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## DIRECTIVE

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### SAFETY REQUIREMENTS FOR WORK INVOLVING PENETRATION OF WALLS, FLOORS, CEILINGS, AND CONCRETE, ASPHALT, OR MASONRY PADS

OPS-DIR-006  
Revision 0  
Date Effective: 06/16/97

APPROVED: \_\_\_\_\_

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#### 1. PURPOSE

The purpose of this directive is to provide guidance for RMRS employees and contractor employees, to assure protection of employees from unidentified electrical energy sources during work activities involving the penetration of walls, floors, ceilings, and concrete, asphalt or masonry pads. The information in this procedure does not supersede or replace the requirements of other regulatory documents or site procedures, but clarifies necessary and sufficient safety practices for the protection of personnel.

#### 2. SCOPE

This directive is applicable to all activities conducted within the scope of RMRS Operations.

#### 3. DIRECTIVE

It is the policy of RMRS to conduct its operations in a manner that ensures the safety and health of all its employees, contractors, and co-located workers. Effective work control practices and detailed job planning shall be maintained so that multiple levels of personnel protection are provided. Work planners shall ensure that the plans accurately describe the work activity and correctly identify equipment and components. The principles of Enhanced Work Planning shall be used to the maximum extent possible when planning a job. This includes involvement of workers from the start. An Activity Hazard Analysis (AHA) shall be included in the work control process.

To minimize the potential of accidental contact to energized electrical utilities, all work involving penetration greater than 2 inches of concrete or masonry pads, floors, walls, ceilings, or asphalt pads during maintenance, demolition, or facilities modification, shall comply with the following requirements prior to the performance of work:

#### General Requirements:

- (1) No employee shall work in such proximity to any part of an electrical power circuit where the employee could contact the electrical power circuit in the course of work, unless the employee is protected against electrical shock by de-energizing the circuit and grounding it, or guarding it effectively by insulation or other means (29 CFR 1926.416).

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- (2) Before work is begun, a job site review shall be conducted to ascertain by existing drawings, direct visual observation, and locating instruments whether any part of an energized electric power circuit exposed or concealed is located, so that the performance of the work shall not bring any person, tool, or machine into direct physical contact with the energized electrical power circuit. It should always be a consideration that drawings may be inaccurate.
- (3) Any identified energized electric circuits or utilities shall be clearly marked and identified where such a circuit exists. Where unidentified services are observed or located, they shall be assumed to be energized and shall be clearly marked and identified. Use paint to mark and identify the location of utilities if the work areas are to be refurbished, otherwise, use tape.
- (4) Personnel working in close proximity to energized circuits, potentially energized circuits or unknown services, shall be advised of the locations of such services, hazards involved, and safety precautions or protective measures to be taken.
- (5) Employees working in areas where there are potential electrical hazards shall utilize grounded tools and equipment and electrical insulating rubber gloves, mats, and blankets appropriate for the work to be performed.

Grounding of Equipment:

- (1) Excluding Electrical Line Trucks (Bucket Trucks), all power tools or equipment (electric or pneumatic) used in work locations where any possibility exists for accidental contact with energized electrical conductors or equipment, above or below ground, shall be grounded. Additional grounding shall be installed on all drilling and cutting tools or equipment used in making penetrations exceeding 2 inches into concrete or masonry walls or floors, or asphalt pads.
- (2) Jackhammers, core drills and other equipment used for drilling, cutting, or penetrating concrete in excess of 2 inches shall be grounded. The ground cable shall be a #2 or larger copper welding cable up to 50 feet long. If a length in excess of 50 feet is required, contact the construction superintendent or his designee for instructions.
- (3) The ground cable shall be attached to the ground by an approved lug or connector and attached to the equipment using a lug connector secured to a bolt or screw on the equipment housing.
- (4) The connecting surface of all ground connections shall be clean to ensure a good electrical bonding. The ground cable shall be connected to a building ground station, a building ground wire that is #2 or larger, the structural steel of buildings that have the structural steel connected to a ground grid by a #2 or larger copper wire, or driven ground rods.
- (5) Acceptable methods of attaching a ground cable to the ground point shall be a ground lug bolted to the ground point, a mechanical connector (split-bolt) to connect the ground cable to an existing ground wire, or a ground rod connector to connect the ground cable to a ¾ inch diameter by 10-foot long copperweld type ground rod which is driven into the ground.

- (6) There is no general method used to ground jackhammers due to the many types of jackhammers. Some grounding connection methods are:
- a) attach a Burndy type GAR ground connector (U-bolt), sized as required to the handle of the jackhammer (preferred method)
  - b) use a tight angle conduit clamp (U-bolt)
  - c) attach a ground lug, by double nut to a bolt on the jackhammer.

The size of grounding cable depends on the length of cable required to reach the ground point. For distances less than 50 feet, use a #2 insulated welding cable. For distances over 50 feet, use a short piece of #2 insulated welding cable connected to the jackhammer (to ease the weight on the jackhammer operator) and splice a #4/0 insulated welding cable to the #2 to reach the ground point.

Use of Electrical Insulating Rubber Gloves and Mats:

- (1) Electrical insulating rubber gloves, mats and/or blankets shall be utilized in all work activities where the potential of accidental contact with known or unknown energized electric circuits exists.
- (2) Employees requiring electrical insulating rubber gloves or blankets shall obtain the required item(s) from their supervisor. The item(s) shall be promptly returned when the specific work activity requiring their use is complete.
- (3) Electrical insulating rubber gloves shall not be used without leather protectors. The leather protectors shall not be used for a purpose other than to protect the rubber gloves.
- (4) Electrical insulating rubber gloves and blankets shall be kept in their storage containers when not being used and shall not be left unsupervised unless locked in a suitable location.
- (5) Electrical insulating rubber gloves shall be visually inspected and air tested after each use. Additionally, gloves shall be di-electric tested every six (6) months. Testing shall be performed by an individual or company-qualified in the testing of rubber insulating equipment, items failing tests shall be destroyed, with appropriate documentation provided to RMRS ESHQ.
- (6) Subcontractor using electrical insulating rubber gloves, blankets and other insulating items shall submit a document outlining the control, storage and tests of insulating items to the Contractor for approval.

Training:

Employees will receive training in Site electrical safety procedures as required by their job responsibilities and Site Health & Safety procedures.