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OWNER SAFETY REQUIREMENTS

1.1 GENERAL

A. The Contractor must comply with all applicable OSHA, EPA, Federal, State and local standards, as well as applicable Dartmouth College policies.

B. The Contractor shall have a designated supervisor/foreman on site anytime work is being performed. Unless otherwise agreed upon, this individual shall report to the Dartmouth PM at the start of each workday to review the work.

C. The Contractor shall provide their employees, and subcontractors if necessary, with all required safety equipment, including a first aid kit and fire extinguisher. Hard hats are required in the power plant and in utility manholes. Dartmouth will not provide any safety items such as ventilators, goggles, hard hats or manhole stands.

D. Prior to the start of on-site work, the Contractor shall prepare and furnish their safety manual to the Dartmouth PM. This safety manual shall include but not be limited to procedures on lock out/tag out, confined space entry, trenching, hazardous material handling, etc. If the Contractor has no such manual, a discussion of safety issues must take place with the Dartmouth PM.

1.2 ELECTRICAL SAFE WORK PRACTICE

A. The Contractor must comply with Dartmouth College's Electrical Safe Work Practice policy, as follows:

1. Electrical Work: General Requirements

    a. All work on electrical systems and electrical equipment shall be done with the system or equipment in a de-energized state utilizing proper lock out procedures.

2. Electrical Work: Live Work Requirements

    a. If the determination is made that the work must be done in an energized state (other than for testing and trouble shooting), an Energized (Live) Electrical Work Permit is required.

    b. Energized (Live) work, other than testing and troubleshooting, is prohibited at Dartmouth College unless specifically authorized via the use of an Energized Electrical Work Permit. The Energized Electrical Work Permit is completed by the Dartmouth PM and is approved by at least two of the following people:

        1) The employee's FO&M Direct Supervisor
        2) The FO&M Electrical Shop Supervisor
        3) The FO&M Service Manager
        4) The FO&M Science Facilities Manager
        5) The Associate Vice President of FO&M

c. Energized electrical work requiring an energized electrical work permit, (that is any energized electrical work other than testing or troubleshooting) will only be performed by licensed electricians authorized by Dartmouth College.

d. Energized (Live) work inside distribution panels, switchboards, MCC's, bus ducts, and other higher amperage electrical equipment may only be completed by a licensed electrician authorized by Dartmouth College.

e. Only licensed electricians authorized by Dartmouth College may remove the cover from any distribution panel on campus.

f. In the case where on-site contractors may be used, the supervisor of the FO&M electrical shop and the on-site contractor shall inform each other of existing hazards, personal protective equipment/clothing requirements, safe work practice procedures, and emergency/evacuation procedures applicable to the work to be performed. This coordination shall include a meeting, which shall be documented.

1.3 PERMIT-REQUIRED CONFINED SPACE POLICY

A. The Contractor must comply with Dartmouth College's Permit Required Confined Space policy, as follows:

1. Confined Space: General Requirements

a. Only trained, authorized personnel may enter a confined space. Training is provided by EHS on a periodic basis. Supervisors are responsible for ensuring all new personnel are trained.

b. A standardized confined space permit tag is to be taken to the confined space location, clearly and accurately completed, displayed during the entry process and returned to the Tool Crib when the work is completed or no later than the end of the shift. A confined space permit is only valid for one shift.

c. An approved, calibrated and operable confined space monitor (air monitor) must be used. Honeywell four gas meters are available in the troubleshooter's tool crib.

d. A confined space must have a fixed means of entry and exit--such as a ladder or fixed steps. Ladders must remain in place throughout the entry.

e. A minimum of two authorized persons must be present when entering a confined space--a two-way radio capable of summoning help in an emergency must be present and operable by the attendant.

f. Barricades (guard rails) and other forms of warning (caution tape, traffic cones) must be used whenever a confined space is opened or unguarded in such a way that may be hazardous to others.

g. No confined space is to be left open or unprotected at any time.

h. Lock-out/Tag-out (LOTO) must be used as required to eliminate potentially dangerous energy hazards.

i. Welding and paint use in a confined space must be accompanied by continuous ventilation and monitoring. Introduction of welding and/or painting into a confined space makes the confined space a permit required confined space.

j. All confined space locations must be visually inspected prior to entry for any unforeseen hazards. Examples could include a gasoline spill from a roadway or a leaking steam line.

2. Confined Space Entry Procedures:

a. Before arriving at the location:

1) Coordinate with Dartmouth PM to obtain a confined space permit. Ensure prior approval signatures are obtained for the permit.
2) Inspect and test the confined space four-gas monitor to ensure it is working properly. Calibration must have been within the last 12 months—indicated by a calibration sticker. A monthly "gas" calibration must also be current to within 30 days and is done in-house by the Electronics Shop. Ensure batteries are fresh. Simply put, never use an un-calibrated, defective or questionable monitor!

b. At the Confined Space:

1) Set up barricades and other forms of warning.
2) Test location at various levels (at least three—near the bottom, middle and top) to determine oxygen levels or potentially explosive atmospheres. Allow adequate response time of instrument when taking readings—do not rush. Oxygen concentrations must be above 19.5% and below 23.5% for entry. Combustible gasses must be below 10% of the LEL (lower explosive limit) for entry. If monitoring results are outside of the safe ranges, the space is not safe for entry. Do not enter and notify your supervisor.
3) Mechanically ventilate the confined space with a blower for at least ten minutes.1
4) Re-test the location as outlined in Step 2 and continuously monitor the space throughout the entry.
5) If acceptable, entry may proceed. The attendant must remain outside the space with radio, and in contact with the entrant(s) at all times.
6) If work will require more than five minutes or if the location is hot or uncomfortable, continuous ventilation is required. A "saddle" vent may be used to avoid blocking the access. Do not place ventilation intakes near auto exhausts or otherwise contaminated air sources.
7) In hot or demanding environments, workers are encouraged to drink plenty of fluids and leave the location for brief periods as needed to recover.
8) At the first sign of danger (for example, alarm on monitoring equipment) the attendant must order an immediate evacuation of the space while self rescue by the entrant is still possible.
9) In the event of an emergency, the attendant is to summon help immediately via radio. It must be clearly stated that this is an emergency and that a 911 call must be placed to summon help. At no time should they put themselves in danger by

entering a potentially hazardous environment in an attempt to rescue, nor shall they leave the space unattended while someone is in the confined space.

10) Ensure that you have completed your confined space permit and that the permit is displayed at the work location; for example, the confined space permit may be tied to the barricade. In adverse conditions, the tag may be protected against damage but must be readily available at the location. Without the tag, there is no documentation that proper procedures have been followed.

11) Return the completed confined space permit to the Tool Crib no later than the end of the shift. The Tool Crib attendant is responsible for collecting and retaining confined space permits.

3. Rescue:

a. The Hanover Fire Department serves as the primary rescue organization for Dartmouth College's confined space entry program.

b. If a rescue is needed, the attendant should call 911 and provide the exact location of the confined space entry. If the attendant does not have a cell phone, the radio should be used to contact dispatch and alert them of the emergency so that they can contact the Hanover Fire Department.

c. Confined space rescue drills will be conducted annually with the Hanover Fire Department.

1.4 FALL PROTECTION PROGRAM

A. While Dartmouth College's Fall Protection Program policy is not intended for contractor use, contractors should comply with all applicable requirements of the policy as follows:

1. Where Contractors are exposed to falls over six feet, a Fall Protection Procedure shall be submitted to the Dartmouth PM prior to work commencing. The site-specific plan should be forwarded to EHS for review at least three working days prior to the start of work. The Site-specific plan shall include, at a minimum:

a. Name of company, job site, person developing the plan, person approving the plan,
b. Identification, by name, of the job site competent person,
c. The method to be used to prevent falls at this job site
d. Method to ensure compliance with the site-specific plan
e. Certification of training for all workers at this job site

2. Dartmouth College prohibits the use of monitors for roofing work on low slope roofs. Guardrail systems, fall restraint systems, fall arrest systems or safety nets are allowed.

3. Dartmouth College does allow for other exceptions addressed in OSHA Regulation 29 CFR 1926 Subpart M, such as for Steel Connectors, Leading Edge Work, etc., however, the method to be employed to prevent falls must be specifically addressed in the site-specific fall protection plan.

4. Except for the prohibition of using a monitor for low slope roofing work, Dartmouth College will not dictate means and methods to achieve 100% fall protection for fall exposure defined above.

5. Hoist Areas: If employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee shall be protected from fall hazards by a personal fall arrest system

6. Holes: Each employee on a walking/working surface shall be protected from objects falling through holes (including skylights) by covers. All other covers are capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time. All covers shall be color coded or they shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard

7. Excavations: Each employee at the edge of an excavation 6 feet or more in depth shall be protected from falling by guardrail systems, fences, or barricades and at less than 6 feet when not readily apparent.

8. Falling object protection: When an employee is exposed to falling objects, the employee will wear a hard hat and shall implement one of the following measures:

    a. Erect toeboards, screens, or guardrail systems to prevent objects from falling from higher levels; or,
    b. Erect a canopy structure and keep potential fall objects far enough from the edge
    c. Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally displaced.
    d. Toeboards must be a minimum of 3 1/2 inches in vertical height from their top edge to the level of the walking/working surface
    e. If possible, employees working at height shall use tool lanyards to prevent accidental dropping of tools and other equipment from height.

    f. If tool lanyards are not available, the area under where the work is taking place must be restricted from access to other workers and the public

9. Guardrails, screens, mesh and safety net systems shall be installed to specifications required by OSHA's Fall Protection Systems Criteria and Practices (29 CFR 1926.502(b)-(c)).

10. All connectors for fall arrest systems and positioning device systems are drop forged, pressed or formed steel or made of equivalent materials and have a minimum tensile strength of 5,000 pounds. Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. Lifelines shall be protected against being cut or abraded.

1.5 HOT WORK PERMITS

A. The Contractor must comply with Dartmouth College’s Hot Work Permits policy, as follows:

1. FO&M employees will obtain hot work permits daily, as needed, from Work Control.

2. Contractors will obtain hot work permits daily from the Environmental Health and Safety office located at 37 Dewey Field Road. The hot work permits are located outside 37 Dewey Field Road, Room 115.

3. Call in or Emergency hot work, will require the contractor or employee to obtain the hot work permit from the troubleshooters. It is expected that the contractor or troubleshooters complete the 4-hour fire watch. This must be conveyed prior to hot work beginning.

4. When EHS issues a hot work permit, a copy of the hot work permit will be scanned and emailed to the Project Manager listed on the permit. The project manager will then be responsible for ensuring contractor compliance with the hot work permit program, to include the follow up requirements, collecting and closing out the permit and returning the permit to EHS within three (3) days of Hot Work Completion.

5. Hot work permits can be issued for up to five continuous days. Hot work permits cannot be carried over to the following week.

6. If multiple people will be performing hot work independent of one another at the same job site, each person must obtain a separate hot work permit.

7. Follow Up Requirements:

    a. It is the responsibility of the person obtaining the hot work permit to perform the one hour follow up and to complete the four-hour final inspection of the work area following the completion of hot work.

    b. This requires the FOM employee or troubleshooter to come back each hour and conduct the post hot work inspection.

    c. If the four-hour post hot work "Final Checkup" is to be completed by the college troubleshooters, a written request must be made to Work control before 3 p.m. on the day when the follow up is required.

    d. The troubleshooters will document the four-hour post hot work "Final Checkup" in their "troubleshooters report", as well as by signing off on the "Final Checkup" section of the hot work permit posted at the worksite.

8. Contractor Follow Up Requirements:

    a. It is expected that contractors will perform the one-hour post hot work monitoring. The first hour is continuous monitoring. It is also expected that contractors will conduct the four-hour post hot work inspection of the work area. This requires the contractor to come back each hour and conduct the post hot work inspection.

    b. To facilitate the four-hour hourly follow up, it is expected that contractors will plan work accordingly so that Hot Work is completed by noon each day with the four-hour follow up performed no later than 4 pm on the day the work is being performed.

    c. In the event that hot work must be performed after noon time and it is unreasonable for the contractor to stay on site for four hours following the completion of hot work, the contractor must notify the Dartmouth PM before initiating the hot work. The Dartmouth PM will then be responsible for arranging for the four-hour post hot work follow up to be completed.

9. Special Circumstances:

    a. If the fire sprinkler system is deactivated during or following the hot work (RED TAG) or there is no sprinkler system present in the area where the hot work is being

performed, it is expected that a continuous (in the immediate area where work was performed) four hour post hot work monitor will be provided by either the FOM supervisor or the project manager for the job. In this type of situation, the monitor must have immediate access to a fire hose or fire extinguisher, as well as means to notify the Hanover Fire Department.

b. For areas with fire suppression the one-hour fire watch will suffice with written authorization from EHS. Contact EHS for a variance.

c. The Fire Systems Maintenance Shop will notify the Environmental Health and Safety Office whenever a Red Tag is issued.

END OF SECTION 01 35 23