Property Loss Control Guidelines

Wienerberger AG

PREAMBLE

With respect to our international property damage and business interruption insurance program, WIENERBERGER AG is operating an active risk management programme for all plants, based on the compliance with the attached Property Loss Control Guidelines.

The Guidelines have been developed in close cooperation with the risk engineering departments of our insurance companies Wiener Städtische - VIG, HDI Versicherung and XL Insurance as well as with our insurance broker Aon.

The attached document (PLCG - Property Loss Control Guidelines) is intended as a support, respectively as a guideline for plant managers to significantly reduce the risk both for property damage and for business interruption losses.

The PLCGs do neither replace nor contain any local legal requirements but represent a Wienerberger internal minimum standard in respect of risk management.

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A Basic protection measures

1 Organisation

1.1. Fire protection responsible

For each location, an adequately educated internal or external fire protection responsible has to be appointed.
This person reports directly to the plant management and is responsible for the implementation, coordination, supervision and documentation of the basic protection measures according to this Section A.

1.2. Fire protection plan

Each location has to prepare a fire protection plan or have this document prepared by an external consultant and must keep this document up-to-date.

The fire protection plan includes the following information:

- Building layout (including access roads for the fire brigade)
- Structural separations (fire compartments)
- Location of the extinguishing equipment (fire extinguishers, wall hydrants)
- Fire water supply (hydrants, other water supplies)
- Special hazards (areas with explosion risks, flammable liquids and gases)
- Special fire loads (pallets, sawdust, polystyrene, packaging materials)
- Electrical rooms, main gas shut-off valves, main electrical power shut-off switches
- Facilities intended for the fire brigade

1.3. Fire safety regulation

Each location has to prepare a fire safety regulation or have this document prepared by an external consultant and must keep this document up-to-date.

The fire safety regulation regulates the behaviour and the alarm procedures in case of a fire.

1.4. Fire brigade training

Trainings with the local fire brigade have to be organised at least once every 5 years or whenever significant changes took place. Having these trainings will make sure that the fire brigade knows the site and its hazards whenever exceptional situations requiring their intervention occur.

1.5. Fire protection training

All employees are to be (internally) trained on fire protection. These trainings should be organised at least once every 3 years and basically should focus on the use of fire fighting equipment and as well as on a safe behaviour in case of a fire. They should be documented.

1.6. Smoking ban

Basically, a general smoking ban has to be implemented throughout the entire plant. Designated smoking areas can be created.

As a minimum, a strict smoking ban is required for the following areas:

- Sawdust processing and storage
- Expanded polystyrene processing and storage
- Coal processing and storage
- Storage of packaging materials
- Storage of flammable liquids and gases
- Area of packaging (film shrinking installation)
- Thermal oil installations
- Technical rooms as well as control rooms and motor control centres (MCC)
- Areas with risk of gas or dust explosion

For all the areas where smoking is allowed, self extinguishing ashtrays have to be used.

1.7. Hot Works

For any work that produces open flames, sparks or heat, a hot work permit as shown in the attachment to this guideline (Part C) has to be used.

According to the hot work permit, a constant surveillance of the affected area during and at least up to one hour after the end of the hot works has to be guaranteed.

If possible (e.g. for scheduled works), hot works should be planned in such a way, that they can be finished at least 4 hours before the affected area is abandoned by the employees.

Every employee conducting hot works has to be trained in the use of these operations and the necessary safety precautions.

1.8. General briefing of external companies

External companies have to be briefed regarding safety and fire prevention rules and regulations before they enter the facility. These briefings have to be documented.

1.9. Battery charging stations

In an area of at least 2,5 metres around battery chargers, no presence of combustible materials is allowed. These areas have to be marked on the floor.

2 Storage of combustible materials

2.1. Storage of idle wooden pallets

Idle wooden pallets have to be stored outside of the buildings, except for those quantities required for a smooth operation of one shift.
The distance between the storage of idle wooden pallets and the buildings should be at least 10 metres.

2.2. Storage of packaged finished goods

Finished goods with plastic film packaging as well as any other materials stored outside the buildings, should be situated at a distance of at least 10 metres away from the buildings. This distance may be reduced to a minimum of 3 metres if the building is made from non-combustible building materials and has no openings (windows, doors, gates etc.) on the side of the intended storage.

2.3. Storage of flammable and combustible liquids

Flammable or combustible liquids with a flashpoint below 100°C (212°F) must be kept in a separate fire area having a fire resistance of 90 minutes or similar according to legal obligations. These liquids should also be put on an earthed retention pit.

Flammable or combustible liquids needed for the production as well as aerosol cans (aerosols) are allowed inside the buildings. The quantities however should be limited to those required for the daily use and must be stored in dedicated flammable liquid safety cabinets.

The storage of flammable / combustible liquids in plastic containers generally should be avoided. If this is not possible, the storage has to be arranged as provided by the pertinent legal provisions (e.g. drainage, retention pits, and low-level ventilation). The storage has to be discussed with the insurer's risk engineer.

2.4. Storage of lubricants and oils

Operating resources such as oil, grease and other lubricants must be stored on retention pits in a separate fire compartment having a fire resistance of 30 minutes.

2.5. Storage of gas cylinders

Gas cylinders have to be stored outside the buildings. They have to be protected against solar radiation and must be chain-locked to prevent them toppling over.

3 Maintenance and inspection

3.1. Inspection concerning housekeeping

Quarterly inspections have to be made for the purpose of good housekeeping. The inspections should be documented (see part C).

3.2. Inspection of electrical installations

Electrical installations have to be inspected by an accredited independent company according to the national regulation. However, the interval of the inspections must not exceed 2 years.

Existing lightning protection installations have to be inspected within these regular inspections as well.

Any deficiencies must be corrected immediately.

Furthermore, dust accumulation in and on electrical equipment has to be avoided (see part C).

3.3. Thermographical inspections of electrical equipment

Electrical equipment such as switch and control cabinets, transformers and power distribution systems have to be thermographically inspected by an accredited independent company or similarly qualified personnel in a 2-year interval.

3.4. Inspection of mobile and private electrical devices

Mobile electrical devices have to be inspected every 2 years by an internal or external professional. The inspection has to include the electrical operating reliability as well as the appropriate location of these devices.

If private electrical devices are used by employees, also these devices have to be included in the regular electrical inspections.

An appropriate documentation is required. Approved equipment should be marked with an inspection sticker / label.

3.5. Inspection of the energy supply for oil-, gas- and coal-fired equipment

The operating reliability of the energy supply for oil-, gas- and coal-fired equipment has to be inspected once a year. An appropriate documentation is required. Any deficiencies have to be remedied without delay.

3.6. Inspection of local fire fighting equipment and extinguishing installations

Local fire fighting equipment and extinguishing installations have to be inspected and serviced every two years. A appropriate documentation is required. Any deficiencies have to be remedied without delay.

3.7. Safety controls of kilns and dryers

Safety controls of kilns and dryers should be organised as described in the relevant document (see Part C).

4 Preventive measures for shut-down plants

The following measures have to be taken in case of a business shut-down of a plant:

- Protection against arson, theft and vandalism
- Minimizing of ignition sources and fire load
- Assurance of the operability of fire protection equipment
- Safety precautions at buildings and technical installations
  - Disconnection of the electrical equipment from the power supply system, as far as not required for the conservation of the facilities
  - Switch off of the utilities (gas, compressed air ...)
  - Emergency planning for manual removal of snow
  - Frost safety of (fire) water supply
  - Maintenance and repair of the building's construction
- Other organisational measures
  - Weekly inspections at the premises and inside the buildings

More risk engineering guidelines and safety information are to be found in the document listed as appendix 6 (see part C).

B Technical protection measures

5 Fire protection measures

5.1. Fire fighting water supply

The water supply for fire fighting must be dimensioned in accordance with the pertinent legal provisions.

5.2. Fire fighting equipment

Fire fighting equipment (hand-held fire extinguishers, wall hydrants) has to be provided in accordance with national regulations at every site.
For areas with increased fire load (packaging materials, flammable liquids, pallets, film shrinking equipment etc.), the type and quantity has to be adapted.

The use of CO_2 extinguishers is recommended at electrical switchgear units and for electrical equipment.

5.3. Extinguisher for forklifts

Diesel and LPG forklifts generally have to be equipped with a fire extinguisher (minimum content of 6 kg dry powder equipment).

6 Equipment protection

6.1. Gas burners

Combustion systems (gas burners) and equipment have to be installed and inspected regularly as described in part C (internal memo Wienerberger gas burners).

6.2. Film shrinking

For manual film shrinking a permanent working area has to be established and this area is to be marked. The storage of combustible materials in an area of at least 5 metres around this zone is not allowed. To avoid the spreading of a fire into other production areas, the goods that were already packed have to be transferred outside the buildings immediately.

In all areas where film shrinking takes place, in particular in those areas where manual shrinking with an open flame is done, a fire extinguisher always has to be available. The equipment (tubes, fittings ...) must be controlled periodically, at least at each exchange of the gas bottle.

The valves of the gas bottles have to be closed after working hours.

6.3. Heat transfer oil system

For thermal oil and heat transfer oil systems, the following minimum requirements are necessary:

- The oil has to be checked annually including the measuring of the flash point and an analysis of oil to reveal cracking processes. If the minimum values are no longer met, the oil must be changed immediately.
- The storage of combustible materials near heat transfer oil pumps is not allowed. A minimum distance of 5 metres has to be kept free.
- The insulation of the pipes has to be interrupted at clutches, flanges or other fittings so that possible oil leakages can be detected rapidly and the spread of oil via the insulation material is avoided. A leakage supervision is recommended.
- Fire extinguishers with powder or foam have to be provided near the pump stations.
- It is recommended only to use heat transfer oil with a flash point higher than the operating temperature.

For newly constructed thermal oil systems, the risk engineering guideline as mentioned in part C, topic 5 must be considered.

6.4. Explosion safety - ATEX directives and explosion protection document

The name ATEX derives from the French abbreviation of “ATmosphère EXplosible” and deals with the ATEX directive of the European Union. The Directive currently includes two European Union directives in the field of explosion protection, namely the ATEX Manufacturers Directive 94/9/EC and the ATEX Users Directive 1999/92/EG.
According to EU Directive 94/9/EC and the corresponding national regulations every site has to be analysed in order to determine their potential risk of explosion (gas and dust explosions).

If these risks can occur, an explosion protection document has to be carried out in accordance with the ATEX Directive 137 (so called due to the relevant Article 137 of the EC Treaty, unofficially referred to as 'ATEX 137' which is identically with ATEX Users Directive 1999/92/EG) or, alternatively, in accordance to the NFPA guidelines (National Fire Protection Association).
Mitigation measures resulting from this analysis have to be implemented immediately.

Further information and the state of national implementation of ATEX can be obtained by using the following links:

Text of EU Product Directive 94/9/EC:
http://ec.europa.eu/enterprise/sectors/mechanical/documents/legislation/atex/

Text of EU Operation Directive 1999/92/EG:
http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=de&numdoc=31999L0092&model=guichett

State of the national implementation of EU Directive 94/9/EC:
http://ec.europa.eu/enterprise/sectors/mechanical/documents/legislation/atex/transposition/index_en.htm

National Fire Protection Association:
http://www.nfpa.org/

7 Structural protection

7.1. Construction of buildings

In order to guarantee an adequate constructional fire safety in existing buildings, attention should be given for:

- cable penetrations that are to be sealed with non-combustible materials. For the sealing of cable penetrations in fire walls, materials having the same fire resistance rating as the walls must be used;
- openings for ducts that are to be sealed with non-combustible materials. For the sealing of openings for ductwork in fire walls, materials having the same fire resistance rating as the walls must be used.

7.2. Alterations and additions

The insurer's risk engineers have to be included in the plans for alterations and additions to ensure proper selection of non-combustible construction materials and an optimal level of fire prevention and protection.

In particular, combustible insulation materials (e.g. polyurethane or polystyrene) should not be used.

7.3. Natural hazards – Snow

According to the Euro Code EN 1991-1-3 and the corresponding national standards, all structures have to be checked for their compliance with current national design guidelines. Alternatively their static resistance considering snow load has to be verified.
In particular, the differences in height of the buildings, which enable snow drift and snow deposition, have to be respected.

If necessary, mitigation measures have to be implemented. These can comprise the reinforcement of the construction as well as organisational measures like an emergency plan for the manual clearing of roof surfaces from snow depositions.

In any case, these measures have to be conducted by qualified and authorised personnel only, with consideration of the universally valid and in particular required safety measures.

7.4. Natural hazards – Storm

Buildings and objects at locations like hilltops, slopes and open areas are exposed to extraordinary forces due to storm as well as buildings which are aligned lateral to the prevailing wind orientation or to aisles.
In particular, structural components mounted to the roof or to the cladding are endangered to damages (e.g. dust exhaust pipes and filter) as well as light weight structures.
Due to the specific location of single objects within the formation or several buildings, these objects can be either protected by other objects (lee) or can be exposed to additional impacts due to air jets and resulting vorticities (suction).

Preventive measures (monitoring respectively maintenance) to reduce vulnerability due to storm (VdS 2389) should be conducted regularly, but after a storm event anyway:

- Regular maintenance of the fixing elements and control to aging and corrosion damage and immediate repair
- Damaged, broken parts, bladders or tears in the roof or facade
- Missing or damaged roof tiles or slates
- Faulty roof overhang
- Missing or damaged roof edge-mount
- Uneven gravel on flat roofs
- Cracks or spalling of chimney heads-covers and bezels
- Damaged lightning protection system
- Torn, bent or blocked gutters and downpipes
- Anchoring of domes
- Condition of the trees and the outdoor storage and the removal of the buildings and facilities

C Appendix

1 Hot work permit

C-1_Hotwork-permit

2 Safety inspections of furnace and dryer facilities

C-2_Safety controls of kilns and dryers

3 Internal memo WB "Gas Burners"

C-3_Internal memo WB - Gasburners

4 Checklist housekeeping

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5 Thermal oil installations

C-5_Heat-Transfer-Oil-System

6 Business shut down

C-6_BusinessShutDown