



Specification

Title: Wire Sawing
Specification No.: CSDA-WS-106
Effective Date: Jun 1, 1998
Revised: Dec 14, 2012

1. Codes, Standards & Definitions

- 1.1. Occupational Safety and Health Administration - Safety and Health Standards Digest Construction Industry. (OSHA - 3149/1996).
- 1.2. The cutting contractor shall adhere to all applicable safety guidelines in accordance with federal, state and local ordinances.
- 1.3. Definitions:
 - 1.1.1. Owner – Legal owner of the structure or object being cut and consequently, the owner of the holes/openings created by the cutting contractor.
 - 1.1.2. Contracting agency – The contractor hired directly or indirectly by the owner that is sub-letting the cutting requirements to a cutting contractor.
 - 1.1.3. Cutting contractor – The contractor hired to perform the actual cutting operation.
 - 1.1.4. Slurry – The liquid material comprised of water and cuttings generated when the owner's structure is cut using a water coolant.
 - 1.1.5. Embedments – Objects within or immediately adjacent to the cutting area that could be damaged or severed during cutting. Examples of embedments are reinforcing rods, cables and utilities such as electrical power and telephone lines.
 - 1.1.6. Holes/openings – the voids resulting from the core drilling/cutting operations of the cutting contractor. Ownership of the holes/openings rests with the owner, not with the cutting contractor.

2. Prerequisites

- 2.1. Normal and customary equipment used on wire saw job include:
 - 2.1.1. Provided by cutting contractor:
 - 2.1.1.1. Power unit
 - 2.1.1.2. Drive wheel assembly
 - 2.1.1.3. Control station, if required
 - 2.1.1.4. Idler wheels and universal brackets
 - 2.1.1.5. Diamond wire
 - 2.1.1.6. Safety shielding for wire and drive wheel
 - 2.1.1.7. Core drilling equipment, roto hammers, bits, anchors and miscellaneous hand tools
 - 2.1.1.8. Fall protection in accordance with OSHA standard 1926.501(b) for all holes/openings created by the cutting contractor.
 - 2.1.2. Provided by owner or contracting agency:
 - 2.1.2.1. Plastic sheeting
 - 2.1.2.2. Scaffolding for personnel access
 - 2.1.2.3. Storage containers for water or slurry
 - 2.1.2.4. Shoring, scaffolding, rigging and rigging equipment for managing the piece to be removed.
 - 2.1.2.5. Sump area and sump pump
 - 2.1.2.6. Trucks and disposal methods

- 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 air, 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) for all holes/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:
 - 2.4.1 Are there steel reinforcing bars or other embedments within the structure to be cut?
 - 2.4.2 What is the size and location of the steel reinforcing bars or other embedments?
 - 2.4.3 Is it permissible to cut the steel reinforcing bars or other embedments in the course of the sawing operation?
 - 2.4.4 Is it possible to lay out the cut line in such a way that minimizes or avoids the cutting of the steel reinforcing bars or other embedments?
 - 2.4.5 After cutting begins is it permissible to move the cut line to stop splitting a steel reinforcing bar or embedment?
- 2.6. Any scaffolding required by the cutting contractor should be designed, provided by and erected by competent personnel and according to code requirements.
- 2.7. The owner or contracting agency must determine if there are utility lines contained within, adjacent to or secured to the structure being cut. If utility lines are present as described, the owner or contracting agency must take the necessary action to have all services for these utilities cut off. 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.
- 2.8. Embedments:
 - 2.8.1. 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.
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.
- 2.9. 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.

Spec. No.	Title	Effective Date	Revised	Page
CSDA-WS-106	Wire Sawing	Jun 1, 1998	Dec 14, 2012	Page 2 of 4

- 2.10. The owner or contracting agency shall be responsible for providing proper, safe and appropriate disposal of slurry.
 - 2.10.1. Collection and disposal of the slurry must be planned for by agreement with the owner or contracting agency before work commences.
- 2.11. 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 cut.
 - 2.10.1 The owner or contracting agency shall provide safe access to and from the work area.
 - 2.10.2 Barricades, cones, "warning" tape or other devices shall be used as appropriate to keep unauthorized people out of the work area and shall be provided by the owner or contracting agency.
- 2.11 The owner or contracting agency shall be responsible for designing and installing any bracing or shoring required to make sure that the material being cut free is supported in a safe and effective manner so that when the structure is cut free, it is retained, in place, causing no damage to persons, equipment or adjacent structures.
- 2.12 The owner or contracting agency shall isolate or protect the other structures or facilities that are part of or adjacent to the structure being cut.

3. Sawing 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 Core drill the wire access and rigging holes into the concrete structure in accordance with the work plan as required for wire access and/or work piece removal.
- 3.2 Utilize the sump area for water/slurry collection and secure the wire saw in a proper location. Place/drape plastic sheeting around drive wheel and idlers, if required, to minimize or contain water dripping or slinging from equipment.
- 3.3 Place the saw control station at a location which allows the operator to view as much of the drive wheel and cutting area as possible, but not in line with the drive wheel or wire. (unless appropriate additional safety precautions are taken).
- 3.4 Drape a plastic or wooden splash shield, if required, over the active cut area.
- 3.5 The owner or contracting agency should provide fall protection for all holes/openings created by the cutting contractor.

4. Cutting 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. The cutting contractor shall:
 - 4.1.1. Inspect diamond wire for the condition of the joints as well as the base cable.

Spec. No.	Title	Effective Date	Revised	Page
CSDA-WS-106	Wire Sawing	Jun 1, 1998	Dec 14, 2012	Page 3 of 4

- 4.1.2. Ensure the proper splicing or joining of the diamond wire ends when forming a loop. (pre-twisting wire as required).
- 4.1.3. When needed, place partitions or screens between wire operating area and the personnel work area to minimize the chance of any flying objects contacting any work site personnel.
- 4.1.4. Stop or drastically slow wire rotation prior to anyone entering the vicinity of the wire operation for any reason such as wire guide adjustment or water spray adjustment.
- 4.1.5. Allow no personnel to be in-line with the wire while rotating (unless appropriate additional safety precautions are taken).
- 4.1.6. On applications requiring a bottom horizontal cut, sequence the cut or shore the work piece so that the weight of the work piece is prevented from jamming, pinching and/or crushing the diamond wire.
- 4.1.7. Never allow the wire saw to run unattended.
- 4.1.8. The wire saw should be operated in accordance with the saw manufacturer's specifications.
- 4.1.9. Notify the owner or contracting agency when the hole/opening is completed so that they can provide fall protection in accordance with OSHA standard 1926.501(b).

This document has been developed or is provided by the Concrete Sawing & Drilling Association, Inc. It is intended as a guideline, sample specification or recommended practice for use by fully qualified, trained, professional personnel who are otherwise competent to evaluate the significance of its use within the context of specific concrete sawing and drilling projects. No express or implied warranty is made with respect to the foregoing including without limitation any implied warranty of fitness or applicability for a particular purpose. The Concrete Sawing & Drilling Association, Inc. and all contributors of this document shall not be liable for damages of any kind arising out of the use of this document, and, further specifically disclaims any and all responsibility and liability for the accuracy and application of the information contained in this document to the fullest extent permitted by law. In accepting this document, user agrees to accept sole responsibility for its application.

Spec. No.	Title	Effective Date	Revised	Page
CSDA-WS-106	Wire Sawing	Jun 1, 1998	Dec 14, 2012	Page 4 of 4