Hogeschool Inholland

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Diemen, Netherlands

Risk Control Report

Property / Multi-Discipline

Location:	Hogeschool Inholland Wildenborch 6 Diemen 1112 XB Netherlands
Date On Site:	7th June 2017
Consultant:	Sander Verboog

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CONTENTS

Participants 4
Summary and Opinion of Risk 4
Changes Since Previous Survey 5
Loss History 5
Quality Rating 6
Risk Improvements 7
  Risk Improvement Summary 8
  2017-06:02 : Meld het alarm door naar de brandweer. (Public Fire Brigade) 9
  2017-06:04 : Verbeter de compartimentering. (Extraction Systems) 10
  2017-06:05 : Verbeter de compartimentering. (Location and Construction) 11
  2017-06:01 : Breid het gehele branddetectiesysteem uit (Automatic Fire Detection) 12
  2017-06:03 : Verbeter de compartimentering. (Compartmentation) 13
Loss Estimates Summary 14
  Value and Loss Estimate Summary Table 14
Loss Estimate Scenarios 15
  EML Block 15
  Estimated Maximum Loss (EML) 15
  Current Normal Loss Expectancy (CNLE) 15
  Target Normal Loss Expectancy (TNLE) 16
Risk Information 17
  Site Occupancy 17
  Occupancy Fire Load 17
  Compartmentation 17
  Construction 18
  Special Hazards 19
  Utilities Infrastructure 19
  Arson Exposure 19
  External Exposures 19
  Human Element and Maintenance Control Programs 20
  Process Hazard Controls 21
  Response Factors 22
  Fire Protection Systems 23
  Business Interruption Information 24
  Natural Catastrophe Exposures 25
Other Classes: Comments 27
  Crime 27
  Machinery Breakdown 27
Appendix 28
  Site Plans and Photographs 28

PARTICIPANTS

Name	Title	Company
J.J.M. Haver	Adviseur Technische Zaken	Hogeschool Inholland
D. de Waij	Underwriter	RSA

SUMMARY AND OPINION OF RISK

The purpose of this audit was to review the loss prevention systems and procedures and the physical layout and arrangement of the facility, and in so doing, identify options for improvement to minimise, at a reasonable cost, the potential physical and business interruption loss exposures.

This site has been graded using the RSA quantitative risk assessment (QRA). This is a method for the assessment of risk quality against commercial/industrial facilities in general. Two elements of risk are examined and compared in order to derive an overall risk quality rating:

- *the inherent fire and business interruption hazards associated with the premises, occupancy and operations*
- *the risk control features in place to mitigate the inherent hazards*

This facility houses a university of applied studies with only theoretical studies. This facility is considered a light hazard occupancy. In total there are some 5,000 students. The total number of students that is actually on site is probably much smaller. The building is open from early in the morning until late in the evening during 5 days a week.

Construction is rated highly combustible overall. Roofs have been provided with combustible polystyrene throughout. There are two atrium areas. These atriums are only protected with fire detectors. A fire originating in either one of these areas would breach the roof and subsequently spread into the surrounding building parts as there is no fire resistive glazing to prevent such a scenario.

This facility is protected by a partial fire detection system. Due to the limited extension of the system and the fact that the fire brigade is only summoned after alarm verification by a security company, the system has very limited value towards protection of the property. The system has mainly been installed for life safety and evacuation purposes.

Overall fire compartments are in a poor condition throughout. Some fire compartments on the ground floor have a 30 minute fire rating. However, the majority of the compartments could be considered to the utmost as smoke resistive separations only.

Taking the fire detection system and the compartments into consideration, a large loss cannot be excluded. Due to the presence of a pond, fire fighting actions could be jeopardised at the South side of the building. Mitigating factors that could prevent a total loss could be the specific building lay-out and the moderate fire load throughout.

Generally, human element programs are rated good. Fire inception hazards are well controlled.

In the event of a large catastrophe, outsourcing of the majority of the processes to external own and third party buildings may be possible. No agreements exist to execute this and no information could be gathered during our survey. However, the processes are rather simple and it is not expected that outsourcing would cause major problems.

The risk quality rating for this facility is Below Standard with the potential to achieve a Good rating upon completion of the submitted risk improvements.

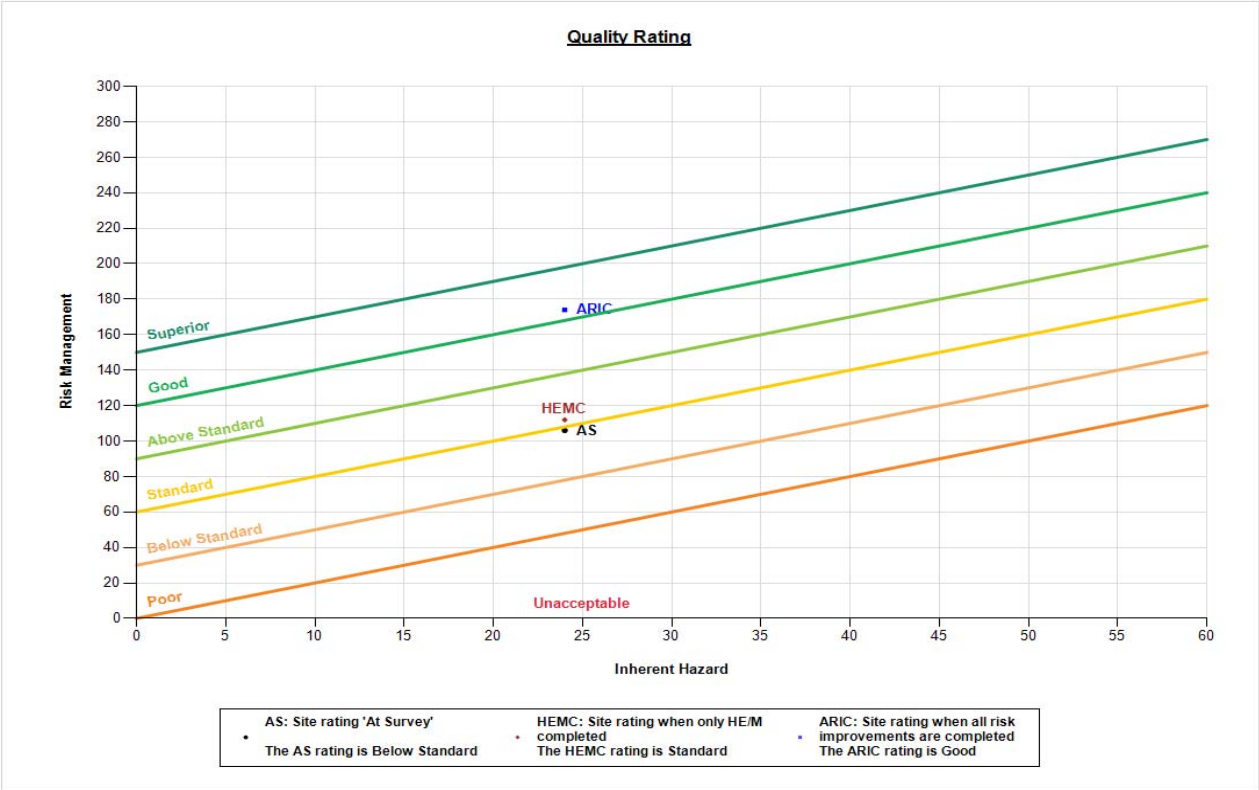
CHANGES SINCE PREVIOUS SURVEY

This is the initial full survey conducted by RSA. There are no significant changes planned on site in the short to midterm and there have been no recent changes on site. There are plans to relocate this facility in 2020. Obviously no large investments will be done for the remaining years on this site. However, apparently such plans have already been discussed many times in the past and up to now no concrete action has been taken to execute this.

LOSS HISTORY

There have been no losses on site to date.

QUALITY RATING



Rating: 'Overall Rating' is derived from the 'inherent hazards', e.g. the type of process or storage, the type of construction and exposure hazards, evaluated against the loss control measures and risk management practices that will reduce the likelihood and/or severity of loss.

Superior:	Meets all and exceeds many best-practice risk management standards. All inherent hazards are well controlled.
Good:	Meets most best-practice risk management standards. All key inherent hazards are well controlled.
Above Standard:	Meets all or most normal risk management standards. Most key inherent hazards are well controlled.
Standard:	Meets minimum risk management standards. There may be some deficiencies in the control of inherent hazards.
Below Standard:	Gaps in application of minimum risk management standards. Inherent hazards are not thoroughly controlled.
Poor:	Numerous minimum risk management standards are missing. Inherent hazards are not controlled.
Unacceptable:	The risk has major deficiencies in more than one area (e.g. physical, procedural, process or attitude) that leads to a significant likelihood of a major loss.

RISK IMPROVEMENTS

Category:

Category 1: These are capital expenditure risk improvements with a loss expectancy greater than 25% of the combined property damage and business interruption loss potential. Whilst funding for these items will normally require corporate approval, completion will significantly improve the risk profile of the site.

Category 2: These are risk improvements either with a loss expectancy of less than 25% of the combined property damage and business interruption loss potential or that address important reliability issues. In some cases funding may require corporate approval.

Human Element / Maintenance (HE/M): These risk improvements refer to management practice and procedures. Typically they carry no capital cost but address a wide range of local issues including the control of inception risks and training.

Priority:

Priority A	*These Risk Improvements address deficiencies that feature one or both of the following:* *- high-frequency or imminent loss exposures that can typically be resolved by the implementation or improvement of procedures or practices, or by localised physical improvements* *- loss exposures that are disproportionately large relative to the physical extent of the deficiency, or to the cost to complete the Risk Improvement*
Priority B	*These Risk Improvements include procedural items that address loss exposures of moderate frequency, that may be more complex, and/or that are enhancements to existing arrangements.* *Also included are physical improvements which will reduce the likelihood and/or severity of losses, but that do not meet the criteria for Priorities A or C*
Priority C	*These Risk Improvements include items that represent a fundamental change or upgrade in loss control arrangements, probably as part of a longer term risk management strategy. Also included are enhancements to existing systems and practices or longer term projects aimed at achieving "best practice"*

Risk Improvement Summary

RI No	Summary	Category	Priority	Class	Status	Loss Estimate
2017-06:02	Meld het alarm door naar de brandweer. (Public Fire Brigade)	HE/M	A	Property	AR	N/A
2017-06:04	Verbeter de compartimentering. (Extraction Systems)	CAT 2	A	Property	AR	EUR 63,613,600
2017-06:05	Verbeter de compartimentering. (Location and Construction)	CAT 2	A	Property	AR	EUR 63,613,600
2017-06:01	Breid het gehele branddetectiesysteem uit (Automatic Fire Detection)	CAT 1	A	Property	AR	EUR 63,613,600
2017-06:03	Verbeter de compartimentering. (Compartmentation)	CAT 1	A	Property	AR	EUR 63,613,600

Status Definitions

AR: Awaiting Response. This is the default status for all risk improvements pending site feedback
UR: Under Review, including projects awaiting sign-off and funding
IP: In Process, including projects for which funds have been approved and released and work is starting or due to start
NP: Disagree / No Plans. There are no plans to complete the risk improvement
DA: Deferred by RSA Account Manager

2017-06:02 : Meld het alarm door naar de brandweer. (Public Fire Brigade)

Risk Improvement:

Meld het alarm van het branddetectiesysteem direct door naar de brandweer. Alleen op deze manier kan de brandweer in een vroegtijdig stadium ter plekke zijn en kan een aanzienlijke schade voorkomen worden. Indien een dergelijke alarmering niet door de brandweer geaccepteerd wordt, dient u het brandalarm gedurende werktijd met een vertraging van enkele minuten rechtstreeks naar de brandweer door te melden. Gedurende deze vertraging heeft uw organisatie de tijd een eventuele brand te ontdekken. Na werktijd dient het brandalarm zonder vertraging rechtstreeks naar de brandweer doorgemeld te worden.

Deficiency:

In de huidige situatie wordt een brandalarm via een particuliere alarmcentrale ter plaatse geverifieerd. Dit neemt een onnodig lange tijd in beslag en doet daarmee de goede werking van een branddetectiesysteem teniet. Een brand kan zich ontwikkelen gedurende de tijd dat er geen adequate actie wordt ondernomen en deze kan daardoor uitgroeien tot oncontroleerbare proporties.

Status:	Awaiting Response	**Est. Cost:**	Revenue Only	**Risk Rating Impact:**	Moderate
Category:	HE/M	**Priority:**	Priority A	**Loss Estimate:**	N/A
Class:	Property				

Status Comments:

2017-06:04 : Verbeter de compartimentering. (Extraction Systems)

Risk Improvement:

De algehele compartimentering in uw bedrijf is onvoldoende. Realiseer dat alle brandkleppen in het luchtbehandelingssysteem automatisch dichtgestuurd te worden in geval van brand, ofwel door het branddetectiesysteem ofwel door smeltzekeringen.

Deficiency:

Een brand kan zich via onvoldoende afgedichte kabel- en leidingdoorvoeren voortplanten naar naastliggende compartimenten.

Status:	Awaiting Response	**Est. Cost:**	EUR 10,001 - 25,000	**Risk Rating Impact:**	Moderate
Category:	CAT 2	**Priority:**	Priority A	**Loss Estimate:**	EUR 63,613,600
Class:	Property				

Status Comments:

2017-06:05 : Verbeter de compartimentering. (Location and Construction)

Risk Improvement:

De algehele compartimentering in uw bedrijf is onvoldoende. De volgende zaken dienen uitgevoerd te worden om tot een acceptabele situatie te komen:

- Verwijder al het PUR-schuim rondom kabels. Zorg ervoor dat PUR-schuim niet meer gebruikt wordt, ook niet in zogenaamde "vlamdovende" kwaliteit.
- Voorzie alle leidingschachten van deuren met een minimale brandwerendheid van 30 minuten. Naar buiten tredende kabels dienen voorzien te worden van een brandwerend materiaal dat door een gespecialiseerd bedrijf aangebracht dient te worden. Een onderhoudscontract dient bij dit bedrijf afgesloten te worden zodat gegarandeerd wordt dat de doorvoeren jaarlijks gecontroleerd en eventueel gerepareerd worden.
- Voorzie alle kabeldoorvoeren van technische ruimten van een brandwerend materiaal. Kunststof leidingen dienen voorzien te worden van wurgmanchetten.

Wij realiseren ons dat genoemde maatregelen aanzienlijke kosten met zich meebrengen. In het licht van een mogelijke verhuizing in 2020 kunnen wij ons voorstellen dat dit geen prioriteit heeft. De maatregelen dienen echter onverkort uitgevoerd te worden indien besloten wordt dat de activiteiten na 2020 op deze locatie voortgezet worden.

Deficiency:

Een brand kan zich via onvoldoende afgedichte kabel- en leidingdoorvoeren voortplanten naar naastliggende compartimenten.



Status:	Awaiting Response	**Est. Cost:**	EUR 25,001 - 50,000	**Risk Rating Impact:**	Moderate
Category:	CAT 2	**Priority:**	Priority A	**Loss Estimate:**	EUR 63,613,600
Class:	Property				

Status Comments:

2017-06:01 : Breid het gehele branddetectiesysteem uit (Automatic Fire Detection)

Risk Improvement:

Breid het branddetectiesysteem uit naar elke ruimte in uw bedrijf. Hanteer hierbij de Nederlandse norm NEN2535.

Deficiency:

Gezien de geringe melderdichtheid is het waarschijnlijk dat een brand in een laat stadium ontdekt wordt hetgeen resulteert in een relatief late reactie van de brandweer en een grote brandschade. Het verhogen van de melderdichtheid resulteert in een snelle detectie die door de brandweer snel onder controle gebracht kan worden.

Status:	Awaiting Response	**Est. Cost:**	EUR 25,001 - 50,000	**Risk Rating Impact:**	Moderate
Category:	CAT 1	**Priority:**	Priority A	**Loss Estimate:**	EUR 63,613,600
Class:	Property				

Status Comments:

2017-06:03 : Verbeter de compartimentering. (Compartmentation)

Risk Improvement:

De algehele compartimentering in uw bedrijf is onvoldoende. Inventariseer alle brandwerende scheidingen en zorg ervoor dat deuren een minimale brandwerendheid hebben van 30 minuten. Draadglas deuren of deuren die niet luchtdicht zijn dienen vervangen te worden. Voorts dient aangetoond te worden dat de "grijze" deuren op de begane grond voorzien zijn van brandwerend glas. Indien dit niet het geval is dient de beglazing aangepast te worden. Deuren dienen automatisch dichtgestuurd te worden door het branddetectiesysteem.

Wij realiseren ons dat genoemde maatregelen aanzienlijke kosten met zich meebrengen. In het licht van een mogelijke verhuizing in 2020 kunnen wij ons voorstellen dat dit geen prioriteit heeft. De maatregelen dienen echter onverkort uitgevoerd te worden indien besloten wordt dat de activiteiten na 2020 op deze locatie voortgezet worden.

Deficiency:

Een brand kan zich via onvoldoende afgedichte kabel- en leidingdoorvoeren voortplanten naar naastliggende compartimenten.

Status:	Awaiting Response	**Est. Cost:**	EUR 50,001 - 100,000	**Risk Rating Impact:**	High
Category:	CAT 1	**Priority:**	Priority A	**Loss Estimate:**	EUR 63,613,600
Class:	Property				

Status Comments:

LOSS ESTIMATES SUMMARY

The sums insured below are based on information provided to RSA.

We define Loss Estimate (LE) as the anticipated monetary loss for any particular scenario including both physical damage and business interruption costs.

Value and Loss Estimate Summary Table

PROPERTY DAMAGE	Total Sum Insured	EML Block		EML		CNLE		TNLE	
	EUR	% of TSI	EUR	% within the EML Block	EUR	% within the EML Block	EUR	% within the EML Block	EUR
Buildings	32,659,000	100	32,659,000	100	32,659,000	80	26,127,200	10	3,265,900
Plant & Equipment	15,608,000	100	15,608,000	100	15,608,000	80	12,486,400	10	1,560,800
Stock		100		100		80		10	
Other	25,000,000	100	25,000,000	100	25,000,000	100	25,000,000	10	2,500,000
Total PD Value	**73,267,000**								
Total PD Loss Estimate			**73,267,000**		**73,267,000**		**63,613,600**		**7,326,700**
BUSINESS INTERRUPTION	**EUR**	**% of TSI**	**EUR**	**Days within the EML Block**	**EUR**	**Days within the EML Block**	**EUR**	**Days within the EML Block**	**EUR**
Indemnity Period	24 months								
Total BI Value									
Total BI Loss Estimate		100		720		720		360	
Total PD + BI Value	**73,267,000**								
Total PD + BI Loss Estimate			**73,267,000**		**73,267,000**		**63,613,600**		**7,326,700**

LOSS ESTIMATE SCENARIOS

EML Block

The largest block of value without adequate fire separation covers the entire building. The EML Block represents 100% of the total sum insured.

The exposed neighbours are not included in this block.

Estimated Maximum Loss (EML)

An estimation of the maximum LE that could be sustained from a single incident, which is considered within the realms of probability but excluding losses that may be possible but remain unlikely. The primary fire protection, detection, or manual response system is ignored (e.g. sprinklers are ignored but credit is given for detection; if no sprinklers exist, detection is ignored), but a normal level of emergency response can be assumed (if applicable).

Excluded loss examples include fire following aircraft impact; fire following earthquake; or other natural catastrophe; and multiple seat arson.

With the automatic fire detection system impaired, a fire originating on the ground floor would spread rapidly. If the fire would be noticed the fire brigade would arrive in a very late stage. The fire brigade would encounter a smoke filled facility and would probably concentrate upon preventing fire spread to surrounding properties. An internal attack would not be considered. The separation walls would not be able to stop the fire and a large loss cannot be excluded.

In the event of a large catastrophe, it is likely that the majority of the processes could be outsourced to a temporary location elsewhere. Processes are rather simple and it is not expected that outsourcing would cause major problems.

The exposed neighbours are not included in this scenario.

Current Normal Loss Expectancy (CNLE)

The largest LE determined at the time of survey when considering all aggravating and mitigating factors. This can only be equal to or less than the EML.

A fire originating on the ground floor would eventually be detected by the partial fire detection system. Due to the long alarm verification procedure the fire brigade would be noticed after a long period of time. The fire would spread throughout the building, both horizontally and vertically. The fire would not be stopped by the separation walls. The fire would spread throughout the entire building. The loss of the combustible top floors would be 100% while the loss of the storey floors below could be somewhat reduced due to the presence of a fire resistive load bearing structure which is exposed to a moderate fire load. Overall the loss is estimated at 80% of the total sum insured.

In the event of a large catastrophe, it is likely that the majority of the processes could be outsourced to a temporary location elsewhere. Processes are rather simple and it is not expected that outsourcing would cause major problems.

Target Normal Loss Expectancy (TNLE)

The largest LE after all loss prevention risk improvements have been completed. Depending on the risk improvements made at the time of survey this will typically be less than the EML, but could potentially still equal the CNLE and/or EML

With the upgraded fire detection system and the fire resistive walls taken into consideration, a fire would be detected by the fire detection system and the quick arriving fire brigade would be able to perform an internal attack. The fire would be limited to a part of the building. The loss could roughly be estimated at 10% of the total sum insured.

RISK INFORMATION

Site Occupancy

This facility houses a university of applied studies with only theoretical studies. The university provides education to some 5,000 students. This is a normal university occupancy with class rooms spread over the entire complex. There are no workshops. Some 10 class rooms have been equipped with computers. Expensive Apple computers have been placed in a single class room on the second storey floor.

Besides class rooms, there is a coffee bar and a kitchen/restaurant on the ground floor.

Occupancy Fire Load

There are no large storage areas on site. There are only small scale storage areas containing furniture and catering goods.

There are two atrium areas (central lobby and auditorium). The central lobby has been provided with plastic publicity sheets that have been mounted to the sloped roof. This material has been impregnated with a fire retardant agent. Furthermore the auditorium has been provided with curtains that have been impregnated as well.

Compartmentation

Each building block is segregated by a number of fire resistive partitions on the ground floor. These partitions consist of fire resistive glazing in a timber frame. Normally the fire rating would be estimated at 30 minutes. However, the fire resistivity of the glazing could not be confirmed for all partition walls. The doors are closed automatically by the fire detection system.

The majority of the partitions on storey floors consist of timber framed doors which have been provided with embedded steel mesh wired glazing. The doors are kept in closed position at all times. The doors are not air tight and they are considered as smoke separations at the utmost.

Cable shafts and technical rooms are not cut off from the remainder.

The entire fire partition concept should be reviewed and upgraded to ensure that at least every building block is cut off from the remainder. It could be questioned whether the current concept meets the Dutch building regulations.

Construction

Building Name	Main Occupancy	Year Built	Construction Information			Overall Classification Summary	% Sprinklers Adequate	% Sprinklers Deficient	Storeys	Ground Floor Area (m^2)	Total Building Area (m^2)	Estimated Property Value Split (%)
			Roof	Walls	Insulation							
Entire Bulding	Office	1981	Highly Combustible	Combustible	Cellular plastic - non-approved	Highly Combustible	0	0	3	7,600	23,000	100

Construction Definition	% of Total Building Area
Highly Combustible	100

The building consists of 5 main blocks (A, B, C, D, E) that are all connected to each other. Buildings A, B, D and E consist of a ground floor and 2 storey floors. Building C consists of a ground floor and 4 storey floors. Building E has been provided with a basement. There are no activities in this basement and there are no materials stored. The are atrium areas in between blocks B, C and E and in between blocks A, C, D and Z. These atrium areas have been erected up to the first storey floor. There is one elevator in building C and one elevator in building B.

The buildings have a concrete fire resistive construction. The walls of buildings A, B, D and E consists of masonry. The walls of building C consists of aluminium panels with a non-combustible mineral wool core. The type of insulation material of the walls is not known. The roofs consist of steel deck panels that have been insulated with combustible polystyrene insulation material. The two atrium areas have been provided with a timber load bearing structure and steel deck roofs that have been provided with combustible polycarbonate sky lights.

There are concrete storey floors throughout.

Special Hazards

Summary Table

Special Hazard	Arrangement, management and protection #ADEQUATE	Arrangement, management and protection #INADEQUATE
Entire Bulding		
Industrial Deep Fat Fryers	1	0

Process hazards are confined to small scale storage areas, a waste storage area against the building, a kitchen and associated restaurant. The kitchen has been provided with deep fry installations.

Utilities Infrastructure

Electricity and Lightning
Electrical power is supplied by the public grid. It is stepped down on site by a single oil filled transformer that has been installed in a concrete vault. The transformer is owned and maintained by the public electricity board.

Heating and Cooling
The entire facility has been provided with a municipal hot water heating system. Warm water is supplied to the building by a fixed underground water main. This represents a negligible exposure to the plant.

Gases and Liquids
There are no gasses on site. Heating is done by a hot water heating system and the kitchen equipment is heated electrically.

Other
There are 10 main ventilation systems. These systems have been installed in 4 technical rooms on top of buildings B, C, D and E. Furthermore there are additional locally installed air conditioning systems throughout the building. The air inlet and air outlet ducts have been installed in these technical rooms. Each system serves a dedicated part of the building. The systems have not been interlocked with the fire detection system. In the event of a fire, contamination by smoke and soot throughout the entire building cannot be excluded. The ducts have been provided with fire dampers. Mr. Haver advised that these fire dampers have to be closed manually in the event of a fire. It is very unlikely that this would be done.

Arson Exposure

Waste is stored in temporary plastic mobile containers and in a single compactor. The containers are stored in a dedicated area against a blind brick wall. This area has been provided with a wooden fence to prevent access. Storage could be improved but in view of the storage against a blind brick wall and the limited possibilities to store the waste elsewhere on site, the situation is acceptable.

External Exposures

The are no direct exposures. The premises are situated underneath the flight path of airplanes. The runways of the airport of Schiphol are situated at a distance of 11 km.

Human Element and Maintenance Control Programs

Electrical Maintenance

There is a rolling program of fixed electrical inspections in line with the Dutch Standard NEN3140, with one fifth of the installation inspected each year. Thermographic inspections are included in this program.

General Maintenance

General maintenance to the building and technical installations is considered good. This does not include the overall condition of fire separations which is considered poor.

Permits to Work including Hot Work Controls

A hot work permit system is in place. A permit requires a full risk assessment to be completed prior to issue. The technical manager issues permits. Hot work permits have a time limit of 8 hours including a fire watch immediately after the hot work activities. Hot work is not performed after 15:00 and preferably not on Fridays. The hot work procedure is considered adequate.

Contractor Controls

A formal contractor management policy is in effect at this facility. The management always tends to use the same contractors that are familiar with the site and the specific safety rules. However, Engie is the main contractor and hiring sub-contractors is the responsibility of this main contractor. All contractors are received by the technical manager. Safety instructions are not necessarily discussed prior to any work performed. This is acceptable as we have confidence that the technical manager would issue additional safety instructions if needed. During their work, contractors are randomly controlled and supervised by the technical manager.

Housekeeping and Loss Control Self-inspection

An adequate program is in place with good standards maintained across the entire site. The technical manager performs a daily informal control round where all rooms are visited.

Domestic waste is temporarily stored in plastic mobile containers and a single compactor. There is a dedicated and fenced storage area next to building D.

Control of External Exposures

All yard areas are visited during normal working hours. There are no specific control rounds to observe yard areas.

Management of Change

All major projects are controlled by the technical manager. There is referral to local authorities but not necessarily to insurers.

Smoking Controls

Smoking is prohibited throughout the building. There was no evidence of illicit smoking and the policy appeared well implemented. Smoking is confined to a designated and adequate area near the building entrance.

Process Hazard Controls

Plant and Equipment Installations

All equipment is installed to a good standard in line with local code and best practice at the time of installation.

Instrumentation and Controls

There are no specific requirements relating to this occupancy.

Safe Shutdown Systems

There are no specific requirements relating to this occupancy.

Maintenance and Management

There is no on-site maintenance department. All maintenance work is performed by specialised contractors under supervision of the in-house technical manager. A preventive maintenance program is initialised by this manager and discussed with the main contractor named Engie.

Hazardous Goods and Spillage Response

There are no specific requirements relating to this occupancy.

Operator Training

There are no specific requirements relating to this occupancy.

Location and Construction

Electrical cables have been installed in vertical cable shafts throughout the building. The cable shafts are not cut off from the remainder. Combustible polyurethane foam has widely been applied to seal cable penetrations. Furthermore there are many unprotected penetrations in technical rooms.

Extraction Systems

Only electrical kitchen equipment has been installed in the kitchen. The hoods are regularly cleaned by the kitchen personnel. The exhaustion ducts are annually cleaned by a specialised company.

Electrical Installations

In general the electrical installations seem visually in a good state of repair. All electrical equipment has been installed in line with the Dutch standard NEN1010. All cables run in suitable cable trays. There is no redundant cabling.

Response Factors

Security and Access Control

Around the perimeter of the facility there is a chain link fence. The fence has a height of 2 meters. The fence is considered to be adequate for this type of risk. The gates are locked during idle hours. Windows and doors have been provided with standard type hinges and locks. All windows on the ground floor have been provided with burglary resistive glazing.

Automatic Fire Detection

A partial fire detection system has been installed in public areas and corridors. It is roughly estimated that 40% of the entire complex has been provided with this system. The system consists of point detectors. The alarm is transmitted to a constantly manned private alarm station. After alarm verification by a private security company the fire brigade is summoned. Due to governmental regulations regarding alarm transmission might not be possible to transmit the fire alarm directly to the fire brigade. Due to the relatively late detection of a fire caused by a partially present fire detection system and the relative long alarm follow up caused by the relative long alarm verification procedure, it is expected that the late arriving fire brigade would concentrate upon preventing fire spread to surrounding properties. The value of the fire detection system is limited to life safety and evacuation purposes.

The system is annually maintained by a specialised contractor. Furthermore monthly inspections are performed whereby a random number of fire detectors is activated and alarm signalling is tested.

Water Supplies for Manual Fire Fighting

Extinguishing water can be obtained from the underground public hydrants which are situated along the public roads. The hydrants are connected to the public water main. It is not known whether the public water main is maintained. The pressure and flow characteristics of the hydrants are unknown.

An unlimited supply of extinguishing water can be obtained from the nearby pond at a distance of 15 meters from the premises.

Public Fire Brigade

Due to the expected long alarm follow up procedure, the response time of the fire brigade is expected to be more than 20 minutes. The fire brigade completes familiarisation visits to the facility once a year.

Incident Response and Shutdown of Supplies

Evacuation drills are held on an annual basis. The site has an incipient emergency response team as part of Dutch legislative requirements, consisting of 20 employees. The team is trained to deal with fires using portable fire extinguishers and hose reels. The team receives an annual and well organized training. The primary purpose of this team is evacuation and life safety.

Fire Extinguishing Appliances

Suitable portable fire extinguishers and hose reels are provided throughout the site, which are serviced annually by a specialised contractor.

Fire Systems Maintenance and Impairment Management

No sprinkler system has been provided.

Fire Protection Systems

Automatic Sprinkler Protection

No sprinkler system has been installed.

Fire Water Supplies

No sprinkler system has been installed.

Fire Suppression System(s)

No fire suppression systems have been installed.

Business Interruption Information

In the event of a large catastrophe, the activities could be outsourced to other Inholland universities in the Netherlands or to a number of third party buildings. The majority of the activities are rather simple and no special building requirements are needed to outsource the processes. The rebuilding time is estimated at 24 months.

Contingency Plans

There are no business interruption plans.

Natural Catastrophe Exposures

Earthquake/Volcano

This site is located in a hazard zone 0 (Munich Re rating system where 0 represents a low hazard and 4 a high hazard).

Hurricane/Cyclone/Tornado

This site is located in a tornado hazard zone 3 (Munich Re rating system where 1 represents a low hazard and 4 a high hazard). According to the Munich Re rating there is no Tropical Cyclone & Hurricane hazard.

Winter Storm

This site is located in a hazard zone 3 (Munich Re rating system where 0 represents a low hazard and 4 a high hazard).

The site is located in a moderate hazard zone. There is a low susceptibility towards damage. Combined, the windstorm hazard is rated moderate.

Flood (River, Coastal, Surface Water)

General
Approximately one third of the Netherlands is built below the mean sea level. These areas are subdivided into 53 main dike rings and approximately 40 small dikes rings. The latter dike rings are situated along the river Maas in the south of the Netherlands. Dike rings are exposed to the sea, to rivers or both to the sea and rivers. All dikes rings are surrounded by either dunes and dikes or levees along the rivers. Government experts have calculated the probability of a dike failure and flooding of the specific dike ring.

Dike ring #14
This site is exposed to the sea and rivers. The premises are exposed to the North sea, Nieuwe Maas and Nieuwe waterweg. This site is located in dike ring #14 named 'Zuid-Holland'. The government data shows the probability of a flood of this site as one in 2500 every year. The total surface area of this dike ring amounts to 2,226 km2. The total length of the dike ring amounts to 236 km. The governmental rating of this dike ring is qualified as good and partly not determined. This dike ring has been subdivided in smaller areas by non classified dikes. The distance to the nearest classified dike ring is 3 km.

Sea
The site elevation is equal to the sea level. The site elevation is equal to the expected sea flood level. The site would probably not be flooded in case of a breakthrough of a sea dune or a sea dike.

River
According to Dutch government data a river dike breakthrough would result in an inundation depth of 1 m. The entire basement would be flooded. This is a rough estimate. As mentioned above the probability of a flood is one in 2500 every year. This is considered a normal risk.

Non classified bodies of water
Besides the risk of inundation from the sea and major rivers, the premises could always be flooded from non-classified ditches, rivers, canals etc. There are no inundation data for these bodies of water. The nearest non classified body of water is located at 15 m from the premises.

The site is located in a low hazard return period. There is a moderate susceptibility towards damage. Combined, the flood hazard is rated low.

Lightning/Hail

This site is located in a lightning and hail hazard zone 2 (Munich Re rating system where 1 represents a low hazard and 6 a high hazard).

Snow/Collapse

No excessive snow fall is expected in this part of the Netherlands. Roof inspections are conducted twice a year by a specialised company.

Other Natural Catastrophe

N/A

OTHER CLASSES: COMMENTS

Crime

General Description
The computer equipment is considered to be of high theft demand. Related to the portability of the goods the probability of theft is considered high. Normal, rather inexpensive computer equipment is present throughout the building but grouped in some 10 class areas. Such classes have been provided with anti-mask intrusion detectors. Expensive Apple computers have been installed in a single class room on the top floor in building A.

Physical Security
There is a chain link fence around the building. Furthermore the ground floor has entirely been provided with burglary resistive glazing.

Intruder Alarms
Mainly the ground floor has been provided with a intrusion detection system. Furthermore computer rooms and possible entrance areas on the top floors have been provided with such as system as well. Alarm is transmitted to a permanently manned central alarm station. The alarm station will alert a private security company. The watchman would go to the facility in order to verify the alarm and call out the police.

Other Security
The site has several internal and external CCTV cameras. The camera footage is recorded but not actively monitored. Therefore, the value of the system is limited to police investigation purposes after an incident.

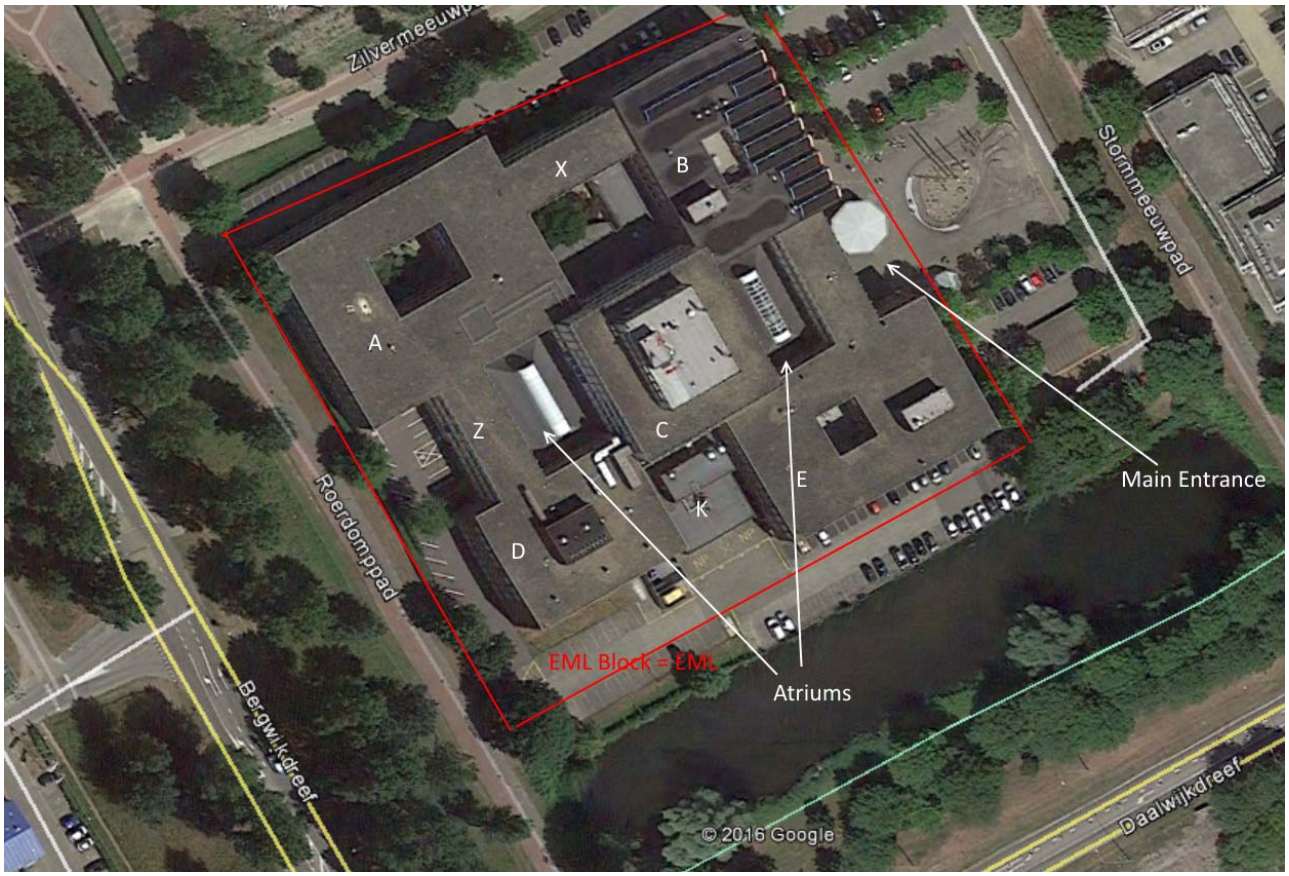
The yard is permanently illuminated during darkness. Lamps are automatically switched on.

Machinery Breakdown

A machinery breakdown assessment was not undertaken, as this is only a university occupancy. As such, no major machinery is present.

APPENDIX

Site Plans and Photographs





Overview



Example Non-protected Cable Shaft



Example Non-protected Technical Room



Example Smoke Resistive Partition



Waste Storage Area