SECTION 10.0 | CONFINED SPACES

Occasionally in our work, employees may encounter confined spaces. Confined space work requires special safety precautions to ensure that employees are not overcome by dangerous air contaminants or oxygen deficiency. In some cases, there may be fire or explosion hazards in confined spaces that do not exist in open areas. Many workers have been killed or seriously injured in confined spaces. To avoid this, employees must adhere to the following rules. This section prescribes minimum standards for preventing employee exposure to dangerous air contamination and/or oxygen deficiency in confined spaces. In some cases, extra precautions may be necessary. As always, if you are unsure, ask for assistance.

10.1 |Definitions

1. A **confined space** has the following properties:
    - Existing ventilation is insufficient to remove dangerous air contamination and/or oxygen deficiency that may exist or develop.
    - Ready access or egress for the removal of a suddenly disabled employee is difficult due to the location and/or size of the opening(s).
    - The area is not designed for continuous human occupancy.
2. **Dangerous air contamination** means an atmosphere presenting a threat of causing death, injury, acute illness, or disablement due to the presence of flammable and/or explosive, toxic, or otherwise injurious or incapacitating substances.
3. **Dangerous air contamination due to the flammability of a gas or vapor** is defined as an atmosphere containing the gas or vapor at a concentration greater than 20 percent of its lower explosive (lower flammable) limit.
4. **Dangerous air contamination due to a combustible particulate** is defined as a concentration greater than 20 percent of the minimum explosive concentration of the particulate.
5. **Dangerous air contamination due to the toxicity of a substance** is defined as the atmospheric concentration immediately hazardous to life or health. This definition of dangerous air contamination due to the toxicity of a substance does not preclude the requirement to control harmful exposures to toxic substances at concentrations less than those immediately hazardous to life or health.
6. **Oxygen deficiency**: An atmosphere containing oxygen at a concentration of less than 19.5 percent by volume.
7. **Oxygen rich**: An atmosphere containing oxygen at a concentration of more than 22 percent by volume. This creates additional fire hazards.
8. **Typical Confined Spaces**:
    - Vaults
    - Pits
    - Tubs
    - Vats
    - Ducts
    - Boilers
    - Silos
    - Sewers
    - Compartments

10.2 | Prior to Confined Space Entry

1. Written, understandable operating and rescue procedures shall be developed and shall be provided to affected employees. The operating procedures shall include provision for the surveillance of the surrounding area to avoid hazards such as drifting vapors from tanks, piping, and sewers.
2. All employees, including standby persons if needed, will be trained in the operating and rescue procedures, including instructions as to the hazards they may encounter.
3. Any lines, pipes or hoses which may convey flammable, injurious, or incapacitating substances into the space shall be disconnected, blinded, or blocked off by other positive means to prevent the development

of dangerous air contamination and/or oxygen deficiency within the space. The disconnection or blind shall be so located or done in such a manner that inadvertent reconnection of the line or removal of the blind are effectively prevented.

4. The space shall be emptied, flushed, or otherwise purged of flammable, injurious or incapacitating substances to the extent feasible.
5. The air shall be tested with an appropriate device or method to determine whether dangerous air contamination and/or an oxygen deficiency exists, and a written record of such testing results shall be made and kept at the work site for the duration of the work. Affected employees and/or their representative shall be afforded an opportunity to review and record the testing results.
6. Where interconnected spaces are blinded off as a unit, each space shall be tested, and the results recorded. The most hazardous condition found shall govern the entry procedures to be followed.

10.3 | Confined Space Entry if Tests Show No Hazard

If dangerous air contamination and/or oxygen deficiency does not exist within the space, as demonstrated by tests performed in accordance with the pre-entry procedures, entry into and work within the space may proceed subject to the following provisions:

1. Air testing, in accordance with the pre-entry procedures, shall be conducted with sufficient frequency to ensure that the development of dangerous air contamination and/or oxygen deficiency does not occur during the performance of any operation.
2. Work stops, employees exit, and additional precautions are taken if dangerous air contamination and/or oxygen deficiency does develop.

10.4 | Confined Space Entry if Tests Show Hazards are Present or are Likely to Develop

Where the existence of dangerous air contamination and/or oxygen deficiency is demonstrated by tests performed in accordance with the pre-entry procedures or if the development of dangerous air contamination and/or an oxygen deficiency is imminent, the following requirements shall also apply:

1. Existing ventilation shall be augmented by appropriate means.
2. When additional ventilation has removed dangerous air contamination and/or oxygen deficiency as demonstrated by additional testing conducted (and recorded), entry into and work within the space may proceed.
3. No source of ignition shall be introduced until the implementation of appropriate provisions of this section have ensured that dangerous air contamination due to flammable and/or explosive substances does not exist.
4. Whenever oxygen-consuming equipment such as welding torches, furnaces and the like are to be used, measures shall be taken to ensure adequate combustion air and exhaust gas venting.
5. To the extent feasible, provision shall be made to permit ready entry and exit.
6. Where it is not feasible to provide for ready exit from spaces equipped with automatic fire suppression systems employing harmful design concentrations of toxic or oxygen-displacing gasses, or total foam flooding, such systems shall be deactivated. Where it is not practical or safe to deactivate such systems, the use of respiratory protective equipment, such as SCBA, shall apply during entry into and work within such spaces.

10.5 | Confined Spaces Where Dangerous Air Contamination Cannot be Removed by Ventilation

It is the policy of Hindsight Electric, LLC to only work in a confined space if it can be made safe by the means listed above. We will not work in confined spaces where there is an ongoing hazard of air contamination or oxygen deficiency. These operations require extra measures and precautions beyond our immediate ability to perform. If such work does become necessary, a separate program will be developed.