If News

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Construction Site Safety

A threatening fire broke out at the construction site of the travel centre in Riihimäki on Monday afternoon 5th May, completely destroying the top floor of the building. The fire developed into a major blaze which spread noxious smoke over a large area. Furthermore, several gas bottles at the site exploded during the fire. Firefighters managed to bring the fire under control, preventing it from spreading from the lower part of the building to the adjacent five-storey building. The fire will delay the opening of the new travel centre by several months.

Why did the fire develop into a major blaze?

The street level of the travel centre will house both passenger and commercial facilities, on top of which there will be two parking platforms. The thermal insulation material on the lower parking platform caught fire. A chain of several factors caused the major fire:

- Cellular plastic insulation on the parking level caught fire towards the end of the workday, around 3.40 pm. The police are still investigating the cause of the fire.
- When the fire was noticed, it had already spread over several dozen square metres. The fire alarm was done immediately.
- A strong wind spread the fire in a few minutes over the entire parking platform of approximately 5,000 square metres, since the flammable cellular plastic insulations were only partly covered by cast concrete.
- The fire service, located approximately one kilometre away, soon arrived at the scene, but the fire had already developed into a major blaze.
- Exploding gas bottles prevented firefighters from entering the building and attacking the fire, so they concentrated on cooling and limiting it, and eventually succeeded in this.

Construction sites involve a number of risks

The increasing popularity of project management contracts is creating new challenges for risk management at construction sites. More attention must be paid to the clarification and coordination of responsibilities related to safety matters. Final responsibility for this rests with the building developer, who must ensure that safety matters have been properly attended to.

Various types of temporary arrangements related to traffic, building material storage, heating, lighting and hot work are typical of construction sites. Furthermore, there are usually several contractors and subcontractors working on a shared construction site, in addition to which temporary labour force is often used, particularly in the summer. Due to the constantly changing site conditions, new fire and occupational safety risks are emerging on a daily basis.

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Typical causes of fires at construction sites include hot work in its various forms, spark-generating work such as welding, the use of a portable grinder, the use of open fire in, for example, roofing, temporary electrical and gas heaters, temporary electric installations and arson. These, together with a large amount of stored building materials and unfinished structures and fire compartmentation, create a dangerous combination. With respect to serious injuries, the most common cause is falling from a height.

How can construction site and project risks be managed and loss or damage prevented?

During the initial stages of the construction project, all parties to the project, including the representatives of the client, principal and subcontractors, supervisors, public authorities, insurance company and any other stakeholder groups should gather around the same table to draw up a risk survey. This should be carried out as a workshop during which the various risks are identified and evaluated. After this, the parties discuss and agree on loss prevention measures through which the targeted safety level will be achieved. In this way, the risks involved are identified more comprehensively, information can be shared and the parties commit to implementing the agreed measures. All in all, everybody will become aware of the joint safety rules.

The client (the party initiating the construction project) must take the initiative and ensure that a risk survey is carried out. If needed, sub-risk surveys are performed as the project and construction work advances, and on-site safety monitoring and surveillance is carried out. Construction and repair work must be planned and prepared with care while taking account of possible risks of damage. The client and the contractors must agree on safety-related procedures and responsibilities in such a manner that the division of responsibilities is clearly determined and that the parties attempt, first and foremost, to prevent and avoid loss or damage during construction work.

Loss prevention

Focus on site tidiness.
Most bodily injuries are caused by tripping and falling over objects. Worksite order and tidiness and waste and material management are the key to both occupational and fire safety. Special attention must be paid to fall prevention measures. A neat and tidy worksite is part of sensible risk management!

Working methods.
Safety matters must be taken into consideration when choosing working methods. Furthermore, safety measures can be efficiently targeted in connection with task planning.

Employee induction.
Worksite safety guidelines must be drawn up in writing and distributed to everyone participating in worksite induction. The main contractor must ensure that everyone working on the site has obtained

sufficient induction in worksite conditions. With respect to foreign workers, such induction must be provided in their native language(s), if required. In the summer, young workers' training periods involve particular risks.

Hot work.
All persons performing hot work must have a valid hot work card. Persons performing roofing work must have a valid hot work card for roofing work. Roofing work must be planned with care and hot work instructions must be observed. Guarding for hot work operations must be ensured at all times, including holidays and summer stoppages. In addition to first-aid extinguishing equipment complying with the hot work safety standard, it is worthwhile equipping a roofing worksite with a temporary, pressurised water line. Furthermore, hot work should be performed only in places specifically provided for this purpose.

Hot surfaces and fire load.
Attention should be paid to the safe use, correct placement and securing in place of various ignition sources, such as lights and heaters. In worksite conditions, the wind may blow protective covers over such equipment or blow down a piece of equipment, which often causes a fire. All possible measures should be taken to minimise the amount of combustible material (timber, combustible mould and insulating material) kept on the site. In particular, any contacts between ignition sources and fire load, including hot surfaces and construction materials, must be avoided.

Electrical appliances.
Electrical appliances should be attached to the walls of the building or facilities under repair or construction. The condition of electrical appliances should be regularly inspected to make sure that any couplings are tight and appropriate. Electric cables must be examined by hand to ensure that they do not overheat and to prevent possible short-circuits. Any electrical appliances that are inappropriate for worksite use must be immediately removed from the premises, and any dangerous electrical connections must be eliminated through efficient surveillance.

First-aid extinguishing equipment and safety signs.
First-aid extinguishing equipment must be provided and placed at regular intervals on the worksite, and its location must be clearly marked. Worksite safety signs must be clarified in the worksite safety guidelines, and the visibility of such signs must be ensured and monitored at all times.

Worksite guarding.
Worksite guarding primarily involves on-site fire security, but theft prevention also plays an important role. It is worthwhile to keep valuable tools in locked storage and protect them with a burglar alarm installation. Security or firewatch guards should be arranged for larger construction sites, either as a rotating or continuous watch, depending on the type of site and the risks involved.

Fire compartmentation.
Any openings and lead-throughs made during repair work must be sealed in a fireproof manner without delay, during the same workday. The sealing methods must be selected so that the lead-throughs can be sealed at an early stage, possibly enabling subsequent retrofitting, if needed. Alternatively, temporary installations can be protected with lead-through sealing bags. The sealing

practice and its general principles must be included in the terms and conditions of the contract programme.

Automatic fire alarm or fire extinguishing system.
If any equipment like this needs to be disconnected during repair work, fire guarding must be reinforced to enable immediate and effective primary extinguishing in the event of a fire.

Prevention of arson.
Outdoor areas must be kept in good order, and high grass and other vegetation cut, especially near buildings. Packaging materials should be removed on a daily basis and the safe location and emptying of waste containers ensured. Flammable substances, such as flammable liquids, must be kept in locked storage. Ladders, forklift trucks and other tools that could be used for breaking-in should be kept indoors in such a way that outsiders have no access to them.

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