

Risk Engineering Report



Prepared for:

STICHTING FONTYS

Site Name: Random 1Eindhoven

Date of Survey: July 3, 2024

Report Date: July 17, 2024

Survey Type: Property All Risk - Initial

TIV (EUR): 151,389,000

Site Address: De Random 1, EINDHOVEN, 5612 AP, Netherlands

RFS ID: RFS-198495

SIC Code: 8221-02-Colleges and Universities, NEC, Private

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- 1-877-705-7287 (US & Canada) or 1-817-490-3255 (Global)
- 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.

The site visit was the first conducted by AIG. During the visit, the Rondon building at the University Eindhoven campus to have a general impression of the organization, building, processes and so on.

Site Overview

Fontys Hogescholen has sites in 12 cities with the most in the Southern part of the Netherlands. Fontys has a total some 43.000 students and 5.000 employees. The general opening time is Monday till Friday between 7:30 am till 22:00 pm. Throughout the building are classrooms, practical training rooms, labs, offices (for students and staff employees) and a restaurant/ cafe. The Fontys' Technology programs (Applied Science, Engineering & Automotive and Business Management, Education & Technology) are given at this site since 2019.

The building is on the Technical University Eindhoven Campus site at Rondon 1. The building was realized for the former owner TNO in 2000, sold in 2016, after thorough internal renovations, the complex is fully occupied by Fontys since 2019. The building has a north and south connected by the middle section. Only the north part has a basement, both the north and south section have 5 above ground levels. The middle section has 4 above ground levels and a large atrium. The building has for most of the surface a concrete load bearing constructions and concrete floors. For the atrium and upper building level of the north and south section it is a steel load bearing structure. The overall construction classification is ISO5 (non-combustible). The building is divided into compartments according the Dutch building code by 60' fire separations. Cable and other penetrations seem to be kept well closed. Doors in the fire-resistant partitions are held up with magnets. In the event of a fire, the magnets are released, and the doors automatically fall shut.

There is no sprinkler protection in place. The automatic fire detection system is covering the entire site. The fire brigade has two stations with one on the campus site at 600 meter driving distance. For extinguishing water they must use hydrants in the public road, the building is fitted with dry risers. During a large part of the day security is present in the building also responsible for the closing round. The organizational measures, procedures and so on are up to standard. Housekeeping is at a sufficient level, Fontys is aware of the enhanced risk of storage in technical rooms and the housekeeping at the student society. Due regular inspection are implemented this is considered adequate.

Exposure like external buildings but also NatCAT are rated as a slight exposure.

Risk improvement that could improve the risk are:

- Realize a sprinkler system.
- Install a wet chemical agent for the kitchen.

Site Loss History

During the visit, a cooling damage was briefly explained by Fontys. The damage is still pending therefore not being further addressed in the report. Because the loss all research freezers are equipped with temperature monitoring with external notification.

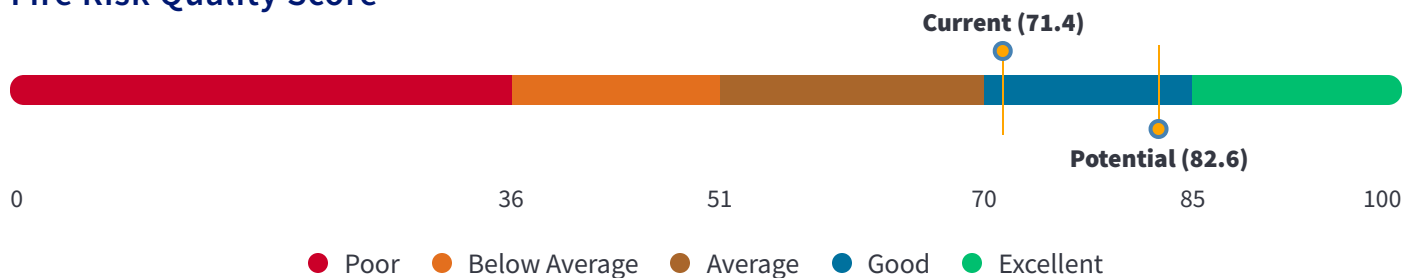
New Projects, Significant Changes and Observations

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	2	Open RI by Age	2	Open RI by Type	2
Critical	0	New	2	Physical Protection	2
Important	0	Outstanding	0		
Advisory	2	Completed RI	0		

Fire Risk Quality Score



Ratings

	Current rating	Potential rating
Hazards	Slight	No Deficiencies
Water Supply	Adequate	Adequate
Protection	Nearly Adequate	Good
Management Programs	Adequate	Adequate
Supervision	Good	Good
Exposures	Slight	Slight

Risk Improvements

Risk Improvements - Open

Number	Name	Classification	LE Before (EUR)	LE After (EUR)
24-07-02	Sprinkler Protection- Install sprinklers	Advisory	20,011,472	2,500,000
24-07-01	Kitchen protection	Advisory	--	--

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

Open Risk Improvements : Advisory

Number/Type	Name	LE Before (EUR)	LE After (EUR)
24-07-01 Physical Protection	Kitchen protection		

Summary

Protect the commercial cooking equipment (i.e. deep fat frying equipment) in the kitchen area with an ANSI/UL 300 compliant wet chemical extinguishing system interlocked to shut off the fuel supply to the equipment upon system actuation in accordance with NFPA 96. Also for new tenants at street level in the public area this should be part of the negotiations/ standard for new renting contracts.

Details

A fire involving oils used in the cooking equipment represents a significant fire hazard that can release large amounts of smoke. Conventional sprinklers and older dry chemical systems are not as effective as wet chemical extinguishing systems. The suppressant in these systems is specifically designed to extinguish cooking oil fires through the process of saponification that produces a soap foam layer when mixed with the oil that cools and seals off the surface, preventing re-ignition. Examples of the systems could be found at:

- <https://flamecontrol.nl/keuken-blussystemen/>
- https://www.johnsoncontrols.com/nl_nl/brandbestrijding/grootkeuken-blussystemen
- <https://www.saval.nl/producten/kitchenflex/69/174/>
- <https://acm-air.com/keukenbrand-blussysteem/>

Number/Type	Name	LE Before (EUR)	LE After (EUR)
24-07-02 Physical Protection	Sprinkler Protection- Install sprinklers	20,011,472	2,500,000

Summary

Provide automatic sprinkler protection throughout the building. Design the system according NFPA 13 sprinkler code.

Details

Should a fire occur, the sprinkler system will control the fire until emergency response personnel are able to extinguish it. This will limit property damage and the effect on business operations. The fire safety concept is based on early detection, fire compartments, and extinguishment by the fire brigade.

Under Dutch laws and regulations, the fire department is not responsible for limiting a fire in a building. It is only responsible for creating a manageable risk so that the environment (other objects) and people are not harmed. Basically, an object may be lost in accordance with Dutch building regulations. This does not mean that the fire department does not try to extinguish the fire, but only if it is not a risk to fire personnel.

A sprinkler system tailored to the risk and use (occupancy) will statistically limit fire size to no more than 50% of the sprinkler design area. When designed in accordance with NFPA, this equates to a maximum of 65m². This is in contrast to a building without a sprinkler system where a fire can initially expand to a maximum of 1.000m² (compartment) and without in. And without an inside fire attack by the fire department will expand further after 60 minutes (fire-resistant separation)

Client Exit Conference Comments

Considered not financially feasible.

Occupancy & Process Overview

Fontys Hogescholen (rest of the report noted as Fontys) is in the South part of the Netherlands, with locations in:

- Eindhoven
- Tilburg
- Venlo
- Sittard
- Den Bosch

Utrecht

Fontys has a total some 43.000 students and 5.000 employees. The general opening time is Monday till Friday between 7:30 am till 22:00 pm (other times possible depending day and building). During this period the reception is occupied. Throughout the building are classrooms, practical training rooms, labs, offices (for students and staff employees) and a restaurant/ cafe.

The building is on the Technical University Eindhoven Campus site. The Fontys' Technology programs (Applied Science, Engineering & Automotive and Business Management, Education & Technology) are operation since 2019 in this building past owned by TNO.

Occupancy Details

Building	SIC Code	Description	Operating Days/yr	Operating Hrs/Day	Other Tenants
Rondom 1Eindhoven	822102	Colleges and Universities, NEC, Private	260	12	No

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
Commercial Cooking	Process	Low	No Deficiencies	1
Other Hazardous Gases and Liquids	Process	Low	No Deficiencies	0

Non-Process HVAC Equipment

Heating of the buildings is by means of natural gas fired boilers and air handling units, which are located the technical rooms at top floor level. Cooling compressors (chillers with a Freon replacement medium) and cooling towers are located on top of the roof. Air ventilation ducts are reportedly equipped with fire dampers.

The technical rooms are supervised by automatic smoke detection. The compartmentation and housekeeping in the technical rooms visited was good. All rooms also provided with water detection on the floors.

Status of installations are managed and monitored via the building management systems. Equipment appears visually in a good state of repair. Periodic maintenance is contracted out to specialized contractors.

Images



Heating



Ventilation



Cooling towers

Electrical

Electrical installation is fed by transformers located in the building in separate 60' fire compartments (south facade). Capacity of the transformers is unknown. They are oil filled and owned and maintained by the utility company.

The electrical installations appear visually in a good state of repair. Penetrations for electrical cables were found to be adequately fire stopped, including inside vertical utility shafts. The electrical installation is subjected to inspection according to the Dutch standard NEN 3140, which comprises visual inspection of all installation parts and checks by measurements. The periodicity is set to according the NEN3140. Inspections are done by third party and include thermographic scan.

Electrical equipment is also subjected to periodical NEN 3140 checks indicated by stickers on the equipment involved. Once a year a check round is done to ensure safe use of electrical extension cords and all appliances are checked according NEN3140. Point of attention is the room of the student society, it is checked periodically. Therefore no risk improvement is noted.

Incidental Flammable / Combustible Liquids & Gases

Gas supply from the outside located third party utility room. Welded piping is used to transport the gasses to the laboratories. Shut of valves are provided both in the utility building, as in/ near the laboratory where the gasses are used. For the practical tests in the laboratories a large variety of hazardous liquids are kept on stock, mainly in low quantities. It includes flammable liquids, oxidizing liquids, acids,alkaline etc. The materials are stored in a dedicated PGS 15 cabinets. Proper separation between the different type chemicals. But also storage of limited hazardous material in racks, like everyday household products. When students need such hazardous substances, they are to report to a central service desk where the substances are provided. All stock is kept in Gros registration system, where all necessary information regarding the substances can be found.

Practical classrooms

Beside theory classrooms, project group rooms, meeting space, media library, and offices there are different practical classrooms throughout the building. Practical class rooms range from labs to a garage. A large variety equipment and machines are present and used, for instance fume cupboards, saw machine, welding machines, 3D printers but also different handheld equipment. Basic safety provisions in place. Limited quantities of hazardous substance are present. Some labs have an emergency button. Machines are not operational after working hours. All research freezers are reportedly equipped with temperature monitoring with external notification. Students work under the guidance and supervision of teachers. Machines and equipment is checked and maintained by specialized contractors.

Images



Practical classroom



Practical classroom

Restaurant/cafe

There is one professional kitchen in the building and a small bar/ coffee corner. The restaurant contains electrical, and gas fired kitchen equipment like an oven (electrical) and deep fat fryers (gas). The cafe only have small electrical equipment, like ovens. The professional equipment in the kitchen is well maintained and is always operated under supervision of professionals. High temperature limit switches are reportedly available. Fire blankets and adequate portable fire extinguishers have been provided. Periodic inspection and cleaning of the exhaust ducts is subcontracted to a professional company (reportedly once every year). The kitchen is not provided with a local extinguishing system (recommended only as best practice).

Risk Improvements

Name	LE Before (EUR)	LE After (EUR)
Kitchen protection 24-07-01	0	0

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Kitchen

Construction

Category	Current Rating	Potential Rating	RI's
Construction	ISO 5 / Class A - Modified Fire Resistive	ISO 5 / Class A - Modified Fire Resistive	0

Building	Year Built	Year Upgrade	# Stories	Height (m.)	Total Area (sq. m.)
Rondom 1Eindhoven	2000	2019	6	27	31,157

Area (1,000 sq. m.)

Building	ISO1/D	ISO2/C	ISO3/C	ISO3/B	ISO4/C	ISO4/B	ISO5/A	ISO6/AA
Rondom 1Eindhoven	--	--	--	5.2 (16.69%)	--	--	26.0 (83.31%)	--
Total	0.0 (0.00%)	0.0 (0.00%)	0.0 (0.00%)	5.2 (16.69%)	0.0 (0.00%)	0.0 (0.00%)	26.0 (83.31%)	0.0 (0.00%)

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

Construction:

Fontys Rondom 1 is a building that was realized for the former owner TNO in 2000.TNO sold the building in 2016, after thorough internal renovations, the complex is fully occupied by Fontys since 2019.

The building has a north and south connected by the middle section. Only the north part has a basement, both the north and south section have 5 above ground levels. The middle section has 4 above ground levels and a large atrium. The building has for most of the surface a concrete load bearing constructions and concrete floors. For the atrium and upper building level of the north and south section it is a steel load bearing structure. The walls up to the 4th above ground floor level are concrete with large aluminum/ glass window sections, part of the walls have a steel facade. Wall insulation is mineral wool (non-combustible). The upper floor level have a sandwichpanel/ double steel plate wall with non-combustible insulation. The concrete and steel roof have reportedly a non-combustible insulation layer and bitumen roofing were the lower parts and middle section are covered with a gravel layer.

Compartmentation:

In general the building is divided into compartment according the Dutch building code by 60' fire separations. Each floor is 60' fire proofed. The staircases are a separated compartment 60 minutes rated. The lifts are partly 60 and partly 30 minutes (doors) fire separated. Cable and other penetrations seem to be kept well closed. Doors in the fire-resistant partitions are held up with magnets. In the event of a fire, the magnets are released, and the doors automatically fall shut.

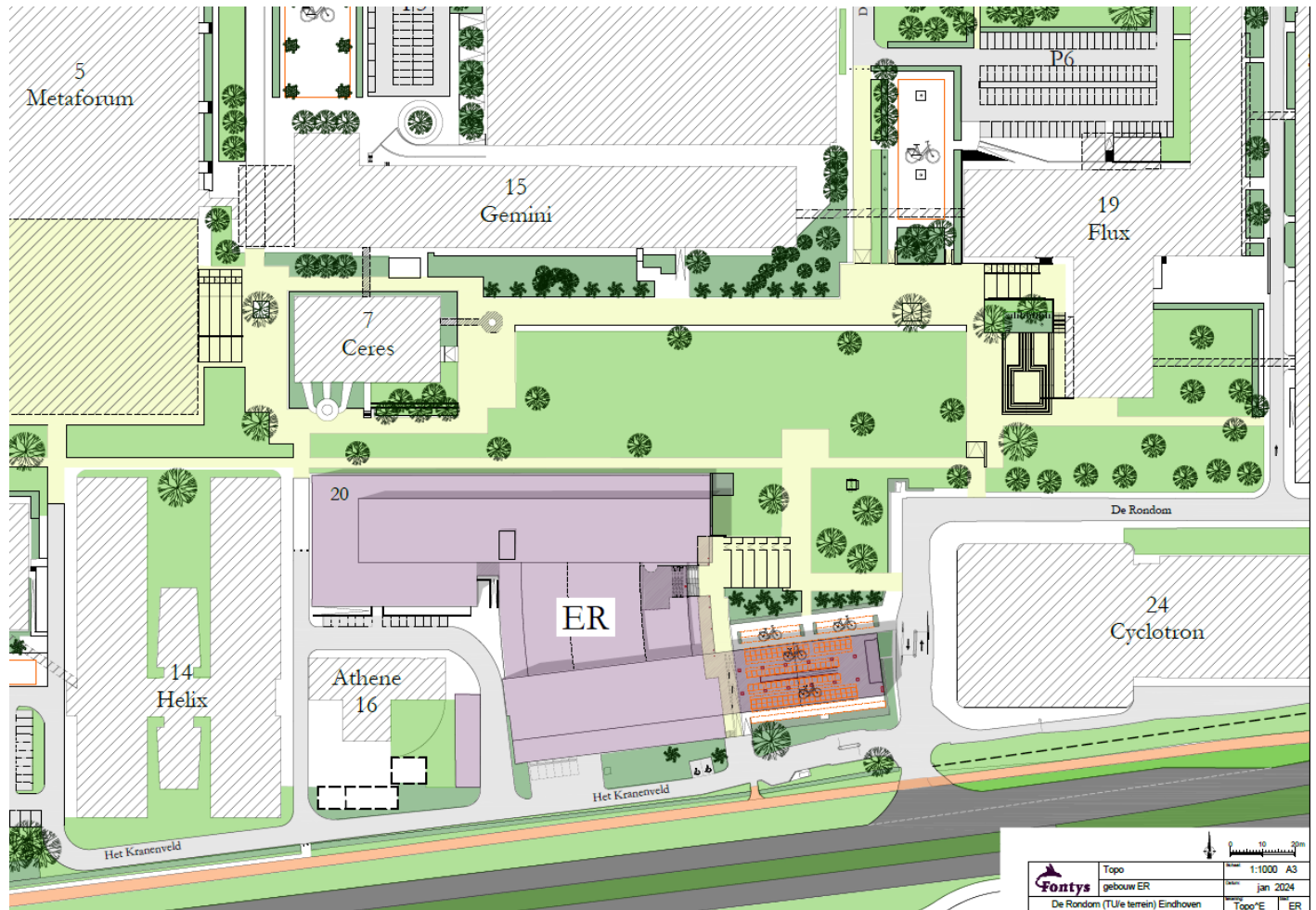


fig: Fontys ER (Random 1) site, source drawing Fontys

Coordinates: 51.44637796442899, 5.489828780633087

Images



Atrium



Fontys Rondon 1

Water Supply & Fire Pumps

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

Comments

Hydrants in the public road, capacity according Dutch legislation between the 60m³/h up to 90m³/h. No open water within 200 meter.

Protection

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

Sprinklers

Building	AS (%)	ASA (%)	ASN (%)	Fire Detection (%)
Rondom 1Eindhoven	0.00	0.00	100.00	100.00
Total	0.00	0.00	100.00	100.00

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

Comments

The complex is not sprinkler protected. Protection is based on the combination of fire separation, combined with early detection. It therefore relies heavily on adequate response of the fire department supporting the fire walls and fighting the fire, and allows large fire areas. Sprinkler protection is considered the best means of protection.

Risk Improvements

Name	LE Before (EUR)	LE After (EUR)
Sprinkler Protection- Install sprinklers 24-07-02	20,011,472	2,500,000

Fire Extinguishing Equipment

Water Supply & Inspection

Frequency

- Meets NFPA requirements

FEA/Hose Reel Details

- Equipment is properly maintained
- Inspections are properly documented with records maintained and readily available
- Plant personnel properly trained

Recommendations

None

Comments

Adequate number and appropriate types of portable fire extinguishers and fire hose reels available on each floor. Their number, visibility, and accessibility are rated as being adequate throughout. Inspection and maintenance are subcontracted and conducted annually.

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	Station #2
0.60	2.80

Comments

On the TU/e Campus site a fire brigade station is at 600 meter driving distance. Other fire stations are present in Eindhoven, for example the city center station at 2,8 kilometer. The building is fitted with several dry risers and outside connection for the fire brigade.

Supervision

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

Automatic Fire Detection

Signaling Systems Central Station/ARC	Recognized Yes	Monitored Line Yes	Fire Protection Alarm - Heat/Flame Detex - Smoke Detection - Pull Boxes
Valve Locked NA	Fire Detection Coverage (Including Sprinklers) 100%	Smoke Detection Monitored Yes	Other Alarms No

Maintenance, Testing and Inspection per NFPA 25
Satisfactory

Comments

Rondom 1 is equipped with automatic fire detection systems covering the entire building. The AFD is realized in accordance with NEN2535, control and maintenance by a specialized contractor. The alarms are transmitted to a private alarm station. The alarm station contact the technical department or a security firm to verify the alarm. In case of several alarms/ zone reportedly the fire brigade is directly called. There a several type of detectors in place, like optical smoke detectors, aspiration detection and beams.

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

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Vandalism / Malicious

Mischief Exposure

Yes

Sabotage and Terrorism

Exposure

No

Comments

The security lodge building R5 in Eindhoven is overlooking all camera positions of Fontys, including this site. The lodge is occupied during opening times. Around the campus is limited fencing, exterior lighting consists of public and private lighting. The building is not fenced, fitted with a burglar alarm system in accordance with the Dutch VRKI, free access during opening times.

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	Good	0
Hot Work Permit	Good	Good	0
Smoking	Excellent	Excellent	0
Housekeeping	Adequate	Adequate	0
Planned Preventative Maintenance	Good	Good	0
Management Interest	Good	Good	0
Site Level Business Continuity Planning	Adequate	Adequate	0

Management Programs

Housekeeping

Comments

During site visit the housekeeping is up to standard. Storage is present in some technical rooms, in dedicated fenced areas, this is considered tolerable. Point of attention is the room of the student society. Fontys is aware and periodic conducts checks.

Site Level Business Continuity Planning

Comments

BI is not insured, therefore rated adequate.

Exposures

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

Internal Exposure

The restaurant and bar are run by a third party, equipment is maintained by Fontys.

External Exposure

The Fontys site is on the campus of Technische Universiteit Eindhoven, external exposures are:

- North: A university/ college building at 30 meter.
- East: Office building at 25 meter.
- South: Utility building at 15 meter.
- West: A university/ college building at 10 meter.

Yard Storage

Yard storage is at a sufficient distance from the building south facade.

Water Intrusion Exposure

No

Aircraft Exposure

No

Structural Collapse Exposure

No

BI Exposures

General BI

BI is not insured.

NATCAT Exposure Summary

	Flood	Wind	Earthquake	Hail	Collapse	Other
Zone/Exposure	No Flood Exposure	36 m/s	Zone 2	Zone 3	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)
Rondom 1Eindhoven	No Flood Exposure	River	--	--	--

Comments

According the Dutch Rijkswaterstaat flooding maps the building is not in a flooding zone.

Wind

Wind Speed (m/s)

36

Redundant Power/Utilities

Client has no power nor utility redundancy

Building	Distance to Coast
Rondom 1Eindhoven	10 and greater miles

Earthquake

EQ Zone

Zone 2

EQ Emergency Response Plan

Client has no BCP in place

Redundant Power/Utilities

Client has no power nor utility redundancy

Seismic Bracing of Equipment

Asset Strengthening

Seismic Gas Shutoff Valves (SGSV)

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No seismic bracing or restraint is provided

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

No SGSV's provided for flammable gas and liquid equipment

Severe Convective Storm

Hailstorm Exposure

Zone 3

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	151.39	100.0		0.0		151.39
MFL	78.22	51.7		0.0		78.22
NLE	20.01	13.2		0.0		20.01

Reported Values

Property Damage

Building (EUR)	Contents (EUR)	M&E (EUR)	Stock/Inventory (EUR)	Other PD (EUR)
106,345,000	45,044,000	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	151,389,000
Total BI Value	0
Total Insured Value	151,389,000

Maximum Amount Subject (MAS)

Total LE (EUR): 151,389,000

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Rondom 1Eindhoven	106,345,000 (100.00%)	0 (100.00%)	45,044,000 (100.00%)	0 (100.00%)	0 (100.00%)	151,389,000 (100.00%)
Total	106,345,000 (100.00%)	-- (--%)	45,044,000 (100.00%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **151,389,000 (100.00%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total(EUR)
Rondom 1Eindhoven	-- (100.00%)	-- (--%)	-- (--%)	28	--%
Total	0 (--%)	0 (--%)	0 (--%)	--	

Total TE Loss Estimate (EUR): **0 (0.00%)**

Loss Estimate Comments

MAS-PD

Single site under MAS conditions total loss.

MAS-BI

BI not insured, reconstruction will take up to 28 months.

Maximum Foreseeable Loss (MFL)

Total LE (EUR): 78,222,697

PD Loss Estimate

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Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Rondom 1Eindhoven	54,948,462 (51.67%)	0 (51.67%)	23,274,235 (51.67%)	0 (51.67%)	0 (51.67%)	78,222,697 (51.67%)
Total	54,948,462 (51.67%)	-- (--%)	23,274,235 (51.67%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **78,222,697 (51.67%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total(EUR)
Rondom 1Eindhoven	-- (100.00%)	-- (--%)	-- (--%)	21	--%
Total	0 (--%)	0 (--%)	0 (--%)	--	

Total TE Loss Estimate (EUR): **0 (0.00%)**

Loss Estimate Comments

MFL-PD:

The loss percentage under MFL conditions according AIG guideline table 5 for a hazard grade 3 occupancy (school) is:

- ISO3B: 60% (building & content).
- ISO5: 50% (building & content).

The Loss expectancy for the Fontys Rondom 1 Eindhoven is:

ISO3B: $5.200 \text{ m}^2 * 60 \% = 3.120 \text{ m}^2$

ISO5: $25.957 \text{ m}^2 * 50\% = 12.979 \text{ m}^2$

Total: 16.099m^2 out of $31.157\text{m}^2 = 51,67\%$.

MFL-BI:

BI is not insured, reconstruction will take up to 21 months according AIG MFL guidelines.

Normal Loss Expectancy (NLE)

Total LE (EUR): 20,011,472

PD Loss Estimate

Risk Engineering Report

STICHTING FONTYS



Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Rondom 1Eindhoven	9,890,085 (9.30%)	0 (22.47%)	10,121,387 (22.47%)	0 (22.47%)	0 (22.47%)	20,011,472 (13.22%)
Total	9,890,085 (9.30%)	-- (--%)	10,121,387 (22.47%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **20,011,472 (13.22%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total(EUR)
Rondom 1Eindhoven	-- (--%)	-- (--%)	-- (--%)	--	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

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

Loss Estimate Comments

NLE-PD:

The building has an ISO5 rated construction with no sprinkler protection. Adequate supervision in the combination of automatic fire detection and fire rated walls. Fire load levels are standard for an educational occupancy, though there are some labs and other practical class rooms, where presents small quantities of ignitable liquids is used. Storage in adequate arrangements and provisions.

NLE scenario is based upon a delayed fire brigade response (in comparison with a sprinkler protected facility) with a fire situated on a higher floor. The fire will start due a technical defect in the building on the second floor. The total building surface is 31.157 m². For almost all floors the surface is > 5,000m², which is split into subcompartments of <1,000m² per Dutch building code. Therefore the fire area is at max 1,000m². Secondary damage to the fire due to water, smoke and soot on the floor were the fire originated in the two compartments beside. And secondary damage due to water is anticipated to compartments for the 2 floor levels below the fire area. And the two floor levels above due to smoke and soot is anticipated to the two compartments of two floors above.

Calculation:

Fire damage;

Buildings = 1,000m² x @50% = 500 m²

M&E/Content = 1,000m² x @100% = 1,000 m²

Secondary damage;

Buildings = $(6 \times 1,000\text{m}^2 \text{ (water)} + 6 \times 1,000 \text{ m}^2 \text{ (smoke/soot)}) \times @20\% = 2.4000 \text{ m}^2$

M&E/Content = $(6 \times 1,000\text{m}^2 + 6 \times 1,000 \text{ m}^2) \times @50\% = 6.000 \text{ m}^2$

Total PD_NLE =

Building: $500 \text{ m}^2 + 2.400 = 2.900 \text{ m}^2$ out of $31.157 \text{ m}^2 = 9.3 \%$

M&E/Content: $1,000 \text{ m}^2 + 6,000 \text{ m}^2 = 7.000$ out of $31.157 \text{ m}^2 = 22.47\%$.

NLE-BI:

BI is not insured. The reconstruction of the affected part of the complex is expected to take between 3 and 9 months.

Note:

- *Scenario based upon even spread of insured value.*
- *Rating of fire department, detection etc. good up to excellent*
- *Maximum compartment according dutch building code 1.000 m^2 . Although compartments could be up to 1.000m^2 within the building open space of this size present. Inside a large number of rooms present with all non combustible walls limiting the fire spread.*
-

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.