

COPE Report David de Wied Building (Universiteit Utrecht)
Adress: Universiteitsweg 99, Utrecht

Report of

Participants:

Wout Jan Weide date of visit 11/04/2024
Mr Marco Thien (Facility Manager UU)
Mr Ruud van Zanten (Fire protection engineer UU)
Mrs Astrid Drenth (Aon Risk Consulting)
Mr Wout Jan Weide (Chubb Risk Engineer, writer of this report)

Introduction:

The University of Utrecht was visited April 11th, 2024 for a survey to get an impression of the exposures and controls. The building has In general in use as laboratory (40 %) and offices (60%). A special feature in this building is the presence of Electron Microscopes. There are in total eleven of these systems, from relatively old and simple to very expensive and sophisticated. The construction of the new rooms for the high value ones is done after agreement with Chubb Risk Engineering.

Number of stories: 10

Year built: 2000

(Main) NIACs Code: 611311 A property class 6

OCCUPATION:

The building has In general in use as laboratory (4 %) and offices (60%). A special feature in this building is the presence of Electron Microscopes. There are in total eleven of these systems, from relatively old and simple to very expensive and sophisticated. The construction of the new rooms for the high value ones is done after agreement with Chubb Risk Engineering. Furthermore there are two server rooms and a large part is constructed around a spacious atrium in use as offices and many desks for students where they can study for their exams (see photo's). There are about 1000 people working in/from this building.

CONSTRUCTION:

The building has a FR construction (concrete). The total building is made of concrete (walls, floors and roof. The roof is probably insulated with PIR and covered with a roof felt. The concrete roof is classified as a thermal barrier and therefore the building is classified FR. The atrium has a steel construction with glass roof.

The external walls are provided with a glass façade wall.

Chubb Fire Construction Class: FR (100%)

Internal combustible panels: None

External combustible panels: None

Superior Protected Risk: yes

RPF: 0%

LOSS ESTIMATES:

Ornstein Laboratory

	PD	BI over 36 months
TIV (Three buildings together)	€ 131.617.000	€ 50.000.000,- (extra expenses)
Amount Subject	100 %	20 %
PML	100%	100 %
NLE	10 %	10 %

The building has a large atrium and therefore the fire might spread to various floors of the building becoming uncontrollable if the automatic sprinkler is impaired (Amount Subject and PML scenario). In the PML scenario the fire brigade will try to limit the loss but due to the open character the fire might destroy the total building. Under NLE situations the fire detection will be alarmed and the automatic sprinkler will be triggered and control the fire to a limited part of the building. The most expensive electron microscope might be totally damaged (app. € 5.5 mio) and some smoke and soot damage resulting into a loss of app. € 13 mio.

Water supplies for firefighting:	AAA	Fire brigade	AAA
Management Controls	AAA	Risk Alert	No
% of location sprinkled	100%	% of location requiring sprinkler	100%
Chubb grade Serious Deficiency	No		
Smoke detectors	AA		
Burglary alarm	AA		
RPF other factors	0 %		

PROTECTION:

The water supply is by means of underground hydrants good. The public professional fire brigade arrives in 10 minutes. The selective fire alarm is directly forwarded to the central station as well as a sprinkler alarm. The building is fully provided with automatic sprinklers and some selective fire detection. There is some compartmentalization but the atrium is one open office space over 9 floors. The present protection is classified adequate.

A burglary alarm system is installed. Alarm follow up is done by a security service with the station around the corner (less than 100 meters). The building has also a good entrance control system. The two pumps for the automatic sprinkler have both a capacity of 66 m³/h @ 4.7 bars. Sprinkler design is 5 l/m²/min over 216 m² (NIII). Above high value equipment is a pre-action sprinkler installed activated by a cross zoned fire detection.

Evaluation of Exposures:

Ignitables: In the laboratories are ignitables used (liquids, solid materials and gases). Although not all laboratory rooms were visited we have the impression that this is done with adequate controls. There are fume hoods present, gas bottles are chained to prevent falling, ignitables are stored in special fire retardant cabinets with ventilation and spill trays, etc.

Coffee machines: A general recommendation is made to install water locks for the water supply of coffee machines (see rec.).

Electron microscopes: The electron microscopes are expensive research equipment. In total there are 10 pieces varying from low end with a value of about € 100.000 up to a high end (most expensive one) of € 5.5 mio. The low end microscopes are located in one fire division. It is quite easy to make the rooms smoke retardant (see rec.). The high end are all located in a separate unit in respect of smoke separation but also in respect of water damage control (water barriers). The total area is provided with pre-action automatic sprinklers. The housekeeping in these rooms is good. The technical corridor behind the low end microscope rooms is not provided with liquid detection (see rec.).

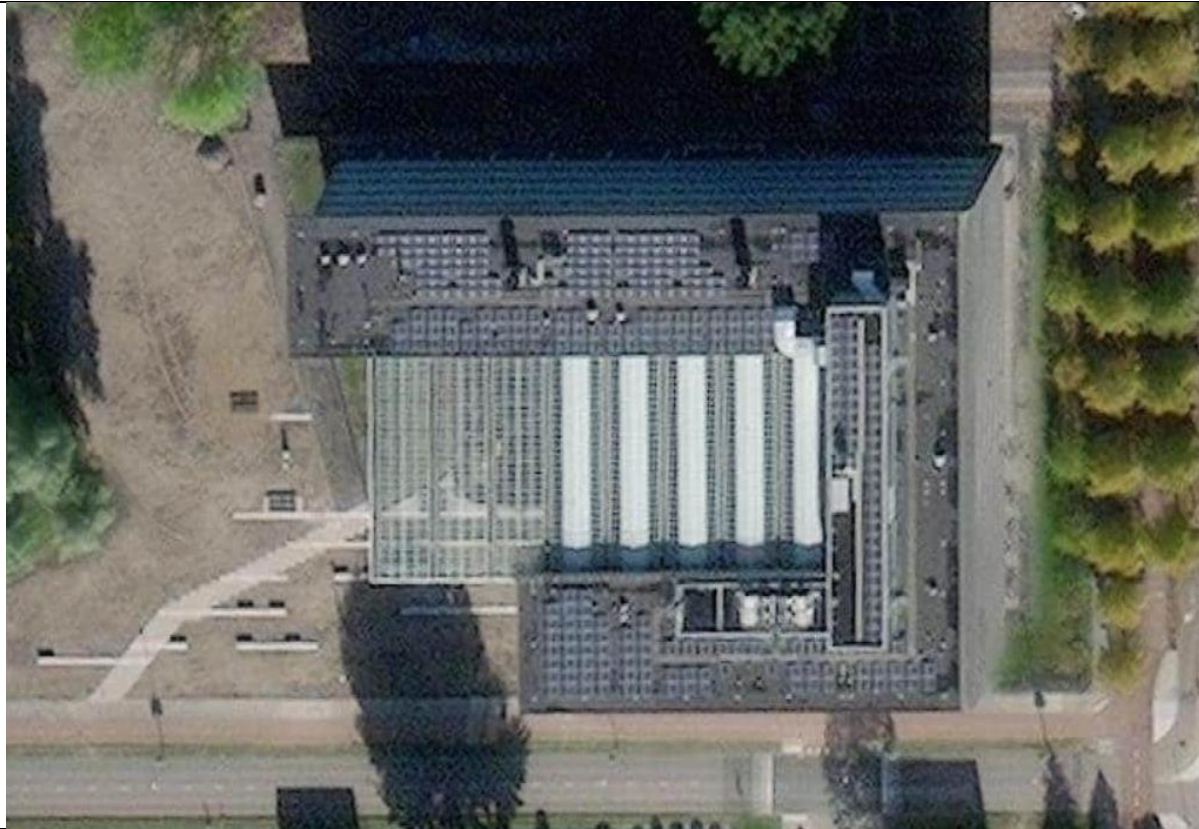
Server room: the server room is located at grade floor. The room is provided with clean agent total flooding fire suppression system and access control system. Controls are adequate.

Fire hazards: The fire hazards can be sub divided into:

- Unmanned (endurance testing): Some of the testing are 24/7 endurance testing including the with electron microscopes. As all these rooms are provided with fire detection and (pre-action) sprinkler protection the risk is classified adequate controlled.
- The electrical installation. The electrical installation is checked in accordance with the local standards NEN 3140 including infrared scanning. The cable penetrations are properly sealed off by a specialized contractor.
- Synthesis laboratory: in the synthesis laboratory are materials present that react with water. These can not be extinguished with water and therefore is the room provided with a clean agent total flooding fire suppression system.
- At the technical (top) floor is some storage that might cause a fast fire spread. It is recommended to remove the storage. (see rec.).
- PV-panels are installed on top of the roof. Although the systems seems to be well installed it is recommended to have these cleaned to remove dirt that can cause malfunctioning of the panels or that might cause fire over time (see rec.).
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Water damage: The coffee machines are connected to the tap water system without a water lock (see rec.).

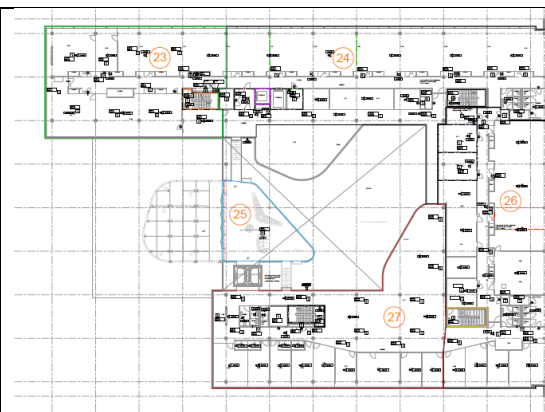
Next door buildings: The building is detached. Next door buildings are located at some 50 meters distance.



Overview of the David de Wied building.



Ground floor level



One of the higher floors.

Overall an acceptable risk.



David de Wied building



The utility room behind the various (smaller) electro microscope rooms.



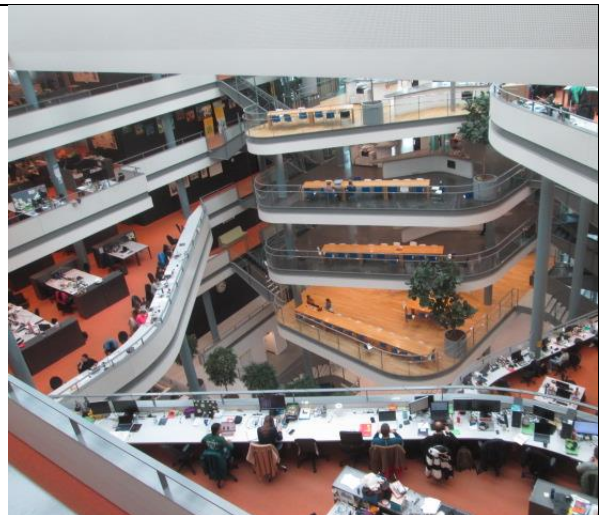
A smaller electron microscope



The larger microscope



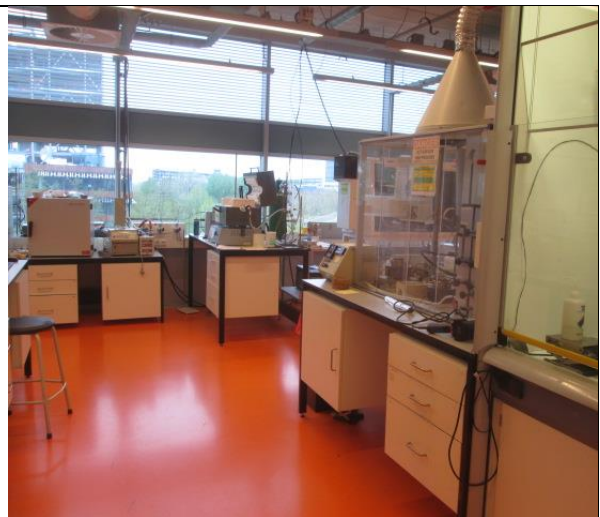
Double aspiration fire detection and extinguishing



The atrium and various floors



PV-panels on top of the roof (see rec.).



One of the laboratories at the North side



Sprinkler panel



Utility rooms free of combustibles.

AANBEVELINGEN:

2024-01 Watersloten

Koffie-automaten zijn op de waterleiding aangesloten via een kunststof slangetje. Watersloten zijn niet geïnstalleerd. Na verloop van tijd kan de slang open barsten en kan water onbeperkt uitstromen en voor een grote waterschade zorgen. Om een dergelijke schade te voorkomen worden watersloten aanbevolen waarbij getoetst moet worden of het waterslot na een slangbreuk van de toegepaste (dunne) slang ook daadwerkelijk dicht gaat. Indien dit niet het geval is dient een ander type slang gebruikt te worden.

2024-02 Vloeistof detectie

De Gang achter de low-end elektronen microscopen bevat water koelingssystemen maar geen vloeistof detectie. Om een lekkage snel op te sporen zodat adequaat actie ondernomen kan worden wordt aanbevolen in ruimte 0.37B vloeistof detectie toe te passen en vloeistoffen in lekbakken op te slaan.

2024-03 Afdichten gaten van low-end microscopen naar ruimte 0.37B

De Low-end elektronen microscopen staan alle in aparte ruimten opgesteld. Voor de koeling zijn gaten in de wand naar ruimte 0.37B geboord. Bij een onverhoopte brand kan rook en roet zich via deze openingen verspreiden en voor een grote rook- en roetschade zorgen. Aanbevolen wordt de gaten door een gespecialiseerd bedrijf af te laten dichten.

2024-04 Verwijderen opslag uit techniekruimten

De techniekruimte op de bovenste verdieping wordt deels gebruikt voor opslag. Deze brandbare materialen kunnen extra voeding aan een brand geven waardoor deze moeilijk beheersbaar wordt. Het wordt aanbevolen de techniekruimten vrij van opslag te houden.

2024-05 Reinigen zonnestroominstallatie

De PV-panelen op het dak zijn behoorlijk vuil en bevatten veel vogelpoepen. Een verstoring van licht en schaduw kan voor piekspanningen in een cel zorgen waardoor de cel op termijn kapot kan gaan. Op enkele plaatsen lijkt de cel al verkleurd, wat betekent dat er veranderingen optreden. Aanbevolen wordt de panelen te reinigen en deze minimaal eens per maand te controleren op verontreinigingen en schoon te laten maken indien nodig.