



Specification

Title: Core Drilling
Specification No.: CSDA-C-101
Effective Date: Jun 1, 1998
Revised: Jun 20, 2012

1. Codes, Standards & Definitions

- 1.1. Occupational Safety and Health Administration - Safety and Health Standards Digest Construction Industry (OSHA) - 3149/1996)
- 1.2. ANSI B-7.1 and B-7.5 Standards
- 1.3. The Cutting Contractor shall adhere to all applicable safety guidelines in accordance with Federal, State and local ordinances.
- 1.4. Definitions
 - 1.4.1. Owner – Legal owner of the structure being cut and consequently, the owner of the holes or openings created by the cutting contractor.
 - 1.4.2. Contracting agency – The contractor hired directly or indirectly by the owner that is sub-letting the cutting requirements to a cutting contractor.
 - 1.4.3. Cutting contractor – The contractor hired to perform the actual cutting operation.
 - 1.4.4. Slurry – The liquid material comprised of water and cuttings generated when the owner's structure is cut using a water coolant.
 - 1.4.5. Embedments – Objects within or immediately adjacent to the cutting area that could be damaged during cutting. Example of embedments are reinforcing rod and cable and utilities such as electrical power and telephone lines.
 - 1.4.6. Holes and openings – the voids resulting from the core drilling or cutting operations of the cutting contractor. Ownership of the holes or openings rests with the owner or contracting agency; not with the cutting contractor.

2. Prerequisites

- 2.1. Normal and customary equipment used on a core drill job include:
 - 2.1.1. Provided by contractor:
 - 2.1.1.1. Power unit
 - 2.1.1.2. Core drill base, column, carriage and motor assembly
 - 2.1.1.3. Properly sized drill motor and rig for the hole sizes requested
 - 2.1.1.4. **Core drill bits with enough segment life to complete the assigned work.**
 - 2.1.1.5. Proper mounting equipment and tools (anchors, rotary hammer, vacuum pad, pump and vacuum cleaner).
 - 2.1.2. Provided by owner or contracting agency:
 - 2.1.2.1. Engineering controls for water, slurry and dust protection of adjacent structures and facilities
 - 2.1.2.2. Scaffolding
 - 2.1.2.3. Storage for water or slurry
 - 2.1.2.4. Shoring, rigging and rigging equipment for handling or managing the piece to be removed.
 - 2.1.2.5. Sump area and sump pump
 - 2.1.2.6. Fall protection in accordance with OSHA standard 1926.501(b)(4) for all holes and openings created by the cutting contractor.

- 2.2. It is the responsibility of the owner or contracting agency to have the location of the area to be cut reviewed, approved and all cut lines clearly marked prior to the start of any cutting operations. Additionally, it is the responsibility of the owner or contracting agency to clearly mark the location and type of all Embedments both on the cut lines and near the cutting area.
- 2.3. It is the responsibility of the owner or contracting agency to provide water and power for the cutting contractor.
- 2.4. It is the responsibility of the owner or contracting agency to provide fall protection in accordance with OSHA standard 1926.501(b)(4) for all holes or openings created by the cutting contractor.
- 2.5. It is recommended that a pre-job meeting be held with the owner or contracting agency to determine the following information relating to steel reinforcing bar or other embedments:
 - 2.5.1. Are there steel reinforcing bars or other embedments within the structure to be cut?
 - 2.5.2. What is the size and location of the steel reinforcing bars or other Embedments?
 - 2.5.3. Is it permissible to cut the steel reinforcing bars or other embedments in the course of the drilling operation?
 - 2.5.4. Is it possible to lay out the holes in such a way that minimizes or avoids the cutting of the steel reinforcing bars or other embedments?
 - 2.5.5. After drilling begins is it permissible to move the hole to stop splitting a steel reinforcing bar or embedment?
- 2.6. Any scaffolding required shall be designed, provided by and erected by competent personnel.
- 2.7. The owner or contracting agency must determine if there are utility lines contained within, adjacent to or secured to the structure being drilled. If utility lines are present as described, the owner or contracting agency must take the necessary action to have all services cut off to these utilities. If the utilities are buried, the owner or contracting agent must call the appropriate agency for accurate utility location as state or local regulation may require. The cutting contractor must be named on the permit.
 - 2.7.1 If the owner or contracting agency directs that an embedment be intentionally cut whether or not service is turned off, then the owner and contracting agency shall protect the cutting contractor from all claims for damages arising from the cutting of the embedment.
 - 2.7.2 If the layout provided by the owner or contracting agency causes an Embedment to be unintentionally cut, then the owner and contracting agency shall protect the cutting contractor from all claims for damages arising from the cutting of the embedment.
- 2.8 It is the owner or contracting agency's responsibility to provide protection to persons and property from potential water or slurry damage. The cutting contractor shall not be deemed an owner or generator of slurry and the owner and contracting agency shall protect the cutting contractor from all loss and expense associated with such claims.
- 2.9 The owner or contracting agency shall be responsible for providing proper, safe, and appropriate disposal of slurry.
 - 2.9.1 Collection and disposal of the slurry must be planned for by agreement with the owner of the structure or the contracting agency before work commences.

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- 2.10 Adequate safety provisions must be provided by the owner or contracting agency to protect the operator's work area, as well as below, above, and adjacent to the area being drilled.
 - 2.10.1 Safe access to and from the work area shall also be provided by the owner or contracting agency.
 - 2.10.2 Barricades, cones, "warning" tape or other devices as appropriate to keep unauthorized people out of the work area shall be provided by the owner or contracting agency.
- 2.11 It is the responsibility of the owner or contracting agency to notify the contractor if the cores to be drilled are on a slab on grade. If the holes are above open space, it is the owners or contracting agency's responsibility to provide damage control and protect for human life.
- 2.12 The owner or the contracting agency shall be responsible for designing and installing any bracing or shoring required. The material being drilled free should be supported in a safe and effective manner so that when the opening is drilled free, it is retained in place causing no damage to persons, equipment or adjacent structures.
- 2.13 Notification procedures, regarding the completion of a hole or opening within the work area, should be defined and agreed upon prior to the start of the job. This is so that the owner of the hole or a contracting agency can provide fall protection in a timely manner in accordance with OSHA standard 1926.501(b)(4).

3. Drilling Set-up Procedures

Except when the cutting contractor determines that any of the following steps do not apply to a particular work or that other steps are appropriate:

- 3.1 Equipment used in the drilling operations must meet all OSHA standards and specifications as to plugs, noise, wiring, and fume pollution.
- 3.2 Specifications for minimum and maximum clearance requirements between the pipe and core hole is the sole responsibility of the owner or contracting agency and should be determined prior to starting work.
- 3.3 The owner should provide labor to catch core(s) and water when the core is cut free on a suspended slab.
- 3.4 For large holes over 24" (610 mm) in diameter the owner or contracting agency should provide mechanical means to move bit(s) to the drilling area.
- 3.5 Inspect diamond core drill bits for damage to the hub area that could cause improper seating of the back of the bit against the drill shaft.
- 3.6 Check to confirm drill bits are of proper specification for the material being cut.
- 3.7 The owner or contracting agency should prohibit access and clear machinery or equipment directly under the area to be core drilled so that falling cores do not injure any persons or damage any property.

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- 3.8 The owner or contracting agency should provide fall protection for all holes or openings created by the cutting contractor.

4. Drilling Operation

Except when the cutting contractor determines that any of the following steps do not apply to a particular work or that other steps are appropriate:

- 4.1 If any of the core drilling operations are performed without water as a coolant then additional safety precautions may apply. Consult the diamond tool manufacturer or the core drill manufacturer for specification information.
- 4.2 If any of the core drilling operations are performed with hand held core drilling equipment then additional safety precautions may apply. Consult the core drill manufacturer for specification information.
- 4.3 Never operate a core drill assembly unattended unless the equipment has been designed specifically for this purpose.
- 4.4 The core drilling equipment should be operated in accordance with the manufacturer's specifications.
- 4.5 When needed, place partitions, barricades or caution tape around the work area to prevent unauthorized personnel from having access to the work area.

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