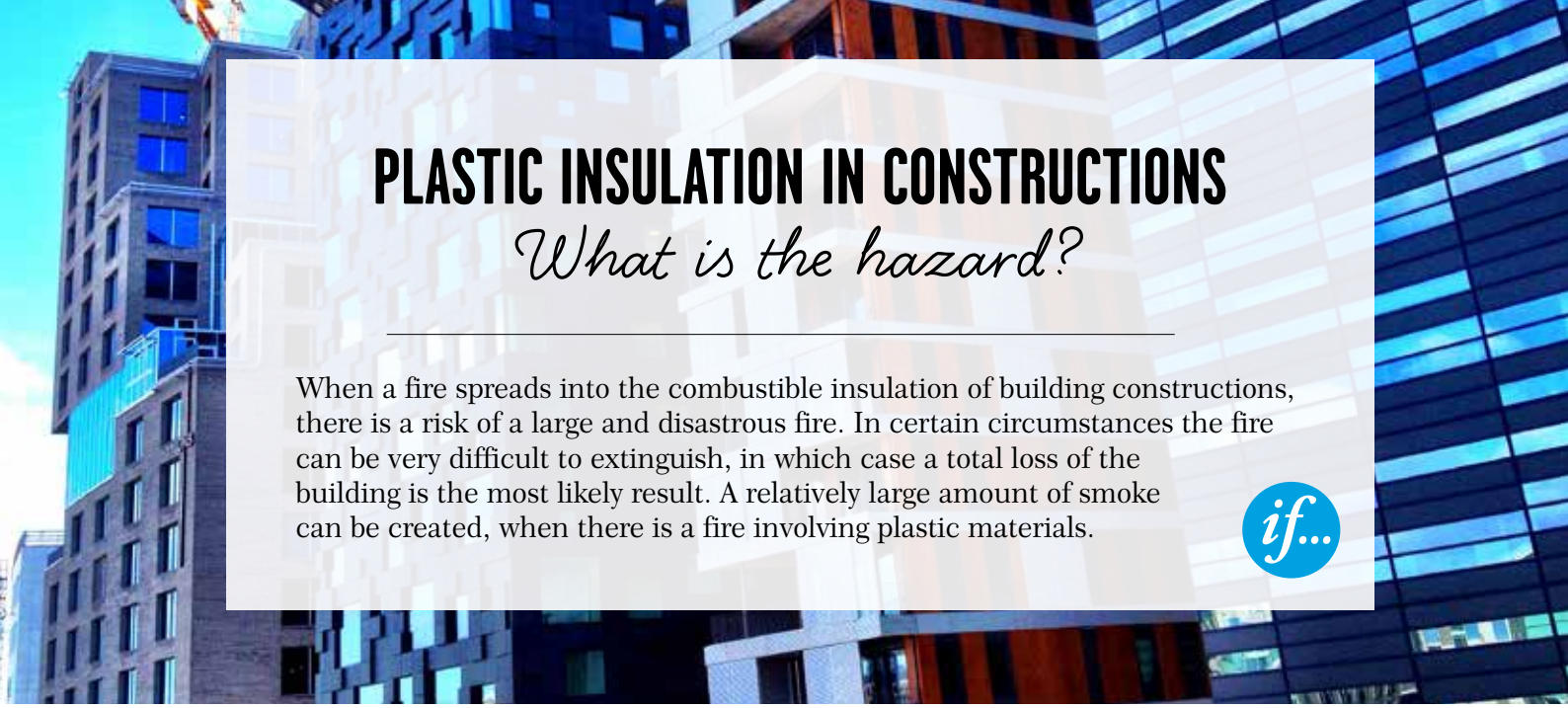

PLASTIC INSULATION IN CONSTRUCTIONS

What is the hazard?

When a fire spreads into the combustible insulation of building constructions, there is a risk of a large and disastrous fire. In certain circumstances the fire can be very difficult to extinguish, in which case a total loss of the building is the most likely result. A relatively large amount of smoke can be created, when there is a fire involving plastic materials.

Foamed plastic insulation is often used in roof, external and internal wall and ceiling constructions, particularly in those industries in which a cold or clean environment is required. However, it is also used in other industries, commercial facilities and other types of buildings, including private homes.

The most commonly used materials are expanded polystyrene (EPS), polyurethane (PUR) and polyisocyanurate (PIR). The good insulating properties of plastic insulation helps to keep buildings cold whilst utilizing less energy, and conversely keeps them warm during cold seasons, resulting in savings in cooling and heating costs. Sandwich panels are easy to install and clean, and plastic insulation does not provide the conditions favourable for the growth of mould or other microorganisms.

How to reduce the risk

- *Replace* the combustible insulated panels with non-combustible insulated panels whenever possible.
- When adequate and approved *fire sections and fire cells* are in place, the spreading of the fire can be limited by these constructions. Note that a wall with combustible insulation should never be accepted as a fire division wall.
- Sandwich panels should be *kept in good condition*. The panels should be inspected at least monthly for any signs of damage or for any holes with exposed insulation. If any are found then these should be repaired using fireproof materials as soon as possible.
- *Service penetrations* (pipes, ducts etc.) through sandwich panels should be avoided. If holes and perforations are needed, only low-energy tools should be used and any gaps should be adequately fire stopped.
- Maintain adequate clearance around hot flues to prevent the ignition of the insulation.
- When penetrating the sandwich panels with *electrical cables*, the cable itself must be protected against the sharp edges of the steel sheets, as the edges may damage the cable insulation and cause a short circuit. The applied sleeve or collar material must be fireproof.
- *Electrical installations* should not be mounted directly on plastic insulated sandwich panels. Battery charging stations are typical examples of these installations. Heat conducted by a fire or an electrical malfunction of the installation could be enough to set the insulation material on fire. Electrical equipment located near sandwich panels should be thermographically surveyed at least annually.
- *Hot work is not allowed* directly on or in the close proximity of constructions containing plastic insulation.
- Keep combustible goods, materials and waste as far away as possible, preferably at least 15 m away from the external walls containing combustible insulation.
- *Work on these panels* should always be carefully controlled by the facility management. All insulation being exposed during the work must be covered and secured with non-combustible materials.

- We recommend the *labelling* of all constructions including combustible insulation with warning stickers indicating the type of insulation and the risk. Labelling constructions with non-combustible insulation, again specifying the insulation material, will further help in keeping track of the insulation materials inside sandwich panels and other constructions of the facility.
- *Automatic fire fighting systems*, for instance sprinkler systems, will most likely reduce a fire inside the building, preventing it from spreading into the combustible construction.

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