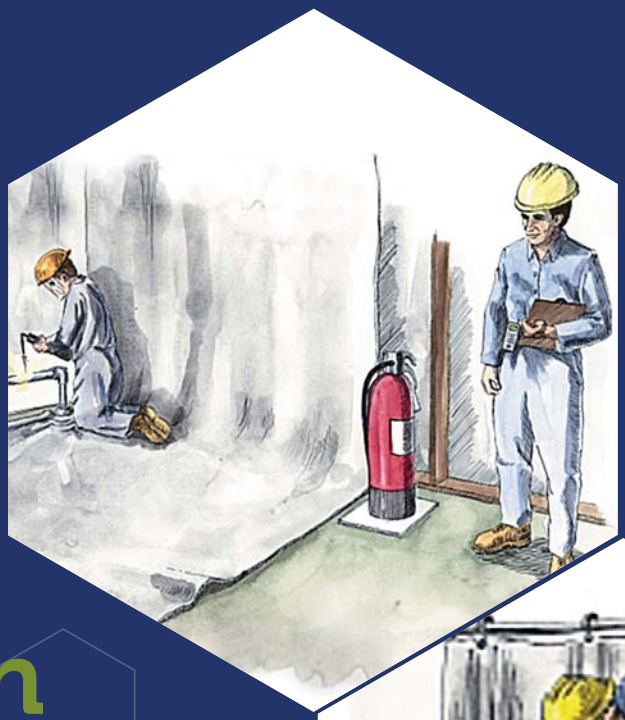
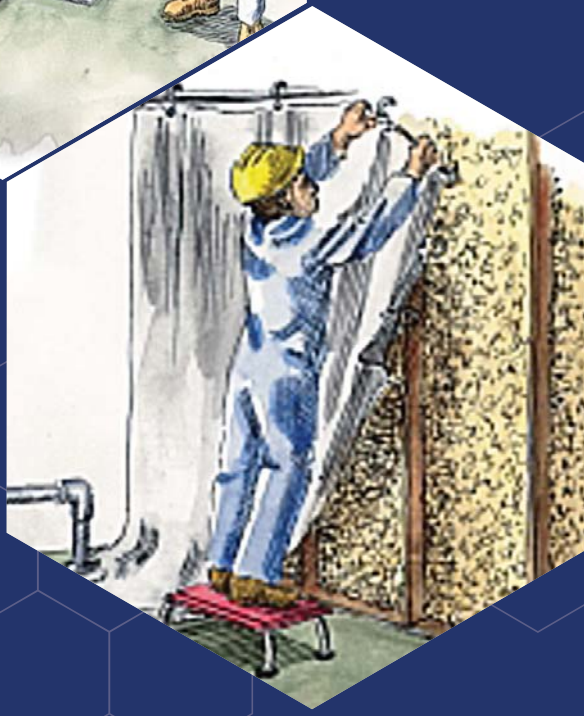
Fire Safety Guidance





Working with Polyurethane Foam Products

During New Construction, Retrofit and Repair

American Chemistry Council | Center for the Polyurethanes Industry

Fire Safety Guidance

Fire is a serious concern during construction, repair and retrofit projects because materials can be exposed to ignition sources. For example, there may be a potential for polyurethane/polyisocyanurate foam to be exposed to open flame from welding, cutting torches, and other ignition sources from allied trades during certain construction sequences. While fires involving polyurethane or polyisocyanurate foam during construction, retrofit or repair are rare, they do happen. The following safety precautions, limited here to a discussion of polyurethane and polyisocyanurate foam products that are present during "hot work," are suggested for the construction site to help prevent these accidents. However, if a fire does occur and cannot be extinguished immediately, evacuate the area at once. Any guidance or suggestions made in this document do not replace the instructions provided by the employer, the MSDS and the product instructions.

OSHA defines Hot Work as riveting, welding, flame cutting or any other fire or spark-producing operation (See 29 CFR § 1910.252a)

Trade Performing "Hot Work"

OSHA defines Hot Work as riveting, welding, flame cutting or any other fire or spark-producing operation (See 29 CFR § 1910.252a)

- OSHA states that "hot work" permits must be authorized by an individual designated by management and only after a "hot work" assessment has been completed. It also states that the person performing the "hot work" is not authorized to make such assessments or issue permits.
- Thoroughly educate other trades on the site about fire characteristics of polyurethane or polyisocyanurate foam. Refer to the foam manufacturer's literature for safety recommendations.
- If possible, perform "hot work" in a designated area free of combustibles.
- If "hot work" must be performed in an area where there are combustibles, move the combustibles, if possible, a distance of at least 35 feet from the "hot work," as required by OSHA. If the combustibles cannot be moved, shield the combustibles with a fire retardant cover.
- A fire watch is required by OSHA (see 29 CFR 1910.252(a) (2)(iii)) where:
  - » combustible building materials or contents are closer than 35 feet to the point of operation;
  - » wall or floor openings within a 35-foot radius expose combustible materials in adjacent areas, including concealed spaces in walls or floors;
  - » combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited; or
  - » any other criteria are applicable as listed by OSHA under 29 CFR § 1910.252a (Fire Prevention and Protection).

If a fire occurs that cannot be extinguished immediately, evacuate the area at once

Contractor

- Conduct job safety meetings with all other trades in order to develop a safety plan before, during and after polyurethane or polyisocyanurate application. Review foam manufacturer's installation instructions for safety recommendations.
- For retrofit or repair projects, determine whether foam products are present before any hot work is performed. If so, follow the same fire prevention procedures as for new construction.
- If foam insulation is being installed near potential ignition sources, a fire watch may be required (see Trade Performing "Hot Work" Section for fire watch discussion).
- Provide warning signs and labels on the job site where the trades performing hot work are most likely to see them, as required by 29 CFR § 1910.145 and 29 CFR § 1910.252.
- Do not allow smoking on the job site.
- Schedule application of required thermal barrier as soon as practically possible.
- Keep other trades from working in the application area until a thermal barrier is applied over the foam. If another trade must work in the area before the thermal barrier is applied, they should determine if a fire watch is required (see Trade Performing "Hot Work" Section for fire watch discussion).

For Spray Polyurethane Foam Contractors

- Review the manufacturer's installations instructions concerning the thickness of the foam per pass, because the SPF may scorch or ignite when installed too quickly to achieve the desired thickness or installed in too thick a pass.

All Trades

If a fire occurs that cannot be extinguished immediately, evacuate the area at once.

- Have an adequate supply of suitable fire extinguishers in convenient locations. Personnel that use extinguishers must be trained in their use. (Note: Polyurethane and polyisocyanurate foam typically require carbon dioxide and dry chemical extinguishers)
- Avoid accumulating large amounts of combustible waste materials (for example, foam trim and paper). Observe good housekeeping practices, and dispose of waste properly.
- Do not smoke on the job site.

Additional Fire Safety Information:

Rigid polyurethane or polyisocyanurate foams will, if ignited, release various products of combustion such as smoke and gases that may be irritating, flammable and/or toxic. As with other organic materials, such as wood, the primary combustible gases are carbon dioxide and carbon monoxide.

- **Fire Safety Guidelines for Use of Rigid Polyurethane or Polyisocyanurate Foam Insulation in Building Construction**
  Center for the Polyurethanes Industry
  http://www.polyurethane.org/s_api/sec.asp?CID=1649&DID=11363
- **AY 126: Thermal Barriers for the Spray Polyurethane Foam Industry**
  Spray Polyurethane Foam Alliance
  http://www.sprayfoam.org/downloads/pdf/AY%20126.pdf
- **NFPA 51 B, Fire Prevention During Welding, Cutting and Other Hot Work**
  National Fire Prevention Association
  http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=51B
- **OSHA Regulation 29 CFR § 1910.252 Welding, Cutting, and Brazing ttApplication Standard**
  http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9853
- **Tech Tip Spray Polyurethane Foam – Exotherm vs. Thickness**
  Spray Polyurethane Foam Alliance
  http://www.sprayfoam.org/uploads/pages/4480/Tech%20Tip%20Exotherm.pdf

For more information on material presented in these Guidelines, please contact your supplier.

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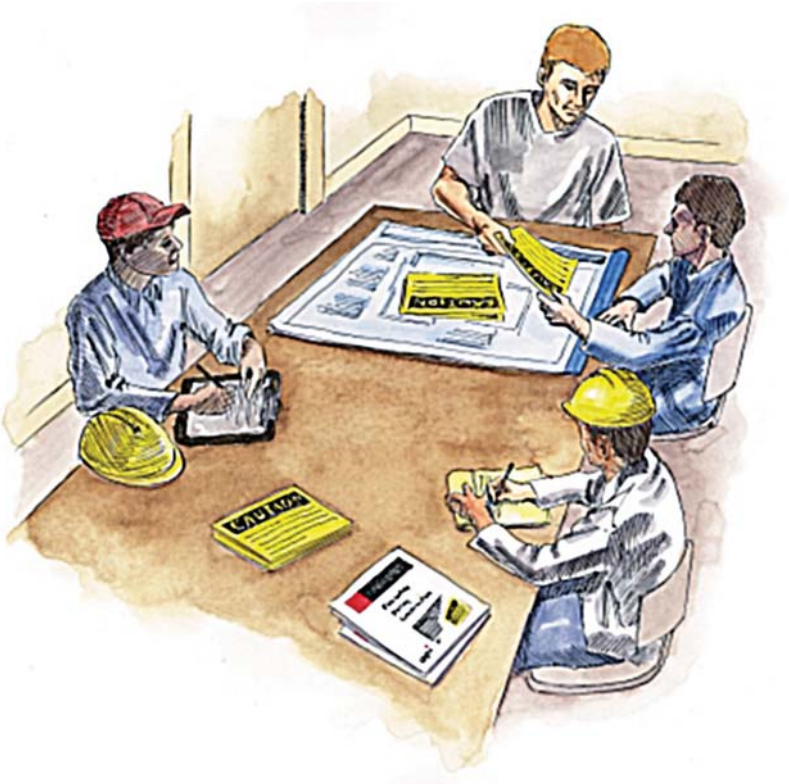
1

MEET:
Conduct a safety meeting with other trades.



2

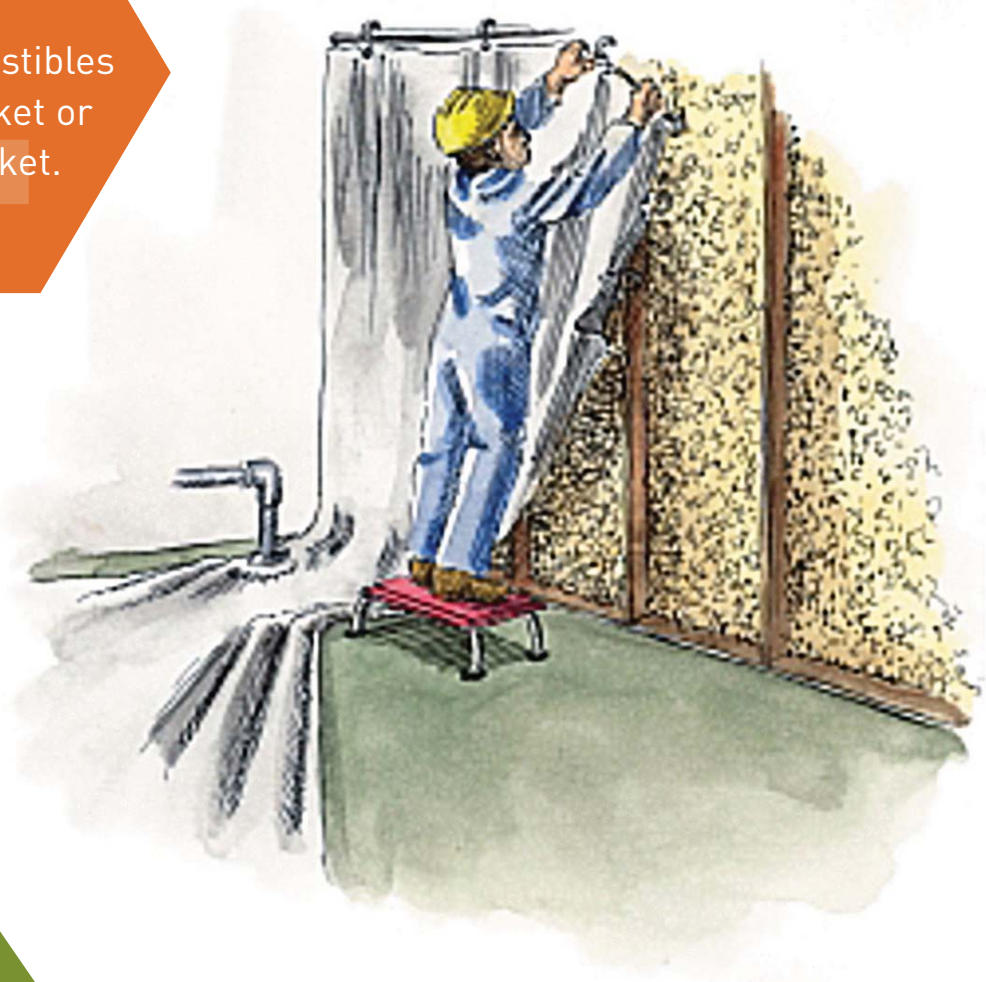
POST:
Put up warning signs at the site.

3 MOVE:

Move combustibles away from the "hot work" site.

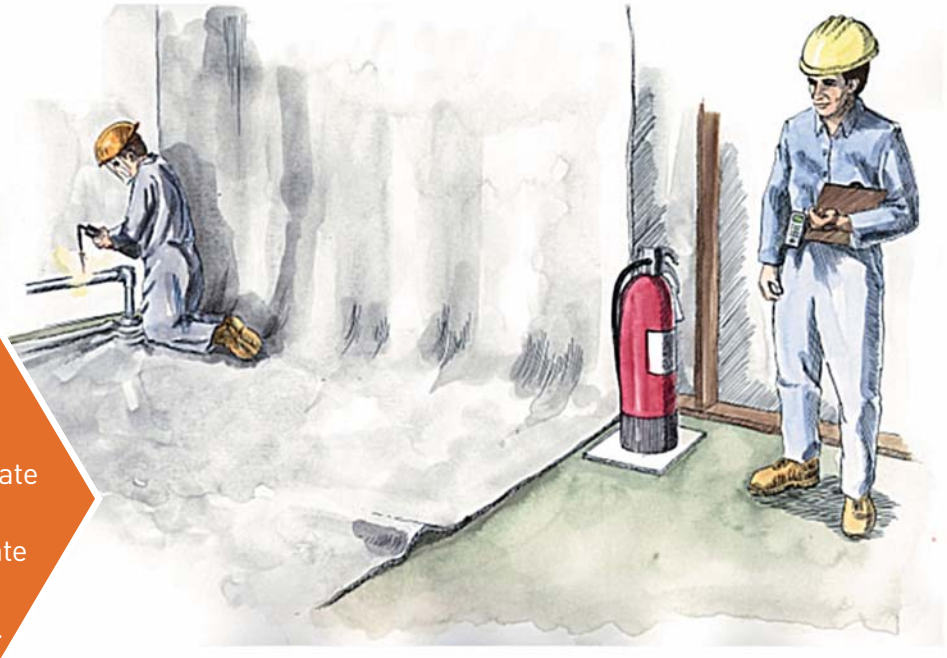
4 SHIELD:

Shield combustibles with fire blanket or welder's blanket.



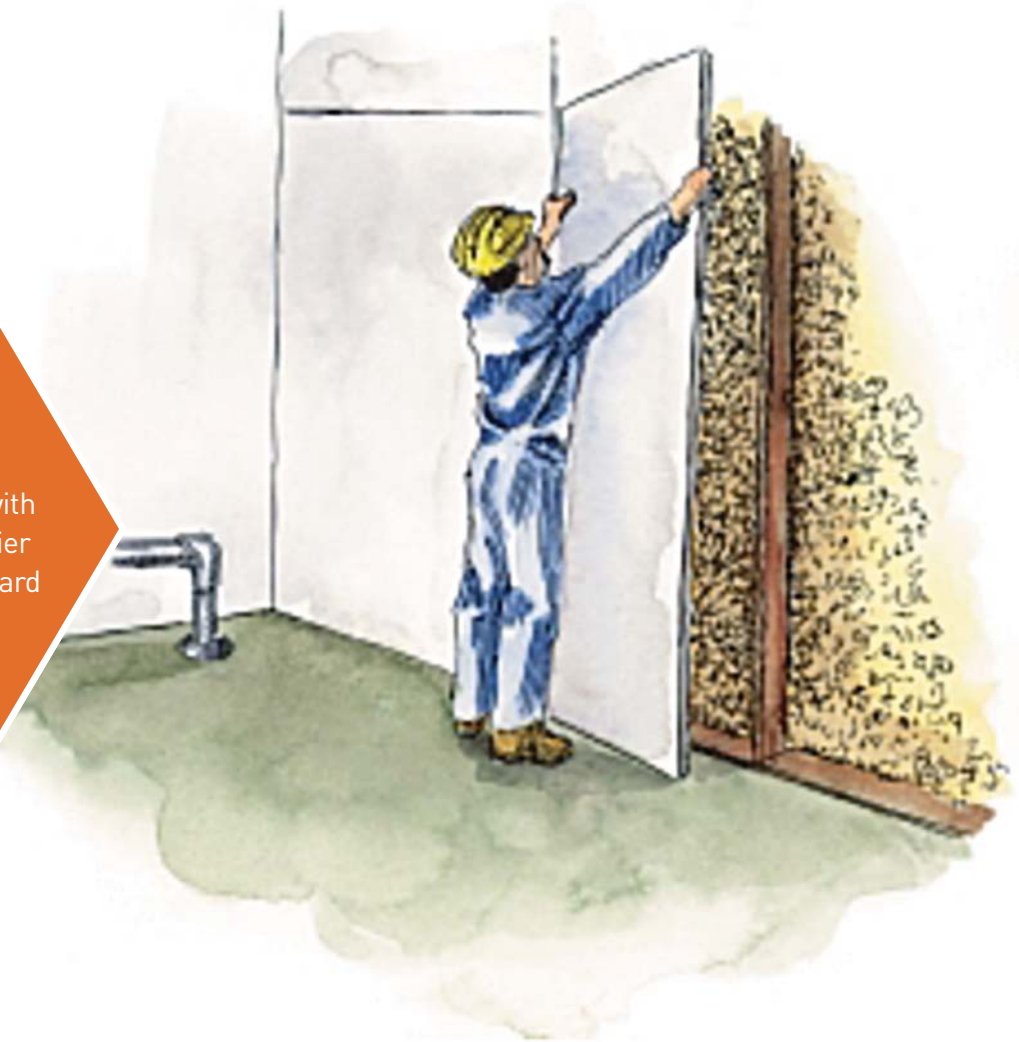
WATCH:

Provide fire watch if necessary. Have appropriate fire extinguisher and telephone nearby. Evacuate area if fire cannot be extinguished immediately.



PROTECT:

Protect installed foam with a required thermal barrier such as ½ in gypsum board as soon as possible.



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