

SAFETY FIRST UNC

Environment, Health & Safety

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of NORTH CAROLINA
at CHAPEL HILL

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EHS has recently implemented a new way for laboratory workers to be registered. The Laboratory Radiation Worker Form is now online at <https://s4.its.unc.edu/LabRadWorker/>.

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Go "Mercury Free at UNC!" Would you like to make the world a safer place?

You can make our campus a safer place too, by submitting a hazardous waste pick-up request for your mercury thermometers and bringing your hazardous waste collection serial number to our Safety Fair on the 14th of March. Kicking off the "Mercury Free at UNC" program is Darren Trembl, EHS Safety Officer. Trembl will personally assist you at the Safety Fair. Please check out this link for additional info. <http://ehs.unc.edu/ih/mercury/>

At the Safety Fair, you can place your order with the Fisher Representative for **free!** Can you make a pledge to be Mercury free? These replacement thermometers use an alcohol base (Isoamyl benzoate or blue-spirit)

On March 14, 2007 Environment, Health and Safety will have a Health and Safety Fair in the Great Hall of the Frank Porter Graham Student Union. The purpose of having this exhibition is to promote health and safety throughout the campus to increase employee awareness of these issues. We invite you to take part in our day of health and safety recognition. Please come!! The event will run from 10:00am – 2:00pm.

http://ehs.unc.edu/workplace_safety/fair.shtml

which is safer for the environment and people. Kerosene-based thermometers (red-spirit) are also an adequate alternative to mercury-based thermometers and can be used for higher temperature experiments.



Phyllis Smith & Donglei Yu of Beard Hall and Conor Keeney with EHS exchanging thermometers.

Why replace mercury thermometers? Mercury is a powerful neurotoxin which collects in the tissues of fish and shellfish, and bioaccumulates in organisms which are higher on the food chain. Personal dangers include inhalation of toxic vapors during a mercury spill and ingestion by lower food chain animals.

If you or someone you know is interested in alcohol-based thermometers, come to the EHS Health and Safety Fair on March 14th (see insert on left).

At the School of Pharmacy, Kuo-Hsiung (K. H.) Lee, a Kenan Professor, and a leading Natural Product Researcher has replaced all but a couple of his mercury thermometers in his labs. Lee's main funding from NIH is for the plant antitumor agents, plant anti-AIDS agents and chemical diversity libraries of medicinal plants. His interest in drug discovery is based on medicinal chemistry of the bioactive natural products and synthetic analogs. He employs many people and has collaborators all over the world. With the help of Lee's Lab

Manager, Donglei Yu, the School of Pharmacy is the first department to take the "Mercury Free at UNC" pledge! Donglei is very satisfied with the program's pick-up and delivery of thermometers. She states that these alcohol thermometers work very well.

The use of mercury has declined in UNC laboratories during 2003-2004. As a result of an EHS program, over 3900 thermometers were exchanged at no cost to the Department of Chemistry and many research laboratories across campus. You can also purchase alternatives to mercury thermometers at the Fisher Scientific Warehouse which is located at the Physical Plant and can be reached at 6-2966.



K. H. Lee's Laboratory at Beard Hall has replaced the majority of his mercury thermometers.

Special thanks to Conor Keeney, James Gilbert, and Kurt Boudette for their invaluable help in putting this newsletter together!

Starting Your Own UNC Safety Team by Kitty Lynn

Have you ever wondered how to improve the safety concerns in your building? Have you seen exit halls or doors blocked? Do the exit lights in the building work properly? While Environment, Health and Safety remains committed to make the university a safe place to work, sometimes we need the teamwork provided by building occupants to address every concern. Forming a safety team for your building can be the answer. For instance, an exit light may stop working in between the annual preventive maintenance which is performed by campus personnel.

sion of campus fire safety staff. When evacuation takes place, where do the occupants congregate? Do they all vacate the building? Do they meet in a central area away from the first responders who are arriving to answer the emergency call, or are they scattered all around? If someone in the building complained of chest pains and stopped breathing, could anyone perform CPR (cardiopulmonary resuscitation) until the medical first responders arrived? How would medical personnel know the closest door to find the patient or are there employees who could meet them at the door?



Can emergency response personnel locate the ill or injured patient in your building? Photo— Chapel Hill Fire Department

In this case, it is up to the building occupants to notify Facilities by placing a work order.

While working together, a safety team can create a list of concerns to be addressed systematically. Questions such as; when do you last remember having a supervised fire drill in your building? Maybe the fire alarm in your building has been activated by a smoke detector due to construction or burned food in the microwave. That fire alarm activation would require the occupants to evacuate without the supervi-

At the UNC School of Government, (SOG) Dan Chegash, the Director of Facilities and Instructional Support explains that he wanted to resurrect their once defunct safety committee when two incidents involving employees with serious medical concerns had to wait almost twenty minutes for the medics to arrive. From an employee base of 135 full-time people, one volunteered from each division, giving 11 people a place on the committee. They have met three times and haven't looked back. Four major



Members of the SOG Safety Team practicing chest compressions and hand placement on the sternum. Far left—Members; Susan Lynch, Kelly Medlin, and Linda McVey. Monica Glover (not a member) far right.

concerns have surfaced for the committee.

CONCERN'S

1. Should they get an automatic defibrillator? Should they provide training to volunteers in CPR (cardiopulmonary resuscitation) to offset possible delays in future emergency responses to medical calls at the SOG?

2. Since approximately 8000 conference clients visit the SOG annually for training purposes, the safety committee wanted a way to notify their visitors how to quickly exit the building in the event of an emergency.

3. Staging an official fire drill at such a large and structurally divided facility posed challenges but would dovetail nicely with meeting the needs of the employees and the visiting conference clients. Specifically, employees and their visitors needed to know how to evacuate safely.

4. There was the question of installing a new security system or keeping the existing card swipe system.

DECISIONS MADE

In response to the first

concern, Chegash's committee decided against having an automatic defibrillator at this time, citing other concerns that needed immediate attention. For instance, deciding on CPR training, and determining an established emergency entrance for life safety medics from Orange County, and Chapel Hill Fire Department first responders was a priority, because of those two incidents involving sick employees. The American Red Cross would provide the CPR training at forty dollars per person, and provide the required annual continuing-education for a small additional fee.

Second, the Event Coordinator instructs all visitors at the onset of conference classes in the correct procedure for evacuation. The coordinator treats the safety information as part of the introduction. Right away, visitors realize that their safety needs are a priority at the SOG.



Top left-Dan Chegash, Brian Newport, Ray Hockday and Lisa Sheffield practice chest compressions and rescue breathing.

Third, the committee is planning a large scale fire drill among occupants of the building first, so that if the fire alarm activates during a conference, the evacuation will proceed more smoothly. The Campus Fire Marshal's Office will assist with the evacuation by notifying the Life Safety Shop to monitor the fire alarm panel, and notifying (see Safety Team, page 3)

Safety Team continued.

Public Safety's Communications that a drill is being conducted.

Fourth, the committee made a decision to keep the existing security system.

THE FOUR E'S

Finally, the committee asked questions of their own basic safety: did everyone understand how to properly use extension cords? Did occupants know how to find and properly use a fire extinguisher in the event of a fire? Finding the answers is just a phone call away. The Fire Marshal's Office is happy to schedule fire extinguisher training and basic fire safety training to university employees. Think of it in terms of the four "E's"; explore, examine, educate and eliminate. Explore the concerns. Examine the possibilities. Educate for improvement. Eliminate the dangers.

When the committee is satisfied with their findings, their assessment can be posted somewhere in the building, and an email can be sent out to occupants.

REWARDS AND PAYOFF

So what did it take to make building occupants safer? Primarily, the answer was to explore fears and issues associated with fire, medical, weather-related events, security, and other unknowns. After examining those issues, the committee itemized possibilities for resolving their questions. Don't expect instant results, but give your safety team time to investigate multiple solutions. The rewards will pay off in greater satisfaction and security the next time that the fire alarm activates, or someone in your building is suffering from a medical problem that requires quick attention.

The American Red Cross can be reached at (919) 942-4862 or Email: occhapnc@intrex.net

Your Safety

Team can be launched by simply dividing your prevailing questions and concerns among the members for discussion and hopefully resolution. If needed, subcommittees can be formed to work on issues outside the group setting. Here are some possible items for discussion.

MAKE SAFETY YOUR BYWORD!

1. Decide how many representatives could volunteer from your staff and/or the staff from the other departments in your building.

2. How often a year should you meet; monthly, quarterly or even annually for the extremely busy.

3. Who will take meeting notes to send them out as email minutes is a job which can be rotated among members. Building occupants can be emailed a short, concise summary of the results of your findings and/or improvements.

4. Topics for discussion; fire drills and evacuation, hall-way clearance, chemical storage, odors, waste disposal, CPR training, Fire Department concerns, medical concerns, and Public Safety concerns.

4. Decide the agenda for the next meeting, and review prior issues. Keep a log of accomplishments.

5. Possible agenda items; Roll call, Introduction of visitors, reporting of critical information, old and new business, reports from sub-committee members on issues that require additional leg-work, new assignments, developing action plans for safety issues, and adjournment of meeting.



International Shipping Requirements by Peter Reinhardt & Deborah M. Howard—EHS staff

Many lab workers think it is easy to send a sample overseas. They just put the vial in an express mail envelope and call the courier. Environmental health and safety professionals know that shipping research materials *legally* is not that easy. U.S. Department of Transportation (DOT) and/or International Air Traffic (IATA) regulations apply to most shipped research equipment, medical supplies, or any quantity of chemical, biological or radioactive material. Those regulations specify classification, packaging, labeling, marking and documentation, with different requirements for every shipment.

International shipments are more difficult. Lab staff who ship chemicals internationally should know that a Toxic Substances Control Act (TSCA) Export Notification Form is required for chemicals listed on the U.S. Environmental Protection Agency's (EPA) Chemicals on the Reporting Rule Database. Lab staff who receive human etiological agents must comply with import and transfer requirements of the U.S. Centers for Disease Control and Prevention (CDC). The U.S. Animal and Plant Health Inspection Service (APHIS)

Remember, regulated activities include shipments and mailings using the U.S. Post Office, UPS and express mail couriers, such as DHL or Fed Ex., receiving regulated materials by any method of transport, shipments to or from a foreign country, and transporting any amount of regulated material in a commercial aircraft, either on your person, in carry on luggage or checked luggage.

regulates shipments when importing and exporting plants, animals, animal products and biologics. When institutions collaborate, they often sign a Material Transfer Agreement (MTA) that further limit shipments of materials.

The easy way to learn about these shipping requirements is when your express courier asks for documentation, such as a Commercial Invoice, or returns your shipment for repackaging or re-labeling. Customs may halt your outgoing shipment at the border and ask that you provide a Shippers Export Declaration.

For all of these laws, penalties for improper shipments are increasingly likely. Mail, shipments and luggage are being screened for these materials for the purposes of protecting air travel, public health and our nation's safety. Packages to or from research institutions receive additional scrutiny, as well as any package that appears to contain bottles or liquids.

Lab staff also needs to know that they may be held responsible for the proper packaging, licensing and documentation of incoming international shipments, so they should inform international collaborators of these requirements. They should never transport samples or other regulated equipment or material in their pocket, carryon or personal luggage on a commercial airline.

While sending vials and other regulated materials overseas without complying with these requirements may have worked in the past, it is an unwise gamble today. These laws can be confusing and complicated, but the time and effort to comply with them is simply a new necessity. And you don't want to learn that the hard way.

Improper Use of Dorm Stoves Lead to Excessive Fire Department Responses

by Kitty Lynn

When Rams Village Dorms opened in fall of 2006, no one anticipated what would happen in the small kitchens which were sandwiched between the four bedrooms and two baths for each apartment. As students began to cook for the first time since they arrived in the new dorms, some began to activate the kitchen and bath hallway smoke detectors. It was accidental of course, but in many cases, preventable. During a three month period of the 2006 semester, the Environment, Health and Safety HASMIS



Resident Michael Stewart practices safe cooking procedures while he uses his stove.

(Health and Safety Management Information System) program reported a total of 74 Chapel Hill Fire Department responses to the five Rams Village Housing Buildings for false alarms due to burned food and cooking or bathroom activations due to steam. This alarmed the staff at EHS Fire Safety; Fire Marshal Billy Mitchell, Fire Safety Officers Conor Keeney and Kitty Lynn.

THE BIG PICTURE

One of the reasons false alarms are undesirable is because they commit emergency response vehicles which may be critically needed in other areas of campus (or in the Town of



Chapel Hill Fire Department's Engine 32 at Station 3-left to right-Captain Rob Pruitt, Firefighter Luis Rodrigues, and Fire Engineer, Jason Grafford,

Chapel Hill). The remaining fire department personnel and vehicles must then increase their campus coverage area to include the district of the first responders. Specifically, as many as 4 trucks, 12 firefighters including a Battalion Chief must respond on all automatic alarms at a cost of \$830.00 per incident. While driving through campus requires a great deal of caution, the necessity of an emergency vehicle to respond with lights and siren compounds the danger.

PROBLEM SOLVING

UNC Fire Safety organized a meeting with those personnel working in the Housing Department including Assistant Director Steve Lofgren and former Community



Rams Village Community Director Ashley Sieman identifies a hallway smoke detector.

Director Ashley Sieman, Life Safety Fire Alarm Specialist Sherwood McLamb, and the Chapel Hill Fire Department's Deputy Fire Chief/Fire Marshal Alvin Ward. The meeting uncovered some basic reasons for the activations and solutions for resolving them.

STEPS TO SUCCESS

First, the group established that there was a mechanical failure on the part of the bathroom exhaust fans, which were not operating properly. Since the buildings were new, the contractor would have to be contacted in order to correct the problem.

Second, they noted that the kitchen hood system was the non-vented type which does not ventilate fumes or smoke to the outside of the building, but recirculates back into the apartment. This meant that a responsible person within the Housing Maintenance Department would have to change out the stove filters on a regular basis.

Third, Ashley created an educational program which was designed to instruct the students how to clean their stoves properly during a newly incepted "RA Clean Your Stove Day". It also teaches students how to cook safely by handing out special brochures on safe cooking practices. Since the flash point of olive oil may promote smoke whereas other cooking oil choices may not, she agreed that teaching the use of other cooking oils would be beneficial.

CORRECTIONS

Dialogue with residents who have been directly involved with past fire alarm activations revealed that students have a tendency to use the highest setting when beginning to

to cook before walking away from the stove to perform unrelated tasks. This tendency was the culprit in many of the false activations. Another bad habit revealed during the initial Fire Department investigative process was that students have a tendency to store kitchen-type items on top of the burners, while forgetting to remove these items before turning on the stove to cook. Pairing these causes with developed solutions would help to greatly reduce alarm activations.



Don't let this happen to you! Chapel Hill Fire Dept. ready to extinguish a fire.

SAFETY IS # 1

It is important to promote daily fire safety among the student population. They should understand their responsibility to keep the campus safe from deadly fires. Reducing cooking fires with an in-house fire safety education program has certainly accomplished this goal. Through the efforts of many, the incidences related to false alarms has been significantly reduced. It has also given staff that care about the safety of others, the opportunity to educate people about techniques which will make the campus a fire safe campus. Above all else, we want to keep our students and staff safe at UNC.

Safe-T Element is Fighting Fire 24/7!

Safe-T Element has designed a stove element replacement which reduces the temperature of the burner down to minimum temperature. The device prevents needless stove-top fires by preventing combustibles from catching fire due to carelessness or distractions. It works because the element can reach temperatures hot enough to cook food, but not hot enough to combust items.

STOVETOP DESIGN

Safe-T element is constructed of cast iron that is installed on top of the traditional electric-coiled burner. There is a patented control board inside the stove that monitors the temperature of the Safe-T Element. Most electric stoves reach a high of 1292°F. The Safe-T Element's temperature falls below the ignition level of cooking oil and common household products around 662°F.



Pioneering Technology created Safe-T Element to prevent cooking fires.

Kudos to Environment, Health and Safety's Conor Keeney, who hopes to win a federal grant to buy enough Safe-T Element's to replace all the stove tops at Rams Village. Keep up the great work, Conor!



Above, the demonstration dorm on left is sprinkled. On right, non-sprinkled. Below, both fires are started simultaneously.



The sprinkler system in the left dorm extinguishes the fire within seconds. Notice the smoke? On the right, the fire continues to burn. Below, Chapel Hill Fire Dept. prepares to extinguish the dorm fire on the right.



Mock Dorm Fire Extinguished by Sprinkler

The Center for Campus Fire Safety held its 8th annual Fire Safety Conference here at UNC this past November 6, 2006. Among the courses offered was a demonstration of how quickly fire sprinklers extinguish a fire in a dorm room.

The mock dorm's were furnished like a typical student dorm, except one room was given a sprinkler system (photo on left) and the other was not (photo on right). Chapel Hill Fire Department stood by with charged hose lines waiting to put the fire out.

48 dorms

33 are sprinkled,

15 are not sprinkled.

(All dorms have fire alarms)

Ed Comeau, former Director with the Center for Campus Fire Safety led the event. His goal was to demonstrate how quickly and effectively a fire sprinkler system will put out a fire. In this exhibition, the demo-dorm on the left had a sprinkler system while the dorm on the right did not have any fire protection. When the two dorms were simultaneously set on fire, the dorm with the sprinkler protection extinguished the fire within seconds, while the other dorm continued to burn until Chapel Hill Fire Fighters extinguished the fire. In most fires, sprinkler systems will extinguish fires according to the amount of combustibles burning and conditions at the scene.



University of Tokyo Professor Visits UNC to Learn More about Safety Management by Conor Keeney

For three days in February, the UNC Department of Environment, Health and Safety (EHS) hosted Dr. Risuke Karima from the University of Tokyo in Japan. Dr. Karima is an assistant professor at the Environmental Science Center at the University of Tokyo and has recently been studying campus health and safety management in the United States. UNC's EHS was the sixth program that Dr. Karima has visited, the others being at Harvard, MIT, Stanford, University of California at Berkeley, and Duke.

While the University of Tokyo has had an Environmental Science Center that deals with chemical and solid waste generated by the University for over 30 years, only recently have they begun to concern themselves with health and safety issues commonly addressed on American campuses.



Barbara Farrell and Dr. Karima discuss safety protocols.

One of the biggest deficiencies on Japanese campuses is the lack of an equivalent to the OSHA Laboratory Standard. In the US, this Laboratory Standard helps to ensure that chemicals are handled properly in the laboratory in order to minimize chemical exposure to the workers.



Risuke Karima with former EHS Director Pete Reinhardt.

Until 3 years ago in Japan, public universities such as the University of Tokyo were considered exempt from many of the laws pertaining to worker and laboratory safety on their campuses. Dr. Karima explained that while private universities were never exempt from these laws, there had never been an emphasis on campus safety programs until recent changes in legislation. Now both public and private universities are trying to develop systems that will comply with these laws and to help ensure the safety of laboratory employees.

While at UNC, Dr. Karima had meetings with every section at EHS as well as several other departments on campus that deal with safety. In each meeting, he spoke with employees about their responsibilities and how those responsibilities fit within the overall idea of safety management at UNC. He was particularly interested in how EHS educated the campus community about safety, how laboratory inspections were conducted, and how UNC administered its online training programs.

In addition, Dr. Karima spent several hours interviewing Japanese researchers on campus who had also worked in Japanese laboratories. He was interested in documenting the perceived differences between the Japanese and American systems concerning laboratory

safety. One of the interesting things he found was that many Japanese researchers appreciated the fact that most of the safety trainings were offered online at UNC. The researchers found it was easier to fit the online trainings into their hectic schedules. In addition, due to the fact that English is often their second language, they felt they were able to understand the material more thoroughly than by attending classroom trainings. Many of the



Masao Kakoki from Oliver Smithies lab talks to Dr. Karima.

researchers found it hard to understand all of the information when it is presented in a classroom setting but when they were able to read it at their own pace, they tended to have a better grasp of the information.

After visiting the six American universities, Dr. Karima departed with many good ideas on how to better approach safety management in Japan. He has decided that some of the major issues that need to be addressed in Japan are how to effectively educate university employees about safety issues, how to develop a consensus among universities in regards to laboratory inspections, and how to obtain funding for these programs.

While funding always seems to be a problem at universities in the United States, Dr. Karima remained positive that with a little tweaking of the current University practices, he could secure funding for increased safety programs. For example, currently there is a regulation that requires continuous air monitoring in all university laboratories. This regulation stems from the fact that there is no distinction in the current hazardous materials regulations between industry and research facilities. Dr. Karima feels that if he can get some of the regulations changed he can free up money for other safety programs.

So what is next for Dr. Karima in his quest to reform Health and Safety Management in Japan? Later this year he will be presenting his findings during a symposium sponsored by the Japanese Chemistry Association. At this symposium he will be able to make suggestions to representatives of approximately 200 Japanese Universities. With a little bit of legislative help from the Japanese government and a growing



Dr. Karima enjoys Kenan Football Stadium.

attentiveness to safety amongst his colleagues, Japan's University system is poised to become a safer place for all its employees.