

Power line safety – evaluating the work zone

1926.1408
Division 3/CC

If a crane is going to operate within 20 feet of an overhead power line up to 350 kV, do the following:

NOTE: Not applicable to utility owner/operators.

Determine the power line’s voltage.

Ask the utility owner or utility operator for the information. Allow two working days for a response.

— 1926.1408 (c)

Use Table A to determine the crane’s Minimum Approach Distance (**MAD**) to the power line.

— 1926.1408 (a)(2)(iii)

Table A	
Power line voltage – nominal kV, alternating current	Minimum Approach Distance (feet)
Up to 50	10
More than 50 to 200	15
More than 200 to 350	20
More than 350 to 500	25
More than 500 to 750	35
More than 750 to 1,000	45
More than 1,000	See 1926.1408

Once you know the MAD, identify your work zone by either:

A

Mark boundaries at or outside your MAD with items such as flags or range limit/range control warning devices. The operator must not operate the crane beyond those boundaries.

— 1926.1408 (a)(1)(i)

- or -

B

Define the work zone as an area 360 degrees around the crane, up to the crane’s maximum working radius, for the actual crane work.

— 1926.1408 (a)(1)(ii)

No –
nothing else needs to be done.

Can any part of the equipment, load line, or load get closer than 20 feet?

— 1926.1408 (a)(2)

Yes:

— 1926.1408 (a)(2)

Employer must follow requirements in one of the options:

- Option 1:** De-energize and ground – confirm with utility owner/operator. (i)
- Option 2:** Maintain the **20-foot clearance**. (ii)
- Option 3:** Maintain the MAD identified in **Table A**. (iii)

No –
nothing else needs to be done.

If operating up to the equipment’s maximum working radius in the work zone, can any part of the equipment, load line, or load get closer than the MAD permitted under Table A?

Yes:

— 1926.1408 (b)

Follow 1926.1408(b) Preventing encroachment/electrocution requirements for Options 2 and 3 (listed on page 2).

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Requirements for preventing encroachment.

- (1) Conduct a planning meeting.
Meet with the operator and the other workers who will be in the area to review the location of the power line(s), and steps that will be implemented to prevent encroachment.
- (2) Non-conductive tag lines
If tag lines are used, they must be non-conductive.
- (3) Erect an elevated warning line, barricade, or line of signs, in view of the operator.
The warning line must have flags or similar high-visibility markings at 20 feet from the powerline if using Option (2) or at the minimum approach distance under Table A if using Option (3). If the operator is unable to see the warning line, a dedicated spotter must be used who is in continuous contact with the operator.
- (4) Do at least one of the following:
 - Use a proximity alarm set to give sufficient warning to prevent encroachment.
 - Use a dedicated spotter who is in continuous contact with the operator.
Dedicated spotter must:
 - Be equipped with a visual aid to assist in identifying the minimum clearance distance, such as clearly visible lines painted on the ground, a clearly visible line of stanchions, or a set of clearly visible line-of-sight landmarks.
 - Be positioned to effectively gauge the clearance distance.
 - Use equipment that enables the dedicated spotter to communicate directly with the operator.
 - Give timely information to the operator so that the required clearance distance can be maintained.
 - Use a device that automatically warns the operator when to stop movement, such as a range-control warning device that is set to give the operator sufficient warning to prevent encroachment.
 - Use a device that automatically limits range of movement.
 - Use an insulating link/device that is installed at a point between the end of the load line (or below) and the load.

Resources:

- Oregon OSHA construction crane rule
<http://osha.oregon.gov/OSHArules/div3/div3CC.pdf>
- Oregon OSHA crane publication
<http://osha.oregon.gov/OSHApubs/4927.pdf>
- Cranes and Derricks Federal Register
https://www.osha.gov/FedReg_osha_pdf/FED20100809.pdf
- Crane Fact Sheet
<http://osha.oregon.gov/OSHApubs/factsheets/fs37.pdf>

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