FPDL Safety Training
Gaining Plant Access

• Before you will be granted access, to the plant, you must review this slide show, watch the chemical safety video, and pass an examination that will be based on the content of both presentations.

• To schedule an exam, email rdr10@cornell.edu or mb2269@cornell.edu
Scheduling Projects

• Normal Work Hours are from 7:30 – 4:30 PM
• FPDL Calendar
• First come-first serve: plant manager final decision
• ALL equipment and resources
  – Chill water
  – Air
• Special Needs
  – Refrigeration space
  – Other functions (people, etc)
Sanitation

• Community brooms and supplies
• DO NOT use green 3M pads on stainless steel
  – Steel finish is very smooth
  – Abrasive pads scratch the surfaces
• Your trash should be taken out every day
  – Trash you generate is YOUR responsibility
Sanitation

- Functional Food Plant – **FOOD GRADE MATERIALS ONLY**
- Chemicals
  - Safety
  - Personal Protective Equipment
  - Familiarity
- **CLEAN UP AFTER YOURSELF**
  - Your mother doesn’t work here
  - If you make a MESS you clean it up
    - This includes ALL areas of the FPDL
Chemicals

• Chemical Use
  – SDS Location
  – Faculty Researcher Responsible for proper training/application/safety

• IF YOU DO NOT UNDERSTAND OR KNOW THE PROPERTIES OR REQUIREMENTS OF A CHEMICAL YOU ARE HANDLING, ASK QUESTIONS!!!!!
Safety

- **Emergencies – Dial 911**
- Operating Equipment
- Handling Chemicals
- Slips/Falls
- Steam Hoses
- Sharp Objects
- Cuts/Injuries
- Cornell EHS 255 - 8200
  - [http://sp.ehs.cornell.edu/Pages/Home.aspx](http://sp.ehs.cornell.edu/Pages/Home.aspx)
Attire & Habits

• Dress PROPERLY
  – No shorts
  – No street shoes (dedicated shoes)
  – Hair nets/beard nets furnished on entrance doors

• NO PERSONAL FOOD, DRINKS IN FPDL
  – Good Manufacturing Practices
  – Break room is near dairy offices
  – No earbuds/headphones if you are running equipment
Security

• IF you are the last person in the facility, regardless of the time of day, you should ensure doors are secured (locked and closed).
• Door out South end is EMERGENCY EXIT ONLY.
• ALL FPDL traffic should take place through the SOUTH side doors
  — Exception: Barbano Group/FPDL & Dairy Personnel
• DO NOT PROP DOORS OPEN (temporarily is ok)
NYS Dairy Plant

• NYS Licensed and Inspected Plant
  – Unauthorized personnel in area jeopardizes licensure

• All equipment (to include cleaning equipment) is DAIRY PLANT SPECIFIC and shall not be removed from that area for ANY purpose

• If you are using ALLERGENS in a project, they need to be listed on the FPDL Calendar (milk/dairy products are excluded)
### BRUSH COLOR
- **Red** - Product Contact Surface Raw
- **Blue** - Product Contact Surface Pasteurized
- **White** - Noncontact Surfaces
- **Purple** - Cleaning at Sink/Equipment
- **Black** - Drains ONLY

### Buckets
- **RED Buckets** - Cleaning with proper Chemical Name attached
- **Blue Buckets** - Sanitizer Only
- **Green Buckets** - Caustic ONLY
- **White Buckets** – Food Mixing/Contact

### Pump Spray Bottles
Pump Spray Bottles are for SANITIZER ONLY
Steam

• Water spigots are not HOT and COLD

• Red handles deliver STEAM
  – Start with cold water on, then add steam to get to desired temperature
  – Turn off by turning STEAM OFF FIRST and then the cold water
Locations

• Campus Phone in Hallway: 255-8029
• First Aid Kits: 2, one near each handwashing station
• Building Location
  – Building Number: 1063
  – Corner of Judd Falls and Tower Road
  – Adjacent to Livestock Pavilion
• Exits (3)
• Lights
• Keys
Repairs/Work Orders

• Points of Contact
  • Mackenzie Brown – FPDL Coordinator/Technician
    – mb2269
  • Rob Ralyea FPDL Manager
    – (607) 255-7643 or rdr10
  • Deanna Simons – QA Manager
    – (607) 254-5196 or dds85
  • Primary Researcher
  • Libby Foust – Building Quad Coordinator
    • (607) 327-1425 or lsf8
  • Matt Stratton – Building Administration
    – (607) 255-3271 or mks16
Carts & Crane

• Labeled on handles
  – IN-plant carts
  – OUT-of-plant carts

• Electric Forklift **REQUIRES** training course **PRIOR** to use

• **OVERHEAD CRANE USE** is prohibited by unauthorized individuals
Coolers and Freezers

• Safety Doors – you are NOT locked in
• Space must be arranged prior to use
• DOOR LOCKED at all times
• Environmental rooms
  – Do NOT ADJUST
TWO PERSON RULE

• Under NO CIRCUMSTANCES shall any processing or research take place unless there are at least 2 persons physically present in the plant.

• Why is this requirement in place?????
Michele Dufault - Yale '11 dies in Sterling Chemistry Laboratory accident

Wednesday, April 13, 2011
Michele Dufault '11, an astronomy and physics major from Massachusetts, died last night in an accident in Sterling Chemistry Laboratory, University President Richard Levin confirmed in a campus wide e-mail at 5:30 p.m. Wednesday.

An autopsy conducted at the Connecticut Office of Chief Medical Examiner in Farmington Wednesday afternoon determined that Dufault died from an accidental "asphyxia due to neck compression," OCME Investigator Kathy Wilson said.

While working in the Laboratory’s machine shop, Michele’s hair got caught in one of the shop’s wood lathes, Levin wrote in the e-mail. A lathe is a large machine used in woodworking and metal working that molds objects through use of a rotating mechanism.

Other students working in the building found Dufault’s body and called the police, who responded to the scene. New Haven Police Department Spokesman Joseph Avery confirmed that the NHPD received a 911 call around 2:30 a.m. asking for assistance at the Laboratory, but he added that the call may have been YPD officers calling for backup.

The machine shop is located in the building's basement. According to the chemistry department's website, access to the room where students and faculty "construct or modify research instrumentation" is "strictly limited to those who have completed the shop course."

The accident closed Sterling Chemistry Laboratory, cancelling all classes inside. Levin wrote in the letter that the University has begun “a thorough review of the safety policies and practices of laboratories, machine shops, and other facilities with power equipment that is accessed and operated by undergraduates,” adding that this includes both arts and science facilities. “The safety of our students is a paramount concern,” Levin wrote.
During the review, undergraduate access to facilities with power equipment will be restricted to certain hours when monitors are present, Levin said. Steven Girvin, deputy provost for science and technology, will lead the review, he said.

As the University’s investigation remains underway, the Occupational Health and Safety Administration has opened an investigation into whether the lab is in compliance with federal safety regulations, OSHA spokesman Ted Fitzgerald said. OSHA sent an investigator to the scene today; the investigation, Fitzgerald said, could last as little as a few weeks or as long as six months, but he added that it is too early to establish a timetable.

Because both students and University employees use the machine shop, the incident falls under OSHA's jurisdiction, Fitzgerald said.

"If there was a possibility there was hazard that might affect employees, then we would want to look into it," he said.

David Johnson, the research support specialist listed as the instructor for the shop, could not be reached for comment Wednesday morning.
EMERGENCY SHOWERS are common in school labs, but lack of safety training in academia has contributed to the death of at least one lab worker, who failed to reach a shower to douse her flames.

The day Sheharbano “Sheri” Sangji, a 23-year-old technician at the University of California, Los Angeles, undertook what would be her last task, she wore a sweatshirt and no lab coat. That late December afternoon in 2008, she started working with a liquid called t-butyl lithium. The chemical requires careful handling, because as a pyrophoric, it catches fire when exposed to air. But equipment malfunctioned, and the fluid spilled, setting the synthetic fibers of her clothing ablaze. Two postdocs ran to help douse the fire engulfing Sangji, but they failed to get her to the nearby shower. Emergency personnel raced to the scene, but they arrived too late. She spent 18 days in a hospital burn unit before she died.

Sangji’s catastrophe highlights widely unsuspected risks in many schools. “Most academic laboratories are unsafe venues for work or study,” wrote safety expert Neal Langerman in the May/June 2009 Journal of Chemical Health and Safety. He termed the fatality “totally and unquestionably preventable.” Both Patrick Harran, a chemist and director of the U.C.L.A. lab where Sangji worked, and Chancellor Gene Block independently described Sangji’s case as a “tragic accident.”

“To the California Division of Occupational Safety and Health (Cal/OSHA), however, the incident was not a mere misfortune. Cal/OSHA uncovered life-threatening safety violations, including lack of proper training and protective clothing. It also found that U.C.L.A. failed to make a required report of a similar, but nonfatal incident with another student more than a year before Sangji’s. Had reforms happened after that event, Sangji’s fate might have been different. Cal/OSHA imposed nearly $32,000 in fines (uncontested by U.C.L.A.) in her death.
No hard numbers exist on how often such incidents occur in labs because no one tracks them as a distinct category. The American Chemical Society’s Division of Chemical Health and Safety is working to get “reliable data,” Langerman says. But surveys find incidents to be much more common in academic settings than in industrial labs, says James Kaufman, president of the Laboratory Safety Institute in Natick, Mass.

Since 1997 the toll includes deaths of a Cleveland State University professor by electrocution, a Dartmouth College professor by exposure to a lethal chemical and a University of Chicago professor who was probably infected by a fatal pathogen. Most recently, this past January, an explosion in a chemistry lab at Texas Tech University critically injured a graduate student.

The problem of school lab danger lies in management responsibility, Langerman says. Often in industry an “annual performance review of a supervisor has a line item on safety,” he explains, so serious mishaps jeopardize careers. Many academic institutions, Kaufman adds, show “a disregard that runs from the top of the organization to the bottom,” and safety failures rarely damage powerful professorial careers involving large grants. “Do funding agencies like the National Institutes of Health and the National Science Foundation look at the safety and environmental record of the [principal investigator] before they award funding?” Langerman asks. “Do promotion committees look at these things? The answer is no.” In addition, occupational safety laws cover employees but not students, and federal standards exempt state workers such as Sangji.
Washington, DC, January 19, 2010 - The U.S. Chemical Safety Board (CSB) will investigate the causes of a January 7 explosion that severely injured a graduate student at Texas Tech University in Lubbock, Texas, the CSB announced today.

University officials told the CSB the accident occurred in the chemistry department during the handling of a high-energy metal compound, which suddenly detonated. Texas Tech had entered into an agreement with Northeastern University, which holds a contract from the U.S. Department of Homeland Security to study the high-energy materials.

“We see serious accidents in high school and university labs every year, including a tragic fatality a year ago at UCLA,” said CSB Chairman John Bresland. “I believe it is time to begin examining these accidents to see if they can be prevented through the kind of rigorous safety management systems that we and others have advocated in industrial settings.”