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Fire Watch Duties during Hot Work

Hot work has the potential to ignite combustible material that can quickly grow out of control and result in the injury of workers and loss of property. Shipyard work involving riveting, welding, burning, grinding, drilling, abrasive blasting, and the use of powder-actuated tools, or similar spark- or fire-producing operations are considered hot work that can result in fire or explosion. Adequate planning, training workers, and quick response are necessary measures to prevent fires from advancing beyond the **incipient** stage. OSHA's Fire Protection standard for shipyard employment requires employers to develop and implement a written fire safety plan ([29 CFR 1915.502](#)) and a fire watch policy ([29 CFR 1915.504](#)).

What is a fire watch?

A fire watch is the person or persons responsible for continuously observing hot work activity for the detection of, and response to, fires during hot work operations. A fire watch has the authority to stop work if necessary and conduct essential steps for restoring safe conditions within the hot work area.

The person performing the hot work cannot be the fire watch. That worker is concentrating on their own work and will not be able to react quickly enough should a fire ignite. Therefore, another employee or employees must be assigned the fire watch duty. Similarly, personnel actively engaged as the fire watch cannot perform other duties. Their focus and only duty is to watch for and respond to fires that occur during hot work.

When is a fire watch required?

OSHA requires employers to post a fire watch during hot work if any of the following conditions are present ([1915.504\(b\)](#)):

1. Slag, weld splatter, or sparks which might pass through an opening and cause a fire.
2. Fire-resistant guards or curtains are not used to prevent the ignition of combustible materials on or near decks, bulkheads, partitions, or overheads.
3. Combustible material is located closer than 35 feet to the hot work area, in either the horizontal or vertical direction, that cannot be removed, protected with flame-proof covers, nor otherwise shielded with metal or fire-resistant guards or curtains.

4. Hot work occurs on or near insulation, combustible coatings, or sandwich-type construction that cannot be shielded, cut back, or removed, or in a space within a sandwich-type construction or inter-barrier space that cannot be **inerted**.
5. Combustible materials adjacent to the opposite sides of bulkheads, decks, overheads, metal partitions, or sandwich-type construction may be ignited by conduction or radiation.
6. The hot work is close enough to cause ignition through heat radiation or conduction on the following:
 - Insulated pipes, bulkheads, decks, partitions, or overheads;
 - Combustible materials and/or coatings; or
 - Unprotected combustible pipes or cable runs.
7. A Marine Chemist, a Coast Guard-authorized person, or a shipyard competent person (SCP), as defined in [29 CFR Part 1915, Subpart B](#), requires that a fire watch be posted.

The number and location of personnel performing fire watch duty depends on the scope of work. For example, if multiple blind compartments (e.g., areas separated by a bulkhead) are involved in the hot work operation, a fire watch must be posted simultaneously in each blind area. Similarly, where hot material from hot work could spread or fall over more than one level, as in trunks, plenums, cargo holds, and machinery spaces, a fire watch must be posted at each affected level, unless positive means are available to prevent the spread or fall of hot material. To ensure an adequate number of fire watch personnel are posted, some ports or shipyards designate a

minimum ratio of personnel performing hot work to the number of employees assigned as a fire watch (e.g., one fire watch per every four workers performing hot work in the same location, assigning additional fire watches appropriate for the number of workers that exceed that amount). Employers should also consult with local and state officials prior to performing hot work to determine if there are other regional requirements that they must follow.

What are the duties and responsibilities of the employer?

Employers are responsible for protecting all workers from fire hazards in shipyard employment by:

- Developing and implementing a written [Fire Safety Plan](#);
- Reviewing the Fire Safety Plan with employees;
- Providing outside organizations expected to respond to fires with a copy of the Fire Safety Plan;
- Informing all employers on the worksite about the Fire Safety Plan, fire-related hazards, and emergency procedures;
- Making sure safety and health responsibilities for fire protection are assigned;
- Establishing designated and non-designated areas for hot work;
- Maintaining safe conditions that are free from fire hazards, such as unattended fuel gas and oxygen hose lines or torches; and
- Training employees in accordance with [29 CFR 1915.508\(b\)](#), [\(c\)](#), and [\(e\)](#).

Employers must also create and maintain a written fire watch policy that specifies the requirements for employees performing fire watch duties ([29 CFR 1915.504](#)). Within that policy, the following items must be detailed:

- Fire watch training requirements;
- Fire watch duties;
- Equipment to be used by the fire watch;
- Personal protective equipment that must be made available and used by the fire watch; and
- Training records.

Unless the area where hot work is to be performed has been authorized by a Marine Chemist's certificate or shipyard competent person's log, as identified at [29 CFR 1915.14](#), employers are responsible for visually inspecting the area before and during hot work to ensure it is free from fire hazards. Employers should consult [NFPA 306](#) for information on preparation of a vessel for hot work (Part 5) and required safety designations and conditions (Part 7).

Employers must also maintain those conditions while hot work operations continue. Hot work is only permitted in areas that are free of fire hazards, or that have been controlled by physical isolation, fire watches or other positive means. Employers often designate a permit authorizing individual (PAI) to perform this function, which helps:

- Determine if any flammable materials, hazardous processes, or other potential fire hazards are present, or likely to be present in the work area where hot work is to take place;
- Ensure the appropriate number and location of designated fire watch personnel, extinguishing equipment, and fire protection measures; and
- Maintain communication with fire watch personnel if conditions change during hot work that could result in or contribute to the spread of fire.

What are the duties and responsibilities of the fire watch?

Personnel assigned as fire watch are essential during hot work operations. Their duties begin before the hot work starts and continue well after the work is complete. Therefore, employees assigned fire watch duties must be:

- Trained to detect fires that occur in areas exposed to hot work ([29 CFR 1915.504\(c\)\(2\)\(v\)](#));
- Able to effectively communicate with workers, including alerting personnel when a fire has progressed beyond the incipient stage ([29 CFR 1915.504\(c\)\(2\)\(ii\)](#) and [\(vii\)](#));
- Physically capable of performing the physical demands necessary for fire watch duties ([29 CFR 1915.504\(c\)\(3\)](#)); and
- Aware of their responsibilities as a fire watch ([29 CFR 1915.504\(c\)](#) and [1915.508](#)).

Before and During Hot Work

Before hot work begins, communication must be established between the employee(s) performing hot work and all their fire watches. The appropriate fire extinguishing equipment for the conditions of the work (e.g., carbon dioxide, dry chemical, or water) should be fully charged for prompt use by the fire watch if needed. It is important that fire watch personnel are informed by the person(s) performing the hot work, or the supervisor, of any restrictions or authorizations related to the hot work activity. This should also be documented on the hot work permit, Marine Chemist Certificate, and/or the SCP's log of inspections and tests. Further, fire watch duties are continuous, including during breaks in hot work activities. If the fire watch needs to leave the hot work area, the employer must assign a qualified replacement (temporary or permanent).

Stopping Hot Work

Fire watches have the responsibility to stop work if any changes occur during hot work that have the potential to result in or contribute to the spread of fire (e.g., introduction of flammable/combustible materials). The fire watch should contact a supervisor, superintendent, or the employer's PAI for instruction on how best to restore safe conditions. Whenever multiple workers are performing hot work in a designated fire watch area, all hot work activity must cease until safe conditions are restored. In the event

of an **incipient** stage fire, the fire watch must attempt to extinguish the fire with the extinguishing equipment available, and within their training qualifications. Should the fire watch determine that the fire is beyond the capabilities of the extinguishing equipment, they must immediately alert employees in the area and contact the appropriate emergency response personnel.

What are the post-hot work requirements?

After hot work has concluded, the fire watch employees' job is not finished. Fire watches must continue monitoring the hot work area for at least 30 minutes after completion of the hot work to ensure nothing ignites. This includes all areas that required additional fire watch personnel (e.g., blind compartments and different levels within a space). If the employer inspects the hot work area and determines there is no further fire hazard, the fire watch may be released.

CAUTION: The by-products of hot work, such as sparks, slag, or embers, can reach areas that are not easily seen including:

- Openings around pipes extending through decks, overheads, or bulkheads;
- Concealed spaces with combustible insulation material;
- Gaps in fire barriers;
- Equipment with combustible linings; and
- Conveyors.

The fire watch period may need to be extended further if the employer determines the fire hazards warrant an extension. **NFPA 51B** recommends that following the completion of the established fire watch time period, fire monitoring is continued within the hot work area for up to an additional 3 hours as determined by the PAI.

Additional Resources

- [Fire Watch Safety during Hot Work in Shipyards QuickCard™](#) (OSHA 3494)
- [Evaluating Shipyard Competent Person Programs Fact Sheet](#) (OSHA 3923)
- [Understanding Your Role as a Shipyard Competent Person QuickCard™](#) (OSHA 4138)
- [OSHA Fire Protection Shipyard Employment eTool](#)

All those involved, including the employer, contractors, PAI, fire watch, and hot work personnel have the combined responsibility for safety during hot work operations. Permits or checklists, such as the example provided on the next page, can help remind personnel of potential hazards at the jobsite.

For More Information

Your nearest OSHA office can provide more information. Also, OSHA's On-Site Consultation Program offers no-cost and confidential occupational safety and health services to small and medium-sized businesses in all states, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations. For more information or to find the local On-Site Consultation office in your state, visit www.osha.gov/consultation, or call 1-800-321-OSHA (6742).

Workers' Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see OSHA's Workers page (www.osha.gov/workers).

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's workers by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

Example Checklist/Permit

Scope of Work: _____

Date: _____ Time: Start _____ Stop _____ Post watch end _____

Name: _____ Phone: _____

In the event of a fire, notify 1) [Contact Name], Phone: [(xxx) xxx-xxxx]
2) [Name of Fire Dept] Phone: 9 1 1 or [(xxx) xxx xxxx]

Type of Hot Work:

- Grinding
- Welding
- Cutting [torch] [air arcing] [plasma]

Affected Spaces: _____

- Spaces inspected for project by Certified Marine Chemist (CMC) and/or Shipyard Competent Person
- Piping and equipment removed from service, isolated, locked and/or tagged
- Adequate ventilation provided
- Other permits completed as required (e.g., Lock-out/tags plus, working at heights, live electrical work)
- Location of nearest fire alarm
- If no alarm present, determine method that will be used to raise the alarm (List in other precautions area below)
- Escape routes maintained clear and known by personnel
- Path of likely sparks evaluated
- Nearby activities evaluated for conditions that could be affected by hot work
- Remove combustible material where possible
- Remove coatings in way of hot work (at least 4 inches in every direction)
- Remove insulation or lagging from hot work area to prevent the spread of fire
- Fire resistive covers and metal shields provided as needed
- Combustible materials, dust, lint and oily deposits removed and floor swept clean
- Fire watch is provided with suitable extinguishers
 - Class ABC
 - Dry Chemical
 - Carbon Dioxide
 - Water
 - Other: _____
- Fire watch is trained in use of equipment and in sounding alarm
- Fire watch has communication with person performing hot work
- Fire watch has appropriate personal protective equipment (PPE) (eye protection, respirator, Other: _____)
- Fire watch will remain in position for a minimum of 30 minutes after work has ceased, or fire watch is relieved by employer representative



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: 1-877-889-5627.



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