

## Working Safely While Repairing Intermodal Containers in Marine Terminals

Repair procedures for intermodal containers are not covered by the Occupational Safety and Health Administration (OSHA) standards nor any national consensus standard. This Fact Sheet will help identify hazards workers may be exposed to while repairing intermodal containers, and provide recommendations to employers on ways to minimize the risks and ensure the safety of workers.

Under [29 CFR 1917.71\(g\)\(1\) and \(g\)\(2\)](#), employers must: inspect intermodal containers for defects in the structural members or fittings before handling; identify any intermodal container found to be unsafe; remove the container from service; and repair the container before returning it to service. Intermodal containers are subject to various types of structural and nonstructural damage, including dents, cracks, tears, and corrosion. Container repairs can include installing: small patches; corner posts; complete sides, floors, or roofs; or new door or lock assemblies.

While OSHA does not have specific requirements for repairing these containers, employers should refer to the standards found in [29 CFR Part 1917.1\(a\)\(2\)](#) for a list of 29 CFR Part 1910 regulations that apply to marine terminals. In addition, employers can refer to information provided by the Institute of International Container Lessors, Ltd., the International Convention for Safe Containers, the International Organization for Standardization, or the International Maritime Organization. These organizations provide information on best practices for inspecting and repairing intermodal containers. Finally, employers should understand the equipment owner's or operator's requirements before workers perform such repairs.

### Hazard Assessment

Employers should:

- Perform a hazard assessment to identify the hazards associated with repairing intermodal containers and to determine the proper personal protective equipment (PPE) necessary to perform the required repair tasks. PPE should not be the only protection provided for workers.
- Take active and reasonable steps to identify, reduce, and abate hazards.
- Consider alternative methods for reducing worker exposure to hazardous materials or processes, or apply engineering controls to reduce or eliminate hazards.



Figure 1: Intermodal container with structural damage.

## Typical Hazards during Container Repairs

### Hot Work

Most container repair requires hot work, such as grinding, welding, and cutting (29 CFR 1917.151(g) and 1917.152).



Figure 2: Welding the rear sill of a container.

- When welding on stainless steel containers, such as refrigerated containers, employers must comply, as necessary, with the requirements for hexavalent chromium (29 CFR 1915.1026).
- Employers of workers performing hot work must provide them with proper respiratory protection (29 CFR 1910.134).
- When ventilation is necessary, the employer must follow the requirements in 29 CFR 1917.152(f).
- Employers must ensure that workers do not conduct welding and burning operations near cargo-handling operations (29 CFR 1917.158(b)).
- Welders should be trained and qualified in the use of the materials to be welded. In addition, Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) state the precautions to follow when welding rods and other combustible products.

### Lead and Other Toxic Ingredients

Some paints and preservatives used on intermodal containers contain lead. Not all containers are marked with the type of paint used. Personal exposure monitoring for air contaminants (e.g., lead or hexavalent chromium) may be necessary to determine the need for specific exposure-control methods. Employers must use proper PPE and ventilation when grinding and welding on painted surfaces, especially if the composition of the paint is unknown. Employers may test the paint with

a lead test kit or send paint-chip samples to a laboratory for analysis (see 29 CFR 1910.1025, Subpart Z, for requirements for lead).

Some sealants, adhesives, solvents, and lubricants used in container repair may pose environmental or personal safety hazards if the employer does not properly handle and dispose of them. Employers must inform workers of the hazardous products and the recommended ways to handle and dispose of them. Employers must train workers properly, and ensure that workers follow the requirements outlined in SDSs. Additional information related to hazard communication is available at 29 CFR 1910.1200.

### Spray Painting Operations

Spray-painting operations on intermodal containers must follow the requirements in 29 CFR 1917.153. Employers must ensure that workers do not conduct spray painting near cargo-handling operations (29 CFR 1917.158(a)), and receive training on the precautions specified in SDSs for paints and solvents.

### Abrasive Blasting Operations

Requirements for abrasive blasting performed on intermodal containers can be found in 29 CFR 1910.94(a). Employers must take precautions when using silica-based blasting media in work areas (29 CFR 1910.1000), and ensure that workers do not perform abrasive blasting near cargo operations (29 CFR 1917.158(a)).

### Fall Protection

Employees performing repair on top of containers are exposed to fall heights of at least eight feet. Therefore, employers should provide fall protection for workers performing repairs on top of such containers. While there are no specific fall-protection requirements in the marine terminal standards for working on containers not located on vessels, employers can refer to 29 CFR 1910.23(c), 1918.32(b), and 1918.85(j), (k), and (l) for provisions addressing fall protection. Fall-protection measures include guarding, netting, and fall-restraint systems.

Workers can access most repair work on the outside of a container using a mechanical lift, scaffolding, or ladders. In these situations, employers must follow the requirements in 29 CFR 1910.28 when using scaffolding, and the requirements in 29 CFR 1917.119 when using portable ladders.

### **Placing Containers on Stands**

Some repair sites use fabricated stands to hold and elevate containers so that workers can work underneath them. Such stands also are available commercially. When manufacturing employer-fabricated stands, employers should design and brace them to withstand the maximum load placed on them. Employers should load test and certify employer-fabricated stands to at least 125% of the safe working load, and mark the stands with the manufactured, inspected, and tested dates, as well as the safe working load. Employers should keep documents describing the design, manufacture, and testing of these stands, and make them available for review. Employers can manufacture stands to look like saw horses that will support the entire width of the container, or manufacture them like jack stands. The jack-stand supports have a twist lock at the top, which should be secured into the corner casting of a container to ensure the container remains stable while on the jack-stand supports. Employers may not repair containers while the containers are on a powered industrial truck or similar equipment, or when suspended from a crane.



Figure 3: "Sawhorse" type container stand.



Figure 4: "Jack Stand." Note: Place the twist lock on top in the corner casting and lock in.

### **References**

- Institute of International Container Lessors, Ltd. (IICL): [www.iicl.org](http://www.iicl.org)
- International Organization for Standardization (ISO): [www.iso.org](http://www.iso.org)
- International Maritime Organization (IMO): [www.imo.org](http://www.imo.org)
- The International Convention for Safe Containers (CSC)
- MIL-HDBK-138B, Department of Defense Handbook "Guide to Container Inspection for Commercial and Military Intermodal Containers," U.S. Army Defense Ammunition Center; ATTN: SOSAC-AST, McAlester, OK 74501-9002, 1 JANUARY 2002

**This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.**

**For assistance, contact us. We can help. It's confidential.**



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