

NST212216 – Orientation for CNM User Work in Buildings 212 and 216

1. Course Objective

The objective of this course is to provide users of Center for Nanoscale Materials (CNM) resources in buildings 212 and 216 with location-specific safety and response information. The course complements existing common emergency and other information provided in CNM101 CNM User Orientation.

2. Introduction to the 212/216 Facilities

Since these capabilities are not located within the main CNM building, this specific orientation for users who need access to:

- CNM’s transmission electron microscopes (TEMs) in building 216.
- CNM’s analytical electron microscopes in D-wing of building 212.

More information about the instruments can be found on the CNM website (<https://www.anl.gov/cnm/cnm-capabilities>)

3. Emergency Information

3.1 Key safety people are:

The telephone numbers for the people listed below are posted near each telephone.

Name	Title	Function
Hua Chen	Environment, Safety, & Health (ESH) Coordinator and Quality Assurance Coordinator for the Nanoscience & Technology Division	Responsible for: <ul style="list-style-type: none">• Supporting implementation of the ESH policies and procedures of Argonne and the CNM’s parent division.• Providing staff and users technical guidance on safety issues.
Jeff Phillips	Area Emergency Supervisor (AES)	Building 212
Jeff Phillips	Area Emergency Supervisor (AES)	Building 216

3.2 Evacuation Procedures and Audible Alarms

While in buildings 212 and 216, you might hear either of two audible emergency alarms. The table below describes these audible alarms and the actions you are to take in response to each. These are in addition to the site-wide alarms discussed in course ESH100U.

Signal Type	Signal Sound	Cause	Action Required
Local Evacuation	Loud steady bell accompanied by strobe lights and a public	Fire, explosion, or other emergency.	Leave the building using routes to the north and west. Do not enter other wings of the building. Go to the Cafeteria (Building 213).

Signal Type	Signal Sound	Cause	Action Required
	announcement to evacuate.		Ensure a CNM group member is aware you have reported to the assembly point.
High Gamma Radiation Field	Loud steady horn in building 212 F-wing.	Loss of radiation shielding in the Alpha Gamma Hot Cell Facility.	If you hear the alarm, move away from the sound and assemble in the E-Wing Filter Storage Room (E-107) near the E-wing loading dock for personnel accountability.

3.3 Tornado Sheltering

When the Laboratory announces a tornado warning over the site-wide public address (PA) system, you should use corridors and stairways – not the elevator – to make your way to the nearest designated tornado shelter. Shelters are on the first/ground floor.

Building 212:

- Corridor C10 (closest shelter for the D-wing facility)
- Rooms G166 and H100 (don't use unless you happen to be in the immediate area)

Building 216:

- Room A110 corridor

The building drawings that follow depict the location of these shelters, identifying them using green highlighting. The actual locations have signs that say "Tornado Shelter."

In the event of a tornado, please reduce risks to others by ensuring Argonne knows where you are.

- Notify your CNM Scientific Contact (SciCon) you are okay.
- If you cannot contact your SciCon and are:
 - in building 212, find and stay with a CNM staff member.
 - In building 216, follow the posted instructions in the A110 corridor for shelter and reporting your presence.

3.8 Hazards

CNM users should minimize their potential exposure to hazards by confining themselves to the CNM areas, the main corridors, and general access areas. Do not enter non-CNM laboratories unless you are escorted by the supervisors of those laboratories.

Hazards in building 212 include:

Ionizing Radiation

Alpha Gamma Hot Cell Facility (AGHCF)

This complex, located in F-Wing of building 212, is a Category 3 Hazard Nuclear Facility and is governed by specific and strict DOE Orders and Federal Regulations. Do not enter this facility.

Other radiologically controlled areas

Radiologically controlled areas include, but are not limited to, the AGHCF, E109, and DL114. The topic of controlled areas is covered in Argonne's *User Facility Orientation* (ESH100U).

Elevator gate

Building 212 has a freight elevator in E-wing that is used extensively. The elevator gate will close automatically, from the top. A warning alarm will sound beforehand; but you want to make sure you are not in the way. The gate closes rapidly. It has a pressure-sensing strip at the bottom to reverse direction; but that is the safety barrier of last resort. **DO NOT STAND STILL IN THE DOOR OPENING. NEVER TRY TO "BEAT" THE DOOR ONCE THE WARNING ALARM SOUNDS.**

Cryogenic liquids

Cryogenic hazards include portable dewars of liquid nitrogen and liquid helium that may be found throughout the building. Also, there are large outside storage tanks for liquid nitrogen on the east side of the building.

Compressed gas cylinders

Compressed gas cylinders are located on the E-wing loading dock and throughout the building.

4. User Work Approval (UWA) Records

Proposals that are allocated time on a CNM instrument must have a signed CNM User Work Approval in place prior to the start of work. Onsite users must sign their UWA. See CNM101 CNM User Orientation.

5. General User Information for 212/216

5.1 Categories of Users

After training, staff members authorize users to access and operate an instrument. Users who demonstrate a high degree of proficiency can be authorized for off-hours access (nights and/or weekends).

5.2 Training Requirements

Required Core Training

In addition to the CNM core training courses:

- NST212216, Orientation to CNM User Work in Buildings 212 and 216 (this course)

Instrument Training Procedures

Prior to being provided training on instruments, users must also sign the User Work Approval (UWA) pertinent to their work. Each user must participate in an initial instrument-specific training session given by a CNM staff process custodian. The process custodian will then authorize the user on the relevant SOP, after which appropriate door access will be loaded automatically onto your badge/prox card.

5.3 Reserving Time on Instrument Calendars

Users can login to on-line instrument calendars (with a few exceptions) for the purpose of reserving time on the instruments. The process custodian or user office can advise how to access the calendars.

5.4 Computing Facilities

The CNM provides resources for image processing and analysis, including commercial software for image simulation and modeling. It also has software for off-line processing of EELS and EDXS data that is acquired on its instruments. Off-line computers are located at 212-A237.

6. Specimen Preparation Facilities

The CNM maintains an array of specimen preparation capabilities that are available to all users. While individuals are generally expected to carry out their own specimen preparation, CNM group members are available for consultation (expertise and guidance only). The 212/216 Specimen Preparation Laboratory (room DL126, building 212) is used for the preparation of specimens for FIB, TEM, SEM, and light microscopy.

Before researchers start any work in DL126, they must:

- Consult with the Lab Area Lead.
- Read and sign their UWA including specimen preparation work.
- Complete the course Orientation to NST-SOP-207 Sample Preparation - Building 212, Lab DL126.

7. Working Alone and Working Off-Hours in 212/216

NST SOPs contain statements indicating whether working alone is permissible. Although you may have permission to work alone, the CNM recommends you inform your SciCon or the process custodian for the SOP where you are working. The main door for Building 216 is locked at 5:30 pm.

7.1 Activities forbidden by those working alone

CNM forbids working alone in 212/216 when:

- Mixing corrosives (acids and bases) to form a working solution.
- Working with liquid helium.

7.2 Working alone during normal working hours (07:00-17:30, Monday-Friday)

Users authorized with off-hours access may work alone in the electron microscope rooms. Users without off-hours access may not work alone: an off-hours authorized user or staff member must be present.

8. Floor Plans of Buildings 216 and 212

This section contains floor plans for building 216, the ground floor of building 212, and the CNM facilities within building 212 (see subsequent pages for the plans).

Note these areas that are marked on the 216 and 212 floor plans:

- Building and facility exits are marked on the floor plans with red stars.
- For building 212, the tornado shelter areas are colored green. For building 216, the A110 corridor is the shelter area.

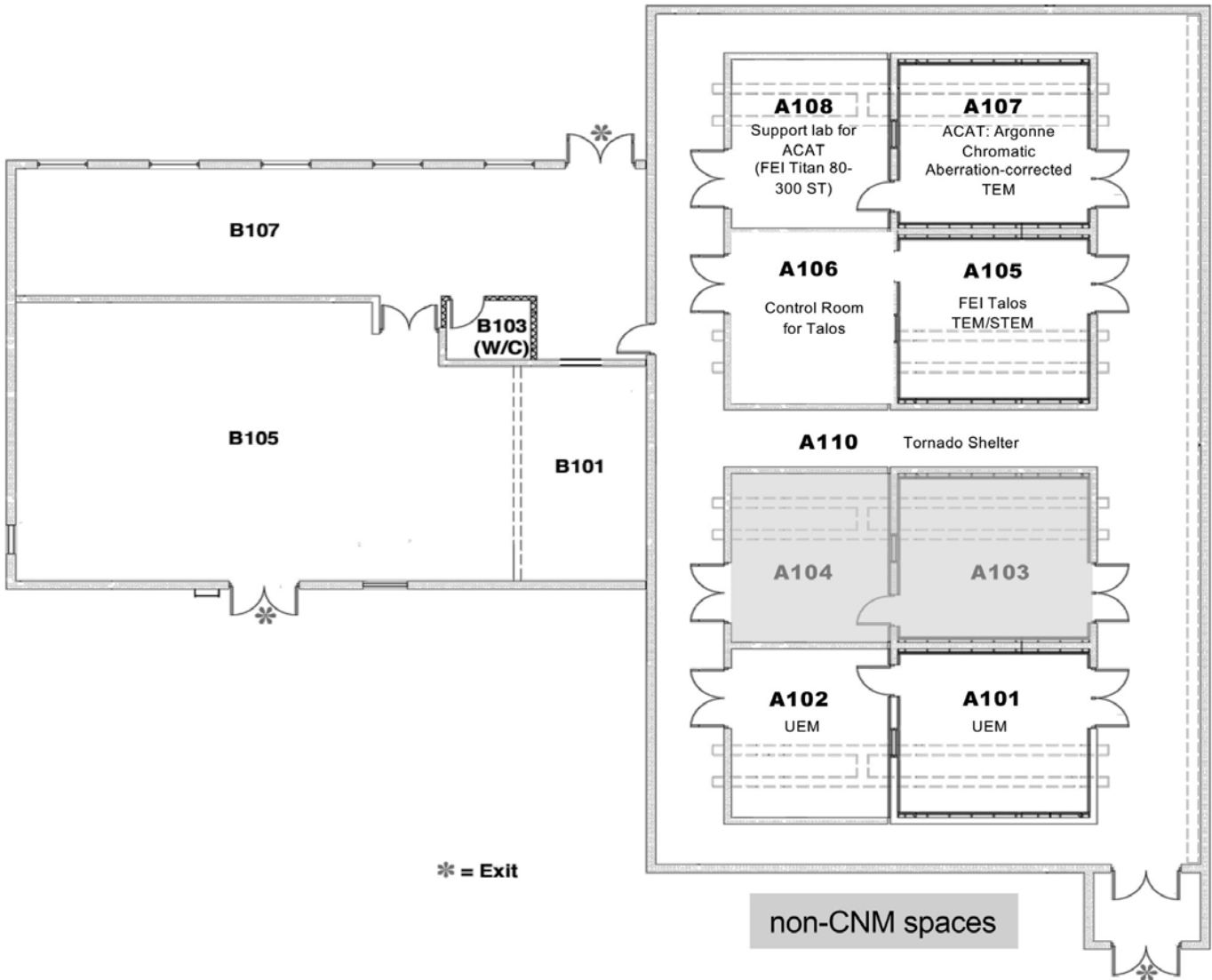
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Note these additional areas that are marked on the main building 212 floor plan:

- The yellow dot in the C10 corridor near room DS101A shows the most likely location of CNM group members during a tornado. It is the area users are expected to assemble when a warning is issued.
- The Alpha Gamma Hot Cell Facility (AGHCF) is colored blue.
- The CNM facilities are colored red.

Building 216 floor plan

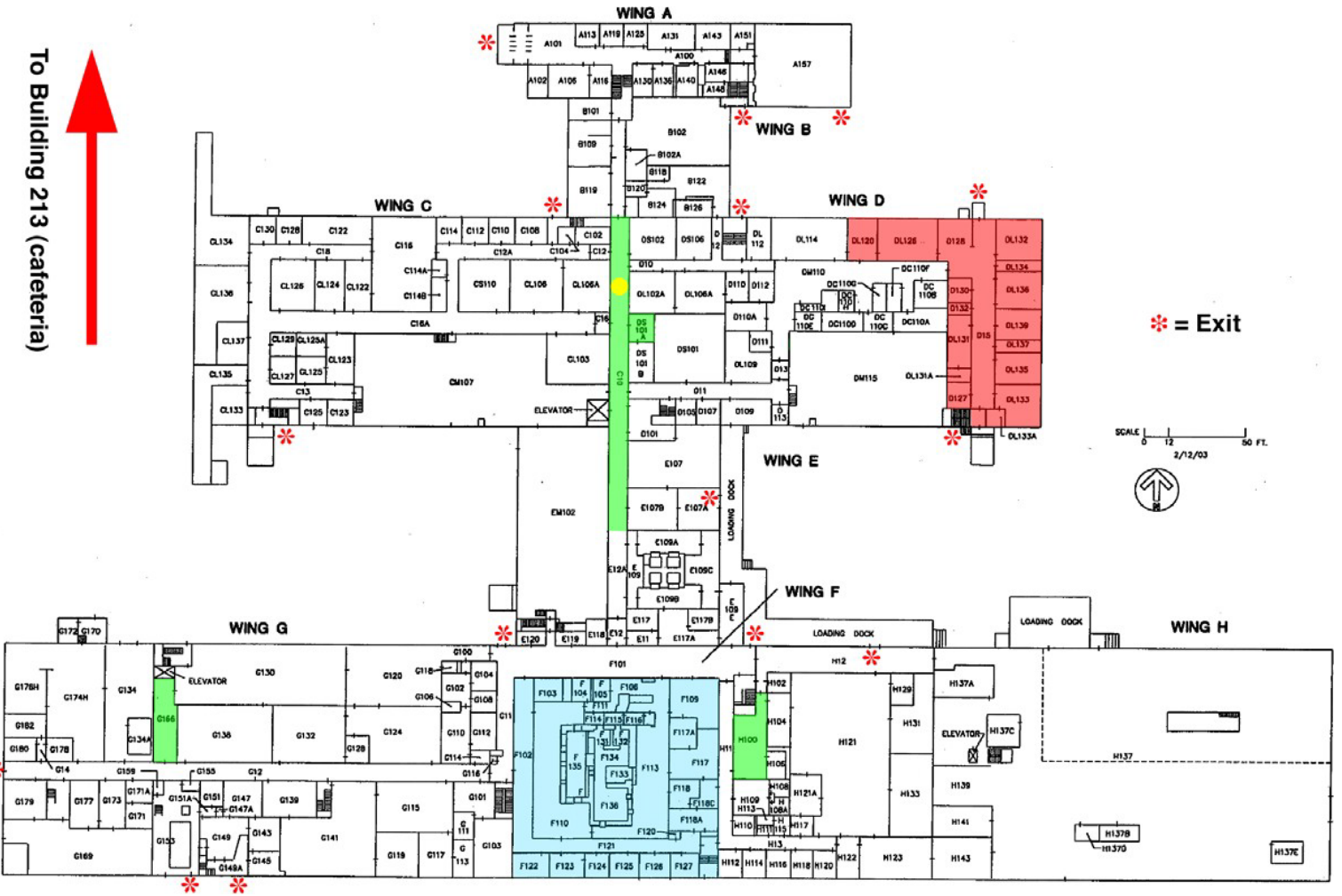


* = Exit

non-CNM spaces

Building 212 ground floor plan

To Building 213 (cafeteria)



Building 212 floor plan (D-wing facility on ground floor)



*** = Exit**
 non-CNM spaces