

ACE Risk Control Program

AAA Report

Prepared for
UNIVERSITEIT UTRECHT
Yalelaan 104-114 / Munsterlaan 1, Utrecht

Inspection Date: 06/10/2015

ACE European Group Limited
Risk Engineering Services



insured.

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RISK INSPECTION DETAILS

Location:	UNIVERSITEIT UTRECHT Yalelaan 104-114 / Munsterlaan 1, Utrecht
Inspection date:	06/10/2015
Completed by:	Wout Jan Weide
Conferred with:	Mrs M de Groot

Purpose of Report

The purpose of this report is to:

- Identify risks and potential exposures to your business, and
- Assist you in minimising or mitigating these issues so that losses can be prevented and your business can be provided with greater certainty of continuing operations.

The report is prepared for use ACE European Group Limited and UNIVERSITEIT UTRECHT. Recommendations are listed where it is felt that specific improvements can be made to reduce the risk of a loss and meet either local, international or ACE standards, or industry best practice as assessed through ACE's involvement with thousands of clients around the world. The recommendations are prioritised according to level of urgency and cost to implement. These priorities can be used for planning or budgetary purposes and may assist in allocating resources to where the greatest benefit may be gained for every dollar or man-hour spent.

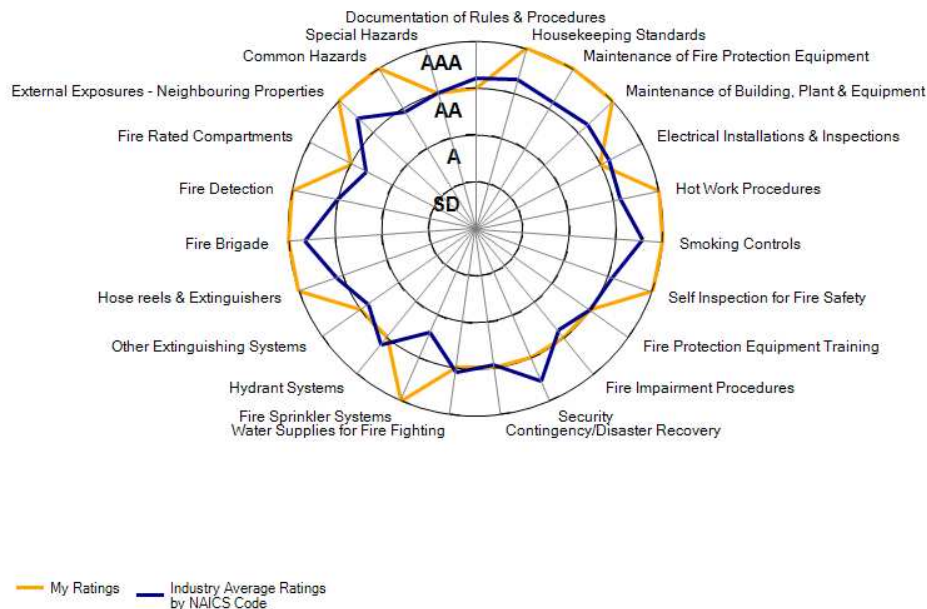
Disclaimer

This report has been prepared by ACE European Group Limited ("ACE") and is based on site inspections and information provided to us by your staff on-site and other sources external to ACE. In the circumstances, neither ACE nor any of its directors or employees give any warranty in relation to the accuracy or reliability of any information contained in this report. ACE disclaims all liability to any party (including any indirect or consequential loss or damage or loss of profits) in respect of or in consequence of anything done or omitted to be done by any party in reliance, whether in whole or part, upon any information contained in this report. Any party who chooses to rely in any way upon the contents of this report does so at its own risk.

RATINGS & BENCHMARK SUMMARY

Management Controls	Your Rating	Industry Avg.	Fire Protection	Your Rating	Industry Avg.
Documentation of Rules & Procedures	AA	AA	Water Supplies for Fire Fighting	AA	AA
Housekeeping Standards	AAA	AA	Fire Sprinkler Systems	AAA	A
Maintenance of Fire Protection Systems	AAA	AA	Hydrant Systems	AA	AA
Maintenance of Building, Plant & Equip	AAA	AA	Other Extinguishing Systems	AA	A
Electrical Installations & Inspections	AA	AA	Hose Reels & Extinguishers	AAA	AA
Hot Work Procedures	AAA	AA	Fire Brigade	AAA	AA
Smoking Controls	AAA	AA	Fire Detection	AAA	AA
Self-inspection for Fire Safety	AAA	AA	Fire Rated Compartments	AA	A
Fire Protection Equipment Training	AA	A	External Exposures	AAA	AA
Fire Impairment Procedures	AA	A	Common Hazards	AAA	A
Security	AA	AA	Special Hazards	AA	AA
Contingency / Disaster Recovery	AA	A	Construction Grade	4 - INF	
Natural Perils					
Earthquake	Slight		Winter Storm	Slight	
Tsunami	Slight		Bushfire / Wildfire	None	
Flood	Slight		Other	None	
Windstorm	Slight				
YOUR OVERALL RISK SCORE				71,3	

Industry Benchmark



The above Radar Graph shows your ranking (orange) as compared to your industry average (blue) for your North American Industry Classification System Code (NAICS)

Rating Definitions

AAA & Industry Average Ratings		Construction Grade	
AAA	Meets ACE or other identified Standard	FR	Fire Resistive (Concrete / Protected Steel)
AA	Minor Improvements Recommended	LFR	Light Fire Resistive (Light Non-Combustible / Steel Frame)
A	Significant Improvements Recommended	MIX	Mixed (Combustible Elements)
SD	Serious Deficiencies	INF	Inferior (Combustible)
Natural Perils Earthquake, Tsunami, Windstorm, Flood, Winter Storm, Bushfire, Other Natural Perils			
None, Slight, Moderate, Severe			
Risk Score (71,3)			
< 50	Poor	65 to 75	Average
50 to 60	Below Average	75 to 85	Good
60 to 65	Fair	> 85	Excellent
Note: A risk score of 100 requires maximum AAA ratings, FR Construction and Slight Extraneous Perils.			

Explanation

Your North American Industry Classification System (NAICS) Code, which is used for statistical reporting and data collection, has been assigned as NAICS: 611310 and this has been grouped in the Industry Sector of: Educational. Thus, depending on the Industry Benchmark graph or graphs provided, you may have been compared against the average results obtained for other sites that have the same NAICS or, against a number of different NAICS coded locations that ACE has inspected around the world that are all contained within the one 'Industry Sector'.

Please note that your Natural Perils rating is not compared to other sites but is a unique rating for each individual location.

EXECUTIVE SUMMARY

A large complex of three buildings:

- Jeannette Donker-Voet gebouw (Yalelaan 104-106 / Munsterlaan 1). The Jeannette Donker-Voet building houses offices, some research laboratories and a restaurant with a professional kitchen.
- - Dr. H. Jacobgebouw (Yalelaan 108-110). The Dr. H. Jacob building is in use as medical treatment centre for pets such as small animals up to dogs and cats. There are stables to keep the animals overnight for medical checks, MRI, a CT-scanner, and also radiation therapy.
- - Willem C. Schimmelgebouw (Yalelaan 112-114) The Willem C. Schimmel building houses the stables for horses including a few surgery rooms for horses. These rooms are equipped with special hoists to move the anesthetized horses to the surgery room and later to a special room/ stable with soft walls and floor to get awake again). This building also houses a large auditorium and the maintenance department.

These three buildings represent together one single fire area. Therefore the site is described in one report.

The building has a partly steel and partly concrete load bearing construction. Most of the roofs are made of concrete and partly of steel with mineral wool insulation. The exterior walls are a mixture of masonry provided at the outside with PUR insulation covered with tiles and partly with wood covered. Therefore is the construction rated as combustible (inferior). The building is widely spread and provided with several 30 and some 60 minutes fire retardant partitions. Fire detection is installed to close the fire retardant doors. Automatic sprinklers are installed in most parts, however not in some high value rooms such as the six surgery rooms (for pets) and the MRI-room. The MRI is comparable with one for humans and probably represents a value of about € 1 mio. Additional sprinkler protection is recommended under the roof for the storage of straw and hay (see photo), and some outside stables. Additional fire detection is recommended for the low tension room (no detection and no fire suppression system).

The human elements are well controlled, such as:

- a hot work procedure is in force
- smoking is prohibited and no signs of smoking was found in the building.
- housekeeping is at an excellent level.
- no yard storage nearby the buildings.
- good maintenance procedures of the buildings and fire suppression/detection systems.

Overall this site is rated adequate controlled due to the widely spread sprinkler protection and compartmentalization.

RECOMMENDATIONS

The following recommendations are submitted in the interest of risk reduction to property assets and business operations. Upgrades to fire protection systems should comply with the requirements of relevant local authorities and ACE Risk Management Services. Plans and specifications for improvements should be submitted to ACE Risk Management Services for review prior to the start of any work.

Recommendations have been graded according to the following priority and cost criteria to assist with resource allocation. Costs are estimates only and should be verified by Site Management.

Priority	Cost
Critical: Immediate Attention Recommended	Very High: > €100,000
High: Urgent Attention Recommended	High: €50,000 to €100,000
Medium: Review within 6 months	Medium: €10,000 to €50,000
Low: Long Term Risk Improvement	Low: No cost to €10,000

Recommendation Listing

Branddetectie in de laagspanningsruimte			
Rec. #	Priority	Cost	
2015-10-01	High	Low	
In de laagspanningsruimte (van het Willem C. Schimmelgebouw) zijn geen automatische sprinklers of branddetectie aanwezig. Wel is de ruimte brandwerend afgescheiden van de omliggende ruimten. Echter in geval van brand in de laagspanningsruimte dient deze zo snel mogelijk opgemerkt te worden om nog adequaat in te kunnen grijpen. Zonder deze ruimte zullen de werkzaamheden enige tijd gestaakt moeten worden. Om een brand zo snel mogelijk op te merken (in de smeulfase) zodat snel en effectief ingegrepen kan worden wordt geadviseerd de ruimte te voorzien van branddetectie met een doormelding naar de meldkamer.			
Response:			

Elektrische apparatuur van medewerkers			
Rec. #	Priority	Cost	
2015-10-02	Medium	Low	
In het gebouw zijn enkele elektrische apparaten aanwezig die geen eigendom van de universiteit zijn, zoals radio's, waterkokers, maar wellicht ook tosti- en koffie-apparaten. Deze apparatuur wordt veelal door medewerkers vanuit huis meegenomen en kan een twijfelachtige kwaliteit hebben. Geadviseerd wordt alle elektrische apparatuur van medewerkers te verbieden of alleen toe te staan nadat deze door de technische dienst zijn goedgekeurd en één keer per twee jaar wordt gecontroleerd. Na goedkeuring dient het apparaat een keuringsticker te krijgen.			
Response:			

sprinkler beveiliging			
Rec. #	Priority	Cost	
2015-10-03	Medium	Medium	
Een groot gedeelte van het gebouw is voorzien van automatische sprinklers. Echter buiten de paardenstallen is een overkapping in gebruik voor de opslag van hooi, stro en bevinden zich ook enkele buiten stallen. Deze ruimte is niet voorzien van automatische sprinklers. Een brand van deze materialen wordt niet gedetecteerd en tijdens de avond, nacht en weekends kan een brand lange tijd branden voordat deze opgemerkt wordt en daarbij de deels brandbare gevel ontsteken. Een dergelijke brand zal niet door de automatische sprinkler in het gebouw beheerst gaan worden waardoor nog steeds een (zeer) grote schade kan ontstaan. Aanbevolen wordt de ruimte te voorzien van automatische sprinklers (droog of antivries -systeem om bevroering te voorkomen).			
Response:			

MANAGEMENT CONTROLS		
Control	Comment	Rating
Documentation of Rules & Procedures	The university has a large number of procedures and rules documented. Overall these rules and procedures are quite well used by the different staff members. • Formal contractor policy & controls / induction • Formal safety program / policy covering Fire Protection promulgated and in use	AA
Housekeeping	The housekeeping is for this type of organizations well set up and maintained. The corridors are free of any storage. There is hardly any yard storage. • Adequate clearance to sprinkler heads (where installed) • Aisles & passageways kept clear of obstructions • All work and storage areas well controlled and in good state • Combustible materials cleared from hazardous areas • Fire protection equipment easily accessible • Idle pallet storage minimised and meets appropriate separation distances • No excess storage in process areas	AAA
Inspection & Testing of Fire Equipment	Fire detection and suppression systems are properly maintained. The fire retardant doors seem to be in good state of maintenance.	AAA
Maintenance of Buildings, Plant & Equipment	The building was renovated just a few years ago and including the exterior walls, the compartmentalization and the overall fire prevention. It seems to be that the state of maintenance is at a very good level at the moment. • All necessary lifting equipment, boiler and pressure vessel inspections in-date • Buildings appear in good state of repair and maintenance • Machinery / equipment preventative maintenance program in place • Maintenance Software used	AAA
Electrical Installations Inspections	The electrical installation is for all university buildings checked in accordance with the local standards NEN3140. Thermal imaging is done as well. A recommendation is made university wide to prohibit personal appliances or to have these checked by the maintenance department on a bi-annual frequency. It is also recommended to install fire detection in the low tension room (see rec.'s). • All penetrations adequately sealed • Backup generators full load tested yearly • Combustible materials kept clear of electrical installation areas • Thermographic scanning of electrical installation and transformers at least yearly	AA

Hot Work Controls	A hot work procedure is in force. This is university wide set up and taken care of by the maintenance department. • End of work inspections conducted and signed-off • Formal hot work permit system in use • Hot Work Permit system equivalent to ACE Permit system as minimum	AAA
Smoking Controls	Smoking is prohibited. There are no signs of any violation of the smoking ban. The smoking controls are rated good. • Formal policy and rules in place controlling smoking • Smoking only allowed in designated smoking areas	AAA
Self-Inspection of Hazards	Self-inspections are being done on a regular basis. The housekeeping is perfect and the site is well managed. • Documented fire safety self-inspection program in use (covers hazards and essential fire safety elements)	AAA
Fire & Emergency Response Training	Appropriate number of staff is trained as emergency response team. The team is trained in firefighting with small equipment, evacuation and first medical aid. • Appropriate staff undergo initial training in use of fire protection equipment • Site Emergency Response Team assigned and trained • Yearly refresher training undertaken as required	AA
Fire System Impairment Procedures	The automatic sprinklers and fire detection system are certified systems. If one of the systems is impaired the maintenance department is notified immediately. They will contact the contractor to perform the repairs as soon as possible. If the impairment will last a longer period (more than one day) the real estate department will be notified as well as the fire brigade. • All major impairments communicated to fire department • Formal fire protection system impairment system in use for fire detection system • Formal fire protection system impairment system in use for fire sprinklers / hydrants	AA
Site Security	The building is provided with a burglary alarm system. Alarm follow up is done by a security service that is located at the faculty terrain. They can arrive within 5 minutes after an alarm notification but probably within a shorter period. This is very important as especially the (racing) horses of clients can represent a very high value. • All external access fitted with appropriate locks or access system • Back to base intrusion alarm system installed and monitors all access areas • Guard response on alarm activation	AA



Contingency / Disaster Recovery Plans	As far as known no DRP or BCP is present. Researches and treatments need to be done at another facility/laboratory but could be seriously interrupted after a total loss of this building, especially due to the unique stables, surgery rooms and diagnostic equipment in this complex.	AA
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PROTECTION & HAZARDS		
Protection	Comment	Rating
Water Supplies for Fire Fighting	The public water supply consist of underground hydrants fed by the public water supply (grit). The private water supply is for the automatic sprinkler with two underground clear water tanks of 700 and 500 m ³ (all together 1200 m ³) feeding two pumps of Wijk en Boerma (192m ³ /h at 4.5 bar).	AA
Fire Brigade	Utrecht has a professional fire brigade with several stations. The closest fire station is within 10 minutes' drive. Back-up from other stations could arrive within 10 to 15 minutes.	AAA
Fire Sprinkler Systems	The automatic sprinkler is certified. There are two independent pumps with two independent clear water basins present. The system is certified and audited adequately. The automatic sprinkler minimum design is 5 litres/min/m ² over 360 m ² or 7.5 litres/min/m ³ over 260 m ² . The two automatic sprinkler pumps have a rated capacity of 192 m ³ /h (equals 3200 litres/min) at a pressure of 4.5 bars getting the water from two clear water basins of 500 and 700 m ³ . The pumps are tested once per two weeks.	AAA
Other Fire Extinguishing Systems	Not installed but not required.	AA
Fire Hydrants	The public grit of the public water supply also feeds the underground hydrants. In the stairs are dry raisers installed. The system is rated adequate.	AA
Hose Reels & Portable Extinguishers	The building is fully equipped with hose reels and extinguishers. These are properly tested and maintained.	AAA
Fire Detection / Alarm Systems	The automatic sprinklers can also be classified as automatic fire detection.	AAA
Fire Rated Compartments	The fire retardant partitions are reliable 30 minutes doors and are very important to prevent smoke and soot spread. Normally the fire will be controlled by the automatic sprinkler.	AA
External Exposures (Neighbouring Properties)	The other buildings of the university and the academic hospital are located app. 30 meters distance. Regarding the height of the building is the distance sufficient. The exterior exposures are classified as slight and acceptable controlled.	AAA
Common Hazards	Adequate controlled.	AAA
Special Hazards	Storage of hay, straw and animal food. The storage is in relative small quantities and bulk storage is located at sufficient distance from the buildings. At one location is the storage of hay in a non sprinklered part. it is recommended to install dry or anti-freeze sprinklers under this roof.	AA

NATURAL PERILS

Peril	Comment	Rating
Earthquake	According to Munich Re zone 0 (of 4). No hazard	Slight
Tsunami	According to Munich Re zone 1 (of 2). The site is at a fairly remote distance of the coast and a tsunami is not expected.	Slight
Windstorm	According to Munich Re: - Tropical cyclone: no hazard - Extratropical storm: zone 3 (of 4). - Tornado: zone 3 (of 4), however tornadoes are seldom in the Netherlands. The building has a solid concrete construction, however parts are quite old and therefore somewhat more vulnerable for storm damage.	Slight
Flood	According to Munich Re: - River flood zone 0 (of 2). - Flash flood: zone 2 (of 6). - Storm surge zone 2 (of 2), Normally flood is not covered in the Netherlands.	Slight
Winter Storm	The building has a strong construction and it is expected that it will withstand winter storms. According to Munich Re the hail risk is zone 2 (of 6).	Slight
Bushfire	There are no bushes nearby.	None
Other	No other perils identified.	

ALLIED PERILS

Peril	Comment	Rating
	A burst pipe is somewhat increased due to the presence of an automatic sprinkler system. On the other hand the system is installed in 2009 and is therefore fairly new and in good state of maintenance. The system is certified and well inspected. A burst pipe in the stables will hardly result into a financial loss. However a burst pipe in a high value room could result into a loss of more than € 100.000,-. Most high value rooms are not provided with automatic sprinklers. Damage due to animals: Many stables are used for horses. An angry or afraid horse can cause damage to the building and equipment. The horses are treated well, the building is constructed with solid materials but this kind of losses could occur.	Slight

LOSS ESTIMATES

Property Damage PML:	€106 392 306,00 With the automatic sprinkler system impaired the fire will be discovered after some time especially as a dormitory for hundreds of students is located nearby as well as the permanent open academic hospital. A large fire will be discovered quite fast after breaking out. The building has very large dimensions (very widely spread). A fire in the stables that is not controlled by the automatic sprinkler will cause smoke and soot damage and destroy a part of the building. A conservative loss estimation for PML is 70 % of the values of these three buildings.
Property Damage NLE:	€7 599 450,00 A fire is normally controlled by the automatic sprinklers, however some high value rooms are not sprinkler protected and a fire spread from these low fire load rooms could be expected to slowed down until the fire brigade arrives. The NLE is set at 5 %.
Business Interruption PML:	€0,00 BI is not covered and therefore not evaluated.
Business Interruption NLE:	€0,00 BI is not covered and therefore not evaluated.
Indemnity Period (months):	0 Months

DEFINITIONS:

Property Damage PROBABLE MAXIMUM LOSS (PML)

The portion of the property damage that we anticipate will be lost in a fire or other event when automatic plant protection and detection systems, including sprinklers are out of service. Adequate public and/or private fire brigade services including water supply and pressure are available.

Factors which affect PML are construction, occupancy, fire walls within a building, separation between buildings, degree of combustible loading, quality of responding brigade and value distribution.

Property Damage NORMAL LOSS EXPECTANCY (NLE)

The portion of the property damage that we anticipate will be lost in a fire or other event when all automatic plant protection and detection systems, public and private fire brigade services, respond and function as expected.

Factors that affect the NLE are construction, occupancy, fire walls within a building, separation between buildings, degree of combustible loading, quality of responding brigades, value distribution and the adequacy of automatic protections.

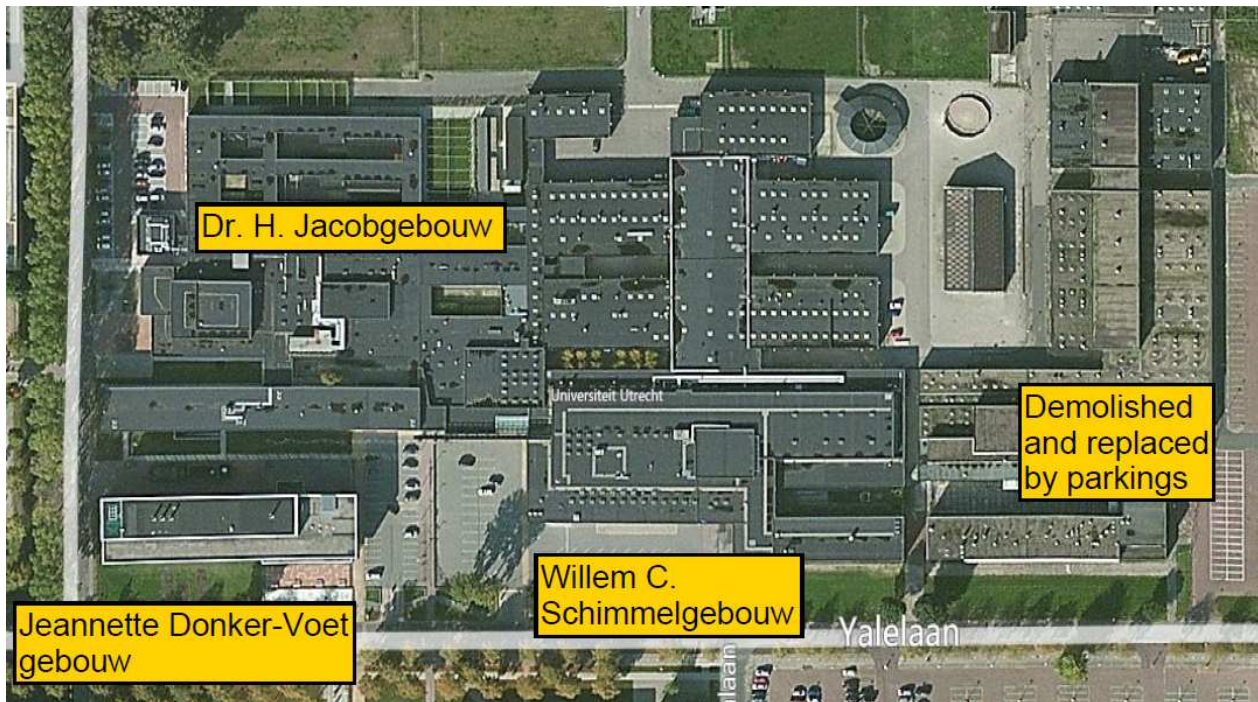


Business Interruption PML & NLE

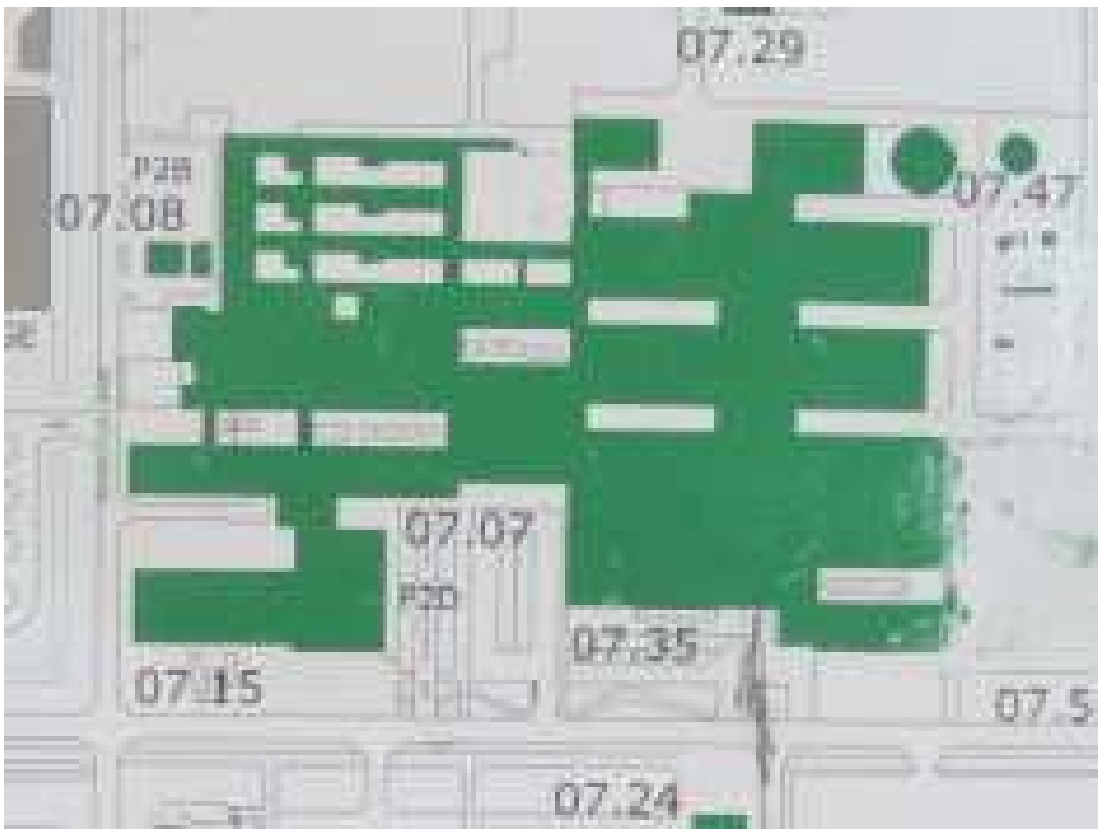
The portion of business interruption that we anticipate will be true lost production, revenue, income, and profit as a result of a given fire or other event. While consideration can be given to recovery features, considerable caution should be exercised when applying these to a given scenario. The existence of an applicable contingency plan will give an enhanced level of confidence here.

Note: The Business Interruption loss estimates are calculated using the same Property Damage PML and NLE loss scenarios.

ATTACHMENTS



Bing Maps photo of the site.



An overview of the building

General Photos



The surgery department at the Dr H. Jacobgebouw



Some of the exterior walls with wood.



Some hay storage (not sprinkler protected)



The exterior walls insulated with polyurethane and covered with tiles.



The stables area



The stables area



A surgery theatre for horses including hoists



The basement with technical utilities.



One of the emergency power generators.



Left the Jacob gebouw and right the Willem C Schimmelgebouw



At the rear (left the Jeanette Donker Voet gebouw).