

Center for Integrated Nanotechnologies (CINT) Core Facility

Site Specific Training

February 2008

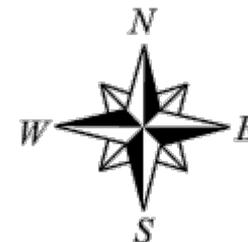
Topics

- Location & Layout
- Badges
- Roles & Responsibilities
- Foreign National Escorting/Monitoring
- Prohibited Items
- Wireless Networks
- Hazards and Mitigations
- Training
- Emergency Response
- Contact Information

Safety

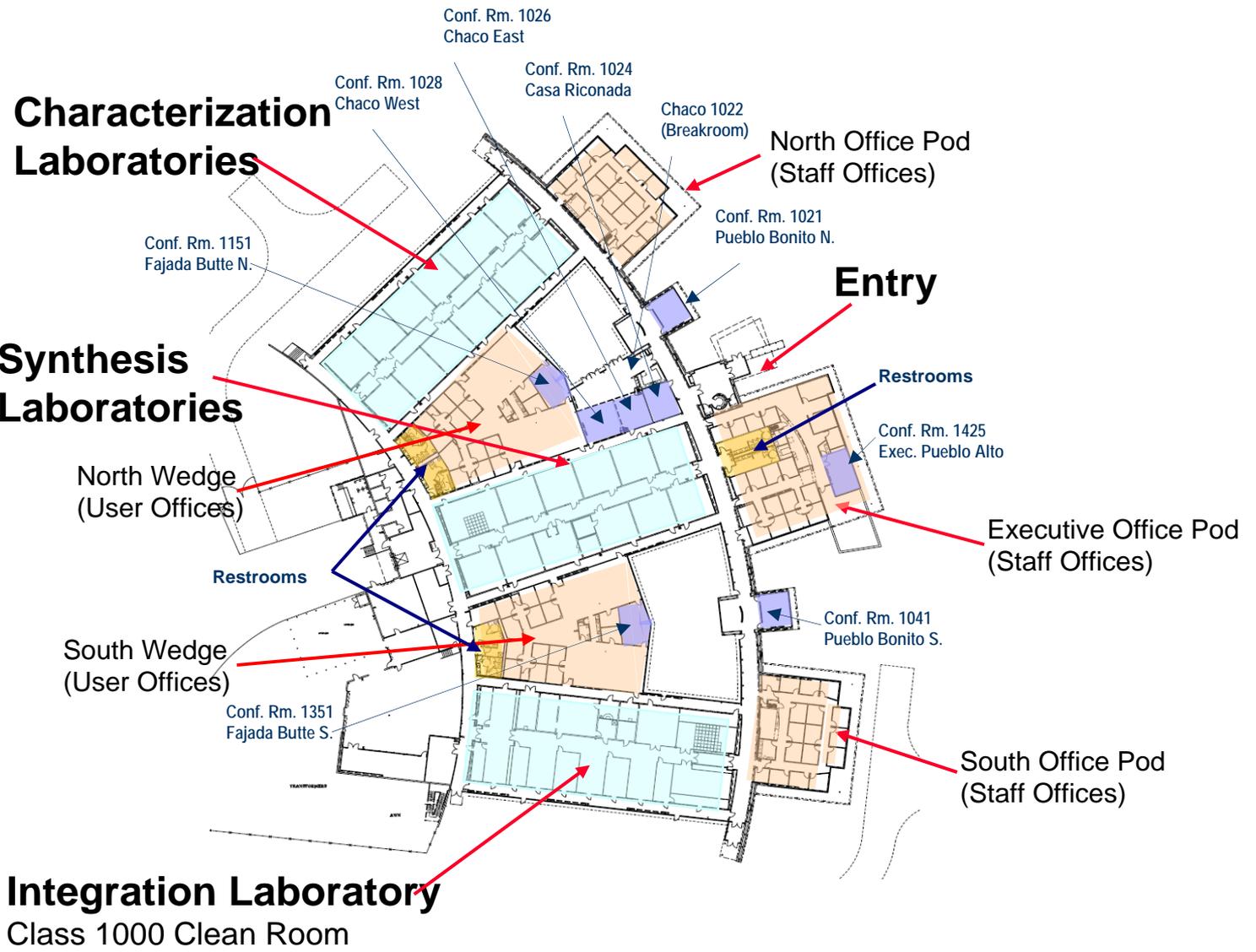


Security



Location and Layout

- SNL/NM (DOE leased land)
- North of Kirtland Air Force Base (KAFB), west of Eubank Gate
- Comprised of three wings: Characterization Labs, Synthesis Labs, Integration Labs
- Staff offices, chemical storage room, loading dock area



Badges



- All Sandia personnel, resident contractors, and visitors will wear SNL photo identification badges at all times in Building 518.
- Visitors that are visiting the CINT Core Facility for three days or less need to wear a numbered SNL Building specific visitor badge and must sign the visitor's log.
- Foreign National Visitors must obtain badges from the badge office.

Where can I go?

- Entry into all areas of the CINT Core Facility is through the use of badge readers.
- Access to areas depends on business needs.



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Roles & Responsibilities

- Security
 - Awareness of the security plan and its contents
 - A copy can be found in the lobby of the CINT Core Facility. It also located at http://www-irn.sandia.gov/organization/div1000/ctr1100/docs/b518-cint-security-plan_2007.pdf
- Safety
 - Authorization basis

Foreign National Escorting/Monitoring

- **Definition of a foreign national (FN):** Any person who is not a citizen of the U.S., is not a lawful permanent resident, and is not a protected individual. FNs must wear a Sandia specific uncleared red badge.
- **All FNs must be escorted in the office pods at the CINT Core Facility**
 - When a FN is escorted into one of the office pods, the escort must remain with the FN at all times until the escort responsibility is transferred to someone else within the office pod or the FN exits the office pod.
- **FNs do have to be escorted but should be monitored in all other areas besides the office pods in the CINT Core Facility.**
Responsibilities typically include:
 - Ensuring FNs are aware of and restricted to authorized scopes of work and specified visit locations (e.g. buildings and rooms)
 - Maintaining an awareness of what FNs are doing by periodically checking their work and requesting feedback regarding their activities
 - Periodically checking on the FNs' whereabouts

Prohibited items

Sandia National Laboratories is a drug-free and a tobacco-free environment. The use or sale of tobacco products on Sandia controlled property is prohibited. Sandia property includes SNL vehicles, building interiors, exteriors, entryways, walkways, parking lots, fenced areas, interior of personal vehicles parked on Sandia controlled property, and portions of buildings controlled by Sandia.

➤ **Additionally, visitors must not bring the items below into the CINT Core Facility**

- Alcohol and alcoholic beverages
- Controlled substances (illegal drugs and associated paraphernalia)
- Explosives, flammables, radioactive materials, or chemicals
- Firearms, weapons, or incendiaries
- Any other items prohibited by law
- Laptops with camera capabilities
- Cellular telephones with camera capabilities
- Radio frequency transmitting equipment
- Audio, video, optical, and data recording devices (i.e. non Sandia-owned BlackBerrys; all iPods and MP3 players.)

Questions? Contact your Sandia host.

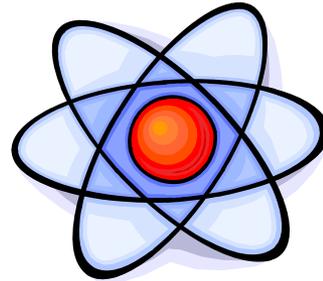
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Wireless Networks

- **Thunderbird (T-bird) Network** – provides access to the Sandia Restricted Network (SRN). General SRN access is only available to employees, and on-site contractors, who are U.S. citizens or lawful permanent residents from non-sensitive countries, performing Sandia-directed work. *A crypto card and VPN client software are required.*
- **Sandia Hotel Network (SHN)** – provides guests of Sandia access to the Internet while visiting the site. *A username and password are required.* Access is granted to visitors, including individuals who are lawful permanent residents from sensitive countries or are non-resident alien foreign nationals. Sandians are not allowed to have a SHN account.
- **When you are not on the network, please make sure to turn your wireless card off so it does not try to connect to other restricted wireless networks at the facility.**

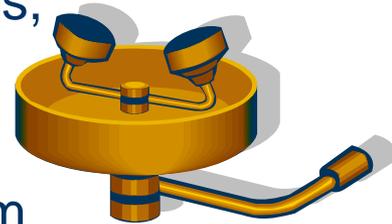
Hazards associated with CINT Core Facility

- Chemicals
- Lasers
- Non-ionizing radiation
- Biological
- Pressure/Thermal/Electrical



Chemicals

- Training
 - LAB100 for Members of the Workforce who engage in activities that involve potential exposure to hazardous chemicals.
 - The OSHA Lab Standard requires that Members of the Workforce are trained in measures they can take to protect themselves from exposure to hazardous chemicals, including emergency procedures.
- Signage
 - The Sandia Workplace Hazard Awareness System (SWHAS) is used to identify hazards within a laboratory.

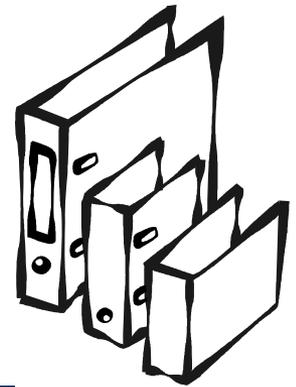


Chemicals (continued)



- Purchasing
 - At SNL/NM, chemical substances should be purchased through the SNL Just-in-Time (JIT) chemical supplier. The JIT system automatically affixes a tracking barcode label to the chemical container so that the chemical is immediately entered into the SNL inventory with an appropriate MSDS. If at anytime a chemical container needs a barcode label, call the CIS/NM Helpline at 844-MSDS for bar-coding service and other CIS related questions.
- Chemical Hygiene Program (CHP)
 - Sandia's CHP is Chapter 6E of the ES&H Manual

Chemicals (cont'd)



- Technical Work Documents (TWDs)
 - Sandia uses Technical Work Documents (TWDs) like SOPs and OPs that describe safety and health considerations when laboratory work involves the use of hazardous chemicals, including particularly hazardous substances
- Housekeeping
 - Keep work area clean and organized. Store chemicals properly when not in use and at the end of the workday.



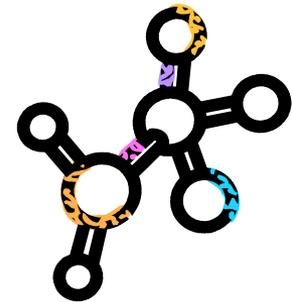
Hazardous Waste

- Training applies to all Members of the Workforce at SNL/NM who generate, treat, store, or request disposal of material identified as hazardous waste. (ENV112)
- At SNL/NM, you are a Hazardous Waste Generator if your wastes must be managed in accordance with the requirements of the ES&H Manual, Section 19A.
- The SNL/NM Chemical Information System (CIS) tracks chemicals or chemical products from purchase to disposal. The CIS can help you locate an MSDS for your chemical waste.



Lasers, Nonionizing Radiation and Biological

- Lasers
 - Laser101I (Introduction)
 - Laser200B (Class 3b or 4 lasers)
 - Requirements in Section 6G of the ES&H Manual
- Nonionizing Radiation
 - Energy in the electromagnetic spectrum with wavelengths between 106 centimeters (cm) (extremely low radiofrequency) to 10⁻⁵ cm (ultraviolet light) and with frequencies between 0 megahertz (MHz) and 3 x 10⁵ MHz.
- Biological
 - Biological Activities (BIO105)
 - Requirements in Section 6N of ES&H Manual



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Electrical



- Due to the nature of research, the risk of electric shock is greater in an R&D laboratory than most other work environments.
- Electrical energy is uniquely dangerous because electricity is invisible, survival of mild shock is misleading and the use of electrical energy is widespread.
- To perform work safely, each individual must follow all applicable procedures, properly use personal protective equipment, and complete required training.
- When working in the laboratory, you should know the location of fire alarm pull-boxes, emergency shut down buttons, and emergency eyewashes and showers.
- Operating procedures, warning devices, signs, personal protective equipment, and training are controls used to minimize electrical hazards.
- It is very important to report all electrical shocks.

Pressure Hazards

- Pressure Installer
 - Personnel responsible for installing, modifying, or procuring pressure hardware without supervision. Pressure installers can also supervise the activities of non-pressure installers who may be performing installation or modification tasks.
- Pressure Operator
 - Anyone who uses or operates pressure systems. Pressure operators do not modify or install pressure hardware, with the exception of routine operations such as changing gas cylinders and regulators.
 - Responsibilities and limitations
 - Hazard awareness
 - Knowledge of the assembly
 - Assistance available
 - Familiar with documentation
 - Operator Limitations
 - Routine operation only (may include routine cylinder changes, loading samples, etc.)
 - Can not design or install new systems or re-configure existing systems
 - Hardware training required commensurate with responsibilities



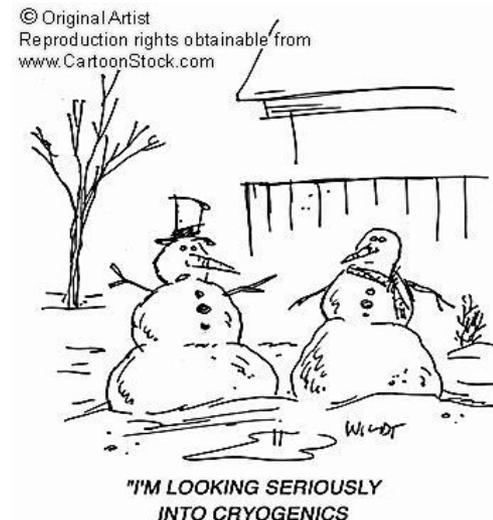
Gas cylinders



- Gas cylinders are stored and handled in accordance with regulations
 - Proper storage & separation, secured, and proper identification
 - Gas cylinder cart with safety chain and with cylinder valve protection cap in place
- Gas cylinders shall be properly identified
 - Gas ID label and CIS bar code (no color code)
 - DOT markings / DOT test date
- Gases are ordered through the JIT contract (Matheson TriGas)
 - CIS bar codes and delivery to point of use
 - 3rd party gases can be ordered JIT
 - Return cylinders to the supplier (mark for pick up)

Cryogenics

- Cryogenic liquids are gases that have been transformed into extremely cold liquids which are stored at low pressures in specially constructed, multi-walled, vacuum-insulated containers.
- Common cryogen hazards:
 - Thermal (Freezing)
 - Pressure Build-up
 - Brittle Materials
 - Ice Build-up
 - Asphyxiation / O₂ deficiency
 - Oxygen Enrichment
 - Noise
 - Back strain / lifting



Other Hazards to consider...

- Theft/car break-ins/personal safety
- Slips, trips, and falls



Hazard Mitigation

- Individual Primary Hazard Screening (PHSs) for each laboratory
- Each laboratory has associated Technical Work Documents (TWDs)
- All personnel working in laboratories shall read the appropriate TWDs and provide a signature noting that the documents have been read.
- Training shall be completed prior to conducting operations in a laboratory.



Hazard Mitigation (continued)



- If valuables are left in your vehicle, don't leave them in view of passer-bys.
- Be vigilant when exiting the facility.
- Stay on the sidewalk, watch for curbs and be especially careful during inclement weather.

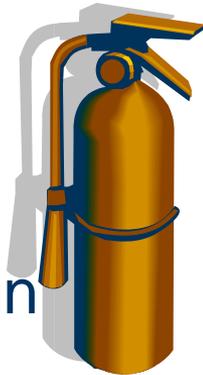
Training

- Required training
 - CINT100
 - ESH100
- Other
 - Lab specific training courses

Emergency Response

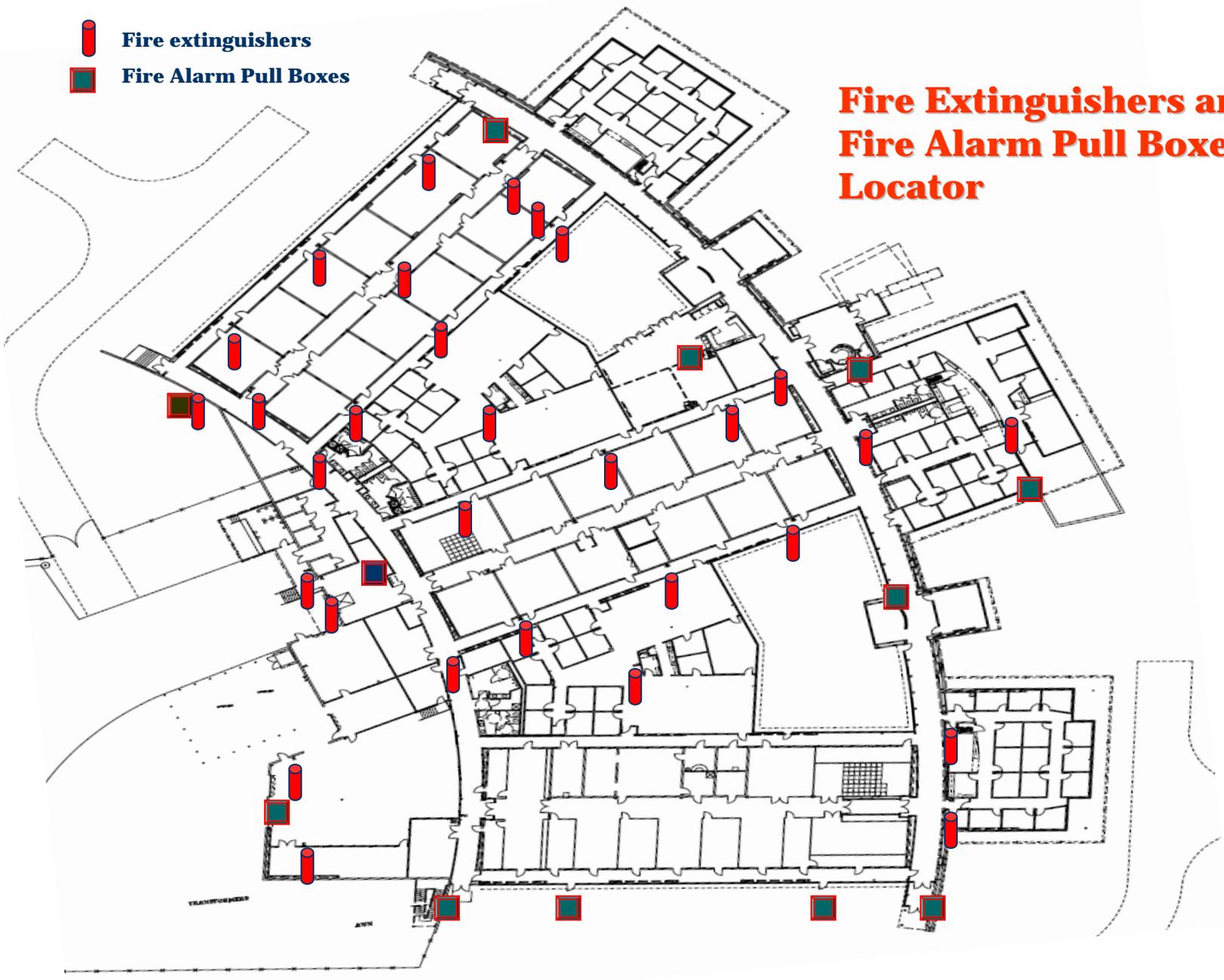


- For all incidents call the non-emergency hotline (311).
- For emergency situations, call 911 (or 844-0911 from a cell phone).
- In the event of a fire alarm please exit the Core Facility and proceed to the assembly area located in the east parking lot, unless otherwise instructed.
- Chapter 15 of the SNL ES&H Manual describes the required and recommended actions to be taken by Members of the Workforce when an emergency condition is observed or experienced at SNL.



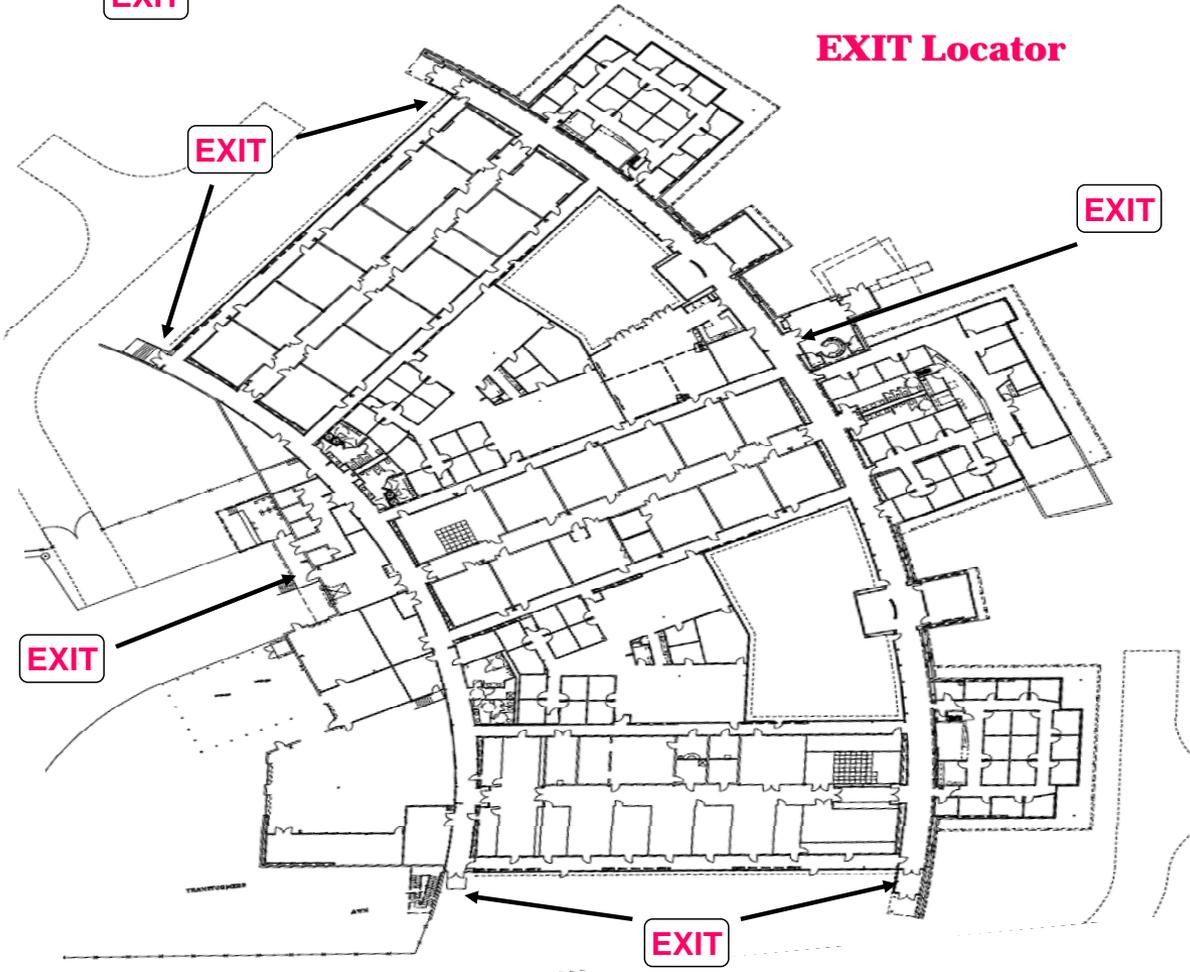
-  Fire extinguishers
-  Fire Alarm Pull Boxes

Fire Extinguishers and Fire Alarm Pull Boxes Locator



EXIT Location of EXITS

EXIT Locator





**Emergency
Assembly
Area**



Important numbers to remember

- 911 for emergencies (844-0911 from a cell phone)
- 311 for non-emergencies
- CINT Core ES&H Coordinator:
 - Mike Starr
 - Phone: 844-0046
 - Pager: 530-0885
- CINT SNL Gateway (aka Building 897) ES&H Coordinator:
 - Wayne Davis
 - Phone: 844-6734
 - Pager: 540-1798
- CINT Receptionist:
 - Sandy Pino-Lucero
 - Phone: 844-3286



Questions?



For questions please contact:

Mike Starr, 844-0046, mstarr@sandia.gov