Campus Fire Safety e-NewZone Monthly Newsletter ... March 2015, Volume 4, Issue 3

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Edwards becomes Sponsor to The Center for Campus Fire Safety

The Center for Campus Fire Safety® is proud to welcome Edwards™ to its list of sponsors. Edwards is part of UTC Building & Industrial Systems, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide. With over 125 years of dedication to alarm and detection technology, Edwards building systems are protecting the lives and livelihoods of the people who make businesses run, including those entrusted to the care of universities and colleges worldwide. They offer Life Safety, Fire Alarm and Mass Notification Solutions... MORE

The Center for Campus Fire Safety® to Bolster Fire Prevention Efforts with FM Global Grant

The Center for Campus Fire Safety (The Center) has received a US$7,500. fire prevention grant from FM Global, one of the world's largest commercial property insurers. The award will be used to assist in the cost associated with speakers and speaker registration at The Center's annual Campus Fire Forum, held in October 2015... MORE

Campus Fire Forum Registration is open! ... MORE

FROM THE PRESIDENT

Enough is Enough! As the details unfolded about the horrific fire in New York City that claimed the lives of seven children in their quintessential two-story single family home on a tree-lined street in Brooklyn, there wasn't a fire safety professional that didn't see - or hadn't seen before - the next chapter of the story .... that there were no working smoke alarms! (NOTE: there was one smoke alarm located in the basement, however the fire originated on the first floor.)

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OFF-CAMPUS, by Tim Knisely

Cooking 101:

Food on the stove and grease fires are common responses for fire departments in off-campus housing communities. Like most fires and the associated responses, many could be prevented with a simple awareness to cooking basics – or Cooking 101.

The Fire Problem: Cooking fires are a leading cause of fires in any household, but several factors increase the frequency of off-campus cooking incidents; including inexperience with the appliance and alcohol impairment. .... **MORE**

THE INSPECTOR, by Phil Chandler

In a campus emergency who is in charge?

The truth be known, the Inspector had a prior life, that of an old-fashioned retailer. My standard operating procedures were guided by a body of accepted principles and maxims handed down from previous generations. One succinct sentiment that resonates with me to this day posits the following: "The boss is the one with the broom." When push comes to shove and the job has to get done, it is the one with a real proprietary interest in the venture that will do what needs doing, no matter how unpleasant or menial. To those that have had the unique pleasure of having to make a payroll each week, no further elaboration is required. ... **MORE**

2015 Webinar Schedule is online

Topics Include:

- Severe Weather, April 22, 11 AM EST (60 minutes)
- Fire Stopping Overview and Introduction, April 30, 11AM EST (90 minutes)
- Managing Fire Barriers, June 11, 11 AM EST (90 minutes)
- Tropical Weather, July 8, 11AM EST (60 minutes)
- Key Changes to 2015 ICC and NFPA Model Codes, 11/18, 11AM EST (60 minutes)

More Info & Registration:

Cost: Members are Free | Non Members $50. per webinar

- **Members: Simply login to our website with your member credentials (login is at top right of website) and the registration information (link) will appear directly underneath our webinar schedule.**
- Non Members: Regular Membership is $40. annually (**see requirements**). Once you become a member all webinars are free, along with discounts to our annual campus fire forum and more.

AND WE'RE ALWAYS LOOKING FOR WEBINAR SPEAKERS! If you are interested in a webinar, simply let us know.... **Please click and complete your info.**

If you have questions, please contact **SupportTeam@campusfiresafety.org**

TRAINING OPPORTUNITIES

Chubb Fire Protection Training - The 2015 schedule is now online...

Chubb Offers 30% discount to Members of The Center for Campus Fire Safety or 50% if you are also a Building and Fire Code official or firefighter... **MORE**

Fire Smart Campus Training Opportunities ... The Center instructor(s) will come to your campus or town. Price varies depending upon location ... **MORE**

Crowd Manager Training ... 2 hour online course @ $19.95. Presented by ICC, NAFSM & CCFS, this course provides valid, credible training to those charged with crowd management at facilities including higher education. This meshes with The Center's mission of providing resources to our community ... **MORE**

FCIA Webinars are Free to The Center Members ... In addition to the two webinars FCIA will be presenting for The Center, members are also welcome to attend the 2015 FCIA Webinar Series at no cost ... **MORE**

The U.S. Fire Administration's (USFA's) National Fire Academy (NFA) is conducting a second pilot class at the National Emergency Training Center (NETC) in Emmitsburg, Maryland, for the newly developed six-day course "Urban Fire and Life Safety — Issues and Solutions" (UFLSIS) (P0380).
Scheduled for Sunday, July 12, through Friday, July 17, 2015 ... **MORE**

C+S and more

CODES, STANDARDS & MORE

Protecting those books!
Sprinkler protection requirements in libraries and other document storage areas.
By: Audrey Goldstein, Associate Fire Protection Engineer, NFPA

Libraries are a central feature of every university. They are a stop on the tour for prospective students and parents before heading to the bookstore to buy sweatshirts and bumper stickers. University libraries become a second home for some students, a late-night study retreat for those with loud roommates or those who need a change of scenery while studying.... **MORE**

Section 1004 - Occupant Load

[B] 1004.1 Design occupant load. In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section. > The design occupant load is the number of people that are intended to occupy a building or portion thereof at any one time; essentially the number for which the means of egress is to be designed. It is the largest number derived by the application of Sections 1004.1 through 1004.9. There is a limit ... **MORE**

News

FIRE INCIDENT NEWS | BREAKING NEWS | MASS NOTIFICATION SYSTEMS IN THE NEWS | ARCHIVES

We provide you with continual news updates when they happen .... Click on the links above to fire hundreds of higher education specific new stories ++ ability to search through years of our news archives.

BREAKING NEWS - Click here to Sign up!

The Center for Campus Fire Safety provides initial notification about fire fatalities that occur on a university or college campus, or that occurred within the town where the campus is located. This data is collected from news sources from around the country, and many times - around the world, and then emailed to you.

MEMBER NEWS & JOB OPPS .... Want to share? Send your news or job opps to: **SupportTeam@campusfiresafety.org**

Sorry, No Job Opps this month!

New Committee Members ... Please welcome the following members. Thanks for volunteering your help on our committees!

Professional Development	• Ronnie Gilley, Life Safety Systems, Facilities Management, Arkansas State. • Robert Harrision, University Of Kentucky Fire Marshal office as the Fire Inspection

Professional Development, Education & Events Committee:	• Robert Harrison, University Of Kentucky Fire Marshal office as the Fire Inspection Specialist
External Affairs Committee:	• Madonna Calderoni, Drexel University
Codes, Standards & Technical Research Committee:	• Alicia Musselwhite, CSP, CSMP, Safety Officer, Mississippi State

ACTIVITIES

Upcoming Center Activities ... join us.

April	NAC Meeting in Washington DC. - Michael J. Swain, Vice President will be attending. Meeting at University of New Haven with Center's Student Committee and NFPA.
June	Florida Association of Fire and Life Safety Educators - Michael J. Swain, Vice President will give a 4 hour training session at their conference. NFPA Conference in Chicago - Janet Maupin, Director will be manning our exhibit
July	CSHEMA Conference - Directors Kevin McSweeney and Rodger Reiswig will be speaking.

FIRE FATALITY STATISTICS

The Center for Campus Fire Safety provides basic information about fire fatalities that occurred on a university or college campus, or that occurred within the town where the campus is located. **Statistics**

ABOUT THE CENTER FOR CAMPUS FIRE SAFETY

EveryoneGraduates

The Center is the Voice of over 4000 colleges and universities. As a nationwide non-profit, membership based, organization devoted to reducing the loss of life from fire at our nation's campuses, we offer an abundance of free resources to help fire and life safety officials working on college campuses and fire departments with responsibility for a college campus/university.

Leadership | **Committees** | **Sponsors** | **Advisory Council** | **Members**

OUR SPONSORS: TYCO/SIMPLEXGRINNELL, SIEMENS, NFPA, LEXINGTON INSURANCE, KIDDE, NEMA, FIRE EQUIPMENT MANUFACTURERS' ASSOCIATION, HONEYWELL FIRE SYSTEMS, ICC, KELTRON, BULLEX, CHUBB, PREVENT-ZONE, CVS HEALTH, EDWARDS, FACTORY MUTUAL [**MORE**

CENTER SOCIALS

Connect with us ... Join our social networks and discussions on fire and life safety.

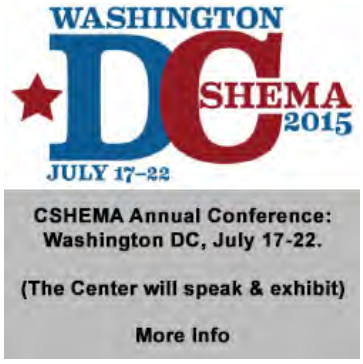
- For Fire & Life Safety educators and Fire Officials: **LinkedIn** | **FaceBook** | **Twitter**
- Off-Campus Fire & Life Safety Alliance **Login** | **Join** (continual discussions about off-campus fire and life safety).
- CenterNet (member directory & social networking for Center members only) **Login** | **Become a Member**

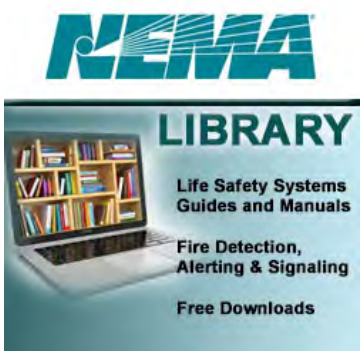
NEW!! Campus Fire Safety for Students

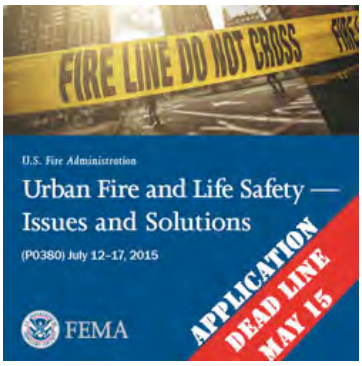
Our Student to Student Network .... For Students & Parents: **FaceBook** | **Twitter**

Please spread the word to your students and parents. This team will be speaking to other students through social media about the importance of Fire and Life Safety on and off-campus. In a few months we will announce additional social networks, contests, materials and additional resources for students.









Advertise with us .... Our newsletter is distributed to over 17,000 readers and also re-directed through several of our non-profit partners. Cost $250. **Contact ctabor@campusfiresafety.org**

The Center for Campus Fire Safety
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Newburyport, Massachusetts 01950
US

FOR IMMEDIATE RELEASE

Edwards becomes Sponsor to The Center for Campus Fire Safety

March 27, 2015; Newburyport, Massachusetts … The Center for Campus Fire Safety® (The Center) is proud to welcome Edwards™ to its list of sponsors.

Edwards is part of UTC Building & Industrial Systems, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide. With over 125 years of dedication to alarm and detection technology, Edwards building systems are protecting the lives and livelihoods of the people who make businesses run, including those entrusted to the care of universities and colleges worldwide. They offer Life Safety, Fire Alarm and Mass Notification Solutions.

“We are fortunate to add Edwards to our family of globally respected sponsors and industry leaders” said Paul D. Martin, President of The Center for Campus Fire Safety. It is through the generosity of Edwards and all of our sponsors, members, advisors and supporters that makes it possible for The Center to create programs and deliver training and resources to the nation’s millions of college students as well as faculty and staff at those institutions, and fire department personnel responsible for local colleges. “A warm thank you to all that have demonstrated a commitment to supporting the cause of campus fire safety and the free exchange of information to support the many professionals dedicated to protecting colleges and universities worldwide” said Martin.

About The Center for Campus Fire Safety

The Center for Campus Fire Safety (The Center) is a non-profit 501C3 organization.

The Center is a member-based organization devoted to reducing the loss of life from fire on and off campuses. The mission of The Center is to serve as an advocate for the promotion of campus fire safety. The Center serves as the focal point for the efforts of a number of organizations and also as a clearinghouse for information relating to campus fire safety. Visit us at www.campusfiresafety.org for more information.

Media Contacts

The Center for Campus Fire Safety | 978.961.0410
Paul D. Martin, President, pmatin@campusfiresafety.org
Cathy Tabor, Director of Marketing Communications, ctabor@campusfiresafety.org

FOR IMMEDIATE RELEASE

The Center for Campus Fire Safety® to Bolster Fire Prevention Efforts with FM Global Grant

March 27, 2015 … Newburyport, Massachusetts —The Center for Campus Fire Safety (The Center) has received a $7,500 fire prevention grant from FM Global, one of the world's largest commercial property insurers.

FM Global representatives will be presenting the award to The Center in April. The award will be used to support *Campus Fire Forum*, The Center's annual education conference that focuses exclusively on campus fire and life safety issues. This year Campus Fire Forum is being held in Niagara Falls, New York in October.

Because fire continues to be the leading cause of property damage worldwide, during the past 35 years FM Global has contributed millions of dollars in fire prevention grants to fire service organizations around the globe. Locally, the company has awarded grants to a number of Massachusetts-based organizations.

"At FM Global, we strongly believe the majority of property damage is preventable, not inevitable," said Michael Spaziani, manager of the fire prevention grant program. "Far too often, inadequate budgets prevent those organizations working to prevent fire from being as proactive as they would like

to be. With additional financial support, grant recipients are actively helping to improve property risk in the communities they serve."

"The Center is very appreciative of FM Global's generosity and support of our educational mission." said Paul D. Martin, The Center's president. "FM Global's grant will help The Center to assure that this year's annual conference is a success and that our attendees have access to high caliber speakers and contemporary material."

Something special at this year's Forum will be the addition of a "How To" workshop discussing ways for fire safety educators to organize and fund a live burn of a mock dorm room. This session will culminate with an actual live burn, demonstrating firsthand, the immense power and rapid growth of fire and the importance of smoke alarms and sprinkler systems.

Through its Fire Prevention Grant Program, FM Global awards grants quarterly to fire departments—as well as national, state, regional, local and community organizations worldwide—that best demonstrate a need for funding, where dollars can have the most demonstrable impact on preventing fire, or mitigating the damage it can quickly cause.

About FM Global

For nearly two centuries, many of the world's largest organizations have turned to FM Global to develop cost-effective property insurance and engineering solutions to protect their business operations from fire, natural disasters and other types of property risk. With clients in more than 130 countries, FM Global ranks #557 among *FORTUNE* magazine's largest companies in America and is

rated A+ (Superior) by A.M. Best and AA (Very Strong) by Fitch Ratings. The company was named "World's Best Supply Chain Risk Insurance Provider" in 2014 by *Global Finance* magazine and was voted "Best Commercial Property Insurer" in *Business Insurance*'s 2013 Buyers Choice Awards.

To learn more about FM Global's Fire Prevention Grant Program, or to apply for a grant, please visit www.fmglobal.com/grants.

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FROM THE PRESIDENT

By Paul D. Martin

March 2015

Enough is Enough!

As the details unfolded about the horrific fire in New York City that claimed the lives of seven children in their quintessential two-story single family home on a tree-lined street in Brooklyn, there wasn't a fire safety professional that didn't see - or hadn't seen before - the next chapter of the story …. that there were no working smoke alarms! (NOTE: there was one smoke alarm located in the basement, however the fire originated on the first floor.)

How do we begin to put an end to the senseless losses? Residential sprinklers AND operating smoke alarms. We can no longer continue to believe that smoke alarms are sufficient alone to protect us. We need the total package.

Permit me a quick homily to the choir - smoke alarms are essential and virtually a universal requirement in every home, but they can only detect a fire. To be effective, residents must be willing and able to respond quickly to the alarm. Only fire sprinklers can detect the fire and automatically control or extinguish it. Thus providing the way for residents to make a safe escape, protecting property and let's forget - the responding firefighters. Therefore, it is plain to see, that best protection from fire is having both working smoke alarms and sprinklers.

The National Association of Home Builders and others oppose the residential sprinkler provision in the International Residential Code (IRC). Having unsuccessfully opposed the new model code provision, and unable to stem the tide of local enactment, the homebuilders are turning to the state legislatures to preempt adoption. They build their case on two arguments: homeowners should be able to install sprinklers as an option (I always assumed the buyer could) and, their favorite -- the cost of residential sprinklers is simply too onerous.

These powerful homebuilder interests are succeeding to control the public policy agenda by claiming that sprinkler requirements impose an unreasonable economic burden that will stem the return of the housing market.

To that I say …. BS! Average costs for installation of residential sprinklers is the area of $1.50 ft^2 and I am willing to bet it will continue to decrease if installation

FROM THE PRESIDENT

By Paul D. Martin

March 2015

demands were to increase. With the average new home last year being 2,600ft^2 the increase with sprinklers would be approximately $3900, resulting in about a $20 rise in the monthly mortgage payment. Somehow, I doubt this will price thousands of people out of the market, nor singlehandedly cause the collapse of the housing construction business.

The cost argument really goes out the window too when you look at a few recent "single-family" home fires where clearly the home owner had the financial wherewithal to install sprinklers. These include: the home that formerly belonged to Hard Rock Café co-founder and billionaire Peter Morton, that last sold for $22 million); the 10,000ft^2/$4million home leveled by fire in suburban Cincinnati and the inconceivable tragedy this past January in Annapolis, Maryland, that took the lives of four children and their grandparents, in a 16,000ft^2/$6m home. I doubt that when any of these homes were built that the owner made the direct decision not to include sprinklers. And to have expected them to have to take the affirmative action to request them is laughable. How many people do you think would specifically ask for seatbelts and airbags in their car if that were the means to assure their installation? How many people would ask for the right size circuit breakers in their electrical panel box?

Our model codes contain many non-optional provisions intended to provide for the safety and health of the occupant, such as: wiring size; roof snow-load design; flammable gas and plumbing connections; hurricane resistant windows, and more. After all, isn't this the basic principal of our codes?

"The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations." –

International Residential Code

While I am sympathetic to the effort to keep government interference in our lives to a minimum, it seems hypocritical to me that our model codes (AKA: government) mandate sprinklers in our work

FROM THE PRESIDENT

By Paul D. Martin

March 2015

places, hospitals, storage facilities, sports centers, jails and even storage facilities, but not in the very places where we and our families live and sleep – our homes.

Now don't misunderstand, I am not advocating that we retroactively require sprinklers in the millions of homes throughout the country. But I do believe it is time to draw that metaphorical line in the sand when it comes to building new homes. There is no one other thing we can do that will have such a meaningful and lasting impact in making our children safer from fire where they live.

As the opponents grow more and more successful in their politicizing the issue, perhaps we have lost the public's sentiment. Did we ever really have it? After all, President Lincoln clearly understood its power when he said "In this and like communities, public sentiment is everything. With public sentiment, nothing can fail; without it nothing can succeed."

Now I admit, I had grown weary of the battle myself and with the euphoria our monumental undertaking in Minneapolis almost seven years ago wearing off, I had just about given up that we were finally going to be able to leave our generational mark on fire safety in this country. I had almost surrendered hope that we were going to be able to do something that would ensure that for generations to come, far fewer families would lose even one child to fire.

That is until now. This fire has reinvigorated me because we cannot continue to kill our most cherished treasures – our children. Dorothy Height said, "We've got to work to save our children and do it with full respect for the fact that if we do not, no one else is going to do it."

So I am staying all in on the residential sprinkler battle. Will you?

Paul

Paul Martin, President

Paul D. Martin is Deputy State Fire Administrator for the New York State Office of Fire Prevention and Control where he served as a principle architect of New York State's nationally acclaimed Campus Fire Safety Program.

Under Paul's leadership, the staff of the Inspections and Investigations Branch is responsible for: fire and life safety inspections in a very diverse collection of

FROM THE PRESIDENT

By Paul D. Martin

March 2015

facilities throughout New York State, including all colleges and universities; performing fire investigations statewide of fatal, large loss or other significant fires; providing fire safety education and information dissemination intended to elevate the public's understanding of the danger of fire; and enforcement of the laws and regulations of the state regarding fire safety, including the world's first standard for reduce ignition propensity cigarettes.

Paul is active in the National Association of State Fire Marshals, where he serves as Vice-Chair of their Model Codes Committee and works on issues associated with fire and life safety for special needs occupancies. Additionally, he serves as co-chair of Prevention, Advocacy, Resource and Data Exchange (PARADE), a program of the United States Fire Administration designed to foster the exchange of fire-related prevention/ protection information and resources among Federal, State, and local levels of government.

He serves on the International Building Code - Means of Egress Committee for the International Code Council, where he is active in the development of the Codes promulgated under the auspices of the ICC. Additionally he is a principle member of the NFPA technical committee currently drafting a new standard on Fire Prevention Unit Organization and Deployment.

Paul holds an associate degree in fire science, a bachelor of science in public administration and has an extensive portfolio of professional development education. During his fire service career spanning more than thirty years, Paul has served in multiple line and administration positions and has received several awards of valor, including the 2000 Firehouse Magazine® national grand prize for heroism.

THE CENTER FOR Campus Fire Safety
www.campusfiresafety.org

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THE INSPECTOR

By Phil Chandler

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Sadly, the above paradigm has little direct parallel in the campus setting. It is rare for an individual to exhibit proprietary interest beyond that of maintaining one's personal position in the organization or that of one's department. This is especially the case during a campus emergency. It is often very hard to determine who is really in charge. Many are reluctant to put their you-know-what on the line during a crisis for fear of recriminations should their actions be judged unfavorably by any number of campus constituencies advancing any number of rapidly changing agendas. Sound familiar?

Perhaps the nature of the University encourages an atmosphere suspicious of authority where everything is subject to examination and debate. Whatever the underlying cause, time and time again in the face of pending crisis, I have observed the following conditions on the campus: Lack of accountability, unclear chain of command and poor communication. These three deficiencies whether they are found on the campus, in government or in emergency

THE INSPECTOR

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March 2015

services, usually assure unsatisfactory outcomes: people get hurt or resources are squandered.

Moreover, the full spectrum of emergency planning and preparedness, a whole chapter heading in the International Fire Code, is given scant attention by campus officials. Collective bodies like colleges and universities are complacent when it comes to committing time and money to deal with any number of what-if scenarios, fire, power outages or chemical spills, to name just a few. If it's not in the headlines, or in the cross-hairs of a government regulatory authority, it can wait.

Consider the following occurrence: One chilly autumn night, an underground transformer exploded, knocking out power to a four-story, 300 bed, college residence hall. The public safety officer on site requested a supervisor to the scene. The ranking officer, a newly minted corporal, requested the dispatcher to start dialing everyone on the emergency response list. An hour into the incident, the only people responding to their pages was an electrician and the fire safety specialist, who was only notified because of the numerous system trouble alarms generated by the outage. The lone corporal, by default, was in charge. Based on a consensus of those present, the decision was made to evacuate all occupants.

Public safety officers on the scene directed evacuees to the gymnasium for temporary shelter against the elements until senior campus officials might arrive. Regardless of how logical the temporary solution was, the athletics director refused access to the facility. Students were finally told to stay with friends on campus. Some did, some left the campus for town and some went home. There was no attempt at personal accountability. Each man, or woman, for themselves!

Finally, several hours after the initial power outage, college administrators, some of them, assembled to deal with the emergency. But by then, most all of the students were self-dispersed to who-knows-where. The main issue at this time centered on developing a satisfactory account of affairs to share with the public and most importantly, irate parents. The official

THE INSPECTOR

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March 2015

narrative simply states that all building occupants were provided other accommodation on campus or had returned home. It selectively failed to disclose that the final disposition was left to happenstance, not a product of deliberate preplanning for such an event.

The above narrative is not unique. Over the last decade, I have seen many similar incidents; some caused by fire, some by extreme weather and most recently, a pool chemical mishap. They all exhibit a fundamental lack of preparedness. Even a dusty old binder that could be pulled down from a shelf containing the rudiments of a response to various emergencies would be better than just winging it. Forget about any semblance of code-driven requirements that such plans "shall be reviewed or updated annually." One is reminded of the time-worn mantra of life insurance agents: "Those who fail to plan, plan to fail."

Absent a well thought-out playbook, we could derive some solace from a well- executed incident command system. Such a system, by virtue of design and practice, assures that there will always be a clear, uncontested delegation of authority to the most competent person on the scene of an event. In our scenario, the youthful corporal, yet to be chastened by the weight of campus bureaucratic politics, took charge on her own initiative, did the right thing and ordered an evacuation. Lacking a well-rehearsed ICS on this campus, she may have just as easily been pushed aside by any number of higher-ranking college employees, if they responded in a timely fashion. The beauty of an ICS is that authority is allocated by knowledge and expertise, not by paycheck.

Given the multiple federal government mandates for implementation of an ICS, (see Superfund Amendment and Reauthorization Act, 1986 and OSHA 1910.120) it is amazing to see so many half-hearted programs in place. Every college gives the concept lip-service; few adequately extend its reach beyond a few well-chosen individuals. Rarely are all of the relevant stakeholders brought into the tent.

Folks, the world is changing. Business as usual no longer cuts it as an operational model

THE INSPECTOR

By Phil Chandler

March 2015

in the present global environment. We've got to pick up our game when it comes to managing incidents and events on the campus. As is the case with most all matters of life safety, pay me now or pay me later.

Philip Chandler is a long time firefighter and a fulltime government fire marshal working extensively in the college environment – from large public university centers to small private colleges.

His primary responsibilities include code enforcement and education. Phil welcomes your comments, thoughts and opinions (whether in agreement or opposition) to his viewpoints. He may be reached at: mailto:theinspector@campusfiresafety.org

Ask the Inspector

Now Members can log onto the Member Website and have an online discussion with "The Inspector". Simply visit the MEMBER LOGIN section of our public website. Once logged in, look for the Town Hall Discussions and ask "The Inspector".

Published by The Center for Campus Fire Safety.

www.campusfiresafety.org
978.961.0410 | email

OFF-CAMPUS

By Tim Knisely

March 2015 *(reprinted from March 2008 issue)*

Cooking 101:

Food on the stove and grease fires are common responses for fire departments in off-campus housing communities. Like most fires and the associated responses, many could be prevented with a simple awareness to cooking basics – or Cooking 101.

The Fire Problem:
Cooking fires are a leading cause of fires in any household, but several factors increase the frequency of off-campus cooking incidents; including inexperience with the appliance and alcohol impairment. Once the student moves out of the residence hall there is no limit as to the type of appliances available. This could be a gas or electric range, microwave, frying pan or deep fryer, charcoal or gas fired grill, turkey fryer and many others. This is also where the introduction of alcohol and the late night munchies can increase the chances for a cooking fire. Late night cooking often goes bad when the chef is distracted or falls asleep allowing the food to cook unattended or the heat source to remain on. Another hazard is when these fires occur and are extinguished by the occupant, never notifying the fire department. The smoke alarm may be disabled to silence the noise and the occupants think everything is okay and go back to sleep. When these fires are not extinguished completely, it spreads unknowingly to nearby combustibles or to the cupboards above the stove. Since the smoke alarms may be disabled the next notification of this fire might not be until the smoke reaches the corridor, or

OFF-CAMPUS

By Tim Knisely

March 2015 *(reprinted from March 2008 issue)*

hopefully the sprinkler in the kitchen will activate.
In addition to the item being cooked beginning to burn; items stored on or near the stove top are also easily ignited. This could include potholders, wooden utensils, pizza boxes, paper and anything else that can burn. Many times countertops are covered with paper or foil to protect the surfaces from the grease buildup adding another fuel awaiting a fire.

Outdoor cooking appliances typically don't usually pose a risk when used properly. However, using a propane or charcoal grill on a combustible deck, under a roof or a few inches from the vinyl siding create an exposure problem. Turkey fryers can be dangerous at any time and the use should be discouraged by the property owner.

<u>Raising the Awareness:</u>
As with many other hazards that come with living off-campus, property owners should provide guidance to the new occupants about the appliances in the house or apartment. This could include how to properly use the appliances, how to maintain the kitchen in a clean and safe manner and how to report any

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By Tim Knisely

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deficiencies. This seems really basic and redundant, but experience tells us that this knowledge is lacking.

If not required by local codes, a fire extinguisher should be installed in each kitchen. Occupants need to be taught the proper use of the extinguisher as well as determining when to use it and when not to. The extinguisher needs to be displayed in a visible location, not in a cupboard or closet. Other methods to extinguish a stove top fire should also be provided to the occupants, such as using a lid or baking soda. It is especially important to teach the proper way to handle a grease fire. Burn injuries are often received while trying to carry the pan outside and the burning grease splashes out or someone puts water on the burning grease. Not everyone knows that you can't put water on a grease fire.

Make sure occupants are instructed to call 9-1-1 and begin evacuation before attempting to use the extinguisher.
If someone is in doubt if the extinguisher will be effective then get out and close the door on the way. Always make sure they have a clear path to the exit. Also, once the extinguisher is discharged the visibility will be quickly diminished making it more difficult to locate the exit.
Occupants should also be instructed that if a fire occurs inside a microwave or oven, turn off the power and keep the door closed until the fire is out. Never reuse an appliance following a fire until it has been evaluated by the property manager.

<u>Detection and Suppression Systems:</u>
Automatic sprinkler and suppression systems are the best type of protection available for kitchen fires and for cooking equipment. These systems operate automatically in the event of a fire and can be connected to the

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building fire alarm system. While this type of protection is very effective, don't expect owners to retrofit these in existing buildings due to the cost. However, there are some other effective options. There is a fire extinguisher that mounts under the range hood or the microwave/hood combination. These units are held in place by a magnet and are activated by a fusible link. Detection systems such as smoke alarms, heat detectors or fire alarm systems will activate from smoke or heat. These systems will alert the occupants of the condition and some are connected to a central station alarm service. Newer types of systems available include a smoke detector that installs inside a microwave oven and disconnects the power when the alarm detects smoke inside. Another type of device utilizes an extension cord that is connected to a smoke alarm. When the smoke alarm sounds the power to the cord is terminated and anything plugged into the cord will be deenergized. Inspectors frequently find smoke alarm batteries closest to the kitchen with the batteries removed. Occupants report that the smoke alarm sounds while cooking, causing them to remove the batteries. Others in an apartment building may choose to ignore the building fire alarm because it always sounds during the dinner hour or late at night. To address this, the first step may be to move the smoke alarm as far as possible from the kitchen. This may not always be possible if a bedroom is located near the kitchen. Consider the installation of a photo electric smoke alarm in this instance that is less likely to activate from steam from cooking. Newer smoke alarms feature a "hush" button that will silence the alarm when accidentally activated. If the smoke condition remains for a period of time, or gets worse, the alarm will again activate.

<u>More Information:</u>

There are a number of training programs and videos available for fire extinguisher training and the technology is constantly changing.

If you have a unique training program that you'd be willing to share with others, please contact me.

Tim Knisely is on the Board of Directors for The Center and the Senior Fire Inspector for the Centre Region Code Administration in State College, PA. In this position he manages the Existing Structures Division that administers the fire and property maintenance code in all existing commercial and residential rental properties, and coordinates the life safety education for the community including off-campus and Greek housing.

OFF-CAMPUS

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SECTION 1004 - OCCUPANT LOAD

[B] 1004.1 Design occupant load. In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section.

◆The design occupant load is the number of people that are intended to occupy a building or portion thereof at any one time; essentially the number for which the means of egress is to be designed. It is the largest number derived by the application of Sections 1004.1 through 1004.9. There is a limit to the density of occupants permitted in an area to enable a reasonable amount of freedom of movement (see Section 1004.2). The design occupant load is also utilized to determine the required plumbing fixture count (see commentary, Chapter 29 of the IBC) and other building requirements, such as automatic sprinkler systems and fire alarm and detection systems (see Chapter 9).

The intent of this section is to indicate the procedure by which design occupant loads are determined.

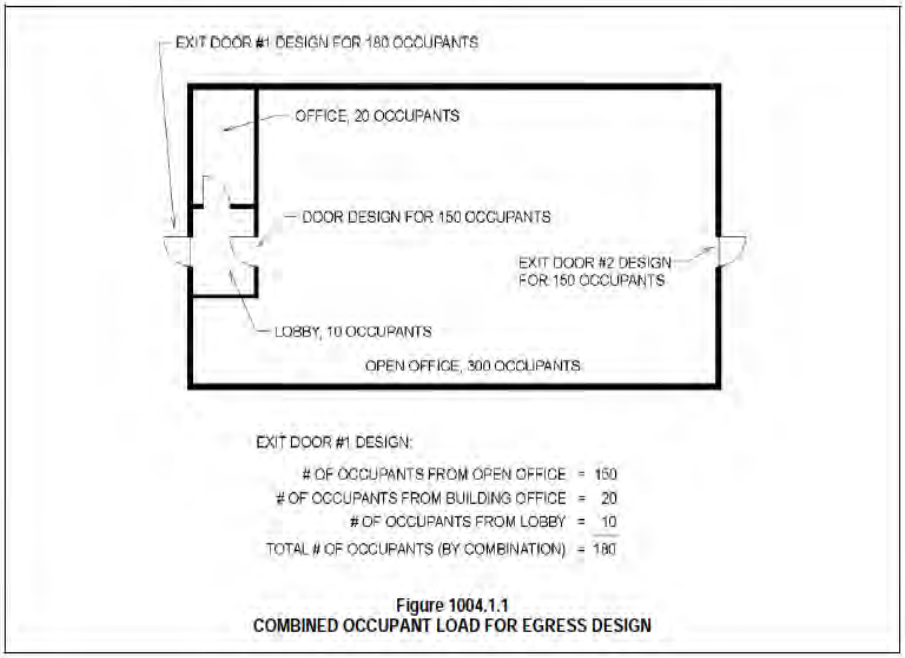

Figure 1004.1.1
COMBINED OCCUPANT LOAD FOR EGRESS DESIGN

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This is particularly important because accurate determination of design occupant load is fundamental to the proper design of any means of egress system.

[B] 1004.1.1 Cumulative occupant loads. Where the path of egress travel includes intervening rooms, areas or spaces, cumulative occupant loads shall be determined in accordance with this section.

◆When occupants from an accessory area move through another area to exit, the combined number of occupants must be utilized to determine means of egress capacity. It is not the intent of this section to "double count" occupants. For example, the means of egress from a lobby must be sized for the cumulative occupant load of the adjacent office spaces if the occupants must travel through the lobby to reach an exit. Likewise, if an adjacent room has an egress route independent of the lobby, the occupant load of that room would not be combined with the occupant loads of the other rooms that pass through that lobby.

If a portion of the adjacent room's occupant load is to travel through the lobby, only that portion would be combined with the lobby occupant load for determining lobby egress (see Figure 1004.1.1). This is particularly important in determining the capacity and the number of means of egress.

[B] 1004.1.1.1 Intervening spaces. Where occupants egress from one room, area or space through another, the design occupant load shall be based on the cumulative occupant loads of all rooms, areas or spaces to that point along the path of egress travel.

◆ An example of intervening spaces could be small tenant spaces within a large mercantile. It is common for banks or coffee shops to be located within large grocery stores. Another example would be a dentist's office where people in the staff and exam room areas would

egress through the reception area.

[B] 1004.1.1.2 Adjacent levels. The occupant load of a mezzanine or story with egress through a room, area or space on an adjacent level shall be added to the occupant load of that room, area or space.

◆The egress requirements for mezzanines or second floors that use exit access stairways to move to the ground level are handled similar to those spaces with accessory areas addressed in Section 1004.1.1.1 versus the requirements for exiting from multiple levels in Section 1021. That is, that portion of the mezzanine/second floor occupant load that travel through the floor below to the exit is to be added to the occupant load of the space on the floor below. The sizing and number of the egress components must reflect this combined occupant load. This does not apply to the means of egress from a mezzanine/second floor that does not require travel through another level (i.e., an interior exit stairway serving the mezzanine/second floor). Section 505 contains additional criteria for the means of egress from mezzanines.

[B] 1004.1.2 Areas without fixed seating. The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.2. For areas without fixed seating, the occupant load shall not be less than that number determined by dividing the floor area under consideration by the occupant load factor assigned to the function of the space as set forth in Table 1004.1.2. Where an intended function is not listed in Table 1004.1.2, the fire code official shall establish a function based on a listed function that most nearly resembles the intended function.

Exception: Where approved by the fire code official, the actual number of occupants for whom each occupied space, floor or building is designed, although

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less than those determined by calculation, shall be permitted to be used in the determination of the design occupant load.

◆The numbers for floor area per occupant load factor in the table reflect common and traditional occupant density based on empirical data for the density of similar spaces. The number determined using the occupant load factors in Table 1004.1.2 generally establishes the minimum occupant load for which the egress facilities of the rooms, spaces and building must be designed. The design occupant load is also utilized for other code requirements, such as determining the required plumbing fixture count (see commentary, Chapter 29 of the IBC) and other building requirements, including automatic sprinkler systems and alarm and detection systems (see Chapter 9).

It is difficult to predict the many conditions by which a space within a building will be occupied over time.

An assembly banquet room in a hotel, for example, could be arranged with rows of chairs to host a business seminar one day and with mixed tables and chairs to host a dinner reception the next day. In some instances, the room will be arranged with no tables and very few chairs to accommodate primarily standing occupants. In such a situation, the egress facilities must safely accommodate the maximum number of persons permitted to occupy the space.

When determining the occupant load of this type of occupancy, the various arrangements (e.g., tables and chairs, chairs only, standing space) should be recognized. The worst-case scenario should be utilized to determine the requirements for the means of egress elements. This is consistent with the requirements for multiple use spaces addressed in Section 302.1.

While some of the values in the table utilize the net floor

area, most utilize the gross floor area. See the commentary to Table 1004.1.2 and the definitions for "Floor area, gross" and "Floor area, net" in Chapter 2 for additional discussion and examples.

The occupant load determined in accordance with this section is typically the minimum occupant load upon which means of egress requirements are to be based. Some occupancies may not typically contain an occupant load totally consistent with the occupant load density factors of Table 1004.1.2. The exception is intended to address the limited circumstances where the actual occupant load is less than the calculated occupant load. Previously, designing for a reduced occupant load was permitted only through the variance process. With this exception, the building official can make a determination if a design that would use the actual occupant load was permissible.

The building official may want to create specific conditions for approval. For example, the building official could choose to permit the actual occupant load to be utilized to determine the plumbing fixture count, but not the means of egress or sprinkler design; the determination could be that the reduced occupant load may be utilized in a specific area, such as in the storage warehouse, but not in the factory or office areas. Another point to consider would be the potential of the space being utilized for different purposes at different times, or the potential of a future change of tenancy without knowledge of the building department.

Any special considerations for such unique uses must be documented and justified. Additionally, the owner must be aware that such special considerations will impact the future use of the building with respect to the means of egress and other protection features.

TABLE 1004.1.2. See next column.

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◆Table 1004.1.2 establishes minimum occupant densities based on the function or actual use of the space (not group classification).The table presents the maximum floor area allowance per occupant (i.e., occupant load factor) based on studies and counts of the number of occupants in typical buildings. The use of this table, then, results in the minimum occupant load for which rooms, spaces and the building must be designed. While an assumed normal occupancy may be viewed as somewhat less than that determined by the use of the table factors, such a normal occupant load is not necessarily an appropriate design criterion.

The greatest hazard to the occupants occurs when an unusually large crowd is present. The code does not limit the occupant load density of an area, except as provided for in Section 1004.2, but once the occupant load is established, the means of egress must be designed for at least that capacity. If it is intended that the occupant load will exceed that calculated in accordance with the table, then the occupant load is to be based on the estimated actual number of people, but not to exceed the maximum allowance in accordance with Section 1004.2. Therefore, the occupant load of the office or business areas in a storage warehouse or nightclub is to be determined using the occupant load factor most appropriate to that space—one person for each 100 square feet (9 m2) of gross floor area.

The use of net and gross floor areas as defined in Chapter 2 is intended to provide a refinement in the occupant load determination. The gross floor area technique applied to a building only allows the deduction of the plan area of the exterior walls, vent shafts and interior courts from the plan area of the building.

The net floor area permits the exclusion of certain spaces that would be included in

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the gross floor area.

The net floor area is intended to apply to the actual occupied floor areas. The area used for permanent building components, such as shafts, fixed equipment, thicknesses of walls, corridors, stairways, toilet rooms, mechanical rooms and closets, is not included in net floor area. For example, consider a restaurant dining area with dimensions measured from the inside of the enclosing walls of 80 feet by 60 feet (24 384 mm by 18 288 mm) (see Figure 1004.1.2). Within the restaurant area is a 6-inch (152 mm) privacy wall running the length of the room [80 feet by 0.5 feet = 40 square feet (3.7 m2)], a

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit Gallery and Museum	30 net
Assembly with fixed seats	See Section 1004.4
Assembly without fixed seats	
Concentrated (chairs only-not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Mall buildings—covered and open	See Section 402.8.2
Mercantile	
Areas on other floors	60 gross
Basement and grade floor areas	30 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m².
a. Floor area in square feet per occupant.

fireplace [40 square feet (3.7 m2)] and a cloak room [60 square feet (5.6 m2)]. Each of these areas is deducted from the restaurant area, resulting in a net floor area of 4,660 square feet (433 m2). Since the restaurant intends to have unconcentrated seating that involves loose tables and chairs, the resulting occupant load is 311 persons (4,660 divided by 15). As the definition of "Floor area, net" indicates, certain spaces are to be excluded from the gross floor area to derive the net floor area. The key point in this definition is that the net floor area is to include the actual occupied area and does not include spaces uncharacteristic of that occupancy.

In determining the occupant load of a building with mixed groups, each floor area of a single occupancy must be separately analyzed, such as required by Section 1004.6. The occupant load of the business portion of an office/warehouse building is determined at a rate of one person for each 100 square feet (9 m2) of office space, whereas the occupant load of the warehouse portion is determined at the rate of one person for each 300 square feet (28 m2). There may even be different uses within the same room. For example, a restaurant dining room would have seating but may also have a waiting area with standing room, a take-out window with a queue line or employee areas behind a bar or reception desk.

If a specific type of facility is not found in the table, the occupancy it most closely resembles should be utilized. For example, a training room in a business office may utilize the 20-square-feet (1.86 m2) net established for educational classroom areas, or a dance or karate studio may use the occupant load for rinks and pools for the studio areas.

Table 1004.1.2 presents a method of determining the absolute base minimum occupant load of a space that the means of egress is to accommodate.

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The table occupant loads are based on the stereotypical configuration of spaces. For example, the dorm requirements were written based on dormitories with sleeping rooms with two to four students, a gang bathroom and a meeting/study lounge on each floor.

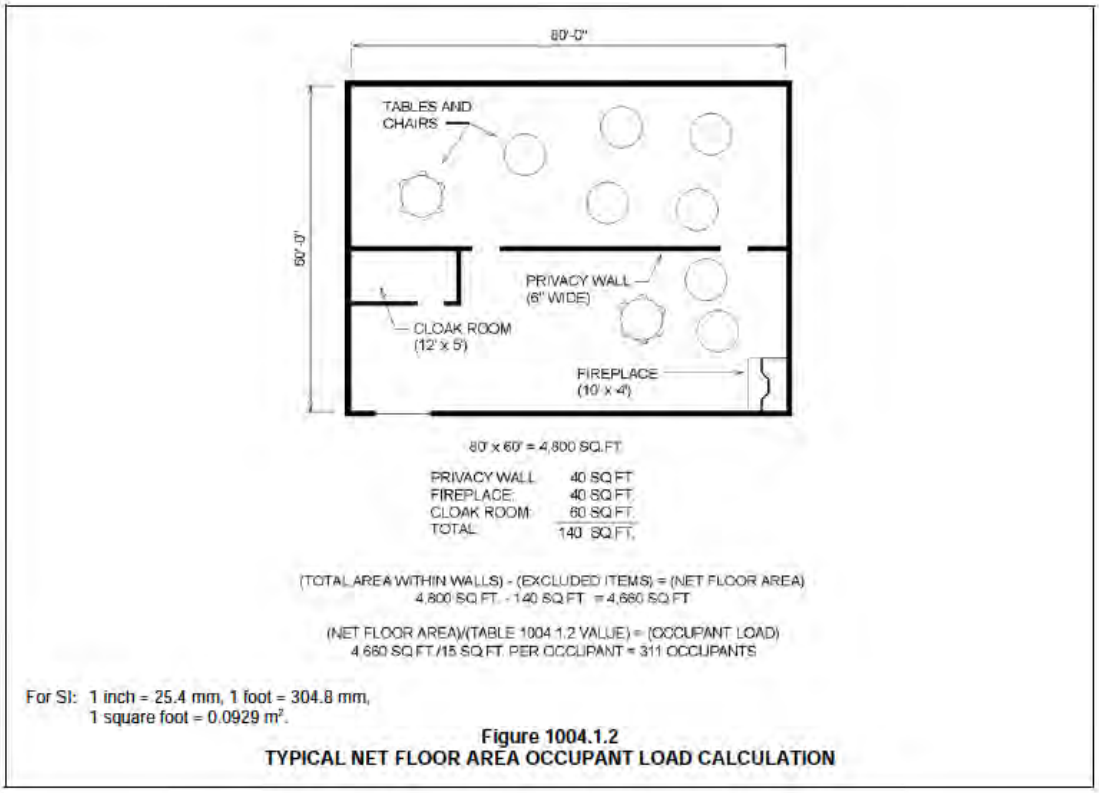

Figure 1004.1.2
TYPICAL NET FLOOR AREA OCCUPANT LOAD CALCULATION

Dormitory buildings that operate like army barracks may have a heavier occupant load, while facilities with groups of rooms with private bathrooms, living and even kitchenette areas may have a lower occupant load. Industrial facilities are based on typical fabricating plants. Warehouses are based on consistent movement in and out of product by employees. Factories with largely mechanized operations or warehouses that contain long-term storage are other examples where discussion with the building official and the application of the exception in Section 1004.1.2 might be considered.

In addition to the table, Section 402 contains the basis for calculating the occupant load of a covered mall building; however, Table 1004.1.2 should be used for determining the occupant load of each anchor store.

[B] 1004.2 Increased occupant load. The occupant load permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table 1004.1.2, provided that all other requirements of the code are also met based on such modified number and the occupant load does not exceed one occupant per 7 square feet (0.65 m2) of occupiable floor space. Where required by the fire code official, an approved aisle, seating or fixed equipment diagram substantiating any increase in occupant load shall be submitted. Where required by the fire code official, such diagram shall be posted.

◆ An increased occupant load is permitted above that developed by using Table 1004.1.2; for example, utilizing the actual occupant load. However, if the occupant load exceeds that which is determined in accordance with Section 1004.1.2, the building official has the authority to require aisle, seating and equipment diagrams to confirm that: all occupants have access to an exit, the exits provide sufficient capacity for all occupants and compliance with this section is attained.

The maximum area of 7 square feet (0.65 m2) per occupant should allow for sufficient occupant movement in actual fire situations. This is not a conflict with the standing space provisions of 5 square feet (0.46 m2) net in accordance with Table 1004.1.2. Standing space is typically limited to a portion of a larger area, such as the area immediately in front of the bar or the waiting area in a restaurant, while the rest of the dining area would use 15 square

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feet (1.4 m2) net per occupant.

[B] 1004.3 Posting of occupant load. Every room or space that is an assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space.

Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or authorized agent.

◆Each room or space used for an assembly occupancy is required to display the approved occupant load.

The placard must be posted in a visible location (near the main entrance) (see Figure 1004.3 for an example of an occupant load limit sign).

Figure 1004.3
EXAMPLE OF OCCUPANT LOAD LIMIT SIGN

The posting is required to provide a means by which to determine that the maximum approved occupant load is not

exceeded. This permanent and readily visible sign provides a constant reminder to building personnel and is a reference for building officials during periodic inspections.

While the composition and organization of information in the sign are not specified, information must be recorded in a permanent manner. This means that a sign with changeable numbers would not be acceptable.

[B] 1004.4 Fixed seating. For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein. The occupant load for areas in which fixed seating is not installed, such as waiting spaces, shall be determined in accordance with Section 1004.1.2 and added to the number of fixed seats.

The occupant load of wheelchair spaces and the associated companion seat shall be based on one occupant for each wheelchair space and one occupant for the associated companion seat provided in accordance with Section 1108.2.3 of the International Building Code.

For areas having fixed seating without dividing arms, the occupant load shall not be less than the number of seats based on one person for each 18 inches (457 mm) of seating length.

The occupant load of seating booths shall be based on one person for each 24 inches (610 mm) of booth seat length measured at the backrest of the seating booth.

◆The occupant load in an area with fixed seats is readily determined. In spaces with a combination of fixed and loose seating, the occupant load is determined by a combination of the occupant density number from Table 1004.1.2 and a count of the fixed seats.

For bleachers, booths and other seating facilities without dividing arms, the occupant load is simply based on the number of people that can be accommodated in the

length of the seat. Measured at the hips, an average person occupies about 18 inches (457 mm) on a bench. In a booth, additional space is necessary for “elbow room” while eating. In a circular or curved booth or bench, the measurement should be taken just a few inches from the back of the seat, which is where a person's hips would be located (see Figure 1004.4).

Some assembly spaces may have areas for standing or waiting. For example, some large sports stadiums have “standing room only” areas that they use for sell-out games. The Globe Theater in England has standing room in an area at the front of the theater.

This section is not intended to assign an occupant load to the typical circulation aisles in an assembly space. Occupant load for wheelchair spaces should be based on the number of wheelchairs and companion seats that the space was designed for. As specified in Section 1004.6, if the wheelchair spaces may also be utilized for standing space or removable seating, the occupant load must be determined by the worst-case scenario.

[B] 1004.5 Outdoor areas. Yards, patios, courts and similar outdoor areas accessible to and usable by the building occupants shall be provided with means of egress as required by this chapter. The occupant load of such outdoor areas shall be assigned by the fire code official in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one means of

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egress.

2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

◆This section addresses the means of egress of outdoor areas such as yards, patios and courts. The primary concern is for those outdoor areas used for functions that may include occupants other than the building occupants or solely by the building occupants where egress from the outdoor area is back through the building to reach the exit discharge. An example is an interior court of an office building where assembly functions are held during normal business hours for persons other than the building occupants. When court occupants must egress from the interior court back through the building, the building's egress system is to be designed for the building occupants, plus the assembly occupants from the interior court. Another example would be an outdoor dining area that exited back through the restaurant.

The occupant load is to be assigned by the building official based on use. It is suggested that the design occupant load be determined in accordance with Section 1004.1.2.

Exception 1 describes conditions where the occupant load is very limited, such as areas where an interior courtyard had strictly plants or mechanical equipment. If the courtyard was open for building occupants, other than maintenance personnel, to use the space, the space must be designed with the occupant loads in Table 1004.1.2. Balconies or patios associated with individual dwelling units, in Exception 2, would typically be used by the occupants of the unit. Means of egress can be back through the building in accordance with Section 1014.2.

[B] 1004.6 Multiple occupancies. Where a building contains two or more occupancies, the means of egress requirements shall apply to each portion of the building based on the occupancy of that

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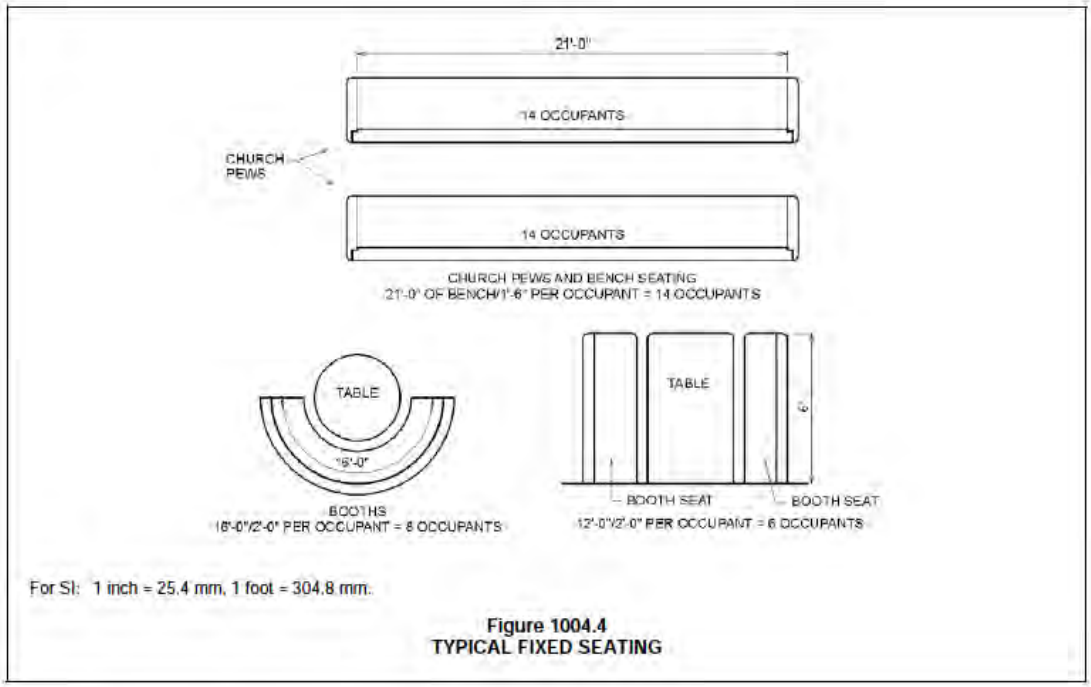

Figure 1004.4
TYPICAL FIXED SEATING

space. Where two or more occupancies utilize portions of the same means of egress system, those egress components shall meet the more stringent requirements of all occupancies that are served.

◆ Since the means of egress systems are designed for the specific occupancy of a space, the provisions of this chapter are to be applied based on the actual occupancy conditions of the space served.

For example, a hospital is classified as Group I-2 and normally includes the associated administrative or business functions found in the same building. Chapter 3 would permit the entire building to be constructed to the more restrictive provisions for Group I-2; however, each area of the building need only have the means of egress designed in

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accordance with the actual occupancy conditions, such as Groups I-2 and B. If the corridor serves only the occupants in the business use (i.e., administrative staff), and is not intended to serve as a required means of egress for patients, the corridor need only be 36 or 44 inches (914 or 1118 mm) in width, depending on the occupant load.

Where the corridor is used by both Group I-2 and B occupancies, it must meet the most stringent requirement.

For example, if a corridor in the business area is also used for the movement of beds (i.e., exit access from a patient care area), it would need to be a minimum of 96 inches (2438 mm) in clear width.

Next Month: SECTION 1005 - MEANS OF EGRESS SIZING (Page 466)

The International Code Council, a membership association dedicated to building safety and fire prevention, develops the codes used to construct residential and commercial buildings, including homes and schools. Most U.S. cities, counties and states that adopt codes choose the International Codes developed by the International Code Council.

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CAMPUS FIRE SAFETY CODE TALK

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Protecting those books!

Sprinkler protection requirements in libraries and other document storage areas.
By: Audrey Goldstein, Associate Fire Protection Engineer, NFPA

Libraries are a central feature of every university. They are a stop on the tour for prospective students and parents before heading to the bookstore to buy sweatshirts and bumper stickers. University libraries become a second home for some students, a late-night study retreat for those with loud roommates or those who need a change of scenery while studying.

Testudo, the mascot for my alma mater, is located proudly out front of the school's main library where passing students can rub his nose on their way to class for good luck. Rumor has it, the overall university student GPA dropped the year students could not get their lucky Testudo fix when the library was closed for renovations. I wonder if it was due to Testudo's inaccessibility or the fact that the library was closed. I have a feeling the latter had more to do with it.

Similar to other university libraries, this library contains student work areas, traditional library shelving, and library stacks on the upper floors. University libraries all house books, but the manner of doing so can alter the sprinkler protection requirements.

Figure 1 Typical library configuration with wide aisles and ample clearance to sprinklers.

NFPA 13, *Standard for the Installation of Sprinkler Systems*, provides sprinkler protection criteria based on the type of hazard found within a space. The higher the hazard, the more water necessary to control a fire within the space. There are lists in Annex A of the standard providing examples of the types of fuel loads found in light, ordinary, and extra hazard occupancies. The hazard level is not only determined by the commodity itself; it is also a matter of how it is arranged. The more densely packed the commodity, the higher the

associated hazard commonly is. Accordingly, some book storage areas are considered higher hazards than others and require higher densities of water to protect the space. To ensure that the water is able to reach the hazard, additional sprinklers may be required when obstructions to the water discharge are present.

Libraries are considered to have a lower hazard classification than their stack areas or bookstores. Whereas traditional libraries commonly have aisles wider than 30 inches and only store up to 8 feet, library stack areas often have narrower aisles and taller shelves that may extend up to the ceiling. Because the shelves within the stack areas frequently do not maintain the minimum 18 inch clearance required by other portions of the standard, specific sprinkler placement criteria is provided for library stack areas.

Many universities and colleges boast libraries holding hundreds of thousands of books, and as one can imagine, space is at a premium for their ever-expanding collections. If the required 18 inch clearance from the sprinkler deflector to the top of storage is not maintained, sprinklers are required in every bookshelf aisle in most cases (with specific tier and shelf construction, the sprinklers can alternate aisles). This mandates additional sprinklers due to the reduced coverage area. Standard spray sprinklers in an ordinary hazard occupancy are each permitted to be protect a maximum of 130 square feet. Sprinklers in a library stack area where storage is within 18 inches of the sprinklers may ultimately provide coverage to just over half that area because of the obstructing bookshelves.

Sprinklers can be located without regard to the aisle locations when the clearance meets the 18 inch minimum specified by NFPA 13. When the clearance is 18 inches or more, the sprinkler will be able to spray to adjacent aisles within the sprinkler's coverage area. This allowance to locate sprinklers without regard to the aisle locations acknowledges the importance of allowing the sprinkler distribution pattern to properly form in this critical clearance space. If it cannot form properly due to obstructions such as bookshelves, additional sprinklers are required.

The above rules for library stack areas also apply to record storage in cardboard boxes stored on shelves. If the records are stored in filing cabinets or mobile shelving, the requirements vary, however. It is not the intent of NFPA 13 to require sprinkler protection within furniture. The obstruction rules must be satisfied and adequate clearance to the sprinklers must be provided as specified in the standard, but sprinklers are not required within the cabinets themselves.

CAMPUS FIRE SAFETY CODE TALK

Campus Fire Safety e-NewZone

Fire tests indicated that compact mobile shelving could be adequately protected with a light hazard sprinkler design. The storage configuration and area are limited to what was approved as a result of the fire tests, but with the specified transverse and longitudinal barriers, fire control was achieved with densities similar to what would be provided in a traditional library, including larger allowable protection areas of coverage per sprinkler.

Any time the space is reconfigured or modified, the sprinkler system should be evaluated. As mentioned above, the sprinkler location requirements vary based on the shelf storage configuration, so if areas are reconfigured, the sprinkler system must be assessed to ensure it is capable of protecting the new hazard, both in terms of adequate discharge densities and the obstruction rules.

Ray Bradbury posited that paper burns at 451F. Proper protection of the paper, regardless of its storage configuration or bindings, can ensure that any loss in a fire incident will be minimized, despite his “firefighters” best efforts to destroy the literature.

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