



Illinois Fire Service Institute

ANNUAL REPORT

FY2015

On Our Watch

July 1, 2014 - June 30, 2015



ILLINOIS



In FY2015, IFSI delivered training to 66,924 students.

- 1,463 different courses (25% increase)
- 15,761 class hours
- 486,994 student hours*
- 972 Illinois fire departments
- 121 other response organizations
- 2,811 students in officer training courses (16% increase)

Classes were offered in 319 locations and attended by first responders from all 102 Illinois counties.

* As an affiliate of a land-grant university, IFSI is committed to fulfilling its responsibility for public outreach. In FY2015, these efforts included outreach programs to 20,389.

In FY2015, 1580 students enrolled in Crude Oil by Oil Awareness. ▼

- In FY2015, for the first time ever, departments in all 102 Illinois counties took classes.
- Leadership is a strategic focus for IFSI and 16% more students took classes in officer training courses.
- IFSI offered 25% more courses in FY2015.

About the front cover. The Illinois Propane Education and Research Council provides funding for liquefied propane training. This photo was shot during one of two six-week long fire academies conducted at the Illinois Fire Service Institute. *Photo courtesy of John Freedman.*



With the increasing number of railcars transporting oil across Illinois, IFSI collaborated with others and developed this live-burn railcar prop for its Champaign campus.



From Director Mortenson

I am pleased to present the 2015 Annual Report of the Illinois Fire Service Institute at the University of Illinois at Urbana-Champaign.

It has been a busy and productive year. For the first time in history, we delivered classes in every Illinois county and reached 81% of all Illinois fire departments.

We've increased enrollment in our statewide Cornerstone courses and more than doubled the participation of firefighters from volunteer, paid-on-call and combined departments. We are continuing to expand our on-line learning curriculum and Leadership Development and Decision Making program. Our research program is leading the nation in firefighter life safety research and has developed key partnerships with UL, NIST and the University of Illinois, as well as corporations to sponsor projects that will improve the safety and survivability of firefighters.

One of our major strategic priorities is to cultivate leadership within the ranks of all firefighters. The new Leadership Development and Decision Making program introduced in 2014 is now refined and being offered as a pilot program. Our goal is to offer innovative, consistent "cradle-to-grave" training in leadership and decision-making skills for all firefighters regardless of rank.

I want to thank all of you for your hard and dedicated work. Our mission is an important one, and we can all be proud of our success in fulfilling it. Together, we will continue working to assure that IFSI provides the best training, education, information, and research in the nation.

A handwritten signature in blue ink that reads "Royal P. Mortenson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Royal P. Mortenson

Director

Some Highlights of the Past Year

- Training delivery shifted from providing training to full-time departments to more delivery at volunteer, paid-on-call and combined departments. (48% to 72%)
- Delivered training in every county in Illinois.
- Doubled the amount of agricultural program training.
- Increased firefighter and fire prevention training by 36%.
- Reintroduced Fire Inspection classes.
- Realized a 69% increase in web hits.
- Signed three IFSI-China Memoranda of Understanding for training.
- Led a state-level pilot project to improve the state certification program development by increasing IFSI support to the Office of the State Fire Marshal.
- Delivered officer training to the Chicago Fire Department that included 158 promoted officers.
- Added five new vehicles to the IFSI fleet and added two live-burn props on the Champaign campus.
- Began a new partnership with Orland Park to utilize their facilities to deliver firefighter training in the Chicago collar counties.
- Expanded industrial customer base by providing training at the Champaign campus and at the customer's site.
- Delivered the first fire service Instructor I blended class.



World-class faculty and staff

The IFSI faculty and field staff includes more than 400 of the top professionals in the industry. Their credentials and practical experience have brought national and international recognition to Institute programs.

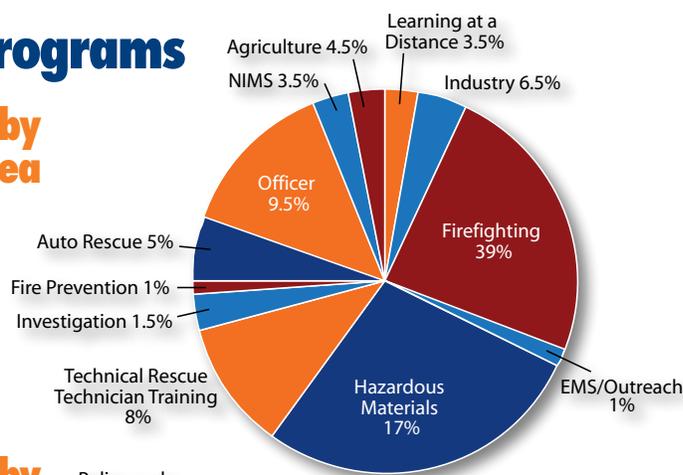
Full and part-time staff teach courses on and off campus and are involved in the Institute's research activities. The heart of the faculty is our field instructors who teach courses throughout the state in their individual areas of expertise. Many are active-duty firefighters and officers with years of experience that they build into classroom and hands-on training courses. Their ability to share their knowledge and engage students are the reasons that so many firefighters return to IFSI for training throughout their careers.

IFSI's Excellence in Instruction Program recognizes instructors for outstanding efforts in delivering top-quality training. Our "Instructor of the Month" honor, begun in FY2014, is awarded to individuals or teams who exemplify the spirit and mission of IFSI.

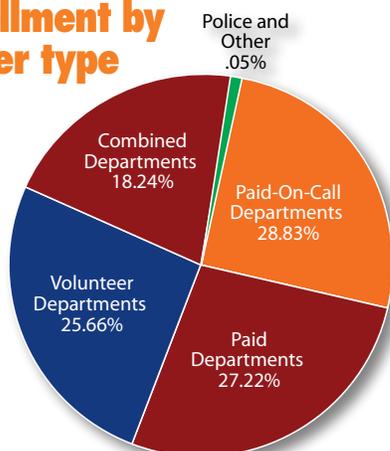


Training Programs

Enrollment by program area



Enrollment by career type



Featured Events

IFSI's flagship event – the **91st Annual Fire College** – brought nearly 500 firefighters to Champaign IL in June for America's oldest continuous fire school. The four-day event featured hands-on experience with the newest technologies and props.

The **20th Annual Winter Fire School** offered a full weekend of training in January in Champaign. More than 240 firefighters chose from a selection of six 4-hour short courses



focused on the training needs of small and volunteer fire departments. A popular addition this year was the addition of hands-on classes.

The **13th Explorer-Cadet Hands-On Training Fire School** in July hosted more than 160 students, ages 15 to 21, and their chaperones for a four-day program of hands-on training and leadership experiences in Champaign.

Five new apparatus added



In keeping with providing the best training on the best available equipment, IFSI received donations of five new rigs in FY2015. Four aging apparatus from IFSI's fleet were decommissioned. The oldest rig of the 11 apparatus is a 1980 Ford Emergency One Engine.



1989 Pierce Arrow Pumper
(Villa Park Fire Department)



1985 Pierce Arrow Pumper
(EMC Donation)



1988 Spartan Pumper
(Frankfort Fire Department)



1986 E-One Aerial 135 ft.
(Westmont Fire Department)

1990 Tower Ladder E-One 100 ft.
(Schaumburg Fire Department)

Six new classes added in FY2015

Communications Unit Leader was developed to provide a professional development class in communications for Type III Incident Management Teams.

Crude Oil and Flammable Liquids by Rail Awareness was created in response to the growing number of crude oil shipments by rail across Illinois.

ICS 402 – ICS Overview for Executives/Senior Officials is the newest addition of classes to serve the NIMS.

Public Fire and Life Safety Educator offers fire department staff the opportunity to pursue certification in a role of safety and prevention.

S420 Command & General Staff is a 24-hour activity intensive class for managing large, complex incidents.

Traffic Incident Management Awareness was designed to acquaint first responders with what they need to know about traffic incidents.

In addition to the new classes, IFSI received re-accreditation from the **Pro Board**. The Incident Command classes continue to have a robust offering and trained 420 students at the ICS-300 and 400 levels.

Two new live-burn props were put into service in FY2015.



Field Training

Cornerstone Training

This outreach effort provides practical, hands-on training in fundamental skills, delivered at no cost to fire departments.

Cornerstone courses are presented throughout the state in fire departments' local facilities and at IFSI Regional Training Centers and fire schools. Aided by funding from the Office of the State Fire Marshal's Fire Prevention Fund, IFSI delivered Cornerstone classes to 16,478 students in FY2015.

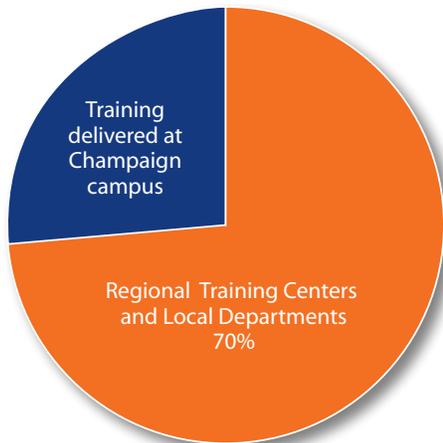
IFSI's seven regional representatives work with departments in their areas to ensure that all Illinois firefighters have access to Cornerstone training in their localities. They also help departments evaluate their needs and apply for federal grants to support training programs and equipment acquisitions.



Student Registrations by Location

15,297 student registrations at IFSI's Champaign campus

35,120 student registrations at Regional Training Centers and local departments



More than 70 percent of IFSI training is delivered at local fire departments and Regional Training Centers throughout the state.

Cornerstone Delivery

- 679 classes
- 834 departments
- 14,498 students



Illinois Petroleum Resources Board Oil Well Fire Training

- 2 classes
- 15 departments
- 66 students

Illinois Department of Natural Resources Wildland Training

- 24 classes
- 78 departments
- 306 students

Illinois Propane Education and Research Council (IPERC) Training

- 53 classes
- 252 departments
- 1375 students



Training Firefighters Where They Live and Work

IFSI connects with all the state's firefighters through our network of Regional Training Centers. Located throughout the state, the Centers make it possible for firefighters to receive quality training close to their home departments. Facilities range from burn structures to rescue and HazMat training props that are funded through the Illinois Terrorism Task Force.

Notable accomplishments

- Began a new partnership with Orland Park to utilize their facilities to deliver firefighter and NIMS training in the Chicago collar counties.
- Increased the number of students trained by 21%.
- Conducted classes in all Illinois counties, including adding 16 departments in the southern half of the state.
- Hosted Light & Fight burns at Cherry Valley, Peoria, Carbondale and Rock Island.
- Trained 1,375 students in LP firefighting with a grant supplied by the Illinois Petroleum Education and Research Council.
- Conducted seven acquired structure burns.
- Continued to deliver the Quincy, Tazewell and Galesburg annual regional schools.
- Trained more than 300 students in the Rapid Intervention Team Rescue Technician Program.



Wildland Firefighting Highlights

The frequency and severity of wildland fires has created a critical need for realistic and hands-on wildland training for firefighters. Through a grant from the Illinois Department of Natural Resources, IFSI continues to offer wildfire training at no cost to firefighters who serve a population base of 10,000 or less. Last year, the Wildland program delivered 25% more classes to 306 students.



Special Operations Training Program

IFSI's special operations training program encompasses the technical rescue training associated with trench, rope, collapse structure and confined space, as well as hazardous materials.

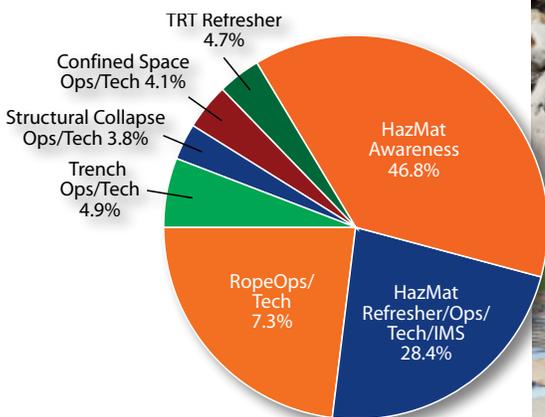


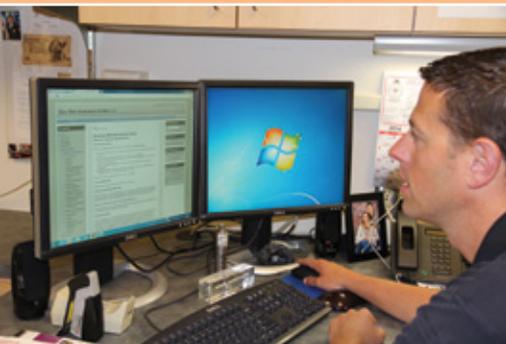
Highlights of the last year

- Collaborated with the six Class 1 railroads, the Illinois Emergency Management Agency and the oil industry to develop and deliver 61 Crude Oil by Rail Awareness classes.
- Delivered a five-day HazMat Operations class at the National Hazardous Materials Emergency Rescue base site in Huizhou, China.
- Updated and revised the Rope Field Operations Guide.
- Created “refresher” courses to give past attendees the opportunity for hands-on practicals.



SOTP Student Attendance





Reaching out with social media

IFSI expanded its use of Facebook and Twitter as marketing and communication tools. Our Facebook page – www.facebook.com/fsi.illinois.edu – is constantly updated with class information, photos, news and recognition of donors. The page also features comments from students. Facebook now has more than 7200 Likes.

TOP FOUR PAGES

- Home page
- Resource Center
- Course description pages
- Course schedule page

Learning at a Distance

This was the busiest year for Learning at a Distance. IFSI now offers 18 online classes and courses. Keeping with IFSI's strategic priorities of expanding distance learning and making it for paid-on-call and volunteer firefighters to have access to upper-level certification courses, four new classes were added this year. IFSI also expanded our relationship with Chicago Fire Department and re-tooled the Fire Service Vehicle Operations class to be more specific with CFD's driving and standard operating procedures.

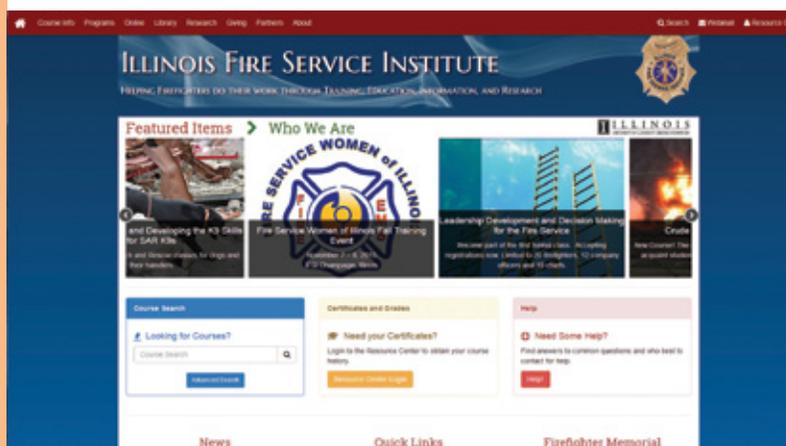
FY2015 Highlights

- Developed four new blended-learning classes: Instructor I, Instructor II, Rope Operations Level 1 and Fire Apparatus Engineer.
- Included a hands-on portion for Instructor I at the annual Fire College.
- Developed a new online class: Traffic Incident Management Awareness.
- Expanded our partnership with the Chicago Fire Department by delivering Fire Service Vehicle Operation as a distance learning component, with CFD staff providing the classroom, practicals and assessments locally.

IFSI web site

In 2015, IFSI completely redesigned its web site to make more user-friendly. Gathering feedback and suggestions from the most active users, IFSI's web site designers made it easier to search for classes, access the Resource Center and register for classes.

- 90,232,210 hits – a 69% increase over last year
- 247,211 average hits per day
- 9,624,537 total page views – 14% more than last year
- 26,368 average page views per day
- 480,497 total visitors
- 146,910 total unique IP addresses



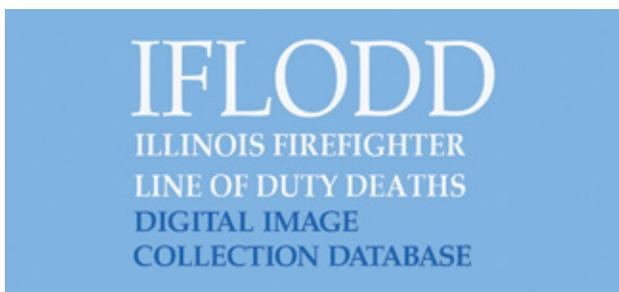
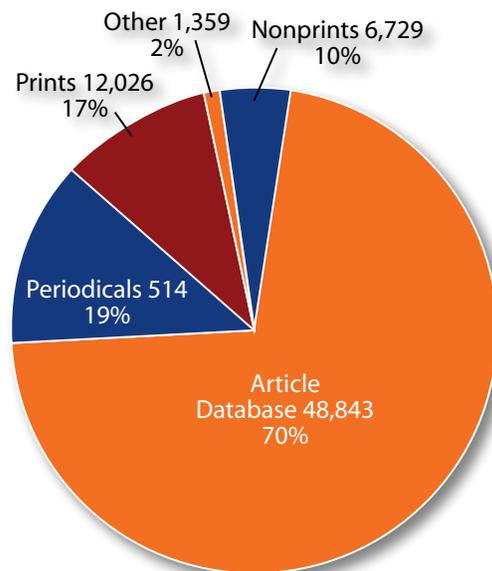
Library and Information Services

The **IFSI Library** is the only library in the state dedicated to fire and emergency services and is the third largest in the United States. Its growing collection is available to institute staff, firefighters and other emergency responders, and University of Illinois students.

FY2015 Highlights

- Named one of 30 finalists for the 2015 National Medal from the National Institute of Museum and Library Services.
- Increased the collection to 69,471 titles.
- Accepted 653 donations of materials (16 times more than the previous year).
- Circulated 1,274 items.
- Cataloged 671 records (58% more than FY2014).
- Served 4,236 patrons and responded to 4,507 requests for information.

Titles in Collection

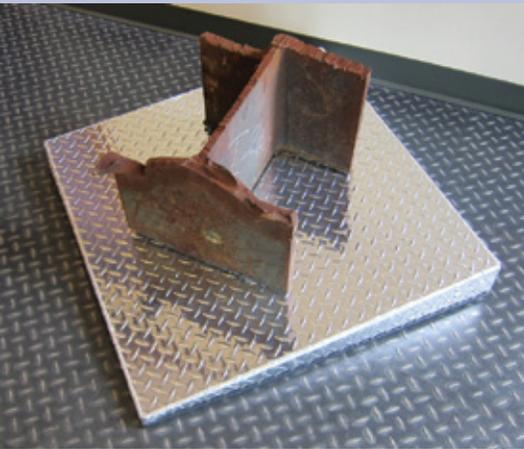


The IFSI Library maintains the **Illinois Firefighter Line of Duty Deaths Database** (IFLODD), the most comprehensive collection of Illinois statistics and the only firefighter database with incident summaries, photos and oral history interviews.

Available on the IFSI web site, the IFLODD database had 9,822 unique visitors in FY2015.

- 873 firefighter records
- 670 incident summaries
- 449 images
- 14 oral history interviews

New this year was the addition of the Illinois Firefighter Medal of Honor and Medal of Valor database. The collection includes 256 records of medal recipients.



The library is part of the 21,000-square-foot Learning Resource and Research Center (LRRC).

Also included in the LRRC:

Firefighter Memorial Hall honors more than 850 firefighters who died in the line of duty since 1857. It also houses permanent and temporary exhibits related to fire service history. Included is a steel beam fragment from the Twin Towers, donated by the Port Authority of New York and New Jersey. Memorial hall is open daily to the public.

Memorial Plaza is the brick walkway surrounding the main entrances to the LRRC and Memorial Hall. The Plaza is lined with bricks donated by individuals, businesses and organizations. The bricks are personalized with engraved messages that memorialize firefighters, honor friends and family members, and show support for the Institute's work.

The **Emergency Operations Training Center** incorporates advanced technologies to simulate actual emergencies and Emergency Operations Command (EOC) scenarios. These capabilities are helping IFSI meet the growing demand for National Incident Management System (NIMS) training. The Center is also available to Illinois communities for staff training and testing of their emergency response plans. The space is equipped to serve as the University of Illinois' Incident Command Post for large events and campus emergencies.

Research

A Commitment to Research

IFSI continues its leadership in research to protect firefighters and advance the technologies available to them. The Institute focuses its efforts on action-oriented studies that have a direct impact on firefighters' work, health and safety.

IFSI's **Research Center** provides state-of-the-art facilities and equipment for advanced studies. The Center is adjacent to IFSI's live testing environments, giving researchers immediate access to tested materials for laboratory analysis.

Research projects are also carried out at partner facilities on and off campus. Institute researchers collaborate with UL, NIST, NIOSH, the University of Illinois and other universities on a wide range of interdisciplinary investigations. They include:

- Heat stress/strain due to firefighting activities
- Psychological and cognitive function effects of heat stress
- Cardiovascular changes due to firefighting
- Biomechanics of movement following firefighting and wearing personal protection equipment (PPE)
- Firefighting PPE design and materials testing
- Combustion science and diagnostics



FY2015 Highlights

- Awarded a \$1.5M DHS Fire Prevention & Safety Grant to study *Cardiovascular and Chemical Exposure Risks in Modern Firefighting*.
- Completed data collection on the *Cardiovascular and Chemical Exposure Risks in Modern Firefighting*, including participants from as far away as South Dakota and Georgia with broad media coverage from national Fire Service media outlets.
- Awarded a NIST research project to study the effects of repeated thermal exposures on SCBA face pieces to determine risk for damage and failure.
- Continued to present our research at fire service conferences, meetings, symposia and to standards organization across the country, helping to lead national conversations on firefighter health and safety.
- Published or accepted for publication in eight leading national and international academic peer-reviewed journals and book chapters.





Dr. Gavin Horn who leads research programs at IFSI is a firefighter himself, bringing a insiders perspective on how the fire service will benefit from applied research being conducted at IFSI.



IFSI research results are featured in peer-reviewed journals.

In 2015, eight manuscripts were published or went to press in the following publications:

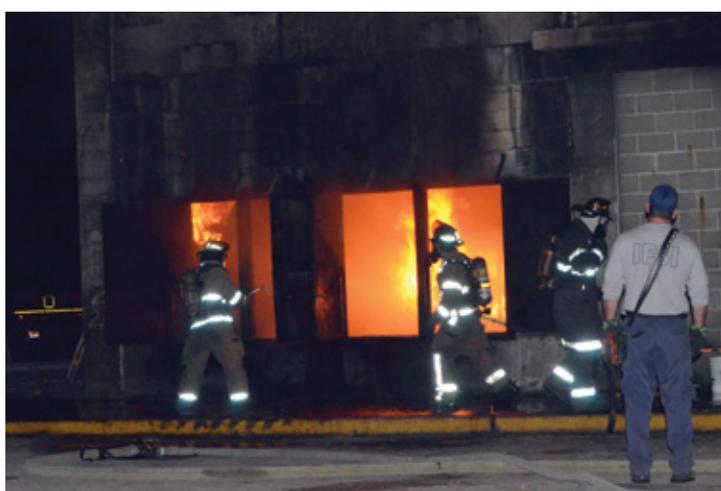
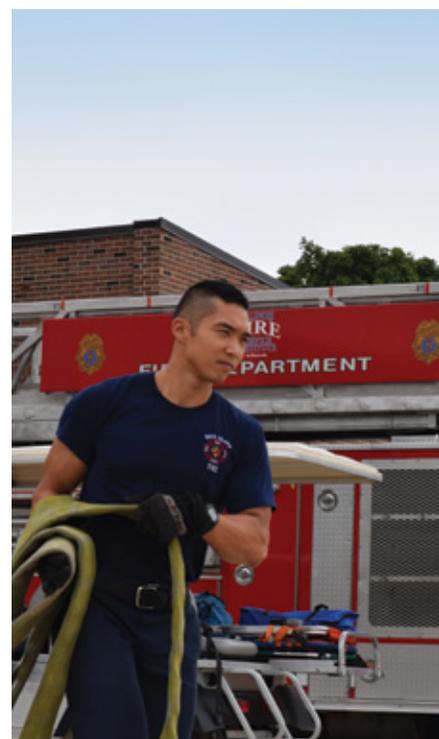
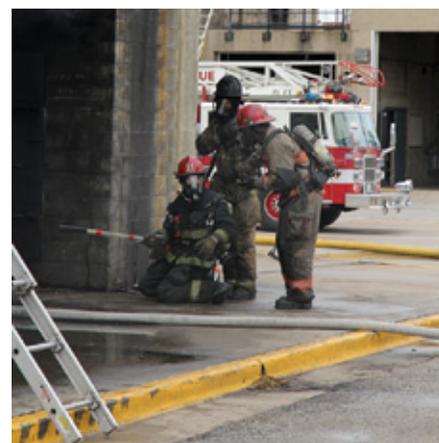
- *American Journal of Cardiology*
- *Annals of Occupational Hygiene*
- *Applied Ergonomics*
- *Ergonomics*
- *International Fire Service Journal of Leadership and Management*
- *Journal of Dynamic Behavior of Materials*
- *Journal of Occupational and Environmental Hygiene*
- *Stress and Health*

Our research has been presented at national and international scientific and Fire Service conferences, including:

- American College of Sports Medicine Annual Meeting
- Fire Department Instructors Conference (FDIC)
- Fire Rescue International (FRI)
- IAFC Webinar series “Saving Your Life Through Scientific Research”
- NIST Fire Fighting Technology Research Seminar
- Redmond Symposium - International Association of Fire Firefighters
- World Congress of Biomechanics

A Successful Partnership with Motorola

In FY2015, IFSI continued its efforts to provide a stronger focus on officer training. The Motorola Solutions Foundation has helped create more opportunities by subsidizing the tuition for Fire Academy students. Students or their departments were able to save 30 percent on tuition for each of the Academies held in FY2015. Two Academies hosted 49 students for 2,170 student hours.



Outreach Programs FY2015 Highlights In the U.S.



- Participated in the Governor's Tent at the Illinois State Fair with an agricultural rescue exhibit.
- Supported the University of Illinois Engineering Open House by conducting side-by-side burn cell demonstrations. These live demonstrations compared the destruction and speed of an uncontrolled room fire with the same fire extinguished by an automatic fire-suppression system.
- Demonstrated agricultural rescue techniques at the Illinois Farm Bureau annual meeting and Illinois Fire Protection District conference.

IFSI demonstrated auto extrication techniques outside the fire service tent at the Illinois State Fair.



- Updated fire protection district trustees at five meetings.
- Demonstrated auto extrication techniques at the Illinois State Fair.
- IFSI personnel traveled to the western U.S. to assist in the management of wildfires.

International

- Hosted nine officers from the Hong Kong Fire Services Department for HazMat training sessions.
- Conducted the 11th annual Chinese Librarians Summer Program for 28 participants. Since it began in 2005, the four-week program has trained 274 librarians from libraries and other organizations in China.
- Traveled to China five times to participate in and visit the International Seminar on Firefighting and Rescue in Special Environment Conference; Fire Asia 2015; Civil Flight Aviation University; Nanning Fire Service Department; and to conduct HazMat training at the National Hazards Chemicals Emergency Rescue Huizhou Base.
- Participated in and presentations made by Director Mortenson at the Fire Asia 2015 Conference in Hong Kong.
- Signed three IFSI-China Memoranda of Understanding with Jiangsu University, Jinan University and Taiyuan University of Science and Technology.
- Hosted 13 visiting Chinese scholars in the field of emergency management and library and information science.

Expanding Collaboration with the Chicago Fire Department

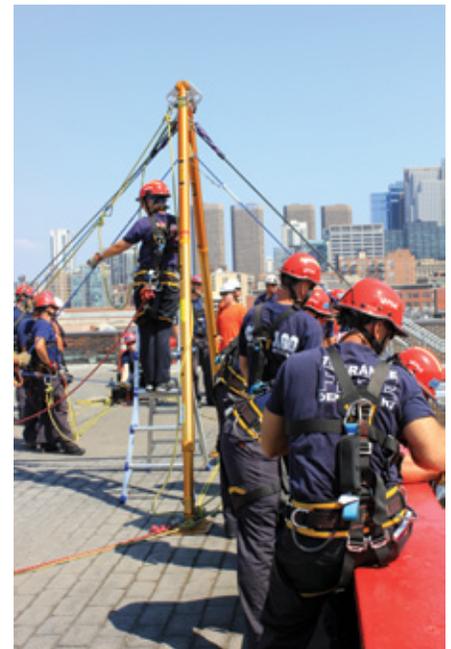
One of IFSI's most successful collaborations has been with the Chicago Fire Department (CFD). The institute engaged with CFD more this year than in previous years and sponsored more training events and other projects in the city and on the Champaign campus to help increase Chicago firefighters' participation in institute classes.

In FY2015, our instructors delivered courses in leadership at CFD that included: 85 lieutenants, 28 captains, 25 battalion chiefs and 20 Paramedics in Charge.

FY2015 programs that were developed and carried out by IFSI in Chicago include:



- Operation- and technical-level training of approximately 600 members of the CFD Special Operations.
- Partnering with the CFD to deliver an online Chicago-specific Fire Service Vehicle Operator class.
- An Intensified Fire Officer Promotion series of classes for more than 138 newly promoted lieutenants, captains, and battalion chiefs. New in FY2015 is the addition of Paramedics in Charge with 20 trained. The classes included NFPA 1021 Fire Officer Certification and Incident Safety Officer.
- Certification at Instructor II level of 18 CFD instructors.
- Company level training facilitated by CFD and delivered by IFSI instructors to more than 3500 CFD members.
- Ongoing EMS to Weapons of Mass Destruction (WMD) training to more than 1000 CFD members.
- Class delivery of IFSI programs, such as the Fire Investigation Series, Hazardous Materials Technician B and National Incident Management (NIMS).
- Monitoring of CFD members participating in the Physical Fitness Incentive Program.



Officer training beyond Chicago

Due to an increasing demand for leadership and officer classes, IFSI delivered five fully-attended state-wide Fireground Company and Command classes. Working with 30 subject matter experts from IFSI, the Illinois Fire Chiefs Association, the Illinois Society of Fire Service Instructors, Office of the State Fire Marshal, and community colleges, the institute designed and developed a new Fire Officer curriculum that will begin in 2016.

As part of its strategic plan and in direct response and collaboration with the Illinois Fire Chiefs Association, IFSI refined its Leadership Development and Decision Making program. Complete program development is scheduled to launch in 2016.

Strategic Partnerships

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



- **Illinois Fire Chiefs Association** – support of leadership curriculum development.
- **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.
- **Illinois Department of Natural Resources** – training for firefighters and others to respond to extensive and specialized fires in a wildland or urban environment and to qualify for red-card certification.
- **University of Illinois at Urbana-Champaign** – cross-campus initiatives to support interdisciplinary research and academic programs.
- **Office of the State Fire Marshal** – funding for the Cornerstone program and certification of firefighters.
- **State of Illinois Fire Caucus** – cooperative work on strategic public policy issues.
- **Underwriters Laboratories** – joint sponsorship of fire-related research and product field trials.
- **Chicago Fire Department (CFD)** – projects in four key areas: training, education, research and translating “science to the street.” CFD is also a partner with IFSI in research projects with Underwriters Laboratories. The studies involve work by IFSI personnel who gather particulate matter from smoke in actual fires.

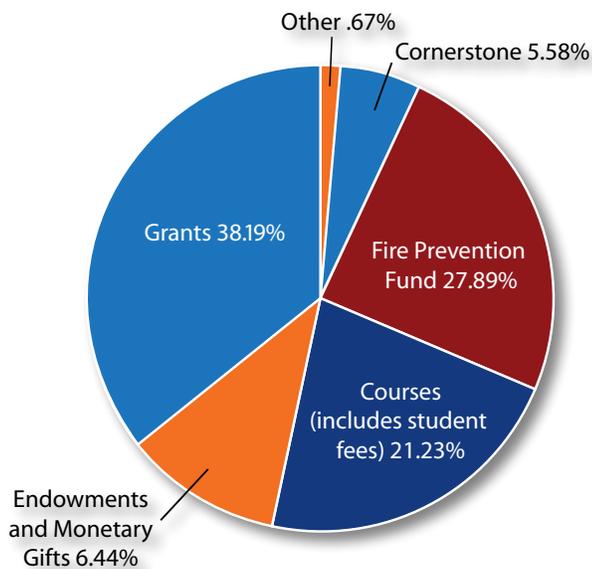
Corporate Relations

Hands-on training is the signature of IFSI, and it's 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.

Generous support from business partners

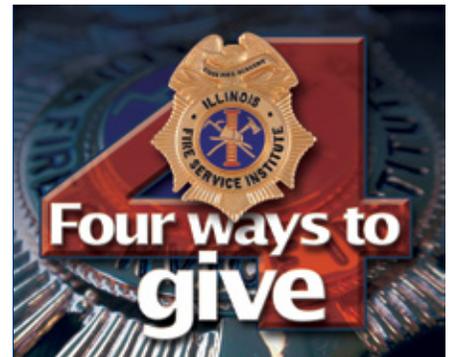
In FY2015, IFSI worked with 25% more corporate partners in providing more than \$1.4 million in cash donations and gifts-in-kind. The companies range from small fire service equipment suppliers to large research-based organizations – from insurance companies to financial institutions. Some of our partners focus their contribution on specific programs and other support IFSI in general terms. IFSI's agriculture training program is supported by a number of ag-related businesses; our vehicle and machinery rescue training programs are supported by the auto industry and various auto-related entities.

Funding Sources



Every dollar makes a difference.

IFSI takes pride in guaranteeing that **100 percent of all donations** are used to directly support our firefighter training, research and education programs.



Four funds have been established to support the delivery of firefighter training at IFSI.

The **IFSI Fund** is a general-use fund for training, education and instructional services.

The **Ag Rescue Training Fund** is an endowed fund that directly supports the agriculture rescue curriculum.

The **Firefighter Life Safety Research Fund** is an endowment that support human and equipment applied research.

The **Learning Resource and Research Center Fund** supports the physical aspect of the library, research laboratories and Firefighters Memorial Hall, as well as the outside Memorial Plaza.



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