

Risk Engineering Report



Prepared for:

N.V. VERZEKERINGSBEDRIJF GROOT AMSTERDAM (VGA)

Site Name: Stedelijk Museum

Date of Survey: July 14, 2022

Report Date: July 14, 2022

Survey Type: Property All Risk - Initial

TIV (EUR): 148,743,834

Site Address: Museumplein 10, AMSTERDAM, 1071 DJ, Netherlands

Latitude: 52.35791

Longitude: 4.87986

RFS ID: RFS-118599

SIC Code: 8412-01-Museums and Art Galleries

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Survey Contacts

Mereille Driessen

Procurement coordinator
Stedelijk Museum
T: +31630058954
M.Driessen@stedelijk.nl

Alvaro Kinkelaar

Chief Security Officer
Stedelijk Museum
A.Kinkelaar@stedelijk.nl

Simon Koekoek

Bouwkundige
bouAd adviesgroep
S.Koekoek@stedelijk.nl

Pierre Tol

Senior Acceptant Zakelijke
Verzekeringen
VGA
T: (06)51261627
ptol@vga.amsterdam.nl

AIG Contacts

Gordon Biezeveld

Field Risk Engineer
T: +31610209512
Gordon.Biezeveld@aig.com

Gordon Biezeveld

Account Risk Engineer
T: +31610209512
Gordon.Biezeveld@aig.com

Support Services

Client Resources:

We maintain a library of over 300 documents, forms and other resources created specifically for client use:

- Hot work permits
- Impairment tags
- “Insights”, a collection of risk related topics
- Tip Sheets, lists to use in preparing for extreme weather events

Ask your local risk engineer for access or email requests to
globalproperty.impairment@aig.com.

Impairment Hotline:

To report sprinkler system, fire pump, water supply or other fire protection outages at insured facilities:
Call us at +1 877-705-7287 or +1 817-490-3255 or
Email us at globalproperty.impairment@aig.com

Purpose of Visit

This facility was visited d.d. 21 April 2022 to undertake a risk assessment of the fire and associated perils for insurance purposes. The purpose of the assessment was to assist in the identification and mitigation of hazards and exposures that could lead to the loss or damage to assets or business interruption.

Site Overview

Stedelijk Museum Amsterdam and its unique collection:

The Stedelijk Museum Amsterdam is a museum of modern and contemporary art and applied art. The collection is one of the most important collections of modern and contemporary art in Europe. The museum exhibits art from 1860 to the present, including major works by Vincent van Gogh, Piet Mondrian and Henri Matisse. The most important movements of the 20th century and 21th century in both art and design are represented, including the Amsterdam School, Bauhaus, CoBrA, pop art and De Stijl. STEDELIJK BASE is the permanent installation of iconic works from the collection of the Stedelijk Museum. It occupies half of the lower level of the museum and features a selection of 200 pieces grouped around historic movements, social themes, and influential artists. The display begins with STEDELIJK BASE in the ABN AMRO Gallery including works by seminal figures such as Kazimir Malevich, Piet Mondrian, Gerrit Rietveld, Nola Hatterman and Charley Toorop. Next, visitors can take the escalator to the VandenEnde Foundation Gallery, where the extraordinary installation Untitled (Past, Present, Future) by Barbara Kruger is on view. Ranging from the origins of abstraction and industrial design in the late 19th century to CoBrA, STEDELIJK BASE is a perfect introduction to the history of modern art and design.

The museum is located along the Paulus Potterstreet, separated from the Van Gogh Museum by the Willem Sandberherplein and separated from the residential houses opposite the Van Baerlestreet with a view on the unoccupied Musuemplein scenic park for relaxation or events. There is only a Q-Park underground parking and Lockerpoint.com with public toilet in the proximity of the Stedelijk Museum at the front of the building. The external exposure is limited with sufficient distances between the Main building of the Stedelijk Musuem and other buildings. The Main building comprises out of two parts, being the original heritage building dating back from 1895 and the new 26,500 m2 add on construction from 2010-2012 by Benthem Crouwel Architects. The position on the Museumplein (Museum square) in Amsterdam, where the Rijksmuseum, the Van Gogh Museum and the Concertgebouw also are situated, created all options to be back at the top of the museums with a renovated and expanded building. The existing building of the Stedelijk Museum created in 1895 by the municipal architect A.W. Weismann, is celebrated for its majestic staircase, grand rooms and natural lighting. These strong points have been retained in the design by Benthem Crouwel Architects along with the colour white, introduced throughout the museum by former museum director Willem Sandberg (1945-1962). The new extension does not ask for more of the same, but to supplement by variety and by adding new opportunities for exhibitions. The old remains and forms unity with the new. Both in terms of exhibitions and routing, making compelling choices between old and new has been averted. The expansion is not a subordinate, or very different pavilion next to the existing building, but an integrated addition. The contrast of the new building versus the old building is obvious from the outside; inside the museum you hardly notice strolling from the new building into the old. The former entrance was unsuitable as a public entrance - with all the associated functions - to be maintained. While maintaining the strengths of the existing building was not possible to have all new components and public

functions, which create a museum of the 21st century, in the existing building. This restriction had the obvious ability of turn the orientation of the new museum toward the Museumplein. The Stedelijk Museum is the first museum with an actual entrance on the Museumplein. To make sure that the available space at the Museumplein would not be overbuild, but instead was appropriated as an entrance plaza to the south, the rotated orientation is optimally exploited. The new entrance seamlessly fits into the existing central access zone of the symmetrical building and is an extension. By partly lifting the added volume and sinking the rest underground, the existing building remains virtually untouched and fully visible. In the new entrance all public functions, such as the entrance desks, knowledge center, museum shop and restaurant are located in a large open, transparent space where the plaza floor continues to the outside of the existing building. The square is part of the building as much as it is a part of the Museumplein. The wing-shaped, cantilevered roof over the square at height of the stone frames, reinforces the open transition from square to building and removes any doubts about the whereabouts of the entrance. The smooth white volume, also known as 'the bathtub', is made from fiber enforced composite. The typical shape of the building arose by pulling the exterior facade tight around the interior functions. The jutting roof was added as a functional protection against sun and rain. Against the backdrop of the old building, the roof with the volume underneath is the new powerful image of the Stedelijk Museum.

AIG did visit the Stedelijk Museum earlier in October 2020 however no deliverable in the form of a written report was created.

Site Loss History

No information relevant to this report was made available at the time of survey

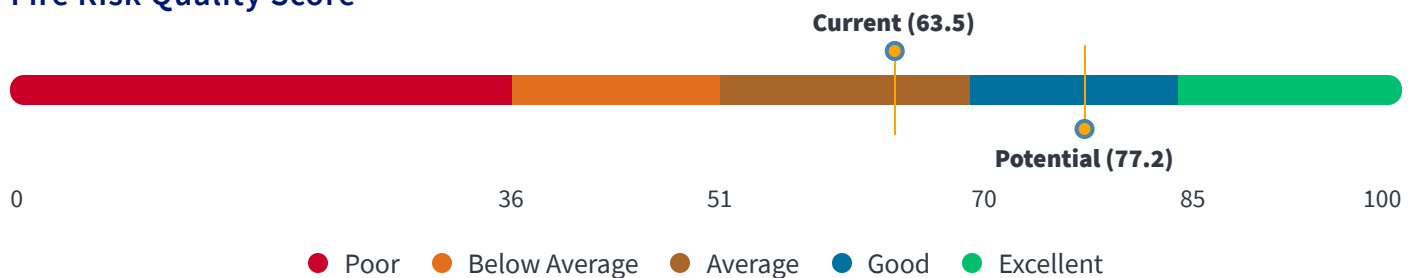
New Projects, Significant Changes and Observations

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	6	Open RI by Age	6	Open RI by Type	6
Critical	0	New	6	Management Programs	6
Important	2	Outstanding	0		
Advisory	4	Completed RI	0		

Fire Risk Quality Score



Ratings

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

Risk Improvements

Risk Improvements - Open

Number	Name	Classification	LE Before (EUR)	LE After (EUR)
22-04-02	Hot Work Program- Develop	Important	--	--
22-04-03	Impairment Program- Develop	Important	--	--
22-04-01	Improve dossier (file) with building specific information related to fire safety	Advisory	--	--
22-04-04	Self Inspection Plan- Develop	Advisory	--	--
22-04-06	MANAGEMENT OF CHANGE PROCEDURE	Advisory	--	--
22-04-05	DEVELOP A TRANSPARENT FIRE SAFETY MAINTENANCE PLAN	Advisory	--	--

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

Open Risk Improvements : Important

Number/Type	Name	LE Before (EUR)	LE After (EUR)
22-04-02 Management Programs	Hot Work Program- Develop		

Summary

Develop and implement a hot work program based on the AIG cutting and welding permit system to monitor hot work operations. The program should including logging and tracking of hot work and pre and post work approvals. The program should also require a continuous fire watch while hot work is being conducted, a 1 hour continuous fire watch after hot work has been completed and a 3 hour intermittent fire watch thereafter.

Details

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

Number/Type	Name	LE Before (EUR)	LE After (EUR)
22-04-03 Management Programs	Impairment Program- Develop		

Summary

Develop and implement a written program to manage impairments to fire protection systems and equipment. The program should establish actions necessary for impairment identification, tracking, reporting and restoration, and hazard evaluation and mitigation. Impairments should be tagged for visual indication and tracked using a computerized or paper log system. AIG should be notified of all impairments that will exceed 8 hours in duration.

Details

Impaired fire protection can result in a large loss if not properly managed. If an impairment occurs, appropriate precautions should be taken as necessary to minimize the hazard including:Notification of appropriate department heads in the affected areasShutdown of hazardous processesProhibit hot workProhibit smokingNotification of the central station\alarm receiving centerNotification of the public fireSupplemental manual firefighting equipment such as extra fire extinguishers and charged holes lines.Establish temporary connections to hydrants or adjoining sprinkler

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systemsExpediting completion of repair work AIG recommends that all impairments lasting longer than 1-shift or 8 hours be reported to the impairment desk. This will allow AIG to monitor the impairment and provide guidance regarding precautions that should be taken while the impairment exists. Impairments can be reported by calling 877-705-7287 or emailing GlobalProperty.Impairment@aig.com.

Open Risk Improvements : **Advisory**

Number/Type	Name	LE Before (EUR)	LE After (EUR)
22-04-01 Management Programs	Improve dossier (file) with building specific information related to fire safety		

Summary

Improve management's interest and approach with loss prevention by ensuring corporate and local policies recognize the importance of loss prevention and assign responsibility for overall loss prevention both corporately and at each location.

Details

Employee's attitude toward loss prevention is directly related to senior management's interest in it. Ensuring corporate and local policies recognize the importance of loss prevention can improve the employee's attitude toward it.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
22-04-04 Management Programs	Self Inspection Plan- Develop		

Summary

Develop and implement a written self inspection plan that requires regular, formal documented fire safety inspections. The plan should establish fire safety and fire equipment and system inspection frequencies and establish checklists for items to be inspected.

Details

Fire safety inspections can identify potential hazardous situations and ensure they are corrected on a continuous basis. Fire equipment and system inspection and testing will help ensure the protection equipment is properly placed, is serviceable and will operate if needed. NFPA 25 contains information on water based fire system inspection and testing. Those assigned plan responsibilities should be trained in its implementation.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
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Number/Type	Name	LE Before (EUR)	LE After (EUR)
22-04-06 Management Programs	MANAGEMENT OF CHANGE PROCEDURE		

Summary

Simple to understand procedure that does impact analysis before changes are implanted to a building, processes or installations (BIO measures).

Details

Changes in operational management or in the construction or installation technical nature may also have consequences for the RI&E, the IPB and/or the BCP document and the policy laid down therein. In order to recognize this in good time (in advance), proactive and integral consultation must take place within the Stedelijk Museum in order to be able to tackle these changes quickly and take appropriate measures. The fire-resistant sealing of penetrations in fire walls after the installation of new penetrations through a fire-resistant wall or ceiling with a fire-resistant function also belongs to this domain. Even decommissioning of installations or mothballing (temporarily putting them out of operation) belongs to this domain.

Number/Type	Name	LE Before (EUR)	LE After (EUR)
22-04-05 Management Programs	DEVELOP A TRANSPARENT FIRE SAFETY MAINTENANCE PLAN		

Summary

Easy-to-understand maintenance plan for fire safety facilities Stedelijk Museum

Details

A) Maintenance & Management Structural fire safety measures:

- a. Periodic inspection of structural fire safety facilities such as:
 - i. Fire-resistant penetrations and/or seals
 - ii. fire doors
 - iii. Blinds

B) Maintenance & Management Installation technical measures fire safety:

- a. For all installations (fire-related) including automatic fire alarm system, evacuation system and all smoke exhaust ducts, circuits & controls BMI, gas extinguishing system, etc.:
 - i. Periodic system certification by means of an independent third party with a certification scheme (CCV) whereby reports are received with Yes Conclusion and Inspection Certificate
 - ii. Maintenance certificate of periodic maintenance
- C) Maintenance & Management Organizational fire safety measures:
 - a. Supervision & self-inspection rounds, Work permits and Task Risk analyzes (TRAs)

Occupancy & Process Overview

Occupancy Details

Building	SIC Code	Description	Operating Days/yr	Operating Hrs/Day	Other Tenants
Stedelijk Museum	841201	Museums and Art Galleries	365	8	No

Hazards

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

Construction

Category	Current Rating	Potential Rating	RI's
Construction	ISO 3 / Class B Non-combustible (Light noncombustible with noncombustible metal deck roof)	ISO 3 / Class B Non-combustible (Light noncombustible with noncombustible metal deck roof)	0

Building	Year Built	# Stories	Height (m.)	Total Area (sq. m.)
Stedelijk Museum	1895	6	20	27,927

Area (1,000 sq. m.)

Building	ISO1/D	ISO2/C	ISO3/C	ISO3/B	ISO4/C	ISO4/B	ISO5/A	ISO6/AA
Stedelijk Museum	--	10.0 (35.81%)	--	--	--	10.0 (35.81%)	5.0 (17.90%)	2.9 (10.48%)
Total	0.0 (0.00%)	10.0 (35.81%)	0.0 (0.00%)	0.0 (0.00%)	0.0 (0.00%)	10.0 (35.81%)	5.0 (17.90%)	2.9 (10.48%)

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

According to the BAG viewer and the architect the Stedelijk Museum is currently approximately 27927 m2 in floor area. According to the user the usable space is approximately 16,000 m2 however the difference between the two is not clear.

Water Supply & Fire Pumps

Water Supplies

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

Name	Type	Pump Associated	Adequacy
Primary Fire water	Gridded Municipal	None	Adequate

Name	Type	Pump Associated	Adequacy
Sprinkler fire water	Tank or reservoir	1 or more Electric Pumps with no Generator	Adequate

Name	Type	Pump Associated	Adequacy
Secundairy fire water	Pond, River or other static source	None	Adequate

Fire Pumps

Name	Suction source	Driver	Shaft	Start Method
Van Wijk & Boerma	Tank or reservoir	Electrical Motor	End Suction	Auto

Driver approval	Approval listing	Controller approval	Pressure Churn (bar)	Pressure Rated (bar)	Flow Rated (Lpm)	Flow Max (Lpm)	Pressure @ max flow (bar)	Rated speed (rpm)	Pressure tank
UL	UL	UL	5.50	5.30	2,300.00	2,700.00	5.00	2,900.00	No

Protection

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

Sprinklers

Building	AS (%)	ASA (%)	ASN (%)	Fire Detection (%)
Stedelijk Museum	40.00	40.00	40.00	99.00
Total	40.00	40.00	40.00	99.00

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

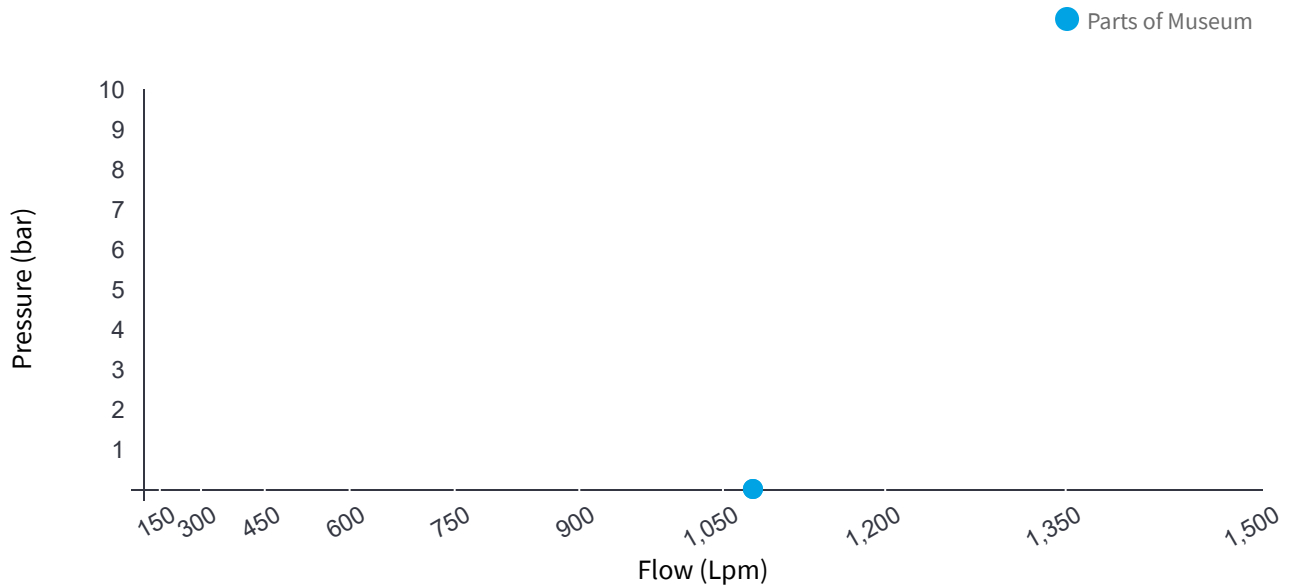
Area protected	System	Existing Design	Required Design	Adjusted BOR (bar)	Existing Flow (Lpm)	Hose (Lpm)	Adequacy
Parts of Museum	Wet	216 m2 - NIII (VAS) 5 mm/m2	216 m2 - NIII (VAS) 5 mm/m2		1,080.00	0.00	Nearly Adequate

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

Comments

There is currently a "No" conclusion for the sprinkler inspection by Bureau Veritas. The findings are not very shocking and refer for example to two concealed sprinklers that have been painted over with paint in the colour of the ceiling to hide the concealed sprinkler even more. Other findings relate to ventilation not being able to shut down during a fire event. For that reason, the sprinklered NLE for the new building has been adjusted to 100% of the design area instead of the normal 50% of the fire design area of the sprinkler (216 m2). The sprinkler (reinwater) tank is designed to be filled by continues feed (suppletie 60 m3/h) and the combined 88 m 3 tank with 60 m3/h suppletion adds up to 168 m3 which is more than the required 138 m3 sprinkler water design requirement. However that information is missing from the Bureau Veritas report due to their new report format design.

Combined Water Supply and Sprinkler Demand Graph



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

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

1.40

3.10

Comments

Fire station nearest to the Stedelijk Museum is Honthorststraat 27, 1071 DC Amsterdam (Fire Station Dirk). This is at 1.4 KM drive with an estimated arrival time in 5 minutes. The next nearest location is Poeldijkstraat 1020, 1059 VM Amsterdam (Fire Station Pieter) with an 3.1 KM distance and estimated arrival time in 8 minutes.

Supervision

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

Automatic Fire Detection

Signaling Systems Central Station/ARC	Recognized Yes	Monitored Line Yes	Fire Protection Alarm - Water flow - Pump Running - Smoke Detection - Tank Temperature - Low Building Temp - Pull Boxes - Pump Trouble - Dry Pipe Supervisory - Pump Power
Valve Locked Yes	Fire Detection Coverage (Including Sprinklers) at least 90%	Smoke Detection Monitored Yes	Other Alarms Yes

Maintenance, Testing and Inspection per NFPA 25
Satisfactory

Security

Security & Watch Service (24/7) Other	Round Frequency at least every 2 hrs	Security Rounds Recorded	Coverage 100%
Security Alarms - Breaking Glass Detection - Microphone - CCTV - Door Contacts	Intrusion Alarm Monitoring Constantly attended location	Site Fencing and Barriers None	Burglar and Theft Exposure Yes

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- Internal Movement
Detection
- External Movement
Detection
- Infrared Beam
- Vibration detection

**Vandalism / Malicious
Mischief Exposure**

Yes

**Sabotage and Terrorism
Exposure**

Yes

Management Programs

Category	Current Rating	Potential Rating	RI's
Emergency Organization & Planning	Adequate	Good	0
Self-Inspection Program	Adequate	Good	1
Fire System Impairment Procedures	Inadequate	Good	1
Contractor Management	Excellent	Excellent	0
Hot Work Permit	Nearly Adequate	Good	1
Smoking	Excellent	Excellent	0
Housekeeping	Adequate	Good	0
Planned Preventative Maintenance	Excellent	Excellent	0
Management Interest	Excellent	Excellent	3
Site Level Business Continuity Planning	Adequate	Good	0

Management Programs

Emergency Organization & Planning

Written Emergency Action Plan

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

Drills/practices conducted

periodically

Yes

Fully Updated

Yes

Self-Inspection Program

Self-Inspection Program

- Yes

Documentation

- Informal or undocumented checklists

Frequencies

- Minimum weekly or commensurate with the occupancy

Root cause & training

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

Risk Improvements

- Advisory

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Risk Improvements

Name	Classification
Self Inspection Plan- Develop 22-04-04	Advisory

Fire System Impairment Procedures

Written and documented procedure

- No

Risk Improvements

Name	Classification
Impairment Program- Develop 22-04-03	Important

Contractor Management

Contractor Training Program

- Yes

Management Program Features

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

Records

- Maintained electronically

Risk Improvements

- None

Hot Work Permit

Hot Work Program in Place

Communication

Logging

Is there Hot Work Occurring

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- Yes – Does not conform to AIG
- Communicated to personnel with mgmt. responsibilities assigned
- Automated/computerized logging system
- Yes – but none of the above conditions

Risk Improvements

Name	Classification
Hot Work Program- Develop 22-04-02	Important

Smoking

Policy

- No smoking allowed within the perimeter of the site

Appropriate Receptacles

- N/A

Inspections

- Weekly

Material Disposal

- N/A

Risk Improvements

- None

Housekeeping

Quality

- Commensurate with exposure

Inspections

- Irregular or lack of inspections; lack of documentation

Risk Improvements

- None

Planned Preventative Maintenance

PM Program in place

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

PM System

- Fully computerized and automated work order generation

Overdue Assignments

- Yes, but none past 60 days

PM of Critical Components/Equipment

- Conforms to manufacturer's minimum requirements

Risk Improvements

- None

Management Interest

Management Interest

- Proactive
- Supportive

Field Safety and Risk Management

- Top Priority

- Involved in Communications
- Respond Positively to Comments/Recommendations

Risk Improvements

Name	Classification
Improve dossier (file) with building specific information related to fire safety 22-04-01	Advisory
MANAGEMENT OF CHANGE PROCEDURE 22-04-06	Advisory
DEVELOP A TRANSPARENT FIRE SAFETY MAINTENANCE PLAN 22-04-05	Advisory

Site Level Business Continuity Planning

Business Continuity Plan (BCP)	Plan Details	Responsibilities	Risk Improvements
• BCP addressing common events	• Business Impact Analysis completed & documented by the BC team • Recovery strategies identified and included in BCP to limit consequences • Crisis team is addressed in the plan • Plan is updated and tested annually	• Plan supported by and responsibility taken at senior mgmt. level	• None

Exposures

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

Internal Exposure

External Exposure

Yard Storage

None

Water Intrusion Exposure

- Liquid damage prevention plan exists
- Plan is reviewed annually
- Control valves are identified and mapped including areas they control
- Remediation company is on retainer
- Water intrusion sensor detection system, plans or schematics for piping systems should be readily available in addition to control valve

Aircraft Exposure

Yes

Structural Collapse Exposure

Yes

BI Exposures

General BI

For the museum to function as intended the level of security and monitoring required to open safely and support normal operations is essential. Without the CCTV camera monitoring and without the security systems being operational, the museum cannot safely open and continue normal operations. Business interruption damage potential exists related to security organization which is highly depending on electrical power. Questions have been asked related to UPS capacity and camera operation power demand in relation to for example electric sprinkler pump. UPS has been designed for 240 minutes continuous support however at the time of the survey it was unclear which consumers are connected to the UPS and for what reason.

Production Lines, Key Plant Equipment, Bottlenecks and Critical Spares

Unknown

CBI : Key Supplier (Including Single/Sole Source)

Low Exposure

CBI : Key Customers Exposure

Moderate Exposure

Some people may want to visit the Museum for a specific collection or want to see a specific piece of art. If this is not available people might not visit the museum. Some people combine their visits to the location of the city of Amsterdam in relation with visiting other museums nearby, such as the Van Gogh museum or the Rijks Museum.

CBI : Attraction Properties Exposure

The Stedelijk Museum has a well established reputation with remarkable pieces of art, which in turn might attract people that consider its value. For that reason the level of security is much higher than average and more focus on CCTV camera systems and overall selection of security products and materials.

Distribution Centers Exposure

Unknown

Key Interdependencies

There is a certain interdependency between the Rijksmuseum and the Van Gogh museum both in operations (security cooperation, CCTV-camera image processing) and attracting a group of people to make combined visits to these museums simultaneously due to their proximity and location.

Makeup Capabilities

There is no alternative location available in case of disruptions, there is no back up location off-site elsewhere. People are predominantly attracted to the Museumplein location for a reason. The presence near other museums makes it an attractive location just outside downtown city center of Amsterdam.

Key EDP Equipment Exposure

Currently the EDP Equipment for security devices is concentrated at the -1 level of the old part of the museum building. Without it working properly the museum can't work and cannot open to the public to receive its guests.

Electricity Interruption Exposure

There are 3 UPS systems in the Stedelijk museum (10 kW, 20 kW, 30 kW UPS systems) in support of the IT-systems and security systems. Without electricity the museum cannot function. The shared capacity is approximately 240 minutes in duration maximum however the break down of the individual users and their energy consumption remains as yet unclear.

NATCAT Exposure Summary

	Flood	Wind	Earthquake	Hail	Collapse	Other
Zone/Exposure	<=100-year Flood Zone	38 m/s	MR Zone 0: <MMV	MRe Zone 2	Yes	Yes

Flood

Site Property Flood Zone <=100-year Flood Zone	Flood Emergency Response Plan Client has no BCP nor FERP in place	Mitigation Flood Defenses No Flood Defenses	Redundant Power/Utilities Client has limited power and utility redundancy
Site Access Vulnerability None	Below Grade Construction 2 or more story levels below grade construction with moderate to high contents/M&E exposure	Location of Critical Utilities Primary and/or redundant power distribution equipment located below grade or in basement level	

Building	Flood Zone	Flood Source	FFE (m)	100 Yr Flood Elv. (m)	500 Yr Flood Elv. (m)
Stedelijk Museum	<=100-year Flood Zone	Urban Flooding/Ponding/Stormwater	--	--	--

Wind

Wind Speed (m/s) 38	Redundant Power/Utilities Client has limited power and utility redundancy	Wind Emergency Response Plan Client has no BCP in place	Asset Strengthening Client has no documented asset strengthening - building > 17 years of age
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Building	Distance to Coast
Stedelijk Museum	10 and greater miles

Earthquake

Risk Engineering Report



N.V. VERZEKERINGSBEDRIJF GROOT AMSTERDAM (VGA)

EQ Zone

MR Zone 0:<MMV

Peak Ground Acceleration (%g)

2.00

EQ Emergency Response Plan

Client has no BCP in place

Redundant Power/Utilities

Client has limited power and utility redundancy

Seismic Bracing of Equipment

No seismic bracing or restraint is provided

Asset Strengthening

Client has no documented asset strengthening - building > 17 years of age

Seismic Gas Shutoff Valves (SGSV)

No flammable gas or liquid exposure present

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	148.74	100.0		0.0		148.74
MFL	122.71	82.5		0.0		122.71
NLE	21.27	14.3		0.0		21.27

Reported Values

Property Damage

Building (EUR)	Contents (EUR)	M&E (EUR)	Stock/Inventory (EUR)	Other PD (EUR)
104,120,684	44,623,150	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	148,743,834
Total BI Value	0
Total Insured Value	148,743,834

Maximum Amount Subject (MAS)

Total LE (EUR): 148,743,834

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Stedelijk Museum	104,120,684 (100.00%)	0 (100.00%)	44,623,150 (100.00%)	0 (100.00%)	0 (0.00%)	148,743,834 (100.00%)
Total	104,120,684 (100.00%)	-- (--%)	44,623,150 (100.00%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **148,743,834 (100.00%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total(EUR)
Stedelijk Museum	-- (--%)	-- (--%)	-- (--%)	--	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

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

Maximum Foreseeable Loss (MFL)

Total LE (EUR): 122,713,663

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Stedelijk Museum	78,090,513 (75.00%)	-- (--%)	44,623,150 (100.00%)	-- (--%)	0 (0.00%)	122,713,663 (82.50%)
Total	78,090,513 (75.00%)	-- (--%)	44,623,150 (100.00%)	-- (--%)	-- (--%)	

Risk Engineering Report



N.V. VERZEKERINGSBEDRIJF GROOT AMSTERDAM (VGA)

Total Property Damage Loss Estimate (EUR): **122,713,663 (82.50%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total(EUR)
Stedelijk Museum	-- (100%)	-- (--%)	-- (--%)	12	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

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

Normal Loss Expectancy (NLE)

Total LE (EUR): 21,270,369

PD Loss Estimate

Building	Bldg (EUR)	M&E (EUR)	Content (EUR)	Stock (EUR)	Other (EUR)	Total (EUR)
Stedelijk Museum	14,576,896 (14.00%)	-- (--%)	6,693,473 (15.00%)	-- (--%)	-- (--%)	21,270,369 (14.30%)
Total	14,576,896 (14.00%)	-- (--%)	6,693,473 (15.00%)	-- (--%)	-- (--%)	

Total Property Damage Loss Estimate (EUR): **21,270,369 (14.30%)**

TE Loss Estimate

Building	BI (EUR)	Payroll (EUR)	Rent (EUR)	Downtime (Months)	Total(EUR)
Stedelijk Museum	-- (--%)	-- (--%)	-- (--%)	--	--%
Total	-- (--%)	-- (--%)	-- (--%)	--	

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

Loss Estimate Comments

Under NLE conditions the "Old Building part" is considered mostly (45%) ISO 2 framed building with a combustible roof, this part of the building is unsprinklered. The floors are not considered a fire compartment due to the many openings between them for public having access between the building layers, therefore that section of the Museum is considered one large fire area. The fire brigade is most likely going to stop the fire due to low fire load, however focus is to stop the fire spread to other building parts. The fire starts due to electrical installation (NEN 3140 shortcummings) and progresses to the roofing area. Fire brigade will arrive on site and prevent the fire spread to other building parts however before fire is extinguished 14,5% of the building total is destroyed, more specifically the roofing area (4th floor) of the old building (framed wooden roof). This is partly fire damage (direct damage of the roof) and indirect damage (water damage) to the levels below (0,1,2,3rd floor). There is no BI as part of this insurance however BI is expected to be in the range of 12 months. There is no art insured under this policy, that is part of a special coverage elsewhere.

Deveations from the 100% NLE fire area (unsprinklered) are justified due to the low fire load elsewhere in the Museum. The roofing area will burn uninterrupted until the arrival of the fire brigade. The fire brigade will try to control the roofing area fire from within the starehouse. NLE is estimated in the range of € 21 million.

An other scenario has been considered, however it was not selected yet it is mentioned here for reference. The fire could start in the -1 level (underground) near the security room office. There are all the IT-patch infrastructures for CCTV camera services. Without that room which is part of a larger fire compartment covering approximately 50% of the -1 level floor area of the old building, the museum could not open. Due to the fact that the musuem does not insure Business Interruption (BI) the NLE scenario is not selected however should be considered due to business interruption consequences. A fire like this could prevent the museum from opening during approximately 12 months.

Images and Site Sketches



Impression of building as seen from Museumplein



The silhouette of the New building (2011) add on versus the old Stedelijk Museum part (1895)



The silhouette of the original building (1895) versus the Add on of the Stedelijk Museum (2011)

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.