINOIS PETROLEUM RESOURCES BOARD OIL WELL FIRE TRAINING

3 classes  
26 departments  
102 students

# Illinois Terrorism Task Force (ITTF)



- ◆ In FY2009, IFSI delivered Homeland Security courses to **18,318 first responders in Illinois.**
- ◆ Since the program began in 2000, IFSI has taught **13,701 ITTF courses to 172,151 first responders – a total of more than 1,936,451 student instructional hours.**

IFSI continued its work as co-chair of the ITTF Training Committee. In that role, we provide leadership in the development and delivery of interdisciplinary training for the state and nation.

One of the special training sessions was the **Sixth Statewide Deployable Technical Rescue Team (TRT) Validation**, hosted by IFSI in June 2009. The exercise, which tests response skills for a 33-hour period without external support, certified team members for statewide disaster response.

In April 2009, ten teams were deployed to Champaign for a **HazMat Validation exercise**. The certification involved 30 hours of hands-on scenarios for intermixed teams.





# Partnerships and Public Engagement

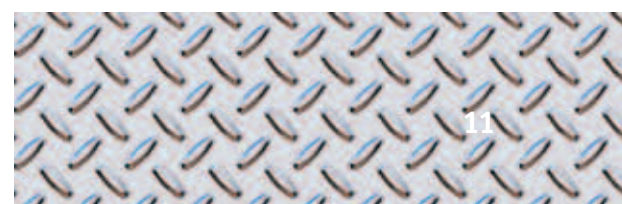
IFSI's many strategic partnerships allow us to share knowledge and resources with leading educators, researchers, corporations, professional associations and other organizations.

The Institute is benefiting from our collaborations with firefighting organizations in Asia.

- ◆ In September 2008 while visiting IFSI, professors from China's Tsinghua University Center for Public Safety Research attended the IEMA Conference in Springfield Ill. Visiting scholar, Dr. Tao Chen, studied U.S. NIMS and provided technical insights into China's emergency response platform.
- ◆ IFSI representatives visited the Hong Kong Fire Services Department in October 2008 to discuss a collaborative training program. In March 2009, five officers from the Hong Kong department attended IFSI Hazardous Materials training classes.
- ◆ In April 2009, 13 members from the China Ropeway Association attended Rescue Management Training at IFSI.

## Other FY2009 partners and their contributions include:

- ◆ **Illinois Firefighters Association** – funding and delivery of CD training software for use by local fire departments.
- ◆ **Illinois Association of Fire Protection Districts** – participation in trustee programs to promote training opportunities and availability, plus financial support for classes.
- ◆ **Illinois Propane Education and Research Council (IPERC)** – delivery of no-cost training in fighting propane fires.
- ◆ **Illinois Petroleum Resources Board** – funding for training to extinguish oil well fires in southern Illinois.
- ◆ **University of Illinois at Urbana-Champaign** – cross-campus initiatives to fund interdisciplinary research and academic programs, including presenting lectures in the School of Architecture.
- ◆ **Office of the State Fire Marshal** – funding for the Cornerstone program and certification of firefighters.
- ◆ **Illinois Fire Services Association** – cooperative work on strategic public policy issues.
- ◆ **Underwriters Laboratories** – joint sponsorship of fire-related research and product field trials, plus funding for the “Down & Dirty” DVD project.
- ◆ **Chicago Fire Department (CFD)** – projects in four key areas: training (especially HazMat Technician training), education, research and translating “science to the street.” CFD is also a partner with IFSI in research projects with Underwriters Laboratories.



# A Commitment to Research



IFSI has developed national programs and partnerships and has received numerous grants for research to protect firefighters and advance the techniques and technologies available to them. Our efforts focus on action-oriented studies in:

- ◆ **Health and wellness** – studies on physical fitness, injury prevention and treatment, psychology, environmental issues and other factors that affect the safety of first responders.
- ◆ **Incident management** – projects to develop and evaluate new technologies for crisis situations.
- ◆ **Equipment technologies** – testing and development of tools, equipment and technologies for use in fire and rescue scenarios.

The Institute carries out this research through its Firefighter Life Safety Research Center and through strategic partnerships with other organizations. In addition to the University of Illinois, our research partners include fire departments, corporations, associations, private industry and other colleges and universities.

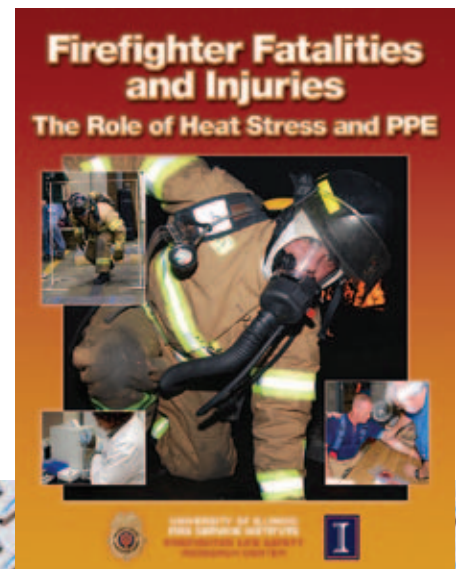
## Major Findings from the Life Safety Research Center

For the past two years, IFSI's Firefighter Life Safety Research Center has continued to study the role of heat stress in the most common line-of-duty fatalities (heart attacks) and injuries (trips, slips and falls). Researchers tested 122 firefighters for the project this year.

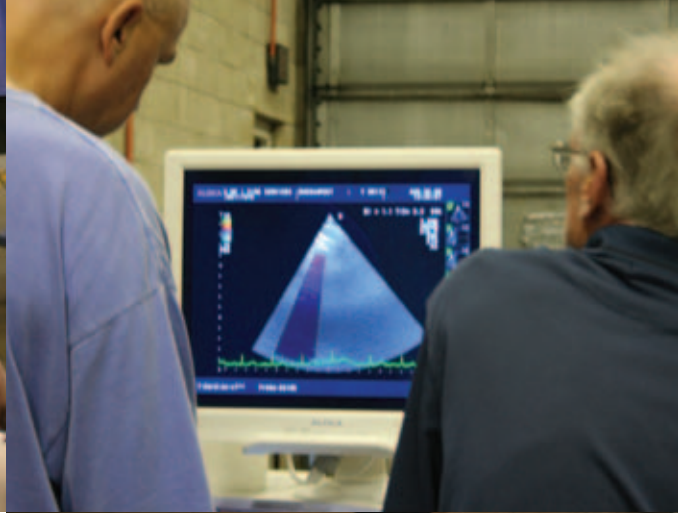
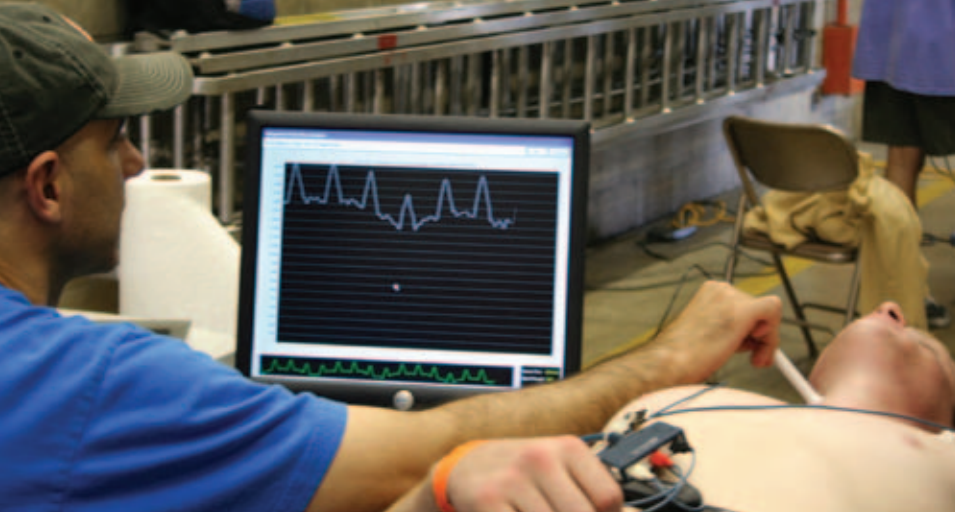
The project was made possible by two Fire Prevention & Safety grants from the Department of Homeland Security. The grants, awarded in 2007 and 2008, total \$1.8 million.

The results were published in the fall of 2008 in a report titled **Firefighter Fatalities & Injuries: The Role of Heat Stress and Personal Protective Equipment (PPE)**. The report offers an overview of existing research and IFSI's new findings regarding heat stress, cardiovascular function, balance and gait, and the design of protective equipment. The results have also been presented in programs for national fire service forums.

Read the full report online at  
<http://www.fsi.illinois.edu>  
(on the "Research" page)







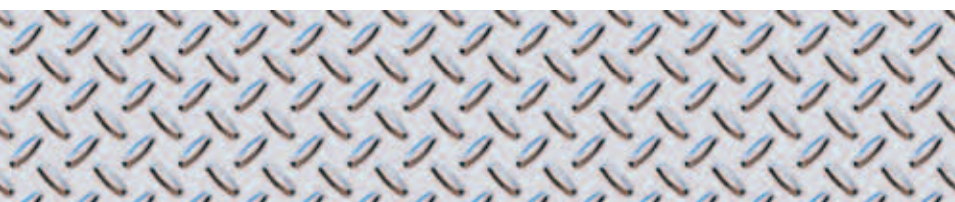
## Cross-Campus Initiatives

IFSI's work is enhanced through our affiliation with one of the premier research universities in the nation. Institute staff members collaborate with University of Illinois professors and researchers from dozens of campus departments to carry out interdisciplinary studies.

Institute researchers are currently working with four University departments to study improved ways to prepare for, respond to and recover from extreme events. Funded by the National Science Foundation, the five-year project is investigating how new technologies can be used to link emergency responders with engineers and building managers.

## Other 2009 Accomplishments:

- ◆ IFSI began a two-year, \$150,000 project funded by the National Institute for Occupational Safety & Health (NIOSH) to study firefighter rehabilitation protocols.
- ◆ IFSI completed data collection for a NIOSH-funded project on the effect of fire fighting and on-scene rehabilitation on hemostasis.
- ◆ Researchers and more than 60 firefighter participants began a new study of how cardiovascular functions are affected by prolonged fire fighting activities.
- ◆ IFSI partnered with Underwriters Laboratories and the Chicago Fire Department for a series of projects that include live fire testing of building components.
- ◆ The Department of Homeland Security Fire Prevention & Safety awarded IFSI a grant to study the performance and design of escape ropes in fireground applications. →





# Information Services

## In FY2009, the IFSI Library

- ◆ Checked out 2,480 items to library visitors
- ◆ Completed 3,997 reference interactions
- ◆ Conducted 39 training workshops
- ◆ Welcomed 210 new users

The IFSI Library offers extensive resources to Institute staff, Illinois fire departments and firefighters, and other emergency responders, as well as University of Illinois students and the public. It is the only library in the state dedicated to fire-service literature and research, and it is one of the top three fire service libraries in the United States.

Through our Library Outreach Program, every firefighter in Illinois has access to free literature and information services. The entire library catalog is searchable on the Institute web site ([www.fsi.illinois.edu](http://www.fsi.illinois.edu)). A popular site feature is the Virtual Bookshelf, a constantly updated database of the most recent publications and research on dozens of topics.

## More Accomplishments in 2009

- ◆ The Library staff continued working on cooperative projects with Chinese-American librarians. Over the past five years, the IFSI Summer Program has successfully trained 97 librarians from Chinese universities and has hosted six visiting library directors.
- ◆ The **Library Disaster Recovery Training Workshops** on June 9 and 11, 2009 hosted more than 40 librarians from throughout Illinois. The workshops focused on information management and recovery of library materials in the event of an emergency.
- ◆ Library staff oversaw production of **History of the Illinois Fire Service Institute**, a 28-page booklet about fire training activities at the University of Illinois since 1925.
- ◆ More additions were made to the **Illinois Firefighter Line of Duty Deaths Database**, a searchable, online collection that documents the ultimate sacrifice made by more than 800 Illinois firefighters since 1857. The database was featured in *The Scout Report*, *The Newberry Library Genealogy News* and the *ILA (Illinois Library Association) Reporter*.





# Learning Resource and Research Center

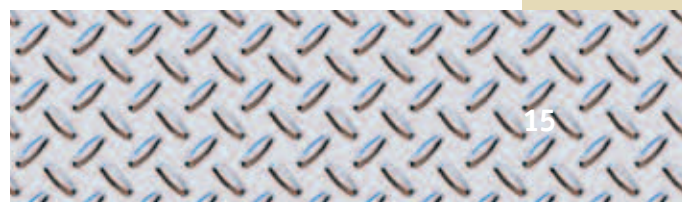
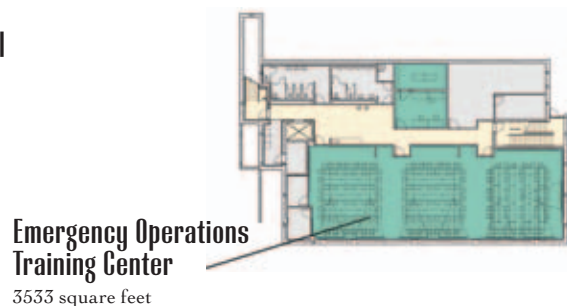
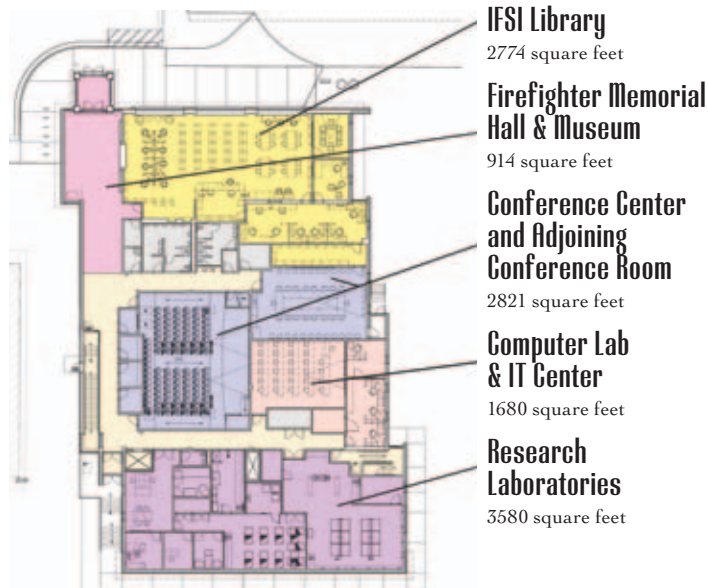
A significant expansion of our training, research and communications capabilities will be realized with the opening of the new **Learning Resource and Research Center (LRRC)**, a 21,000-square-foot facility being built on our 28-acre training grounds. Construction began in June 2009 and is scheduled for completion by the fall of 2010.

The Center will more than double the size of the current IFSI library and feature a number of specialized facilities, including:

- ◆ **Firefighter Memorial Hall & Museum** is a public area with meeting space, exhibits and tributes to honor Illinois firefighters.
- ◆ **International Conference Center** offers live video transmissions, digital recording and simultaneous translation booths, all with a 10G fiber Internet connection. IFSI is currently developing a next-generation E-learning curriculum to take full advantage of this improved connectivity. It will include online courses in self-directed, real-time, blended and on-demand formats.
- ◆ **Research Laboratories** provide a state-of-the-art environment for developing practical solutions to problems faced by emergency responders. The facilities include an expanded Firefighter Life Safety Research Center and a Fire Protection Engineering lab.
- ◆ **Emergency Operations Training Center** incorporates the most advanced technologies for simulating an actual emergency and delivering National Incident Management System training.
- ◆ **Library** provides a permanent home for the IFSI library's special fire and emergency services collection.
- ◆ **Computer Lab and IT Center** includes computer terminals, online course access and information technologies for students, instructors and researchers.



Conference Center (artist concept)



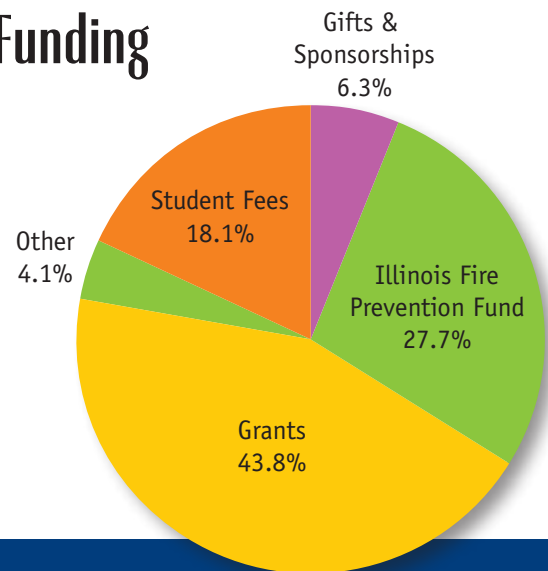
# Funding Sources



Hands-on training is the signature of IFSI, and it is a commitment that requires extensive resources. As our services and course enrollments increase, the need for additional funding becomes more critical. Our ability to respond to new fire fighting challenges depends on the continuing support of Illinois fire departments, state agencies, private donors and grants.

Mitsubishi Motors North America, Inc. has provided new vehicles for firefighters to train with and to gain exposure to new auto construction technologies that will affect rescue operations. Caterpillar Inc. regularly has supplied wooden pallets used in live fire burns. A number of tool manufacturers supply equipment for firefighters to use in training.

## Funding



## PARTNER WITH IFSI

A contribution of just \$20 provides more than one hour of training to an Illinois firefighter. IFSI takes pride in guaranteeing that 100 percent of every donation will be used to directly support firefighter training, education and research programs.

Individuals, corporations, organizations and others can also show support for IFSI by sponsoring a paving brick for the new Learning Resource and Research Center. More than 8,000 bricks in two sizes will be available. Three tiers of brick sponsorships are being offered and will be placed at the high-traffic approaches to the LRRC. To participate in sponsoring an attractive paver at the new LRRC, contact Harry Clore at (217) 244-6359 or by [hclore@fsi.illinois.edu](mailto:hclore@fsi.illinois.edu). Pavers can be ordered online at [www.fsi.illinois.edu](http://www.fsi.illinois.edu) under the DONATE button.



# Ten years of Vision

## Looking ahead to the next ten years

IFSI continues to develop and implement our Vision 2010; now work begins on Vision 2015. One of our biggest priorities for the coming year is completing the new Learning Resource and Research Center and expanding its research and information services. With Vision 2015, we are also setting long-term goals and identifying programs that offer the greatest potential for growth over the next decade. They include:

- ◆ Streetscape prop to resemble a city street with buildings and an alley, and a new trench prop
- ◆ New CD training disk on “Fire Attack and Suppression”
- ◆ Additional training programs for Homeland Security, Statewide Emergency Management, Technical Rescue Team (TRT) National Training, Transportation Emergency Response and Code Enforcement
- ◆ Fire and emergency management training in the Chicago area
- ◆ Fire-related courses & professional education for architects
- ◆ Accredited national testing and training and expansion of ProBoard classes to further support the military
- ◆ Degree program in Fire Protection Engineering
- ◆ Interdisciplinary research in firefighter life safety
- ◆ International programs
- ◆ E-learning, video conferencing and blended training programs
- ◆ New burn site

## Administration

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## ILLINOIS FIRE SERVICE INSTITUTE'S MISSION:

To help firefighters do their work through training, education, information and research.



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