

Battermann + Tillery Group

Static risks from the perspective of a cargo and warehouse surveyor

- less obvious risks -



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“It is one of the lessons of life that a fire must be expected at any time. The fact that, in many buildings, there has been no fire for decades does not prove the absence of danger, rather the presence of luck – which must be expected to turn momentarily.”

Opinion of the Supreme Administrative Court Münster, docket no. 10A 363/86; 11 Dec 1987

(free translation)

Agenda

- Fire and smoke
- Roof drainage
- Collision protection
- Unfavourable positions of switches
- Burglary

Fire and smoke

Photo 1: Minor fire



Photo 2: Smoke in warehouse



- Smoke detector triggered
- No sprinklers triggered (yet)
- Fire department underway?
(Sprinkler or smoke detectors?)
- Cargo loss already assumed
- Building damaged already

Photo 1: Rosenbauer Group

Photo 2: Battermann & Tillery Group

Photo 1: Fire loads in a long row



Photo 2: Ignition sources next to avoidable fire loads



Photo 3: Ignition sources next to avoidable fire loads



- Development of heat and smoke low in the first ~10 minutes
- Development of a small fire often in minutes ~10 to ~15
- Fire brigade first response about ~15 minutes after fire alarm
- Exponential fire development between ~15 minutes (small fire) and ~30 minutes (major fire)
- Attention: The figures for the minutes are very imprecise estimates and depend to a large extent on the local conditions

Photo 1: Different fire loads (cardboard, hazardous goods) directly next to each other



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Photo 2: Wooden pallets under charging stations and empty pallets (avoidable)



Photo 3: Fire loads up to the roof (heat accumulation)



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- **Distance between ignition sources (heat / electric current) and fire loads (as far as avoidable)**
 - 1.00 m = acceptable, 2.00 m = better
 - Marked "keep-out" area
- **Separation of large fire loads into several areas (fire breaks)**
 - Delays spreading
 - Eases extinguishing work

Roof Drainage

Photo 1: Rainwater in a warehouse with paper reels



Photo 2: Already new horizontal pipe



Photo 3: 90° bend in the roof drains



- Downpipes made of PVC / plastic are often only plugged into each other
- Pipes designed for normal amounts rainwater, not for water standing in the pipe (weight)
 - May not be avoidable during heavy rain

Photo 1: Parts plugged into each other



Photo 2: Corrosion on a metal joint socket



Photo 3: Corrosion on a metal pipe



- Downpipes made of PVC / plastic are often only plugged into each other
- Pipes designed for normal amounts rainwater, not for water standing in the pipe (weight)
 - May not be avoidable during heavy rain
- Corrosion hardly detectable during visual inspection
 - If possible, no sensitive goods or high-value goods close to internal downpipes

Collision protection

Photo 1: No collision protection



Photo 2: Collision protection partly installed

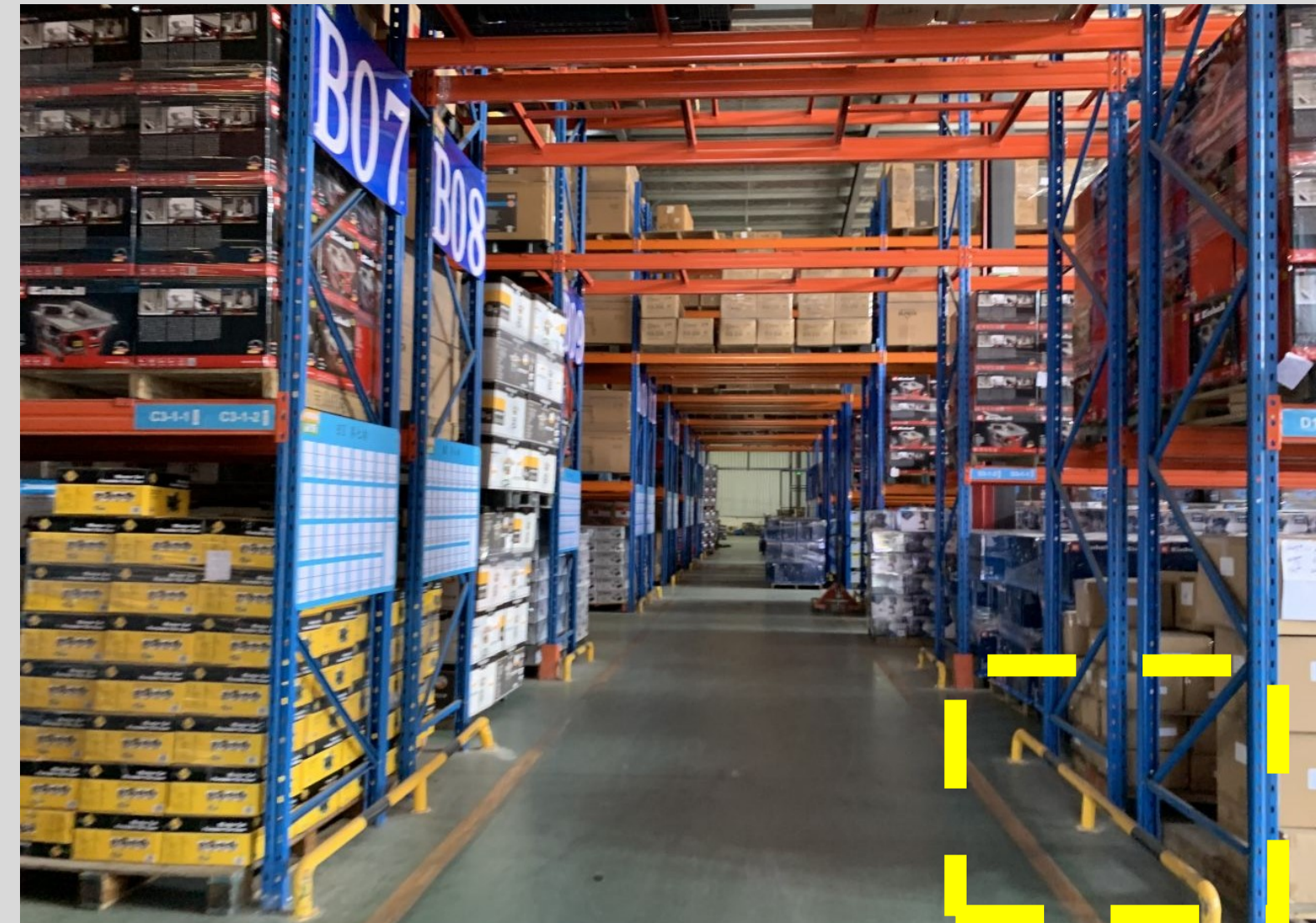


Photo 3: Every shelf support protected



- **Shelves are designed for static loads from above**
 - A certified shelf can still collapse
 - Some resistance to light impacts, collision protection increase this resistance
- **Required strength of collision protection depends on the weight and speed of the forklift trucks**
 - Wide aisles reduce the risk of contact, but at the same time increase the potential travelling speed

Unfavourable positions of switches

Photo 1: Entrance to the warehouse



Photo 2: Switch next to mandoor



Photo 3: Gas extinguishing system



- Normally, a bell is placed at about this position
- Labelling is German (only)



Photo: Battermann & Tillery Group

Burglary

Photo 1: Fence and outer wall opened



Photo 2: Closer view of outer wall



Photo 3: Inside view



- Burglary alarm system was in place - but only at the entrances and in the area of the loading gates
- Surveillance system was in place - but only at the entrances and in the area of the loading gates
- Security guard was on duty – but in an external office, approach to the warehouse 3 times per night or in case of alarm

Photo 1: Roof was cut open

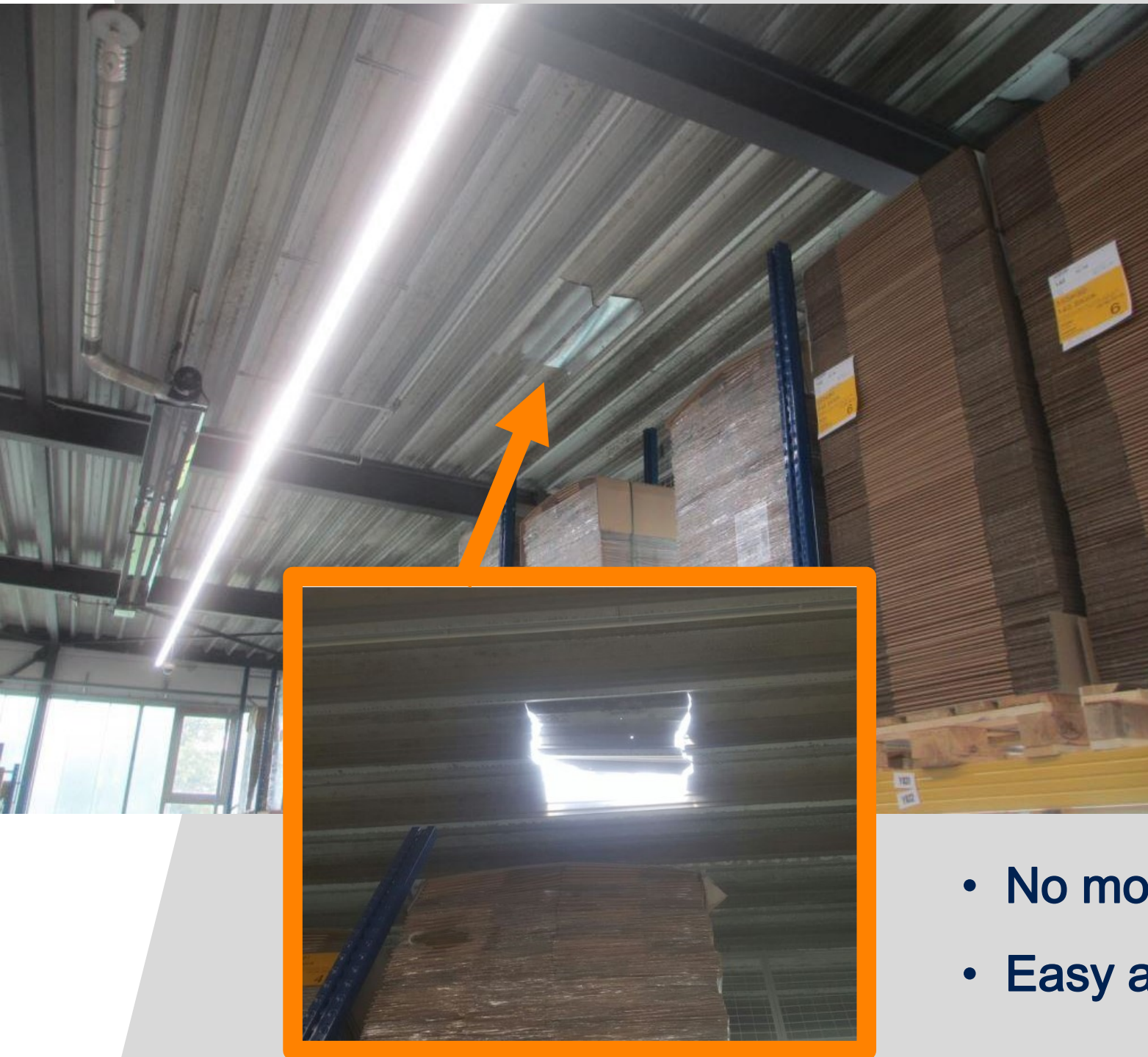


Photo 2: Ladder and Tools were left behind



Photo 3: Ongoing repair at the time of survey



- No motion detectors inside the warehouse
- Easy access to the outdoor area and the roof



Waste containers positioned adjacent to the storage building not only increase the risk of fire. They also make it easier for perpetrators to gain roof access (and just as important - getting the stolen goods off the roof undamaged)

Photo: Battermann & Tillery Group

Photo 1: Fire loads and charging stations



Photo 2: Horizontal PVC-downpipes



Photo 3: Switch positions



- Is the site subject to regular monitoring (internal or external)?
- Has anyone ever walked through the warehouse with their eyes open to potential risks?
- On paper, all these warehouses were well-equipped with state-of-the-art security and safety systems, etc.

Thank you very much!

