

10 GENERAL INDUSTRY STANDARDS

OSHA's electrical safety standards for General Industry is Subpart S - Electrical. The current Subpart S electrical standards should be considered as only minimum electrical safety requirements. It should be noted that there are a few electrical requirements in various other sections of the 1910 OSHA standards that are not repeated in Subpart S. For example, spray booths have some additional requirements stated in CFR 1910.107. Subpart S is made up in four groups and a section on definitions:

Design Safety Standards for Electrical Systems -	29 CFR 1910.302 - 1910.308
Safety-Related Work Practices -	29 CFR 1910.331 - 1910.360
Safety-Related Maintenance Requirements -	29 CFR 1910.361 - 1910.380
Safety Requirements for Special Equipment -	29 CFR 1910.381 - 1910.398
Definitions -	29 CFR 1910.399

OSHA's Subpart J 1910.147- The Control of Hazardous Energy (Lockout/Tagout) standard does not apply to *per se* electrical hazards. However, Subpart S - Safety-Related Work Practices standard 1910.333(b)(2) refers to the 1910.147 Lockout/Tagout standard. Therefore, any Company work activities requiring the lockout/tagout of electrical or other energy sources should be performed in full compliance with OSHA's 1910.147 Lockout/Tagout standards. Sample Lockout/Tagout Procedures are provided - see Exhibit 14.7 on page 141. NECA's Lockout/Tagout Compliance Manual can also provide guidance - see page 87.

4.2 1926 CONSTRUCTION INDUSTRY STANDARDS

OSHA's electrical safety standard for the construction industry is Subpart K - Electrical. The current Subpart K electrical standards were last revised by OSHA on July 11, 1986 and therefore should be considered as only minimum requirements. Subpart K is made up in four groups and a section on definitions:

• Installation Safety Requirements -	29 CFR 1926.402 - 1926.415
• Safety-Related Work Practices -	29 CFR 1926.416 - 1926.430
• Safety-Related Maintenance & Environmental Considerations -	29 CFR 1926.431 - 1926.440
• Safety Requirements for Special Equipment -	29 CFR 1926.441 - 1926.448
• Definitions -	29 CFR 1926.449

A list of OSHA citations and fines for violations of both 1926 electrical safety standards and other construction safety standards is shown in 14.4 on page 102.

4.3 OSHA MULTI-EMPLOYER CITATION POLICY DIRECTIVE

The Company can be issued OSHA citations and penalties for field construction operations, when the OSHA Compliance Officer determines that the Company was the exposing, creating, correcting, and controlling employer. Therefore, each Site Superintendent should be knowledgeable of OSHA's policy for issuing citations on multi-employer work sites - see Exhibit-14.5 on page 103.

This OSHA policy gives direction to OSHA Compliance Officers explaining when citations should and should not be issued to exposing, creating, correcting, and controlling employers. A brief on the directive follows.

a. Multi-Employer Worksites

On multi-employer worksites more than one employer may be citable for a hazardous condition that violates an OSHA standard. A two-step process is followed by the OSHA Compliance Officer to determine whether more than one employer is to be cited:

First - Determine whether the employer is a creating, exposing, correcting, or controlling employer. If the employer falls into one of these categories, it has obligations with respect to OSHA requirements.

Second - Determine if the employer's actions were sufficient to meet those obligations. The extent of the citations required of employers varies based on which category applies.

b. The Creating Employer

The employer that caused a hazardous condition that violates an OSHA standard. Employers must not create violative conditions. An employer that does so is citable even if the only employees exposed are those of other employers at the site.

c. The Exposing Employer

An employer whose own employees are exposed to the hazard. If the exposing employer created the violation, it is citable for the violation as a creating employer. If the violation was created by another employer, the exposing employer is citable if it:

- Knew of the hazardous condition or failed to exercise reasonable diligence to discover the condition.
- Failed to take steps consistent with its authority to protect its employees. If the exposing employer has authority to correct the hazard, it must do so.

If the exposing employer lacks the authority to correct the hazard, it is citable if it fails to do each of the following:

- Ask the creating and/or controlling employer to correct the hazard.
- Inform its employees of the hazard.
- Take reasonable alternative protective measures.

Note: In extreme circumstances (e.g., imminent danger situations), the exposing employer is citable for failing to remove its employees from the job to avoid the hazard.

d. The Correcting Employer

An employer, who is engaged in a common undertaking on the same worksite as the exposing employer and is responsible for correcting a hazard. This usually occurs where an employer is given the responsibility of installing and/or maintaining particular safety/health equipment or devices. The correcting employer must exercise reasonable care in preventing and discovering violations and meet its obligations of correcting the hazard.

e. The Controlling Employer

An employer, who has general supervisory authority over the worksite, including the power to correct safety and health violations itself or require others to correct them. Control can be established by contract or, in the absence of explicit contractual provisions, by the exercise of control in practice.

A controlling employer must exercise reasonable care to prevent and detect violations on the site. The extent of the measures that a controlling employer must implement to satisfy this duty of reasonable care is less than what is required of an employer with respect to protecting its own employees. This means that the controlling employer is not normally required to inspect for hazards as frequently or to have the same level of knowledge of the applicable standards or of trade expertise as the employer it has hired.

f. Factors Relating to Reasonable Care Standard

Factors that affect how frequently and closely a controlling employer must inspect to meet its standard of reasonable care include:

1. The scale of the project.
2. The nature and pace of the work, including the frequency with which the number or types of hazards change as the work progresses.

3. How much the controlling employer knows both about the safety history and safety practices of the employer it controls and about that employer's level of expertise.
4. More frequent inspections are normally needed if the controlling employer knows that the other employer has a history of non-compliance. Greater inspection frequency may also be needed, especially at the beginning of the project, if the controlling employer had never before worked with this other employer and does not know its compliance history.
5. Less frequent inspections may be appropriate where the controlling employer sees strong indications that the other employer has implemented effective safety and health efforts. The most important indicator of an effective safety and health effort by the other employer is a consistently high level of compliance. Other indicators include the use of an effective, graduated system of enforcement for non-compliance with safety and health requirements coupled with regular jobsite safety meetings and safety training.

g. *Evaluating Reasonable Care*

In evaluating whether a controlling employer has exercised reasonable care in preventing and discovering violations, consider questions, such as, whether the controlling employer:

1. Conducted periodic inspections of appropriate frequency.
2. Implemented an effective system for promptly correcting hazards.
3. Enforced the other employer's compliance with safety and health requirements with an effective, graduated system of enforcement and follow-up inspections.

h. *Types of Controlling Employers*

1. Control Established by Contract

In this case, the employer has a specific contract right to control safety. In order to be a controlling employer, the employer must itself be able to prevent or correct a violation or to require another employer to prevent or correct the violation. One source of this ability is explicit contract authority. This can take the form of a specific contract right to require another employer to adhere to safety and health requirements and to correct violations the controlling employer discovers.

2. Control Established by a Combination of Other Contract Rights

Where there is no explicit contract provision granting the right to control safety, or where the contract says the employer does not have such a right, an employer may still be a controlling employer.

The ability of an employer to control safety in this circumstance can result from a combination of contractual rights that, together, give it broad responsibility at the site involving almost all aspects of the job. Its responsibility is broad enough so that its contractual authority necessarily involves safety. The authority to resolve disputes between subcontractors, set schedules and determine construction sequencing are particularly significant, because these are likely to affect safety.

3. Architects and Engineers

Architects, engineers, and other entities are controlling employers only if the breadth of their involvement in a construction project is sufficient to bring them within the parameters discussed above.

4. Control Without Explicit Contractual Authority

Even where an employer has no explicit contract rights with respect to safety, an employer can still be a controlling employer if, in actual practice, it exercises broad control over subcontractors at the site.

i. Multiple Roles

A creating, correcting or controlling employer will often also be an exposing employer. Consider whether the employer is an exposing employer before evaluating its status with respect to these other roles.

Exposing, creating and controlling employers can also be correcting employers if they are authorized to correct the hazard.

4.4 CROSS REFERENCE LIST OF OSHA AND CONSENSUS ELECTRICAL STANDARDS

Many construction workers, field safety professional, and job site inspectors have trouble understanding, interpreting, and applying the various OSHA and national consensus electrical standards. A cross reference list of OSHA and consensus electrical standards should be a useful aid in making their job easier.

The table of contents for the NFPA 70E, Electrical Safety for Employee Workplace Standard - 2000 Edition, has been used to develop a cross reference list of OSHA 1910 and 1926 electrical safety standards and various consensus electrical standards - see Exhibit 14.6 on page 109.

5.0 PROJECT ELECTRICAL SAFETY REQUIREMENTS

5.1 VARIOUS PROJECT ROLES & RESPONSIBILITIES FOR ELECTRICAL CONTRACTORS

There are about 72,000 electrical contracting firms employing 865,000 skilled electrical craft workers, supervisors, estimators, purchasing agents, and home office support staffs or almost 13% of the entire construction industry workforce.

For many electrical contractors, the ability to stay profitable and grow the company will be directly related to how well the company meets the demands of Customers to provide full-scope electrical services.

The transformation from a purist electrical contractor to a multi-service provider electrical contractor also will directly impact the safety roles and responsibilities for an electrical contractor. Future work if not already being performed may include the following.

a. *Design/Build*

1. Notable Factors from the 2000 Profile (Survey) of Electrical Contractors

- Electrical contractors play a major role in the design phase of projects.
- Electrical contractors performed design/build work on 31% of their projects.
- Electrical contractors recommended major changes to the project's specifications and plans on 20% of their projects.
- On 90% of their projects, electrical contractors have been given very broad purchasing responsibilities by their Customers to select the brand and type of electrical product to be installed.

2. Increased Company Liability Exposures.

Whether the Company performs design/build work, makes changes to project plans and specifications, and/or selects the electrical products, there will be an additional Company exposure to liability claims and lawsuits.