



ENVIRONMENT, SAFETY & HEALTH DIVISION

Chapter 8: [Electrical Safety](#)

Electrical Demolition Requirements

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URL: <https://www-group.slac.stanford.edu/esh/eshmanual/references/electricalReqDemolition.pdf>

1 Purpose

The purpose of these requirements is ensure demolition involving electrical equipment is performed safely.

They cover the planning and performance of electrical demolition work.

They apply to workers, supervisors, construction managers, and subcontractors.

2 Requirements

Electrical demolition activities require rigorous planning and focused attention during execution to ensure workers are protected from hidden or unanticipated hazardous energies. This is particularly true for electrical demolition in which hidden conditions could result in incomplete energy isolation. Errors created during design and construction of the equipment to be demolished are especially difficult to identify. To address these concerns all electrical demolition must comply with the requirements below.

1. Each demolition project is unique and must be planned accordingly.
2. Electrical demolition must be based on approved design documents.
3. SLAC electrical workers will perform establish a *group lockout* for demolition projects. (See [Control of Hazardous Energy: Group Lockout Procedure](#).)
4. Conduit and equipment to be demolished will be *air-gapped* at the source by SLAC electrical workers. (See Figure 1.)

Note *Air-gapped* means placed in a disconnected state, defined as a state in which equipment has been physically and permanently disconnected from all potential sources of hazardous energy and has no potential to internally store hazardous energy. The disconnection of all possible sources of hazardous energy must be accomplished in a manner that cannot be readily restored. Equipment in the disconnected state must be tagged or labeled with durable materials to allow workers to quickly determine with certainty that no hazardous energy is present.

Note For more information on energy isolation for out-of-service equipment, see the [Guideline for Control of Hazardous Energy in Out-of-Service Equipment](#).

SLAC electricians will air-gap the source of supply

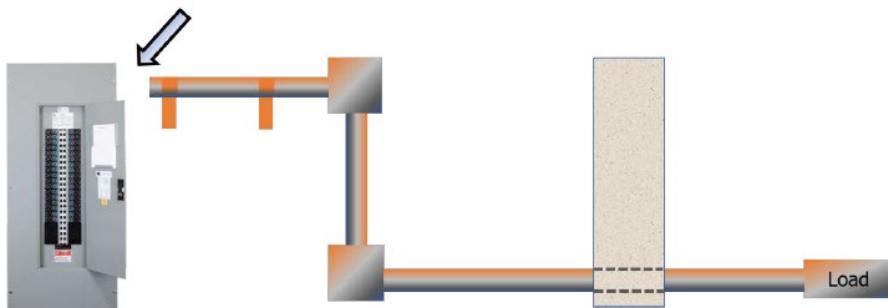


Figure 1 Air Gapping

5. Tracing, flagging, and marking of equipment in the demolition will be performed by SLAC:
 1. SLAC electrical workers will lock out to the extent feasible circuits that are within the demolition area but are not to be demolished. These circuits will be conspicuously flagged with yellow tape.
 2. SLAC electrical workers will flag with red DANGER tape any circuits in the demolition area that are in service and energized.
 3. Conduit and equipment to be demolished will be conspicuously marked or flagged by SLAC electrical workers with orange paint or blank orange tape or both.

Table 1 Demolition Area Color Code

| | |
|------------------------|--|
| DANGER | Conduit and equipment containing energized circuits not to be demolished must be flagged with red DANGER tape. |
| CAUTION | Conduit not to be demolished must be flagged with yellow CAUTION tape or blank yellow tape (no text). |
| (SAFE FOR DEMO) | Conduit and equipment to be demolished must be marked or flagged with blank orange tape (no text) or orange paint or both. |

4. Conduit that penetrates a wall, floor, or ceiling will be traced by electrical workers using established tracing methods to confirm continuity of the conduit through the structural member.
5. Conduit that passes behind an obstacle or group of obstacles such as an HVAC duct, process piping, or other equipment must be traced by electrical workers using established tracing methods to confirm continuity of the conduit as it passes behind the obstacle.
6. Conduit to be demolished by subcontractors must be 100 percent visible within the demolition area. SLAC electrical workers will create additional air gaps for conduit segments that pass through walls, floors, or ceilings, or behind obstacles. (See Figure 2.)

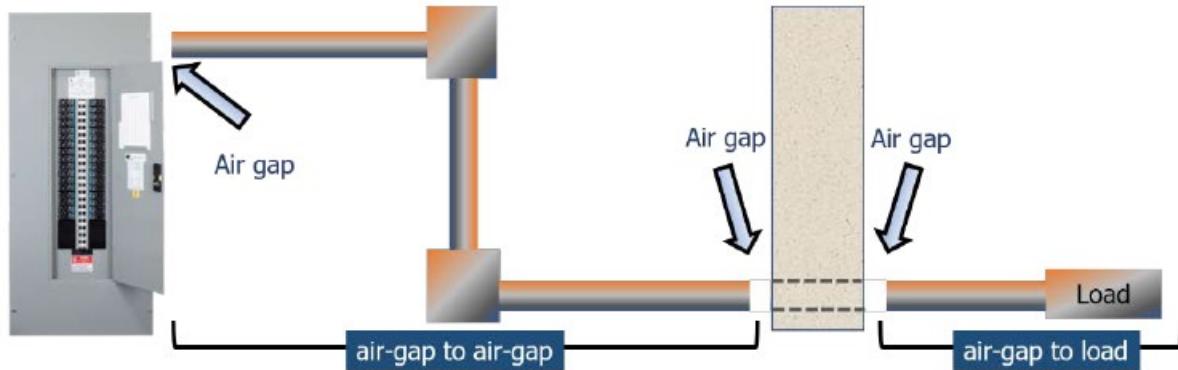


Figure 2 Air Gapping for Conduit Passing through Walls

6. Subcontractor workers must join the demolition area lockout before starting work.
7. As part of the pre-job briefing/safety tailgate, subcontractor workers must walkdown the entire demolition area with SLAC electrical workers to confirm marking and flagging.
8. Subcontractors must demolish the visible portion of conduit from air gap to air gap or, at the end of a circuit, from air gap to the load served by the circuit.
9. No circuit, device, conduit, wiring, or equipment may be demolished unless the demolition worker has 100 percent certainty the circuit elements are safe for demolition.
10. Double-insulated tools must be used when cutting conduit.
11. Conduit must be cut at or near orange flags or markings to reduce the likelihood of cutting the wrong conduit.

2.1 Stop Work Conditions

Work must be stopped immediately if any of the following conditions apply. (See [Work Planning and Control: Stop Work Procedure](#).)

1. Workers do not have 100 percent certainty that a circuit is safe for demolition.
2. Unexpected circuits, hazards, or other conditions are encountered.
3. There is a change in or departure from plans.
4. Work has not been properly released. (See [Work Planning and Control: Construction Work Planning and Control Procedure](#).)
5. Circuits and equipment in the demolition area have not been marked as expected.
6. Circuits and equipment to be demolished have not been air-gapped as expected.
7. Guidance is not clear.
8. Roles or responsibilities are not clear.
9. Workers have a “gut feeling” something is not right.

3 Forms

The following forms and systems are required by these requirements:

- None

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- None

5 References

[SLAC Environment, Safety, and Health Manual](#) (SLAC-I-720-0A29Z-001)

- [Chapter 8, “Electrical Safety”](#)
 - [Electrical Safety Manual](#) (SLAC-I-730-0A11A-002)
 - [Electrical Safety Program Site](#) (SharePoint)
- [Chapter 2, “Work Planning and Control”](#)
 - [Work Planning and Control: Construction Work Planning and Control Procedure](#) (SLAC-I-720-0A21C-005)
 - [Work Planning and Control: Stop Work Procedure](#) (SLAC-I-720-0A21C-003)
- [Chapter 51, “Control of Hazardous Energy”](#)
 - [Control of Hazardous Energy: Group Lockout Procedure](#) (SLAC-I-730-0A10C-006)

Other SLAC Documents

- [Guideline for Control of Hazardous Energy in Out-of-Service Equipment](#).