

To The Point

Plastic and Foam Construction Material Work Permits

CHUBB®



Plastics provide many advantages in building and construction including offsite prefabrication, speed of installation, insulating properties and price. While plastics have real advantages, the simple fact is that all plastics are combustible and will burn with varying intensities. In some cases burning plastics can lead to an accelerated spread of fire which could overwhelm fire protection systems if they are not designed properly.

Some of the most common types of plastic building materials in use are composite insulated panels / foam sandwich panels incorporating combustible cores. Because of their good insulating properties, low maintenance requirements and ease of cleaning, such panels are often found in the food and beverage industries, medical and pharmaceutical operations, and in cold storage. For all their benefits, such panels have been involved in numerous multi-million dollar fires around the world that have led to extensive—and in most cases complete—destruction of buildings such as cold-storage warehousing, bakeries, warehousing facilities, and meat processing plants.

The purpose of the following procedures is to minimize the chance of fire occurring at your site or facility, or at the premises where your staff may be working, due to work performed on any plastic construction materials. The procedures (and the Chubb PFCM permit) define the methods to be used for the safe work on building products containing plastic materials such as:

- Plastic Insulated Sandwich / Composite Panels (PISP) including expanded and extruded polystyrene panels (EPS) and polyurethane and polyisocyanurate panels (PIR) with facings; the panel facings could be of plastic, metal (aluminum or steel), or aluminum foil
- Poly-vinyl chloride (PVC), polycarbonate (PC) and polymethyl methacrylate (PMMA) panels
- Spray applied polyurethane (PU) foam
- Elastomeric insulation, generally used to wrap pipes and ducts

Risk Engineering Services

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If composite/sandwich insulated panel core materials cannot be positively confirmed as being of a non-combustible type (e.g. mineral rockwool) then all PISP panels should be treated as being of a combustible nature. Similarly, even where treated or fire retardant modified panels—which are certified to accepted international or national standards (e.g., ASTRE, LPCB, NFPA, FM, etc.) are in use—care should be exercised to prevent the insulating core being exposed or heated. The precautions in this permit should be followed as a basic safety requirement.

Application

Work on Composite Insulated (Sandwich) Panels is defined as:

- Any operations which lead to the foam core of a panel being exposed or penetrated; this includes any cutting, drilling or other means which penetrate the outer skin of the panel
- Any repairs, re-sealing, dismantling or removal of the panels
- Any work that could lead to the heating or ignition of any plastic panel (PVC, PMMA etc.)
- Any work undertaken on or within 35 feet (11 m) of spray applied PU foam or elastomeric material that could lead to ignition of the material; this includes work on electrical fittings and fixtures surrounded by the material, any cutting or removal of the material, etc.
- Any additions or extensions to any plastic construction material areas (e.g. new PISP areas, additional spray insulation etc.)

Staff and contractors at your site should be regularly reminded that any work performed on PFCM that generates heat could result in the ignition of the combustible core material. Typically, this work could include methods such as cutting, grinding, brazing or welding that gives rise to hot embers, cuttings or sparks that could ignite the foam insulation material. It is imperative that these hot work practices not be used

when installing or repairing PFCM. Wherever possible, only 'cold' operations (e.g. low speed cutting or manual procedures) should be used on or in the immediate vicinity of PFCM.

The implementation of the Chubb PFCM work permit is designed to ensure that safety, fire prevention requirements and management controls are in place before any work is commenced. All parties (both employees and external contractors) should be made aware of the necessary precautions that are required during and upon completion of the work.

Roles & Responsibilities

Facilities or Maintenance Manager

- Ensure that the Chubb PFCM work permit system is fully implemented.
- PFCM permits are valid for one day only. New PFCM permits are to be completed for each day of work performed.
- Ensure all fire protection systems in the area of PFCM work are fully operational and no work that could lead to ignition of PFCM is conducted concurrently with any fire system impairments.
- All employees and contractors conducting PFCM work understand the intent of the permit system and the risks involved in working on PFCM. These risks include those hazards present while the work is being performed and also extend to the risks that could continue after work is completed (e.g. remaining heat/ignition sources, exposed foam areas, operations to commence after PFCM work is finished, etc.).
- Ensure that no high speed cutting, drilling or any work involving flame or other heat sources is permitted on PFCM.

- In addition to any Job Safety Analysis or Risk Assessment undertaken before work begins, all maintenance, repair or construction work involving PFCM is to be assessed for fire / ignition risk by the people who perform the work, the people who manage the work and by production personnel in the immediate area where the work is to be performed.
- The manager or designate is to complete the following sections on the PFCM work permit:
 - The work details
 - Authorization section
 - Precautions section
 - Final inspection section

Employees and Contractors

- Must read and fully adhere to the PFCM work permit, procedures and precautions.
- Complete the Work Acceptance section of the PFCM Permit System.

Procedures

1. PFCM work permits are to be issued for any work that involves operations on building materials that contain plastics.
2. PFCM work permit is to be issued by the Authorizing Individual (e.g. facilities, maintenance manager, or designate).
3. PFCM work permit should give a detailed description of the work involved, the equipment/area that is being worked on and who is to perform the work.
4. High speed cutting, drilling, any work involving flame or other heat sources must not be used on PFCM. Where panels need to be cut or drilled only cold cutting methods such as shearing (hand operated tools), low speed or cooled/lubricated drills or handsaws are to be used to remove or minimize the likelihood of ignition.
5. PFCM Work Permit must be displayed at the site of the work by the Authorizing Individual or designate.
6. Contractors conducting work on the site must provide proof of adequate level of general liability insurance coverage.
7. Standard precautions indicated on the PFCM permit are designed to ensure necessary safety precautions are taken. The following precautions must be considered prior to issuing the PFCM Work Permit:
 - Ensure **No Hot Work** is undertaken on any PFCM.
 - Where panels need to be cut, ensure that only **Cold** cutting methods such as shearing (hand-operated tools), low speed drills or handsaws are used.
 - Secure fixings to panels using adhesives (water based where possible) or mechanical fasteners.
 - Smoking and other ignition sources are not permitted during work on the panels.
 - Pipe penetrations should be sealed with a metal fascia mechanically clamped onto the pipe and riveted onto the metal face of the panel.
 - Notification of production staff of the intent to perform work operations (as per the PFCM Work Permit Form).
 - A suitable fire extinguisher/fire hose reel to be on hand at all times with staff or contractors trained in their use.
 - Ensure all fire protection equipment (sprinklers, hydrants, hose reels) are in good working order.
 - At the end of the work, ensure that any exposed core has been re-sealed with a metal capping and not impaired.
 - Dispose of any panel off-cuts immediately. Waste panel material (particularly cores) should be disposed of outside the building ensuring it is stored at a minimum of 35 feet (11 m) from the exterior of the building. Where possible material should be placed in a suitable waste disposal bin.
8. It is the responsibility of the individual who is performing the work to ensure that the PFCM Work Permit has been completed and authorized. Any Special Precautions must be listed on the PFCM Work Permit.
9. Completed permits are to be kept on file.
10. Where hot work (cutting, welding or grinding) takes place within 35 feet (11 m) of PFCM (internal or external), separate hot work permit procedures and PFCM permit forms must always be followed.

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For more information about protecting your business, contact your local Chubb risk engineer or visit us at www.chubb.com/engineering.

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