

Fire in living quarters at a renovation work site

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Allianz Risk Consultants

Occupancy:

Major renovations on a Haussmann-era building in downtown Paris

Insurance Cover:

Construction
All Risks Policy

Damage:

Destruction of 14 bungalows (removal and replacement costs: 200,000 €)

Façade rework (20,000 €)
Delay in start up penalties (100,000 €)



Circumstances:

On July 25th, a fire broke out at the work site for renovations on a historic building (23,000 m²) located right in the center of Paris. This building was undergoing major renovations with restoration of its historic façades.

The fire broke out in the bungalows of the site's living quarters, installed the length of the façade, erected over the street, stacked 4 levels high and supported by metal trusses.

The alarm was sounded at around 7 p.m. by passers-by and employees still present at the work site. Despite quick intervention, it took the Paris fire department more than one hour to bring the fire under control.

Extent of the damage:

The fire started on the 4th floor of the living quarters, which holds the dressing rooms, bathrooms and dining areas for the workers from the various sub-contractor companies (+/- 120 people involved) and totally gutted it.

Direct Damage:

- The 14 bungalows on the top level were destroyed by the fire and will have to be replaced.

- The classified building façade, which was also under renovation, also sustained damage due to its proximity to the fire, even though the fire did not spread to this part. Damage there caused by smoke and heat radiation from the fire required scraping and cleaning more than 100 m² of façade and the replacement of a dozen doors and windows.

Following the fire, staffing at the work site had to be reduced, which greatly disrupted the schedule and caused a one-month postponement of all preliminary handover operations.

Indirect Damage:

- Penalties applied to the general contractor following claims brought by the owner and the managing contractor.

Cause of the loss:

Several hypotheses have been suggested:

- An electrical cause: this cannot be ruled out, although the fire started in the bathroom and dressing room area (few electric appliances).
- Vandalism: This is to be included since there seem to have been two separate points where fires started. Since there were no cases of bodily injury, the police investigations did not pursue this line.
- A careless smoker: This seems to be the most plausible hypothesis given the hour (soon after the workers left the work site) and the fact that smoking was allowed in the living quarters area.



What has worsened the loss:

- The presence of a highly-combustible polyurethane foam core layer in the sandwich panels on the sides of the bungalows that caused rapid horizontal spread of the fire on the 4th level, as well as the abundant heat and smoke emissions that damaged the building's façade and made it difficult for the firemen to intervene.
- The lack of smoke detection and alarm systems, thus causing delays in discovering and fighting the fire.
- The failure of site employees to intervene when the fire started prior to the arrival of the fire department.
- Occurrence of the fire when 70 % of work on site was already finished, at the stage of final installations (utilities and fixtures), involving substantial numbers of personnel:
 - the living quarters were at maximum capacity, meaning organization of the work was severely disrupted by the loss of 25 % of these rooms;
 - maximum amount of combustible matter related to occupancy of the premises at the time of the fire.

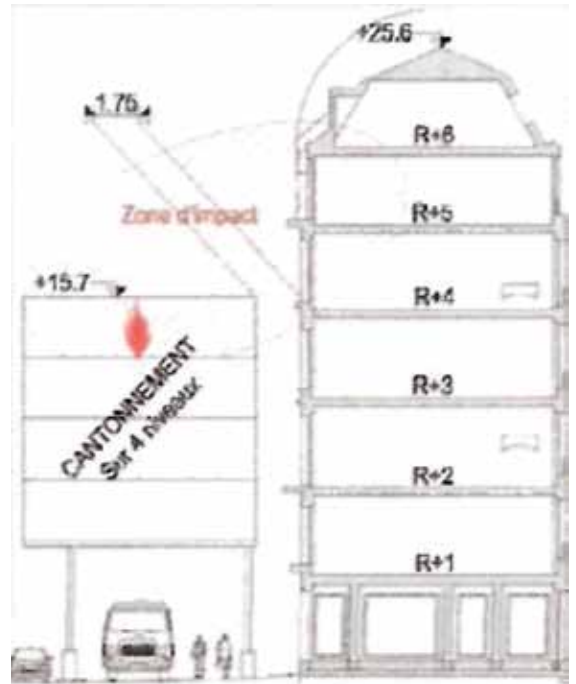
What has limited the loss:

- The fire did not spread vertically down to the lower levels of the living quarters:
 - in part because the fire started at the top level and not on the 1st level; otherwise, it is likely that all of the living quarters and a greater portion of the building would have been affected;
 - also because the flooring was made of relatively non-inflammable panels (25 mm, chipboard with cement).
- The fact that the fire started while some personnel were still present.
- Quick intervention by the fire department.
- Installation of the living quarters on the outside of the work site, at a distance of 1.75 m from the façade (normally less, in this type of configuration).
- The fire did not cause damage to the street or neighboring buildings, and no complaints were received from local residents despite the annoyance of the thick smoke.
- The general contractor received no delay-of-work claims from the sub-contractors.

Comments and learnings:

This incident is a good reminder that fire risk analysis in buildings must be done for each phase of the work and must not overlook temporary structures.

Monitoring must be stepped up toward the final stages of work when many more employees are present and there are more combustible materials and thus a greater fire hazard (in frequency and severity).



↑ 4-floor shelters area affected

In terms of physical aspects of prevention and safety, special attention should be given to:

- Keeping temporary structures such as living quarters, storage areas and waste collection zones away from the work site, or placing them in fire-cutoff compartments in relation to the work site,
- Not using bungalows with combustible thermal insulation,
- Setting up and maintaining in working order a secure back-up supply of electric power,
- Installing smoke detectors with alarm transmission in all areas of the living quarters and storage areas,
- Ensuring that living quarters and work site areas are equipped with a sufficient number of fire extinguishers (see French APSAD Regulation R4 or equivalent standard outside France).

In terms of human organization for safety, one should be sure to:

- Designate a fire warden to be in charge of fire safety and awareness training for all workers,
- Set up and train fire crews that involve all of the participating companies (with regular drills),
- Implement suitable measures for managing hotwork, limiting smoking in high-risk areas and handling flammable liquids,
- If possible, keep all electric equipment turned off when not in use,
- Institute inspection surveys to verify the application of safety procedures and deal with any non-compliances.