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COPE Report Huygens building (Radboud University)
Adress: Heyendaalseweg 135
Nijmegen, Netherlands

Report of [redacted] date of visit 17/04/2024
Participants: [redacted] (Facility Manager Radboud University),
[redacted] (Aon Account manager)
[redacted] (Aon risk engineer)
[redacted] (Chubb Risk Engineer, writer of this report)

Introduction:
The Radboud University was visited April 7th, 2024 for a survey to get an impression of the exposures and controls. The building is in use as:

- Laboratory building including offices and lecture rooms. In the basement is a parking garage.

Number of stories: 5 Year built: 2006

(Main) NIACs Code: 611311 A property class 6

OCCUPATION:
Faculty of science with 40 % laboratories and 60 % office like activities. The building is widely set up and has a good housekeeping. In the basement is an underground parking. The top floor is mainly in use for utilities such as air treatment, exhaust systems of the laboratories etc.

CONSTRUCTION:
The building has the following constructions:

- The four wings have in general a concrete load bearing construction. Exterior walls are insulated with mineral wool and glass façade walls. The roof is mainly corrugated steel panels insulated with mineral wool and covered with a roof felt. The floors are made of concrete.
- The connecting corridor has a partly concrete and partly steel construction and has glass façade walls. The floors are made of concrete. The roof is made of corrugated steel panels with a mineral wool insulation covered with a roof felt.

Chubb Fire Construction Class: LFR.

Internal combustible panels: None
External combustible panels: None

Superior Protected Risk: No

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LOSS ESTIMATES:

	PD	BI over 36 months
TIV (Three buildings together)	€ 313.652.000	€ 50.000.000,- (extra expenses)
Amount Subject	100 %	20 %
PML	50%	15 %
NLE	25%	10 %

The building is a single fire area without any reliable fire walls. The partitions consist of wired glass, however provided with automatic sprinkler protection at both sides. Under AS and PML conditions it is expected that the sprinkler is impaired. However for the PML scenario it is expected that the local fire brigade will be able to limit the fire to one wing but next door wings will have serious smoke and soot damage.

Under NLE conditions it is expected that a fire will start in one of the middle wings. The automatic sprinkler will cool down the wired glass resulting into a longer resistance of the fire rating. If the fire retardant wall fails anyway it might be expected that the windows of the connecting corridor will fail as well. Smoke and heat will be released into the open and therefore the smoke and soot damage to other wings will be limited.

Water supplies for firefighting:	AAA	Fire brigade	AAA
Management Controls	AA	Risk Alert	No
% of location sprinkled	10%	% of location requiring sprinkler	10%
Chubb grade Serious Deficiency	No		
Smoke detectors	AA		
Burglary alarm	AA		
RPF other factors	0 %		

PROTECTION:

The water supply is by means of above ground hydrants good. The public professional fire brigade arrives in 5 minutes. The fire alarm is directly forwarded to the central station of the fire brigade. The buildings are provided with fire detection in combination with compartmentalization. The connecting corridor (multiple levels) is provided with automatic sprinklers. The wired glass partitions to the connecting corridor has sprinkler protection at both sides. Therefore the glass will be cooled and that will result into a longer resistance.
The connecting corridor has glass façade walls that will probably break in case of a fire and therefore the heat will be released to the open. The fire load in the connecting corridor building is very low.

Evaluation of Exposures:
Deep fat fryers. The lower part of the Erasmus tower is being provided with four cooking island to server different kind of foods. Deep fat fryers are provided with automatic wet chemical fire suppression systems.

Exterior exposures: The buildings at the East of the Huygens building are interconnected to the site by means of concrete tunnels without any fire load. The partitions at both sides are 60 minutes. The length of the tunnel is 60 meters. The NMR/MRI building (green roof in the Nearmap photo) is more at basement level and only a limited part of the roof and exterior wall is above the pond and grade level. Therefore this building is classified as a separate fire area.

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

- 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.
- Housekeeping is in general good.
- A very limited number of PV-panels are installed on top of the roof (less than 10).
- Electrical bicycles: Staff and students come to the site on bikes and some of these (more and more) have batteries. The batteries might be charged in the offices and/or in the bicycle parking under the building. A recommendation is made to reduce the risk.
- Electrical cars can be parked in the underground parking. There are only four charging stations available in the middle of the parking garage (see rec.). The parking is provided with heat and smoke removing ventilation system. According to our latest standards charging stations for EV's in underground parkings should be 120 minutes fire retardant separated to the floors above and the charging stations shall be provided with automatic sprinkler protection.
- Electrical appliances: staff take electrical appliances such as toasters, sandwich grills, microwaves, etc. into the building for personal use. These type of equipment should be removed and periodical surveys need to be done to prevent that new equipment will be installed or all equipment need to be checked by an electrician once per two years (see rec.).

Water damage: No special hazards are identified, however the partial sprinkler might cause a water damage. In general is the sprinkler not present above high value equipment.

Overview of the Huygens building. At the right (green roof) is the MRI building. This is at basement level and just a minor part is above the pond/grade level) Therefore this exterior exposure is classified as separate fire area.

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Plan of the building	The connecting corridor between he four wings.

Overall rating: Below average.

	
Different kinds of gases with central and decentral valves	Example of personal electrical appliances

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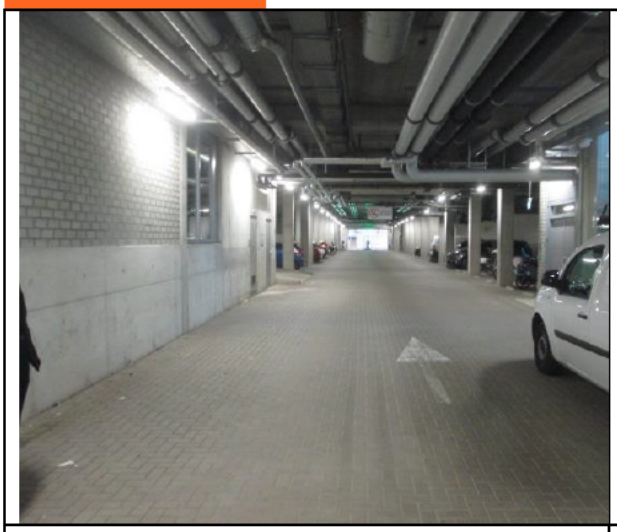

Underground parking garage

Charging stations

The exterior

The exterior

AANBEVELINGEN:

2024-01 Laden van elektrische voertuigen in de ondergrondse parkeergarage

In de ondergrondse parkeergarage zijn vier laadplekken voor elektrische voertuigen aanwezig. Van elektrische voertuigen is bekend dat deze relatief vaker tijdens het laadproces in brand raken en dat een brand bij dergelijke voertuigen zeer moeilijk te beheersen is. Daarom hebben wij een aantal preventiemaatregelen opgesteld om de schade bij een dergelijke brand zo beperkt mogelijk te houden:

- De laadpalen kunnen buiten het gebouw op minimaal 10 meter afstand van de gevel geplaatst worden OF
- Alle hieronder genoemde maatregelen dienen getroffen te worden:
    - De laadplekken dienen voorzien te worden van automatische sprinklers met een sproeidichtheid van 12 mm/min over minimaal 140 m², met een minimale sproeitijd van 120 minuten.
    - De brandwerende wanden van de trapopgangen naar de bovenliggende verdieping dienen opgewaardeerd te worden tot 120 minuten brandwerendheid. Dit kan gerealiseerd worden door de wanden 120 minuten brandwerend te maken of door aan de garagezijde sprinklerkoppen te plaatsen die de wand gaan koelen in geval van brand waardoor de brandwerendheid toeneemt.

2024-02 Controle elektrische apparatuur.

In het gebouw zijn diverse elektrische apparaten aangetroffen die eigendom zijn van personeelsleden en studenten, waaronder tosti ijzers, broodroosters, magnetrons en radio's. In veel gevallen is de apparatuur te oud voor thuis maar nog goed genoeg voor op het werk. Dit soort verouderde apparaten kan een ontstekingsbron voor brand zijn. Geadviseerd wordt om dergelijke apparatuur te verbieden OF minimaal eens per twee jaar door een deskundige te laten controleren en na goedkeuring te laten voorzien van een sticker.

2024-03 Laden van elektrische fietsen

Steeds meer personeelsleden en studenten komen naar de universiteit op een elektrische fiets. Uiteraard juichen wij deze milieu bewuste wijze van transport toe, maar we moeten niet vergeten dat dit ook de nodige risico's met zich mee brengt. Fietsaccu's kunnen door vallen mechanisch beschadigd zijn waardoor het risico op brand toeneemt. Acculaders worden soms in een fietstas gedaan waardoor deze onvoldoende koeling krijgt of mensen nemen de accu mee naar hun werkplek om daar de accu boven de verwarming in de zon te laden. Door al deze factoren neemt de kans op brand toe en veel medewerkers zijn zich daar onvoldoende van bewust.

De volgende maatregelen worden geadviseerd:
De fietsaccu's worden op een aangewezen plek opgeladen, vrij van brandbare opslag en materialen. Acculaders worden tijdens het laden niet in fietstassen geplaatst. De laadplek voor elektrische fietsaccu's is voorzien van branddetectie met doormelding naar een permanent bemenste centrale. Er is een formeel verbod op het laden van elektrische fietsen op andere plaatsen dan de aangewezen laadplek. Er is voldoende toezicht op naleving van dit verbod (mede door het houden van zelfinspecties).
Daarnaast is het natuurlijk mogelijk om de laadruimte te voorzien van een automatische sprinkler.