

Risk Engineering Report



Prepared for:

Stichting BVE Zuid-Limburg

Site Name: Valkenburgerweg 148

Date of Survey: June 8, 2023

Report Date: June 21, 2023

Survey Type: Property All Risk - Initial

TIV (EUR): 83,240,000

Site Address: Valkenburgerweg 148, HEERLEN, 6419 AW, Netherlands

Latitude: 50.879690

Longitude: 5.957530

RFS ID: RFS-154265

SIC Code: 8211-02-Elementary and Secondary Schools, Private

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- Email: globalproperty.impairment@aig.com or reach out to your dedicated account risk engineer

Purpose of Visit

This facility was visited to undertake a risk assessment of the fire and associated perils for insurance purposes. The purpose of the assessment was to assist in the identification and mitigation of hazards and exposures that could lead to the loss or damage to assets or business interruption.

Site Overview

VISTA college is a regional training center for intermediate vocational education in the South Limburg region. The site described in this report at the Valkenburgerweg 148 Heerlen is one of the largest locations. A wide range of practical and theoretical training is provided at this location. The highest risk are studies being the hospitality courses with cooking, baking and roasting. About 300 people work here (teaching and non-teaching) and about 2,500 students at this location. The occupancy rate is 57% on average. The building is open on weekdays from 7:00 to about 17:30. about 4 days the complex is open until about 22:00 for hospitality study (restaurant).

This building complex consists of a basic reinforced concrete layer (floors, walls, columns and roof), this basic layer is partially built underground (due to the sloping terrain). The above-ground walls are of prefabricated reinforced fiber concrete, containing polystyrene insulation. The reinforced concrete roof of this building has extruded polystyrene with part gravel, part earth with planting, and part paving. On the south side, an additional reinforced concrete building layer was constructed for the purpose of a two-split level (4 parking levels), underground parking garage. About six higher-rise buildings have been constructed on this basic building layer, each structure has first two building layers of reinforced concrete (floors, roofs, columns), where the exterior facades are constructed with walls of precast concrete, with flammable insulation (polyurethane cq polystyrene) against them, and the exterior is provided with profiled steel cladding. On the concrete roof is polystyrene insulation with plastic roofing and ballast gravel. Next on each superstructure is a technical room, built with a steel support structure, with the roof and facades having steel profiled cladding and insulated with rock wool. ISO classification of the steel building sections with non-combustible insulation ISO 3/B (= approx. 2,000 m²) The parking and ground level has a ISO 6/AA construction (= approx. 14,772 m²). The rest of the building would have had a basic ISO 6/A classification. However, due to the combustible (thermoplastic) insulation with air cavity in the facades of the six superstructures in particular (also present on the roof), the classification has been adjusted - with the AIG classification system for plastic in constructions - downward from to ISO1/D. Between the unsprinklered underground parking garage with storage space for (moped) bikes and the sprinklered building section is a 60-minute fire-resistant separation. There are also lightweight fire-resistant separations between the base building level and the six higher-rise buildings and the theater building. Likewise, the vertical escape routes in these six higher-rising buildings are fire-resistant separated.

The plot is west of Heerlen, external exposures are; East: an university of applied sciences at 29 meter. South, across the public road a comprehensive school and an Open University at > 50 meter. And West, a house at 27 meter.

The parking has a automatic fire detection system covering all layers, CO₂, gas detection and smoke extraction system. The rest of the building benefits from a sprinkler system, with a electric driven sprinkler pump connected to a double public water supply. The fire alarm is transferred to the regional alarm center that alarms the fire brigade located at a driving distance of 2 kilometer.

The organizational measures, procedures and so on are up to standard but improvement to a good/ excellent level is possible.

Risk improvements discussed and noted are:

- Extend sprinkler protection to the parking;
- Clean ducts of the kitchen
- Implement hot work permit
- Housekeeping, remove combustible materials from two technical rooms
- Separate Areas- Provide a smoke barrier
- Submit plan (when applicable).

Site Loss History

No large losses reported during site visit.

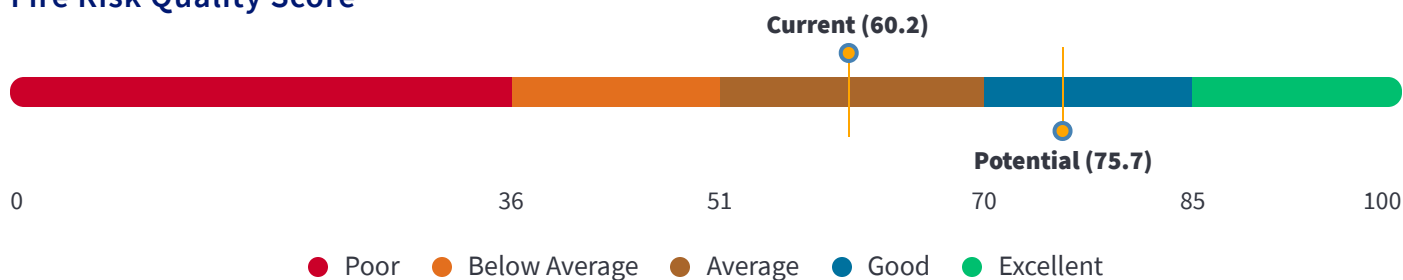
New Projects, Significant Changes and Observations

No plans for this site of VISTA College. It is important to involve your insurer in new projects, such as refitting, refurbishment, extension work, new builds or relocating to a new site. Failure to do so could result in using non-approved construction materials (even though they meet local Building Codes and Fire Regulations) or inadequately protected facilities which could lead to expensive retrospective additions or rework. The Loss Prevention Engineering team at AIG can assist you with this by providing you with engineering support both before and during your project. Please contact us before you commence your project to ensure that we can arrange a consultation with one of our engineers.

Risk Summary

Open RI by Classification	7	Open RI by Age	7	Open RI by Type	7
Critical	0	New	7	Management Programs	4
Important	7	Outstanding	0	Physical Protection	3
Advisory	0	Completed RI	0		

Fire Risk Quality Score



Ratings

	Current rating	Potential rating
Hazards	Slight	Slight
Water Supply	Good	Good
Protection	Nearly Adequate	Good
Management Programs	Adequate	Good
Supervision	Good	Good
Exposures	Slight	Slight

Risk Improvements

Risk Improvements - Open

Number	Name	Classification	LE Before (EUR)	LE After (EUR)
23-06-01	Sprinklers- Extend sprinklers into the parking	Important	14,941,460	1,000,000
23-06-02	Clean ducts	Important	--	--
23-06-03	Hot Work Program- Develop	Important	--	--
23-06-04	Housekeeping- Remove combustibles from technical rooms	Important	--	--
23-06-05	Separate Areas- Provide a smoke barrier	Important	--	--
23-06-06	Plan Review- Submit plans	Important	--	--
23-06-07	Provide information	Important	--	--

Note: Risk Improvements associated with management programs will not have an associated Loss Estimate before or after implementation

Open Risk Improvements : Important

Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-01 Physical Protection	Sprinklers- Extend sprinklers into the parking	14,941,460	1,000,000

Summary

Extend the existing sprinkler system to protect the parking garage Extend the system in accordance with NFPA 13.

Details

The parking garage is lacking sprinkler protection. Extending the existing sprinkler system will increase the likelihood that the sprinkler system will control a fire starts in the area.

Client Exit Conference Comments

Contacts reaction this is not feasible.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-02 Physical Protection	Clean ducts		

Summary

Thoroughly clean all exhaust ducts from the kitchen to the roof.

Details

Grease residue can accumulate in kitchen exhaust ducts, among other things. In the event of a kitchen fire, rapid escalation is possible. Periodic thorough cleaning limits the fire load in an exhaust duct and prevents it from contributing to fire propagation.

Client Exit Conference Comments

insured is not 100% sure if this is already being done in addition to periodic cleaning of the grates. This is being looked into. If it is not already done it will become part of the annual major maintenance.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
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Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-03 Management Programs	Hot Work Program- Develop		

Summary

Develop and implement a hot work program based on the AIG cutting and welding permit system to monitor hot work operations. The program should including logging and tracking of hot work and pre and post work approvals. The program should also require a check after hot work has been completed.

Details

Improper cutting and welding is a leading cause of fire. Loss history shows that some hot work fires can start some distance away from where the work is taking place, sometimes well after the work has been completed. A hot work permit system ensures that proper precautions are in place prior, during and after this work is completed. All hot work operations taking place outside designated workshop areas should be performed under this program, including work by contractors.

Client Exit Conference Comments

Will be implemented

Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-04 Management Programs	Housekeeping- Remove combustibles from technical rooms		

Summary

Remove the combustible materials from the two technical rooms on ground floor as discussed during the site visit.

Details

A fire involving the combustible materials may contribute to the smoke contamination of the equipment within the room. Short-term storage also poses a risk because in the event of a fire, goods can provide rapid escalation. It is better to use other spaces, such as an office, classroom or realize an area in the complex that can be used for temporary storage of goods. Keep in mind that there are limitation is storage configuration because of the sprinkler system.

Client Exit Conference Comments

Action will be taken.

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Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-05 Physical Protection	Separate Areas- Provide a smoke barrier		

Summary

Seal all cable, pipe and conduit penetrations with non combustible materials like for example mineral wool.

Details

Despite the use of a sprinkler system to increase the size of fire compartments (in other words, dropping fire-resistant partitions) in accordance with the Dutch building code, there is no legal obligation to finish penetrations. However, completely sealing penetrations has a positive effect. The smoke barrier is needed to limit smoke spread between the areas. This would help reduce damage to property and the fire's impact on business operations. Also for the penetrations present in the roof. On the concrete roof, EPS is used as insulation material. In a fire, some of the material liquefies. By sealing openings, it can be prevented that a second (or more) fire source(s) in the complex is created by the dripping of liquid or burning EPS. This increases the likelihood of effective fire department deployment in the event of a roof fire.

Client Exit Conference Comments

Will investigated the possibilities.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-06 Management Programs	Plan Review- Submit plans		

Summary

Submit plans for future projects for AIG review and acceptance.

Details

AIG will review plans to ensure they are acceptable for AIG insurance purposes and will provide recommendations as needed. Having AIG involved earlier on and throughout the project will help ensure that the appropriate loss prevention features are provided and prevent project delays. Please contact your Account Engineer prior to or during the design phase of the project.

Client Exit Conference Comments

If there will be plans in the future VISTA will submit them to AIG/ Aon.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
23-06-07 Management Programs	Provide information		

Summary

The following information was requested during the site visit and noted in an e-mail on June 12th 2023:

- Inspection report (notified body) of the sprinkler system
- Maintenance report of the automatic fire detection system.
- Specification of insulation material present between the concrete inner wall and the steel outer wall. (Current data in report is from insurance report out of 2018)

Occupancy & Process Overview

VISTA college is a regional training center for intermediate vocational education in the South Limburg and Venlo region of the Dutch province of Limburg. VISTA was formed on August 19, 2019 from a merger between ROC Leeuwenborgh and Arcus College

This is one of the largest locations. A wide range of practical and theoretical training is provided at this location such as nursing, hospitality, ICT, security, financial and retail studies. The highest risk are studies being the hospitality courses with cooking, baking and roasting. Students from the Security and Surveillance program also help provide security for this building. This location houses the central server, which also serves the other regional branches, among others. About 300 people work here (teaching and non-teaching) and about 2,500 students at this location. The occupancy rate is 57% on average

The building is open on weekdays from 7:00 to about 17:30. The restaurant is 4 days a week open until 22:00 for the hospitality studies. On Saturdays it is only open for an open day, Sundays it is closed. Under and beside a part of the building is a four-level parking garage (about 25% building surface) for passenger cars (employees) with separate bicycle and scooter parking.

Occupancy Details

Building	SIC Code	Description	Operating Days/yr	Operating Hrs/Day	Other Tenants
Valkenburgerweg 148	821102	Elementary and Secondary Schools, Private	260	12	No

Images



Building



Patio

Hazards

Hazard Category	Type	Current Rating	Potential Rating	RI's
Heating, Ventilation, Air Cond & Refrigeration	Common	No Deficiencies	No Deficiencies	0
Electrical	Common	No Deficiencies	No Deficiencies	0
Storage	Common	Slight	No Deficiencies	0
Flammable Liquids - Storage, Transfer, Use	Common	No Deficiencies	No Deficiencies	0
Flammable Gases - Storage, Transfer, Use	Process	Slight	Slight	1
Car Parking	Storage	Moderate	No Deficiencies	0

Non-Process HVAC Equipment

Natural gas-fired equipment is installed for heating the building and producing hot water. This heating system is installed as a redundant system for the public heat supply (called "Mine Water Project"), which, through heat exchangers and heat pump, uses hot water from the submerged corridors and shafts of the (former) coal mine in this area. The gas-fired heating system can provide additional heat if this public hot water network fails to provide heat to this building complex or provides insufficient heat. Two cooling compressors in place with R134A cooling agent. HVAC systems in all buildings at roof level.

Water detection present in all technical areas.

Only on the roof top of building A 16 solar heat water panels are in place. There are no plans for installing PV systems.

Images



HVAC



HVAC



Gas fired boilers



Heat pumps, connected by heatexchanger to 'Mine water system'



Cooling compressors



Solar heat panels

Electrical

Electricity is supplied from the power grid via an underground connection to two indoor HV transformer placed in a fireproof room on ground level (expedition). These rooms has not been visited, the transformers are of an unknown type and owned by the power grid operator, whom inspects and maintains this transformer according to national guidelines. Fixed (including 16 solar water heaters on roof of building A) and equipment is owned by Vista. There is a internal policy document defining responsibilities and inspection. The various electrical utilities are inspected in accordance with the Scope 8 and 9.

In the parking at the lowest level 6 charging positions are realized, during the site visit only two functional. There are no plans to activated all 6 positions as current the power supply is not sufficient. During the site visit it was discussed to move to charging positions to a location near the exit. And check if the power supply to chargers is cut of in case of a fire alarm.

There is no emergency power generator, although there is an emergency power supply (UPS) for safely shutting down the servers in the event of a power failure.

Images



High tension room



charging position

Incidental Flammable / Combustible Liquids & Gases

Limited quantities in a fire rated cabinet with fume extraction in the expedition.

Parking

In a two story ground level/ basement (split level) approximately 25% of the building area is a parking garage for staff, with adjacent bicycle and scooter storage for students (separated with a 60-minute fire-resistant wall). The parking garage has a capacity of about 200 passenger cars. The garage is equipped with automatic fire detection based on thermal detection. Also CO and LPG detection at multiple locations in the parking. In the basement there is a smoke extraction system that - with aeration from the basement entrance and from an additional aeration shaft for the lower parking level - provides this garage with cross ventilation, in case of alarm by this (fire) detection, the ventilation is increased in order to thus remove as much smoke and heat as possible. The exhaust to the outside air of this forced smoke/heat ventilation goes to the roof of the most southeastern (taller) building, entirely through a "dedicated" fireproof shaft through this building. The parking garage is not equipped with sprinkler protection; a recommendation to install it has been made.

Images



Parking

Practical studies

Almost all cooking, baking and frying equipment is concentrated in one building section, this equipment is partly gas-fired and partly electrically heated. All this equipment is in use (by students) only when a professional supervisor (teacher) is present, the frying equipment in these educational kitchens is in limited use. Also, in the general restaurant on the ground floor level, there are some cooking and frying equipment. There are no special extinguishing devices installed in the metal exhaust hoods above the cooking and deep-frying installations, particularly through the use of the metal lids of the deep-frying installations, extinguishing can be organized. The fire blankets present in the various kitchens are suitable for extinguishing fires in deep-frying facilities. The metal filters in the extractor hoods are cleaned regularly (mostly weekly and sometimes monthly if contamination remains limited), the interior of these extractor hoods and the associated extraction ducts are not cleaned (risk improvement noted). Emergency stops are provided in several locations to shut off the gas and electric supply. During the visit, it was recommended that new kitchens be immediately equipped with a kitchen fire suppression system when they are replaced. For imaging this information can be found on the Internet. But we as AIG are also happy to provide the desired information.

Risk Improvements

Name	LE Before (EUR)	LE After (EUR)
Clean ducts 23-06-02	0	0

Images



Kitchen



Kitchen

Construction

Category	Current Rating	Potential Rating	RI's
Construction	ISO 1 / Class D – Frame	ISO 1 / Class D – Frame	1

Building	Year Built	# Stories	Height (m.)	Total Area (sq. m.)
Valkenburgerweg 148	2014	8	12	32,272

Area (1,000 sq. m.)

Building	ISO1/D	ISO2/C	ISO3/C	ISO3/B	ISO4/C	ISO4/B	ISO5/A	ISO6/AA
Valkenburgerweg 148	(35.63%)	--	--	2.0 (6.20%)	--	--	--	18.8 (58.17%)
Total	11.5 (35.63%)	0.0 (0.00%)	0.0 (0.00%)	2.0 (6.20%)	0.0 (0.00%)	0.0 (0.00%)	0.0 (0.00%)	18.8 (58.17%)

Definitions: ISO1=wood frame walls roof, ISO2=masonry walls wood roof, ISO3=light non-combustible walls roof, ISO3 (CMD)=ISO3 with combustible metal deck, ISO4=non-combustible metal deck and masonry walls, ISO4 (CMD)=ISO4 with combustible metal deck, ISO5=modified fire resistive walls roof, ISO6=fire resistive walls roof.

Comments

This building complex consists of a basic reinforced concrete layer (floors, walls, columns and roof), this basic layer is partially built underground (due to the sloping terrain). The underground walls of this basic building layer are insulated on the outside with polystyrene insulation boards. The above-ground walls are of prefabricated reinforced fiber concrete, containing polystyrene insulation. The reinforced concrete roof of this building has extruded polystyrene with part gravel, part earth with planting, and part paving. On the south side (under and beside about 25% of the building area), an additional reinforced concrete building layer was constructed for the purpose of a two-split level (split level - 4 parking levels), underground parking garage (about 8,000 m² in total). About six higher-rise buildings (A to F (A is at the public road, rest of letters clockwise) have been constructed on this basic building layer, each structure has first two building layers of reinforced concrete (floors, roofs, columns), where the exterior facades are constructed with walls of precast concrete, with flammable insulation (polyurethane cq polystyrene) against them, and the exterior is provided with profiled steel cladding. On the concrete roof is polystyrene insulation with plastic roofing and ballast gravel. Next on each superstructure is a technical room, built with a steel support structure, with the roof and facades having steel profiled cladding and insulated with rock wool. The facades of each technical room are clad on the outside with steel profiled sheeting, these roofs are fitted with bituminous roofing. Approximately in the middle of the base building layer an opening is left, approximately in the middle of which is a theater building with a steel support structure, where roof and facades are clad with steel profiled sheeting and insulated with rock wool. The facades are clad on the outside with

steel profiled cladding and have facade planting with a plant watering system. In case of (imminent) frost, the watering system of the outer facades is switched off and automatically emptied, the indoor watering system remains operational.

ISO classification of the steel building sections with non-combustible insulation ISO 3/B (= approx. 2,000 m²) The parking and ground level has a ISO 6/AA construction (= approx. 14,772 m²). The rest of the building would have had a basic ISO 6/A classification. However, due to the combustible (thermoplastic) insulation with air cavity in the facades of the six superstructures in particular (also present on the roof), the classification has been adjusted - with the AIG classification system for plastic in constructions - downward from to ISO1/D.

Fire-resistant separations:

Between the unsprinklered underground parking garage with storage space for (moped) bikes and the sprinklered building section is a 60-minute fire-resistant separation. There are also lightweight fire-resistant separations between the base building level and the six higher-rise buildings and the theater building. Likewise, the vertical escape routes in these six higher-rising buildings are fire-resistant separated. Not all partitions in wall and roof (although not required in most cases) were fully enclosed. In the roof exposed EPS insulation was visible, but also opening between rooms allowing smoke to spread, for this a risk improvement was discussed and noted.

Notes:

- Total building m² based upon <https://bagviewer.kadaster.nl/> data. According this site the total surface is 32,272 m².
- The description of construction and insulation materials comes from a report by Insurers (2018). During the visit, it could not be indicated with 100% certainty whether and what type of insulation material was used. During the walk around, it was found that EPS was applied to the concrete roof. For the rest the insulation noted is out of 2018 report.
- Figures underneath are not in scale.

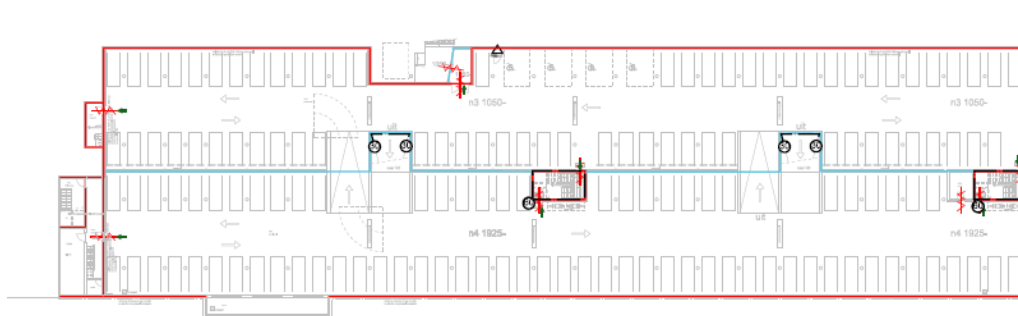


Fig: parking N-3/N-4

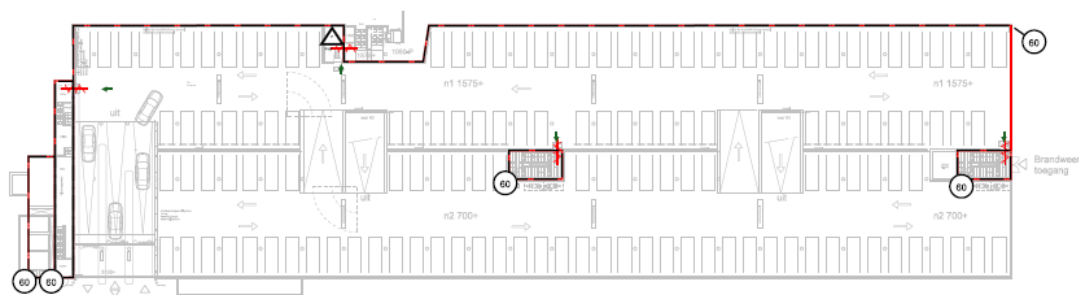


Fig: parking N-1/N-2

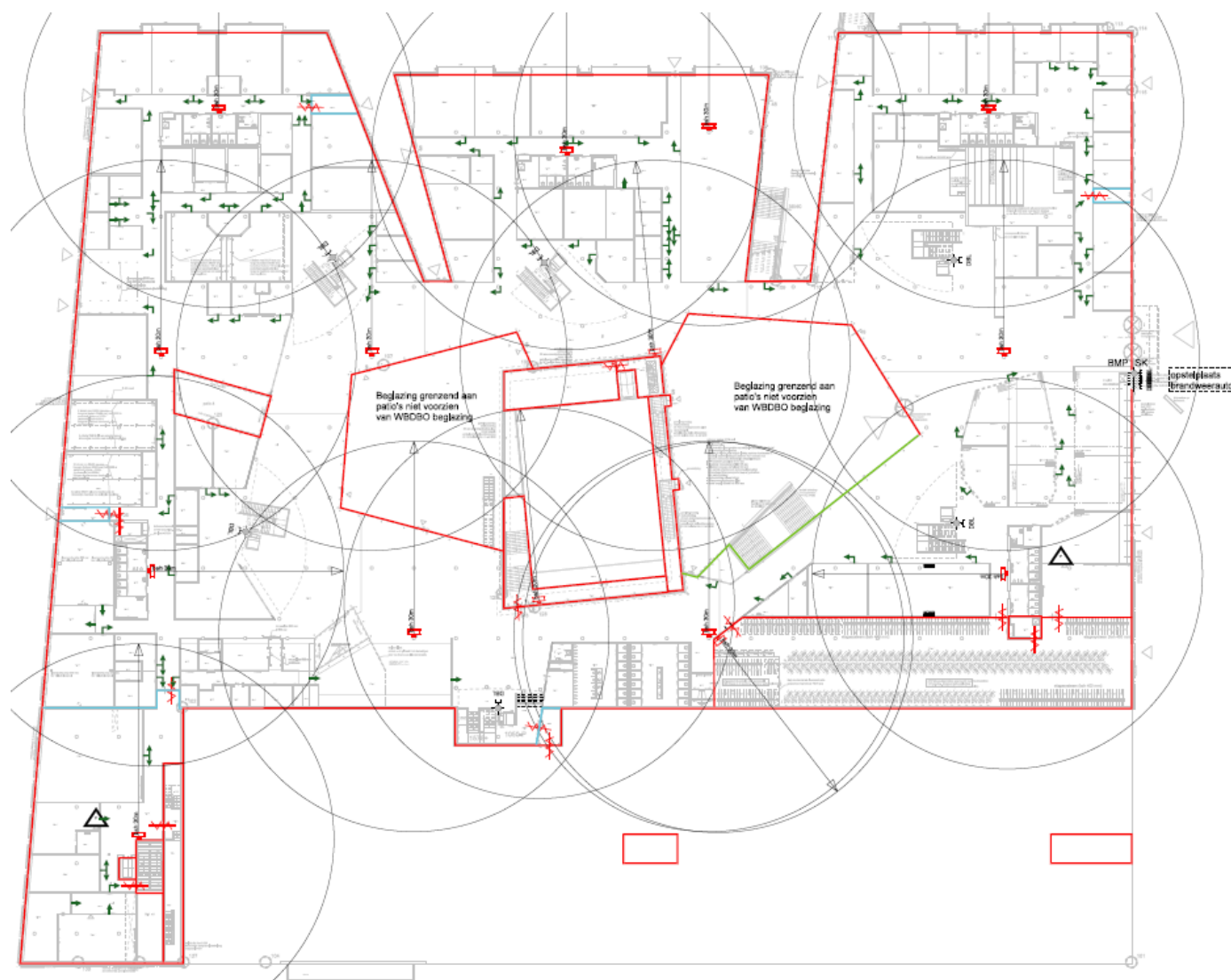


Fig: ground level

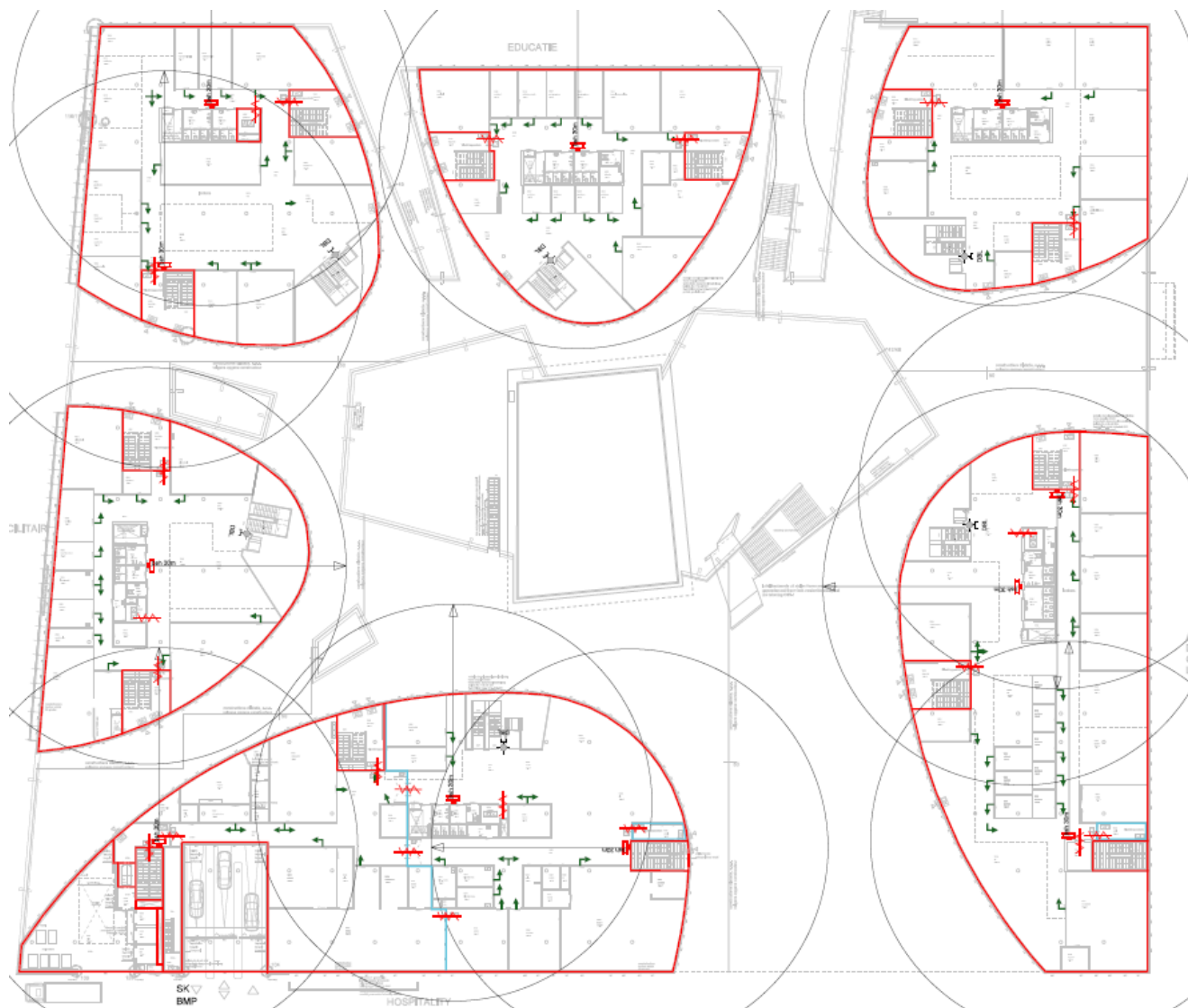


Fig: First floor

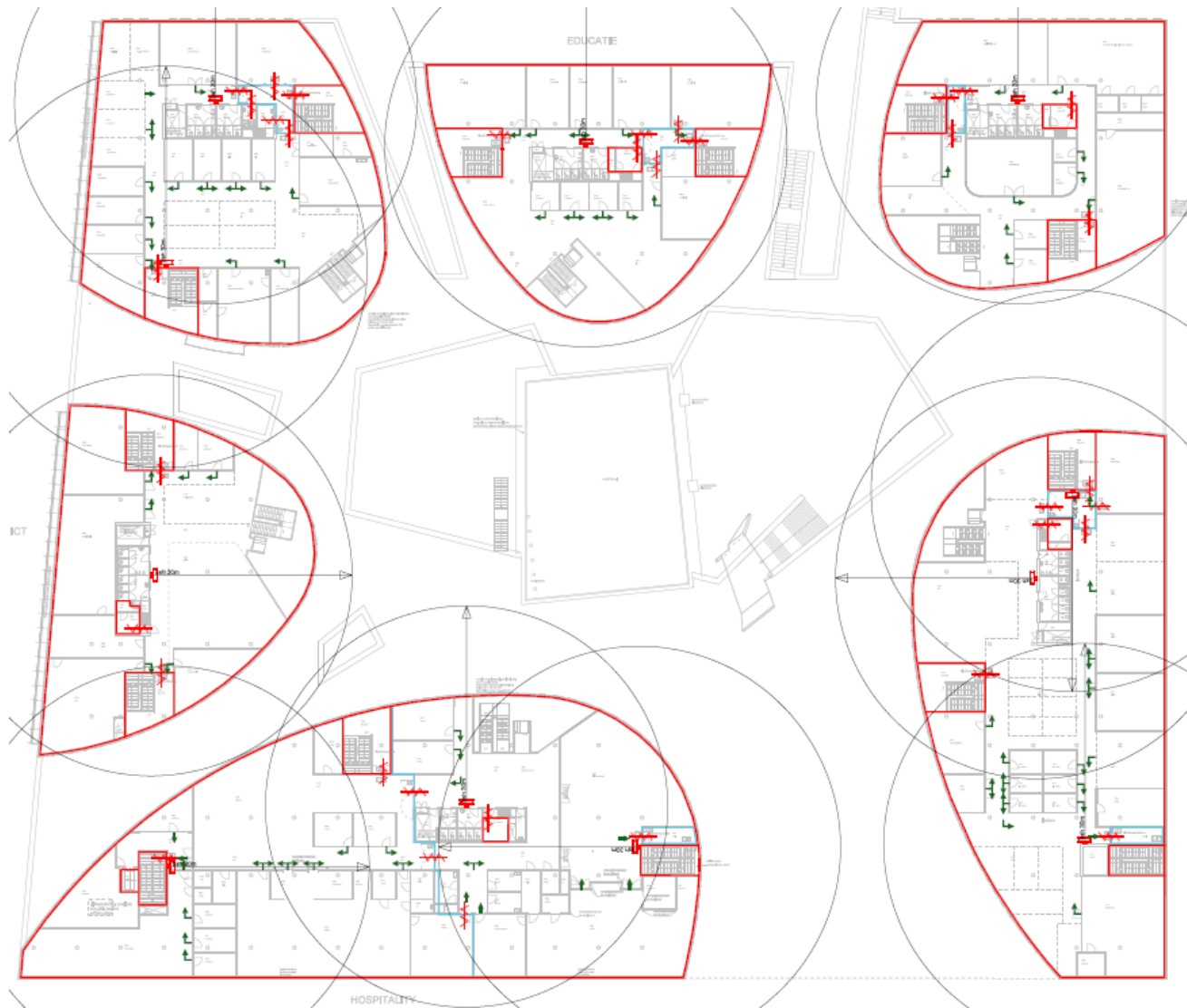


Fig: Second floor

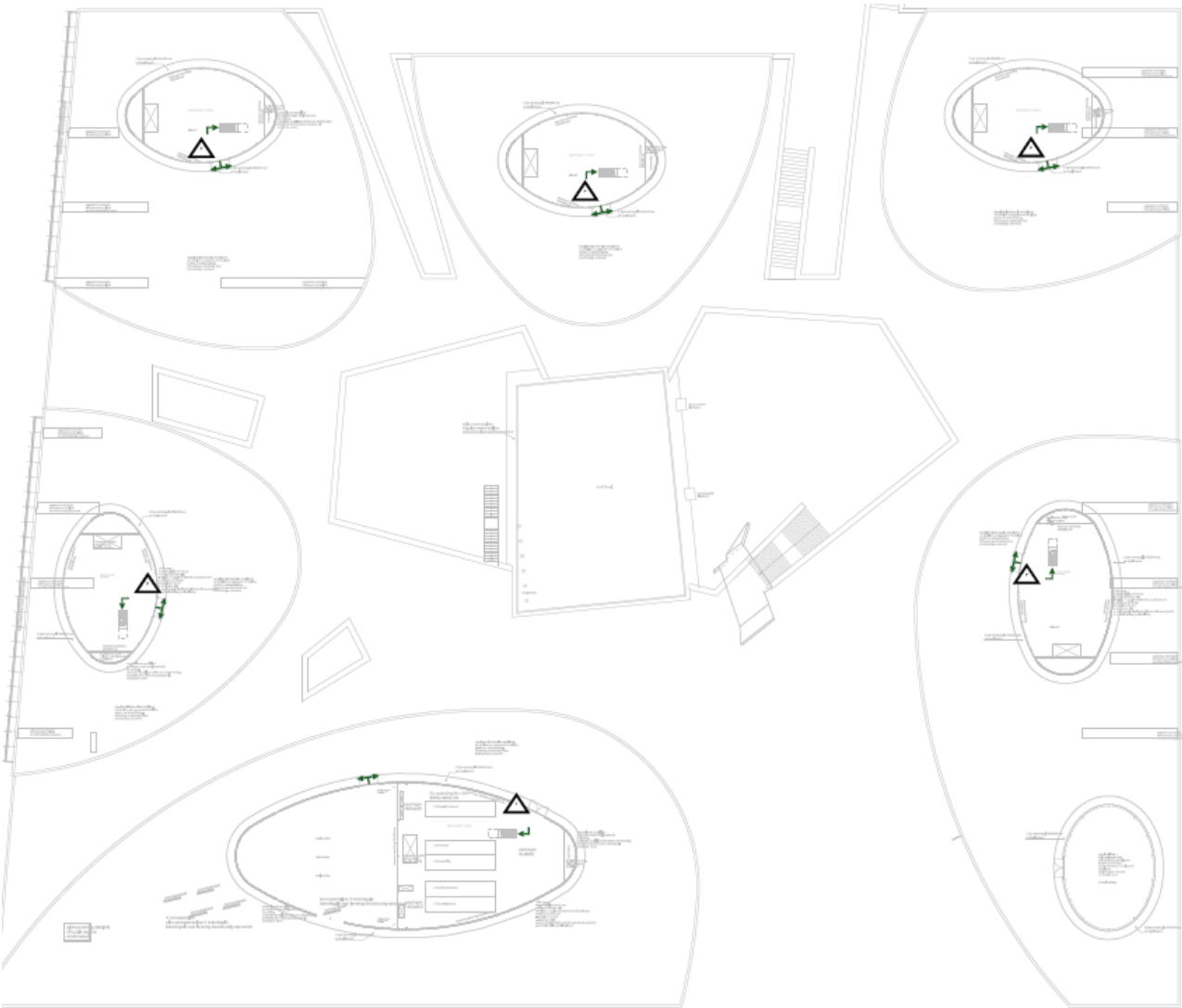


Fig: Third floor

Risk Improvements

Name	LE Before (EUR)	LE After (EUR)
Separate Areas- Provide a smoke barrier 23-06-05	0	0

Water Supply & Fire Pumps

Water Supplies

Category	Current Rating	Potential Rating	RI's
Water Supply	Good	Good	0

Name	Type	Pump Associated	Adequacy
FD-Hydrants	Gridded Municipal	None	Adequate
Name	Type	Pump Associated	Adequacy
Sprinklersystem	Gridded Municipal	Single Electric Pump with Generator or Diesel	Adequate

Comments

Hydrants in the public road. The sprinkler supply consist of an electric driven pump connected to the public water supply.

Fire Pumps

Name		Suction source		Driver		Shaft		Start Method	
Sprinkler pump		Gridded Municipal		Electrical Motor		End Suction		Auto	
Driver approval	Approval listing	Controller approval	Pressure Churn (bar)	Pressure Rated (bar)	Flow Rated (Lpm)	Flow Max (Lpm)	Pressure @ max flow (bar)	Rated speed (rpm)	Pressure tank
OTHER	OTHER	OTHER	10.70	4.00	1,916.00			2,960.00	No

Comments

The sprinkler pump has a dual public water connection from both the municipality of Heerlen and the municipality of Voerendaal. Data is based upon site visit and old information out insurance report 2018. New information, like inspection report sprinkler system is requested.

Protection

Category	Current Rating	Potential Rating	RI's
Sprinklers	Nearly Adequate	Excellent	1
Fire Extinguishing Equipment	Good	Good	0
Public Fire Department	Good	Good	0

Sprinklers

Building	AS (%)	ASA (%)	ASN (%)	Fire Detection (%)
Valkenburgerweg 148	75.00	75.00	25.00	100.00
Total	75.00	75.00	25.00	100.00

Definitions: AS (%) =sprinklers provided, ASA (%) =adequate sprinklers provided, ASN (%) =sprinklers improvements needed, Detection=Smoke or other Fire Detection excluding sprinkler waterflow

Area protected	System	Existing Design	Required Design	Adjusted BOR (bar)	Existing Flow (Lpm)	Hose (Lpm)	Adequacy
Entire building (except parking)	Wet	5 dm ³ /min/m ² @ 216 m ²	4 dm ³ /min/m ² @ 140 m ²				Adequate

Definitions: Adequate = 100% of required sprinkler design hose. Nearly Adequate = 90% of required sprinkler design and no hose. Inadequate = less than 90% of required sprinkler design and no hose. Duration requirements must be met or rating is inadequate. For ESFR nearly adequate is defined as full sprinkler design with NO HOSE.

Comments

VISTA Collega partly benefits of sprinkler protection. Based upon the site visit only the parking is not sprinkler protected. The sprinkler system is designed and maintained according the NEN-EN12845+1073 and TB80. The protection of the building (excl. parking) is adequate, the parking is not sprinkler protected and therefore inadequate, risk improvement discussed and noted. The sprinkler water supply is a electric drive pump with a double connection to the public water supply.

The sprinkler system is maintained and checked by a specialized contractor. They also conduct test bi-weekly. The following test, inspection, and maintenance protocol is in place:

- Weekly pump churn tests for 30 minutes.
- Monthly tests of alarms and valves.
- Quarterly tests of flow switches.
- Annual flow test to check performance fire pump.

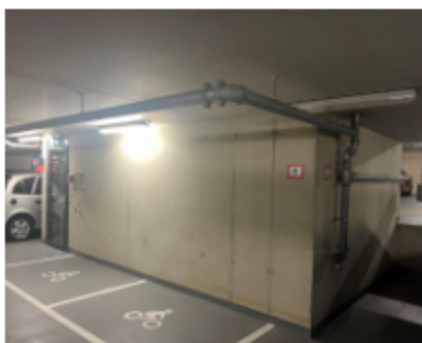
Alarms are transmitted to the regional fire department.

Note: The overall sprinkler protection rates NEARLY ADEQUATE according to AIG based on the LEs of the sprinkler protection deficiencies. Additional information requested, like the inspection report of the notified body.

Risk Improvements

Name	LE Before (EUR)	LE After (EUR)
Sprinklers- Extend sprinklers into the parking 23-06-01	14,941,460	1,000,000

Images



Fire department connection



Sprinkler pump



Drink water connections



Alarmvalve bypass

Fire Extinguishing Equipment

Water Supply & Inspection Frequency

FEA/Hose Reel Details

- Equipment is properly maintained

- Meets NFPA requirements
- Inspections are properly documented with records maintained and readily available
- Plant personnel properly trained

Recommendations

None

Comments

In the parking garage there are no fire hose reels or portable extinguishers within reach, there are a small number of large powder extinguishers (mobile P50) placed in a locked cabinet, these are unlocked by a fire alarm (thermal or manual). This system is to prevent unauthorized activation of the extinguishers (or theft of small portable extinguishers),

Public Fire Department

Fire Department Type

- Full Time

Fire Department Features

- Fully trained and funded (adequate for the risk if special hazards exist)
- Fully equipped with required modern pumping appliances, ladders, aerial equipment, BA equipment
- Equipment regularly tested and maintained
- Full time emergency communications center to dispatch FD
- Closest FD participates w/ other local full-time FD's w/in a "mutual aide" concept
- Response time is less than 20 minutes

Fire Department Distances (kilometers)

Station #1

2.20

Comments

Fire department Heerlen is located in the city center of Heerlen.

Supervision

Category	Current Rating	Potential Rating	RI's
Automatic Fire Detection	Excellent	Excellent	0
Security	Good	Good	0

Automatic Fire Detection

Signaling Systems Central Station/ARC	Recognized Yes	Monitored Line Yes	Fire Protection Alarm - Water flow - Smoke Detection - Pull Boxes - Pump Trouble
Valve Locked No	Fire Detection Coverage (Including Sprinklers) 100%	Smoke Detection Monitored Yes	Other Alarms No

Maintenance, Testing and Inspection per NFPA 25

Satisfactory

Comments

The complex is equipped with a fire detection system, which includes thermal detection (fully monitored) in the (non-sprinkler protected) parking garage, supplemented by CO and LPG detection. In the event of an alarm in the parking garage, ventilation is increased in order to rapidly remove smoke and heat from the parking garage. Furthermore, automatic fire detection is installed in various technical areas of the complex and in the bicycle shed on the first floor. Manual fire detectors are installed throughout the building.

Security

Security & Watch Service (24/7) Other	Round Frequency Other	Security Rounds Recorded	Coverage 100%
Security Alarms - CCTV - Door Contacts - Internal Movement Detection	Intrusion Alarm Monitoring Recognized central station	Site Fencing and Barriers None	Burglar and Theft Exposure Yes

Risk Engineering Report

Stichting BVE Zuid-Limburg



Vandalism / Malicious

Mischief Exposure

Yes

Sabotage and Terrorism

Exposure

No

Comments

The building is equipped with an intrusion alarm system - based on internal movement detectors and magnetic contacts. Intrusion alarm is forwarded to a 24/7 manned private alarm center. Outside opening hours, a private security company provides alarm follow-up. During the day, surveillance in and around the buildings is provided by the own security organization, working from an internal central station with support from students from the surveillance and security training course held here. There is also a CCTV system in and around the buildings, the images are displayed in the internal central security post and the images are stored for some time.

Management Programs

Category	Current Rating	Potential Rating	RI's
Emergency Organization & Planning	Good	Good	0
Self-Inspection Program	Good	Good	0
Fire System Impairment Procedures	Good	Good	0
Contractor Management	Good	Excellent	0
Hot Work Permit	Nearly Adequate	Good	1
Smoking	Excellent	Excellent	0
Housekeeping	Nearly Adequate	Good	1
Planned Preventative Maintenance	Good	Good	0
Management Interest	Adequate	Good	2
Site Level Business Continuity Planning	Adequate	Adequate	0

Management Programs

Emergency Organization & Planning

Written Emergency Action Plan

Commensurate with exposure, but not as precise or focused on life safety

Drills/practices conducted

periodically

Yes

Fully Updated

Yes

Self-Inspection Program

Self-Inspection Program

- Yes

Documentation

- Formal, documented checklist

Frequencies

- Minimum weekly or commensurate with the occupancy

Root cause & training

- Program includes items such as inspector training, root cause analysis, management of change, auditing, etc.

Risk Improvements

- None

Fire System Impairment Procedures

Written and documented procedure

- Yes

Communication

- Communicated to relevant personnel with mgmt. responsibilities assigned and ensures restoration of protection as soon as practical.

Impairment logging

- Paper logging system is utilized and fully up to date

Conforms to AIGs guidelines

- Yes

Risk Improvements

- None

Contractor Management

Contractor Training Program

- Yes

Management Program Features

- Covers ALL aspects of plant safety & operations
- Required for all contractors and sub-contractors
- Strongly supported by management with zero tolerance for misconduct
- Contractors follow all plant policies including but not limited to hot work, impairment, housekeeping, and smoking

Records

- Maintained electronically

Risk Improvements

- None

Comments

Vista has a few long-term maintenance contracts. Parties must sign in upon arrival and sign out upon departure. There are monthly and annual meetings with the maintenance parties. See Hot work this has also an effect on Contractor Management.

Hot Work Permit

Hot Work Program in Place

Communication

Logging

Is there Hot Work Occurring

Risk Engineering Report

Stichting BVE Zuid-Limburg



- Yes – Does not conform to AIG
- Communicated to personnel with mgmt. responsibilities assigned
- No logging and no tags maintained
- No Hot Work Occurring

Comments

Procedures are partly in place, a permit system is not implemented. AIG hot work (Dutch) permit provided after site visit and must be implemented.

Risk Improvements

Name	Classification
Hot Work Program- Develop 23-06-03	Important

Smoking

Policy	Appropriate Receptacles	Inspections	Material Disposal
• No smoking allowed within the perimeter of the site	• N/A	• Weekly	• N/A

Risk Improvements

- None

Housekeeping

Quality	Inspections	Risk Improvements
• Less than commensurate	• Regular inspections w/ management support; well-documented	• Important

Comments

The overall housekeeping is at a high standard. Several technical rooms and other spaces were clean of storage. Only on ground level two technical rooms were also used for storage of a wide variety of materials like carpets (temporary to be placed coming period) and welding equipment. Technical rooms must be kept free of storage at all times.

Risk Improvements

Name	Classification
Housekeeping- Remove combustibles from technical rooms 23-06-04	Important

Planned Preventative Maintenance

PM Program in place

- Yes – includes all equipment including work performed by outside contractors

PM System

- Documented, non-computerized

Overdue Assignments

- Yes, but none past 60 days

PM of Critical

Components/Equipment

- Conforms to manufacturer's minimum requirements

Risk Improvements

- None

Management Interest

Management Interest

- Supportive
- Involved in Communications
- Respond Positively to Comments/Recommendations

Field Safety and Risk Management

- Important

Risk Improvements

Name	Classification
Plan Review- Submit plans 23-06-06	Important
Provide information 23-06-07	Important

Site Level Business Continuity Planning

Business Continuity Plan (BCP)

- No BCP or DCP in place

Comments

Not insured therefore not applicable and rated adequate. In case BI will be insured this needs to be checked.

Exposures

Category	Current Rating	Potential Rating	RI's
Exposure	Slight	Slight	0

Internal Exposure

None

External Exposure

The plot is west of Heerlen, external exposures are:

- North: trees and agricultural land.
- East: an university of applied sciences at 29 meter.
- South: the public road with across a comprehensive school and an Open University at > 50 meter.
- West: a house at 27 meter.



Fig: site with exposures

Yard Storage

No yard storage. Parking of scooters at east facade and short term parking of cars on the south side (8 meter distance).

Water Intrusion Exposure

No

Aircraft Exposure

No

Structural Collapse Exposure

No

BI Exposures

General BI

Not insured

NATCAT Exposure Summary

	Flood	Wind	Earthquake	Hail	Collapse	Other
Zone/Exposure	No Flood Exposure	34 m/s	MR Zone 2:MMVII	MRe Zone 4	No	No

Flood

Site Property Flood Zone

No Flood Exposure

Building	Flood Zone	Flood Source	FFE (m)	100 Yr Flood Elv. (m)	500 Yr Flood Elv. (m)
Valkenburgerweg 148	No Flood Exposure	River	--	--	--

Comments

No flood exposure according LIWO map (source: <https://basisinformatie-overstromingen.nl>).

Wind

Wind Speed (m/s)

34

Redundant Power/Utilities

Client has no power nor utility redundancy

Building	Distance to Coast
Valkenburgerweg 148	10 and greater miles

Earthquake

EQ Zone

MR Zone 2:MMVII

Peak Ground Acceleration (%g)

26.00

EQ Emergency Response Plan

Client has no BCP in place

Redundant Power/Utilities

Seismic Bracing of Equipment

Asset Strengthening

Risk Engineering Report

Stichting BVE Zuid-Limburg



Client has no power nor utility
redundancy

No seismic bracing or restraint is
provided

Client has documented asset
strengthening - building 6 - 17 years
of age

Seismic Gas Shutoff Valves (SGSV)

No SGSV's provided for flammable
gas and liquid equipment

Fire Loss Estimates

All loss estimates developed as a result of our property surveys are for the sole use of AIG underwriters. Engineering loss estimates are based on the professional judgement of our engineer / consultants. There is detailed guidance and methodologies that are reference and used in the calculate of our Loss Estimates. Using our Loss Estimates without an understanding of the underlying guidance and methodologies is not recommended. AIG assumes no responsibility for use or reliance upon the loss estimates presented below.

	PD (M EUR)	PD%	BI (M EUR)	BI%	IBI (M EUR)	TOTAL (M EUR)
MAS	83.24	100.0		0.0		83.24
MFL	45.91	55.2		0.0		45.91
NLE	14.94	18.0		0.0		14.94

Reported Values

Property Damage

Building (EUR)	Contents (EUR)	M&E (EUR)	Stock/Inventory (EUR)	Other PD (EUR)
67,310,000	15,930,000	0	0	0

Business Interruption

Indemnity Period	BI/Gross Revenues (EUR)	Rental Income (EUR)	Payroll (EUR)
12 Months	0	0	0

Totals	EUR
Total Property Damage Value	83,240,000
Total BI Value	0
Total Insured Value	83,240,000

Maximum Foreseeable Loss (MFL)

Total LE (EUR): 45,905,400

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Valkenburgerweg 148	6,347,400 (54.00%)	0 (60.00%)	9,558,000 (60.00%)	0 (60.00%)	0 (60.00%)	45,905,400 (55.15%)
Total	36,347,400 (54.00%)	-- (--%)	9,558,000 (60.00%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **45,905,400 (55.15%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total (EUR)
Valkenburgerweg 148	-- (100.00%)	-- (--%)	-- (--%)	21	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

Total TE Loss Estimate (EUR): -- (0.00%)

Loss Estimate Comments

MFL-PD:

Under MFL conditions, the fire area can be restricted by clear space separations or a heavy, MFL quality fire wall. No such fire walls are available. However under MFL conditions recovery potential is anticipated according to table 8 of the AIG MFL loss expectancy guideline. Considering it is a HG 3 occupancy:

- ISO6: 25% building and 35% content
- ISO3B: 60% building and content.
- ISO1D: 100% building and content.

The total loss expectancy will be:

Building: $25\% \text{ of } 18,772 \text{ m}^2 + 60\% \text{ of } 2,000 \text{ m}^2 + 100\% \text{ of } 11,500 = 4,693 \text{ m}^2 + 1,200 \text{ m}^2 + 11,500 \text{ m}^2 = 17,393 \text{ m}^2$ out of $32,272 \text{ m}^2 = 54\%$.

Content: $35\% \text{ of } 18,772 + 60\% \text{ of } 1,200 \text{ m}^2 + 100\% \text{ of } 11,500 = 6,570 \text{ m}^2 + 1,200 \text{ m}^2 + 11,500 \text{ m}^2 = 19,270 \text{ m}^2$ out of $32,272 \text{ m}^2 = 60\%$

MFL-BI:

BI is not insured. Reconstruction would take up to 21 months.

Maximum Amount Subject (MAS)

Total LE (EUR): 83,240,000

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Valkenburgerweg 148	67,310,000 (100.00%)	0 (100.00%)	15,930,000 (100.00%)	0 (100.00%)	0 (100.00%)	83,240,000 (100.00%)
Total	67,310,000 (100.00%)	-- (--%)	15,930,000 (100.00%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **83,240,000 (100.00%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total (EUR)
Valkenburgerweg 148	-- (100.00%)	-- (--%)	-- (--%)	30	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

Total TE Loss Estimate (EUR): **-- (0.00%)**

Loss Estimate Comments

MAS-PD:

The MAS is defined as the area of the largest insured value (PD and BI) that is subject to a single fire or explosion. The MAS can only be limited by sufficient clear space separation. No such space separation is available. Therefore the MAS PD is 100%.

MAS-BI:

Currently no BI is insured. Reconstruction according to AIG guideline under MAS conditions will take up to 30 months

Normal Loss Expectancy (NLE)

Total LE (EUR): 14,941,460

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Valkenburgerweg 148	8,346,440 (12.40%)	0 (41.40%)	6,595,020 (41.40%)	0 (41.40%)	0 (41.40%)	14,941,460 (17.95%)
Total	8,346,440 (12.40%)	-- (--%)	6,595,020 (41.40%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **14,941,460 (17.95%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total (EUR)
Valkenburgerweg 148	-- (15.00%)	-- (--%)	-- (--%)	12	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

Total TE Loss Estimate (EUR): **-- (0.00%)**

Loss Estimate Comments

NLE-PD:

Under NLE conditions, we consider all fire protection systems to be in service and the fire department to take a conservative approach, but to try to limit loss to their capabilities.

Per 2023 AIG developed and guideline for parking garage. The garage is not sprinklered and therefore considered to be the highest risk. The rest of the building is sprinkler protected. The sprinkler protection for these area is rated adequate.

The scenario is based upon the following:

- garage is an ISO6 construction.
- fire brigade (professional).

- sufficient water available and dry pipes connection in parking available
- no drainage system or water systems at parking spaces.
- full coverage of automatic fire detection.
- Smoke exhaust system in place.

Due to the above noted it's assumed according AIG guideline parking garage that a fire can be controlled by the fire department. In NLE scenario the existing protection functions are assumed to be adequate and operational. The scenario is a fire starts in a fully occupied car park area in the basement. By the lack of sprinkler protection in this part of the building the fire will not be controlled and can spread out rapidly. The fire will be detected by the AFD system and alarms the PFD. Similar fires have been showing that the HVAC process is insufficient for these type of fires and are only for safe evacuation. Based upon AIG guideline the Manual Control Fire Area will be 376 m² multiplied with factors like levels, drainage, standpipes and so on, resulting in a multiplier > 300%, thus the NLE boundary will be almost similar to the MFL in practice so a total loss of the entire parking (8,000 m²) with damage of the construction above is expected:

Building:

Primary building = 8,000 m² x 35% (according the guidelines by ISO 6 for parking) for building = 2,800 m².

Secondary building (smoke) is expected for the rest of the building = 24,272 m² x 5% estimate = 1,214 m².

Content:

Primary damage = 8,000 m² x 45% (according the guidelines by ISO 6) for building = 3,600 m².

Secondary damage (smoke) is expected for the rest of content in the building = 24,272 m² x 50% estimate = 12,136 m².

Total building: 2,800 m² + 1,214 m² = 4,014 out of 32,272 m² = 12,4%

Total content: = 1,214 m² + 6,068 m² = 13,350 m² out of 32,272 m² = 41,4%.

NLE-BI:

not insured. Reconstruction under NLE conditions will take up to 12 months.

Images and Site Sketches



Parking



Hallway



Roof



Kitchen



Building facade



Building facade

Risk Improvement Classification

Critical

Critical recommendations represent conditions or work practices that create an imminent or severe loss-producing situation. This means that there must be a readily available ignition source or the potential for a severe loss event.

Important

Important recommendations represent conditions or work practices that could result in a loss-producing situation, but for which immediate action is not necessary. These are recommendations to correct uncontrolled exposures or to achieve and maintain a reasonable level of property protection. These recommendations require commitment on the part of the insured to change or modify conditions or work practices in order to reduce the potential for serious loss, resulting from either frequency or severity events.

Advisory

Advisory recommendations represent conditions or work practices that do not directly pose a risk for severe loss or injury, but could contribute to a loss situation. These are recommendations that are considered best practices to enhance the level of property protection. Compliance with these recommendations improves the risk and reduces the likelihood of a loss occurring from the recognized hazard or situation.

Risk Improvement Types

Physical Protection:

A Physical Protection Risk Improvement is associated with provision of physical plant and equipment; typically there could be a capital expenditure associated with these improvements.

Management Programs

A Management Programs Risk Improvement typically relates to procedures and management programs and will not normally involve, or will have limited, capital expenditure.

NATCAT:

NATCAT Risk Improvement is either a physical improvement or the addition/enhancement of management procedures to reduce the risk associated with natural catastrophe events.

B&M Management Programs

A B&M Management Programs Risk Improvement relates to procedures and management programs, such as inspection, testing and maintenance, which will not normally involve, or have limited capital expenditure. Such a risk improvement is directed at reducing the probability of the identified risk exposure.

Loss Estimate Definitions

Maximum Amount Subject (MAS)

The **Maximum Amount Subject (MAS)** is defined as the area of the largest insured value (PD and BI) that is subject to a single fire or explosion. The amount Subject area will only be limited by clear space separation that is sufficient to restrict the spread of fire, as defined in the Space Separation Table which is found in the AIG Commercial Property Field Engineering Manual, MFL section. MAS considers complete failure of all active protection including automatic sprinkler systems, all water supplies, automatic extinguishing systems, alarm supervision, public and private water supplies, no firefighting effort and offers no credit for MFL or fire walls, fire proofing or other passive barriers. In circumstances where the location consists of only one building, the Amount Subject will normally be equal to the full TSI for that building. Calculate of MAS will include PD, BI, BI interdependencies, contingent BI and any other time element values such as Extra Expense, Extended Period of indemnity, Rents, etc.

Maximum Foreseeable Loss (MFL)

MFL is defined as the largest amount of loss that can be anticipated (including PD, BI, BI interdependencies, contingent BI and any other time element values such as extra expense, extended period of indemnity, rents, etc. due to a fire and/or explosion event with all fire protection systems and equipment out of service and with no fire-fighting effort, either public or private. The loss would be that which occurs if the fire were allowed to “burn freely” until it burns itself out. The MFL area is the maximum plant area that could be affected by a single fire or explosion, occurring in the more vulnerable area of the facility (i.e. that with the largest total PD and BI potential). The only acceptable ways to reduce the MFL estimate are:

- Adequate clear space separation between buildings
- Lack of continuity of combustibles
- Effective horizontal cut-offs with MFL walls
- Effective vertical cut-offs
- Expectable salvage values
- Reliable make-up capacity

Airports, High Rise Buildings, Hospitals and Universities are treated as unique and may have a MFL calculation that differs from the above providing certain favorable factors exist.

Normal Loss Estimate (NLE)

The Normal Loss Estimate (NLE) is defined as the largest loss anticipated for a location under existing conditions. The NLE for a protected (sprinklered) facility assumes that the existing automatic and manual protection functions as designed and for intended and in its existing condition, whether it is adequate for the occupancy or not. This can include both public and private protection, including fixed automatic protection (such as sprinkler systems with reliable water supplies), other fixed automatic protection (such as special extinguishing systems or fire alarms with off-site signaling), and proximity of the public fire department and availability of public and private water supplies for firefighting purposes. In addition, construction characteristics are considered that include firewalls, draft curtains, roof

parapets, fire doors, etc., as these factors relate to the hazard and combustibility of the occupancy. Fire department response is anticipated.

Factors that could influence the NLE include:

- Construction classification and characteristics including fire walls, fire doors, etc.
- Occupancy and contents susceptibility to damage (smoke or water damage)
- Continuity of combustibles and combustible loading (light, moderate, heavy)
- Sprinkler protection/water supply adequacy
- Special hazard conditions, protection and controls
- Public Fire Department
- Fire alarms and Central Station monitoring

Deficiencies, minor in nature that are not expected to contribute significantly to a loss but do represent or could contribute to unsafe conditions or unsafe acts. These are recommendations that are considered best practices to enhance the level of property protection. Although compliance with these recommendations improves the risk and reduces the likelihood of a loss occurring from the recognized hazard or situation, they are considered desirable and not mandatory in nature.