

From Program Directive A-62:

Exceptions – OAR 437-002-0146(2) (a-h). This paragraph defines exemptions to the confined space rule. Below are clarifications of certain provisions: ... Welding in confined spaces regulated by *Division 2/Q Welding, Cutting & Brazing*, when the only hazards are related to the welding process. This exemption applies only when the confined space has no hazards other than welding hazards. If other hazards are present, for example, a machine guarding issue, the space falls under this standard. When a space falls within the definition of a permit space, the hazards from the welding process must be included in the evaluation of the hazards of that space, even though those hazards alone would not make the space a permit space.

References to “confined space” in Division 2/Q Welding, Cutting, and Brazing

437-002-0282 Job Planning and Layout...

(5) *When welding or cutting is being performed in any confined space, the gas cylinders and/or welding machines shall be left on the outside.*

1910.252 General Requirements

(a) Fire prevention and protection...

(4) **Confined spaces.**

(i) Accidental contact. When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine be disconnected from the power source.

(ii) Torch valve. In order to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose shall also be removed from the confined space.

(b) Protection of personnel...

(4) Work in **confined spaces.**

(i) General. As used herein **confined space** is intended to mean a relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a ship.

(ii) Ventilation. Ventilation is a prerequisite to work in **confined spaces**. For ventilation requirements see paragraph (c) of this section.

(iii) Securing cylinders and machinery. When welding or cutting is being performed in any **confined spaces** the gas cylinders and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.

(iv) Lifelines. Where a welder must enter a **confined space** through a manhole or other small opening, means shall be provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose they shall be so attached to the welder's body that his body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.

(v) Electrode removal. When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine disconnected from the power source.

(vi) Gas cylinder shutoff. In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable the torch and hose shall also be removed from the **confined space**.

(vii) Warning sign. After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other workers.

437-002-0288 Health Protection and Ventilation – General

(1) When welding or cutting operations are being performed on the following materials (Table OR Q-1), the protective measures indicated are required unless atmospheric samples taken in the welder's breathing zone indicate that the concentration does not exceed the limits specified in Division 2/Z, OAR 437-002-0382, Oregon Rules for Air Contaminants.

(2) Nearby workers shall be afforded equivalent, effective, protection from these dangerous fumes.

(See Table OR Q-1, below)

Table OR Q-1

<i>Material</i>	<i>Condition</i>	<i>Protective Measures</i>
<i>Manganese</i>	<i>Confined Space</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Manganese</i>	<i>Indoors</i>	<i>Fume Respirator or Local Exhaust Ventilation</i>
<i>Zinc</i>	<i>Confined Space</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Zinc</i>	<i>Indoors or Outdoors</i>	<i>Fume Respirator or Local Exhaust Ventilation</i>
<i>Lead</i>	<i>Confined Space</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Lead</i>	<i>Indoors or Outdoors</i>	<i>Fume Respirator or Local Exhaust Ventilation</i>
<i>Lead in Immediate Vicinity</i>	<i>Other workers</i>	<i>Local Exhaust or Airline Respirator</i>
<i>Cadmium (in or coating base metals)</i>	<i>Confined Space or Indoors</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Cadmium (in or coating base metals)</i>	<i>Outdoors</i>	<i>Fume Respirator</i>
<i>Cadmium (in filler metals)</i>	<i>Confined Space</i>	<i>Local Exhaust and Airline Respirator</i>
<i>Mercury</i>	<i>Confined Space or Indoors</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Mercury</i>	<i>Outdoors</i>	<i>Approved Respirator</i>
<i>Beryllium</i>	<i>Confined Space</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Manganese</i>	<i>Confined Space</i>	<i>Airline Respirator or Local Exhaust Ventilation</i>
<i>Beryllium</i>	<i>Indoors or Outdoors</i>	<i>Airline Respirator and Local Exhaust Ventilation</i>
<i>Beryllium</i>	<i>Other Workers</i>	<i>Local Exhaust or Airline Respirator in Immediate Vicinity</i>
<i>Fluorine Compounds (Fluxes)</i>	<i>Indoors or Outdoors</i>	<i>Fume Respirator or Comp. Local Exhaust Ventilation</i>

1910.252 (c) Health protection and ventilation...

(4) Ventilation in confined spaces.

(i) Air replacement. All welding and cutting operations carried on in **confined spaces** shall be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies not only to the welder but also to helpers and other personnel in the immediate vicinity. All air replacing that withdrawn shall be clean and respirable.

(ii) Airline respirators. In circumstances for which it is impossible to provide such ventilation, airline respirators or hose masks approved for this purpose by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR part 84 must be used.

Note: 1910.252(c)(4)(iii) was not adopted by the Department. In Oregon OAR 437-002-0298 applies: **437-002-0298 Self-Contained Units.** *In areas immediately hazardous to life, self-contained breathing equipment shall be used. The breathing equipment shall be approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.*

1910.252 (c)(4) Ventilation in confined spaces, cont.

(iv) Outside helper. Where welding operations are carried on in **confined spaces** and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health, a worker shall be stationed on the outside of such confined spaces to insure the safety of those working within.

(v) Oxygen for ventilation. Oxygen shall never be used for ventilation.

[Many references in paragraphs (c)(5)-(10) Fluorine compounds, Zinc, Lead, Beryllium, Cadmium, and Mercury to requirements for protections in "**confined space**" corresponding to Table OR Q-1]

437-002-2253 Oxygen-fuel gas welding and cutting...

(2) Definitions...

Confined space: *A space that meets all of the following:*

- *Large enough and so configured that an employee can fully enter the space and perform work.*
- *Has limited or restricted means for entry or exit.*
- *Is not designed for continuous human occupancy.*