

## FROM THE CHANCELLOR

I'm honored to have this opportunity to congratulate the Illinois Fire Services Institute on its 88th year of continuous service to first responders and the citizens of Illinois.

The University of Illinois is proud to be home to the nationally recognized staff and state-of-the-art facilities at IFSI. It is a tremendous resource for our campus and the entire state. In addition to collaborating with University professors and researchers, Institute staff are involved in numerous activities that engage the public. By forging relationships with outside organizations, IFSI continues to expand its work and strengthen its reputation as one of the premier fire institutes in the country.

We share IFSI's vision for even greater public outreach in the coming years, and we look forward to supporting their innovative new efforts. Thank you to the Institute's staff, its partners, and all of those who took part in its programs for your outstanding work.

## Phyllis M. Wise

Vice President, University of Illinois Chancellor, University of Illinois at Urbana-Champaign



## In FY2012, IFSI delivered training to 65,143 students\*

1,096 different courses
14,818 class hours
610,265 student hours\*
962 Illinois fire departments
231 other response organizations
3,126 students in officer training courses

Classes were offered in 343 locations and attended by first responders from 100 Illinois counties.

\* As an affiliate of a land-grant university, IFSI is committed to fulfilling its responsibility for public outreach. In FY2012, these efforts included outreach programs to 6,547 students (50,725 total student hours). The IFSI curriculum also engaged 15,208 students (70,840 student hours) in activities outside of direct delivery of classes.



## FROM THE DIRECTOR

This will be my last Annual Report as Director. During the past 15 years IFSI has developed and implemented two Visions to meet its responsibilities as the Illinois statutory State Fire Academy to help meet the training, education, information and research needs of firefighters and fire departments in Illinois, across the U.S. and with key international partners.

During 2012 IFSI continued to expand its course offerings and partnerships and reached more firefighters than in any 12 month period in our history. The institute began to more fully explore the extraordinary new capabilities of our new Learning Resource and Research Center to include expanded use of technology, modern research labs and a full-service library dedicated to the information needs of Illinois firefighters. IFSI has continued the Vision process resetting its focus to 2020. On 31 August 2012, Colonel Royal Mortenson, USMC (retired) assumed duties as the IFSI director and will lead the institute through the next decade.

The past 15 years have been both extraordinarily challenging and rewarding for the entire fire service and for IFSI in particular. With your support, IFSI has been able to do more for you and it is our hope that we truly have "helped you do your work through the training, education, information and research" we have provided. It has been a high privilege to serve as IFSI director, to be accepted among your ranks as "the Colonel" and, hopefully, to serve you. Thank you for honoring me by permitting me to consider myself to be part of the Illinois fire service.

Respectfully,

Richard Jaehne, Director

IFSI congratulates Richard Jaehne, who retired in August 2012 after serving as director for the Institute since 1997. Under Jaehne's leadership, the Institute extended its reach to every fire department in Illinois and brought international attention to IFSI's research and training programs.



## SOME HIGHLIGHTS OF THE PAST YEAR

- Developed and introduced a web-based class to aid responders in dealing with persons with Autism Spectrum and similar disorders.
- Developed two field guides, one for rope rescue and the other for trench rescue.
- Completed the construction of an elevator shaft rescue area and three-story concrete technical pile.
- > Extended Incident Command classes to incorporate Illinoisspecific resources.
- > Delivered the NiCor Fire School.
- Delivered the first comprehensive validation exercise that incorporates both hazardous materials and technical rescue teams.
- > Worked closely with the Office of the State Fire Marshal to update the Fire Prevention Officer Program.
- > Certified nearly 1,000 students in ProBoard accredited courses.

### FIRST-CLASS FACULTY AND STAFF

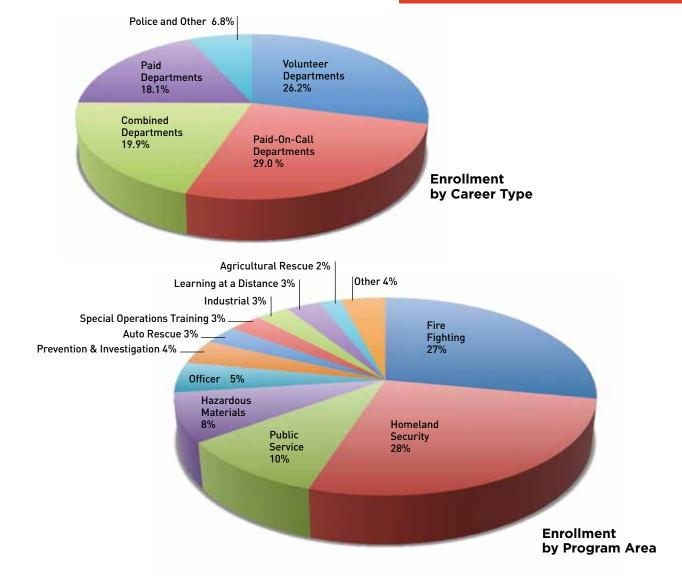
The IFSI faculty and field staff includes more than 500 of the top professionals in the country. These fire service training experts are active-duty firefighters and officers who build their years of experience into classroom and hands on training courses. Their credentials and practical expertise have brought national and international recognition to IFSI programs.

"The instructors were great.
They have a strong knowledge
base and are able to teach it,
then demonstrate it.

As always, it was an easy teaching moment."

Chicago firefighter

## TRAINING PROGRAMS





Illinois Governor Patrick Quinn announced that IFSI would receive a grant from the Office of the State Fire Marshal to support training for young people exploring firefighting careers. The \$65,000 grant will provide funding for the 2013 Explorer-Cadet "Hands-On Training School" and for up to four one-day Fire Service Youth Skills Training Events to be held throughout Illinois.

## **FEATURED EVENTS**

IFSI's flagship event – the **88th Annual Fire College** – brought more than 700 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, while maintaining classes on essential fire fighting and leadership skills.

The **17th Annual Winter Fire School** offered a full weekend of training in January in Champaign. More than 400 firefighters enrolled in 12 short courses focused on the training needs of small and volunteer fire departments. This was the second year the Winter Fire School was held entirely within the new Learning Resource and Research Center (LRRC). Winter Fire School also provided training support for the state Incident Management Team program.

The 10th Explorer-Cadet Hands-On Training Fire School in June hosted more than 340 students, ages 15 to 21, and their chaperones for a four-day program of hands-on training and leadership experiences. Participants traveled from as far as Alaska, Georgia and Michigan to attend this popular event.

"I would like to take this opportunity to say thank you and express my gratitude for hosting the 2012 Explorer Cadet Fire School. This program has provided a safe learning opportunity for my son to explore his passions for firefighting that he has had since he was 14 years old. As a parent, I have watched him grow and mature as a man and leader by leaps and bounds through the Explorer Programs. When I asked him what he got the most out of his time there, he said, 'All of it was good, but the leadership classes were the best!"

Mother of Explorer-Cadet from Anchorage, Alaska

## **FIELD TRAINING**



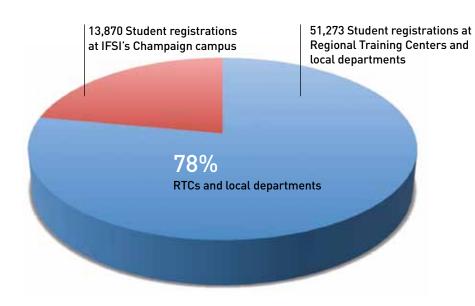
## **Cornerstone Program**

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

Cornerstone courses are presented throughout the state in fire departments' local facilities, at IFSI and at IFSI Regional Training Centers and fire schools. Aided by a solid funding commitment from the Illinois legislature, IFSI delivered 22 percent more Cornerstone classes to 22 percent more students in FY2012 over the previous year.

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



## **Cornerstone Delivery**

549 classes 826 departments 13,715 students

# Illinois Propane Education and Research Council (IPERC) Training

50 classes 233 departments 1,378 students

## Illinois Petroleum Resources Board Oil Well Fire Training

1 class 23 departments 71 students

## Illinois Department of Natural Resources Wildland Training

16 classes 98 departments 388 students

More than 78 percent of IFSI training is delivered at local fire departments and Regional Training Centers throughout the state.



## 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 seven Centers make it possible for firefighters to receive quality training close to their home departments. Facilities range from burn structures to Technical Rescue and Hazardous Materials training props that are funded through the Illinois Terrorism Task Force.

## Field Training Highlights

- > Developed an instructor support model to provide more advance preparation for classroom instructors.
- > Supported the Tazewell County Fire School and many others.
- > Expanded the downstate Officers Program and cultivated new relationships in the southern region to increase demand for IFSI Cornerstone training.
- > Engaged eight new departments from the southwest region that had not previously hosted Cornerstone classes.
- > Traveled more than 45,000 miles throughout Illinois to meet with local fire departments.
- > Increased the demand for SOTP industrial training and delivered more classes in the field.





"The [Command and General Staff] class was beneficial to understanding the whole picture of the Incident Management System. I really benefited from how the instructors shared their personal experiences. It showed the skills to do the job we came here to learn."

ILLINOIS DEPARTMENT OF TRANSPORTATION FIELD ENGINEER

## WILDLAND FIRE FIGHTING TRAINING EXPANDS

With wildland fires increasing in frequency and severity, IFSI is meeting the challenge of providing additional training for structural firefighters. IFSI's wildland program includes intensive training in the techniques and strategies of wildland firefighting and prescribed fire management. The program is based on a nationally-accredited curriculum from the National Wildfire Coordinating Group. IFSI is the only training provider in Illinois to offer these accredited courses.

IFSI instructors put their own training into action during FY2012. Several IFSI instructors were deployed to help fight the wildfires that raged through Texas in May.

Through a grant from the Illinois Department of Natural Resources, IFSI offers wildfire training at no cost to volunteer firefighters who serve a population base of 10,000 or less. Continuing in 2012 is the availability of a free Nomex fire fighting jumpsuit for every student completing the S-130/190 and G-130/190 classes.







"I would like to especially commend your instructor corps. This group of men was fully committed to student safety without sacrificing the hands-on aspect of this training. The balance of knowledge demonstrated by this group of instructors provided a great learning environment, and I appreciate the initiative of individual instructors to address questions to the fullest extent."

Firefighter from Stewardson FPD following a Basic Wildland Fire Fighter class

## **LEARNING AT A DISTANCE**

### **FY2012 HIGHLIGHTS**

- > Introduced the new web-based course "Autism Spectrum & Similar Disorders in Emergency Situations". Developed in conjunction with the Office of the State Fire Marshal, this course introduces firefighters and emergency medical personnel to techniques for dealing with individuals with autism in low-stress and high-risk situations.
- > Expanded the blended-course curriculum by adding Basic Firefighter Academy training. Blended courses combine online learning with hands-on training experiences.
- > Delivered classes to 69 percent more students representing 84 percent more departments.
- Upgraded the online course management system to take advantage of enhanced course-delivery technologies.
- > Introduced the new "Fires on the Farm" online class and completed the "Fires on the Farm Down & Dirty" training CD.

### **REDESIGN OF WEB SITE**

The IFSI web site is growing as it becomes used as primary marketing tool and portal to IFSI online classes and course calendars. During FY2012, the web site was redesigned to provide more dynamic content in a more streamlined format. For 12 months, the web site had:

- > 31.248.621 hits
- > 85,146 average hits per day
- > 8,221,115 total page views
- > 22,400 average page views per day
- > 728,500 total visitors
- > 106,149 total unique IP addresses

In FY2012, 35 online courses were delivered to 2,106 students from more than 424 fire departments in more than 15 states and countries

for a total of 22,918 hours of instruction

"It's awesome that we can do this on our time and do our homework and listen to audios along with the chat sessions."

Firefighter II Online Student

#### **TOP FIVE PAGES**

Home page Course search page Library FireTalk Resource Center Program page









## LIBRARY AND INFORMATION SERVICES

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

## FY2012 Highlights

- > Increased the collection to 64,383 titles
- Circulated 1,623 items, with the majority (70%) in printed materials
- > Expanded the number of DVDs and other portable electronic resources
- Included a collection of electronic devices (Kindle, Kindle Fire, NOOK, etc.)
- Responded to 3,834 requests for information
- > Increased IFSI archives by 79%



The IFLODD database now includes:

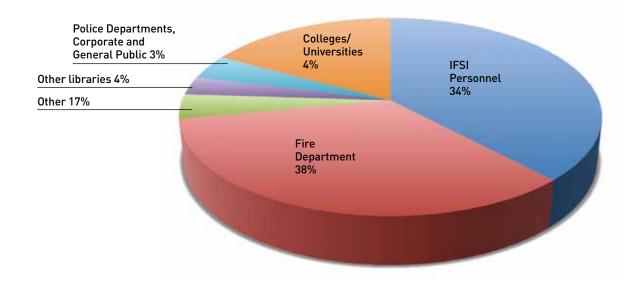
**860** firefighter records

**658** incident summaries

**406** images

**12** oral history interviews

#### REFERENCE TRANSACTIONS BY TYPE OF ORGANIZATION







## THE LIBRARY IS PART OF THE 21,000-SQUARE-FOOT LEARNING RESOURCE AND RESEARCH CENTER. ALSO INCLUDED IN THE LRRC:

### **MEMORIAL PLAZA**

**Memorial Plaza** is the brick walkway surrounding the main entrances to the LRRC and Memorial Hall. Individuals, businesses and organizations contributed paving bricks in the Plaza. Bricks are personalized with engraved messages to memorialize firefighters, honor friends or family members or communicate support for the Institute's work. Plaza bricks can be ordered from the IFSI web site under the GIVING link.

### **I-BEAM**

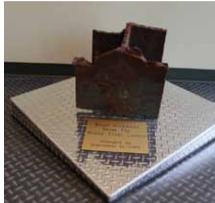
**Firefighter Memorial Hall** honors fallen firefighters with the addition a steel beam fragment from the Twin Towers, donated by the Port Authority of New York and New Jersey. The Memorial Hall is open to the public.

## **EMERGENCY OPERATIONS CENTER**

The Emergency Operations Training Center is helping IFSI meet the growing demand for National Incident Management System (NIMS) training. The Center incorporates the most advanced technologies for simulating actual emergencies and Emergency Operations Command (EOC). Illinois communities can use the Center to train their staffs and test their emergency plans and response capabilities. Plus, the space is ideally equipped to serve as a Campus Incident Command Post should the university need it.









## **RESEARCH**

## A Commitment to Research

IFSI is a national leader in research efforts to protect firefighters and advance the technologies available to them. The Institute focuses its efforts on action-oriented studies in health and wellness, incident management and equipment technologies. Research is carried out at IFSI's Learning Resource and Research Center and at partner facilities on and off campus.

Institute researchers also collaborate with dozens of University of Illinois departments on interdisciplinary studies. Investigation areas include:

- > Heat stress/strain and cardiovascular effect of fire fighting
- > Biomechanics
- > Cardiovascular research
- > Combustion science and diagnostics
- > Immunology
- > Psychological and cognitive function effects of heat stress
- > Pathology, sickness behavior
- > Decision making and group dynamics

## FY2012 Highlights

- Completed data collection on the influence of aspirin in reducing the number of heart attacks suffered by firefighters. The study is supported by a \$999,801 grant from the Department of Homeland Security (DHS).
- > Completed data collection for a project to evaluate firefighters' escape rope system performance and design in fireground applications.
- ➤ Initiated work on IFSI's fifth DHS Fire Prevention & Safety Research and Development grant to study the combined influence of design and size of self-contained breathing apparatus on firefighters' metabolic stress and safety of movement. The grant totals \$996,505.
- Completed partnership with the National Institute for Occupational Safety and Health (NIOSH) Division of Surveillance, Hazard Evaluations and Field Studies on a study to collect exposure data and to document hazards during structural fire fighting and overhaul operations.
- > Introduced two new classes for Fire College on fire dynamic research.
- Hosted a visiting scholar from Vrije University in Amsterdam, who collaborated with the College of Communications.

IFSI's Research Programs were featured on a video presented at the Fire Rescue International Conference in Denver. A link to the video is on the IFSI web site's home page.



"One of the most important areas that research can help the fire service is being able to have a better understanding of physiological impact of fire suppression.

Once we understand physically what is going on inside the firefighter, we can implement tactics to better protect our personnel and thereby reduce line-of-duty deaths and injuries."

Chief Craig Haigh, from a video presented at Fire Rescue International







IFSI research results are featured in peer-reviewed publications. In 2012, five manuscripts were published or went to press in the following publications:

Cardiology in Review
Current Sports Medicine Reports
European Journal of Applied Physiology
Prehospital Emergency Care

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

Society of Experimental & Applied Mechanics Congress Costa Mesa CA June 2012

American College of Sports Medicine Annual Meeting San Francisco CA May 2012

Hong Kong Institution of Engineers, Fire Division Hong Kong May 2012

Fire Department Instructors Conference (FDIC) Indianapolis IN April 2012

Fire Rescue International Denver CO August 2012

Amsterdam Research on Emergency Administration Annual Seminar Amsterdam, The Netherlands January 2012

## TWO NEW FIELD TRAINING MANUALS

Valuable reference information is now available for students and first responders with the development of two new field guides.

"Rope Rescue Technician: Field Rope Operation Guide" features all aspects of rope rescue and serves as a handy, pocket-size reference for first responders. Fully illustrated with easy-to-follow photographs, the guide includes sections on knots, anchors and haul systems.

"Trench Rescue Technician Student Field Guide" features Incident Command and Technical Rescue Ops checklists, step-by-step intersecting trench shoring diagrams, manufacturer's tabulated data and OSHA interpretation reference material. It also serves as a guide for first responders.

## A SUCCESSFUL PARTNERSHIP WITH MOTOROLA

As part of a continuing effort to focus on officer training, IFSI conducted a special Fireground Company Officer School in the spring of 2012. The course was funded by a grant from the Motorola Foundation.

The course was designed for volunteer fire departments that want maximum reach for their investment. By sending one or two representatives, a volunteer department could develop leaders who share their training with other firefighters.

The Fireground Company Officer School trained 36 students from 24 fire departments, which included career, combination and volunteer departments. Another school is planned for November 2012.

IFSI also hosted a Fireground Command Officer School in conjunction with a Company Officer School. The Command School trained ten students from seven departments.

Another Motorola grant allowed IFSI to offer an additional officer class—"Rapid Intervention Team (RIT) Under Fire." Held in November 2011, the course was attended by more than 30 students from 30 different fire departments in seven U.S. states and Belgium. Students were represented from the country's largest fire department (FDNY) to one of Central Illinois' smallest volunteer departments.

"Prior to this class, I thought I had a handle on the basics of being a C/O. I was wrong. What I learned in this week was invaluable. If I am thrown into the hot seat tomorrow, I now have the confidence and basic knowledge to get my crew there and back safe!"

Student after completing the Fireground Company Officer School in May 2012







## **Industrial Training**

In FY2012, IFSI expanded its engagement with the private sector to deliver industrial training:

- Coordinated the NiCor Fire School at their Troy Grove, IL facility.
- Delivered training to the Exxon Fire Brigade.

## **FY2012 HIGHLIGHTS**

#### With Asia

- Hosted officials from the Hong Kong Fire Services Department for two three-week HazMat training sessions.
- Visited the Hong Kong Fire Services Department to learn how they replicated the training received at IFSI.
- Hosted 27 participants for the eighth annual Chinese Librarians Summer Program.
- Hosted 15 Chinese CEOs and 15 higher education administrators for the Emergency Management Training Program.
- > Made presentations to emergency managers and fire officials in Dalian, China.
- > Signed a Memorandum of Understanding with the Dalian Administrative College.
- Hosted 19 Dalian government officials for Emergency Management Training Program
- Delivered the keynote address at the Fire Asia 2012 conference in Hong Kong.
- Spoke on "Leadership in Library Management" at the East China Normal University Library in Shanghai, China.
- Hosted two Korean firefighters who participated in several IFSI courses.

#### **FIsewhere**

- Presented at the Amsterdam Research on Emergency Administration (AREA) at Vrije University in Amsterdam, Netherlands.
- Hosted a visiting scholar from Vrije University to study the organization of safety, security and surveillance.













## EXPANDING OUR PARTNERSHIP WITH THE CHICAGO FIRE DEPARTMENT

One of IFSI's most successful collaborations has been with the Chicago Fire Department (CFD). The Institute has sponsored an increasing number of training events and other projects in the city and on the Champaign campus to help increase Chicago firefighters' participation in Institute classes. In FY2012, our instructors delivered courses to 4,536 registrants from fire departments in the Chicago metro area.

## Programs that were developed and delivered by IFSI staff to Chicago firefighters include:

- > Numerous classes on fire suppression, truck operations and forcible entry.
- > Work with the city of Chicago to prepare first responders for the July NATO Summit.
- > A five-week program for newly promoted Chicago Fire Department members.
- > Special Weapons of Mass Destruction (SWMD) classes for 795 students—a total of 27,818 student hours.
- > Forcible entry training for more than 3,100 Chicago firefighters.
- > Continuation of wellness-assessment programs for the CFD Safety Division and Illinois Association of Firefighters Local #2.

## Illinois Terrorism Task Force (ITTF) FY2012 Highlights

- Hosted the first comprehensive state deployable validation exercise in October.
- Provided support for teams completing their National Incident Management System (NIMS) Training Task Books.
- > Delivered Homeland Security courses to 17,969 first responders.
- Managed the state of Illinois Incident Training Specialist program that qualified 23 individuals in 40 incident command functions.



"Everything was beneficial and the seriousness of the all the instructors and knowledge is great. It makes me want to learn more."

FIREFIGHTER FOLLOWING A TRENCH RESCUE CLASS NEAR O'HARE AIRPORT

## **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 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 environments.



> University of Illinois at Urbana-Champaign—cross-campus initiatives to fund 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**

Companies throughout Illinois have supported IFSI with cash and in-kind donations. Our thanks go to:

AEC and Holmatro — auto-extrication rescue tools

Air One — equipment for auto-extrication program

Ajax Tools, Inc. — equipment for auto-extrication programs

Akron Brass — nozzles and tools

Alexis Fire Equipment Company — equipment for auto-extrication program

**AMKUS, Inc.** — auto-extrication rescue tools

**Brock Grain Systems** — grain bin and ongoing support

Bryant Industries — equipment for collapse training program and autos for vehicle rescue training

Caterpillar, Inc. — wood pallets for burning

**Commerce Bank** — support for IFSI training programs

Draeger — Self-Contained Breathing Apparatus (SCBA) and gas detection meters

**EMC and Genesis Rescue Systems** — auto-extrication rescue tools

FE Moran Alarms — equipment for Streetscape prop

FE Moran Fire Protection — use of facilities for firefighter training

First State Bank — support for Fire College

Flex N Gate — pallets

Globe Fire Suits — Personal Protection Equipment for research program

**GROWMARK** — ongoing support of programs

Hobbico — pallets

Honeywell Life Safety Equipment—equipment for Streetscape prop

**Hurst** — auto-extrication tools

Illini Contractors Supply — ongoing support for IFSI training programs

Illinois Farm Bureau — ongoing support of programs

Illinois Fertilizer and Chemical Association — Material Safety Data Sheet books

Illinois Propane Education and Research Council — funding and fuel for LP fire fighting training program

Liberty Rescue Systems — grain-bin rescue tube

**LKQ-U PULL IT NORTH** — autos for vehicle training programs

Midland States Bank — equipment purchase for IFSI research

Motorola Foundation — support of training programs

MSA — gas detection meters

Niemeyer Repair Service, Inc. — support for IFSI ag rescue programs

Paratech, Inc. — ongoing support of programs

**Pekin Insurance** — ongoing support of programs

Scott Safety — self-contained breathing apparatus

Bill Smith Auto Parts — vehicles for auto-extrication training program

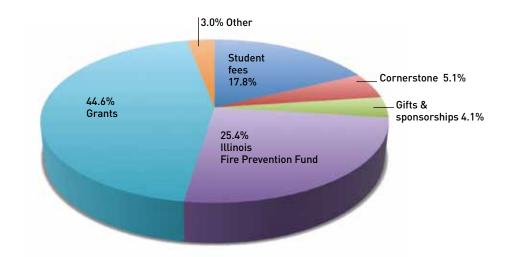
Streamlight — flashlights

Tatman's Towing — autos for extrication training program

University of Illinois Employees Credit Union — ongoing support of programs

WS Darley — ongoing support of programs

### **FUNDING SOURCES**







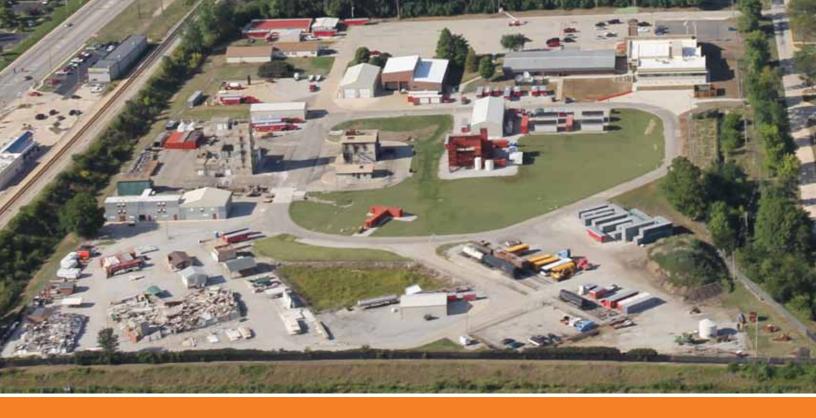
## **ADMINISTRATION**

Richard Jaehne Retired Director

Roger Lunt
Deputy Director
(217) 244-9674
r-lunt1@illinois.edu

John (Mac) McCastland Associate Director (708) 906-6927 jmccastl@fsi.illinois.edu

**Brian Brauer** Associate Director (217) 333-9027 brbrauer@illinois.edu Harry Clore
Director of Budget & Resource
Planning
(217) 333-9013
hclore@illinois.edu



ILLINOIS FIRE SERVICE INSTITUTE'S MISSION:
TO HELP FIREFIGHTERS DO THEIR WORK THROUGH
TRAINING, EDUCATION, INFORMATION AND RESEARCH.



## **ILLINOIS FIRE SERVICE INSTITUTE**

11 Gerty Drive Champaign IL 61820 (217) 333-3800 Toll-free (800) 437-5819

FAX: (217) 244-6790 Email: fsi@illinois.edu

www.fsi.illinois.edu