

Welkom namens de TVVL regio Zuid-Holland & Zeeland

Nieuwbouw European Patent Office Rijswijk

Programma

13.30 - 14.00 uur ontvangst

14.00 - 14.15 uur toelichting contractvorm (system engineering)

14.20 - 14.30 uur presentatie gebouw

14.30 - 15.15 uur uitleg installaties en regeltechniek

15.30 - 17.00 uur rondgang project

17.00 - 17.30 uur drankje op bouwlocatie

17.30 - 18.00 uur verplaatsing naar dinerlocatie

18.00 - 21.00 uur diner in Restaurant "Savarin".

Sponsors



Nieuwbouw European Patent Office



European Patent Office

- **Opdrachtgever European Patent Office**
- **Nieuwkantoorgebouw ter vervanging van het oude Main gebouw in Rijswijk**
- **Huidige gebouw voldoet niet meer aan de huidige eisen**
- **Gehuurde locaties onderbrengen in de nieuwbouw**
- **Ontwerp op basis van PVE**
- **87000 m²**
- **1750 single office kantoren**

Wat doet EPO

- **Beoordelen en verstrekken van patenten voor de aangesloten landen.**
- **Volledig gefinancierd uit de inkomsten van deze patentaanvragen.**
- **Hoog beveiligings niveau in verband met patent rechten**
- **Concentratiewerk, geen verstoringen.**

Wat vraagt EPO

- **Voldoen aan de requirements**
- **Hoge eisen aan comfort voor de medewerkers**
- **Geen verstoringen door geluid, trillingen etc.**
- **Bedrijfszekerheid**
- **Flexibiliteit van het gebouw**
- **Duurzaamheid**

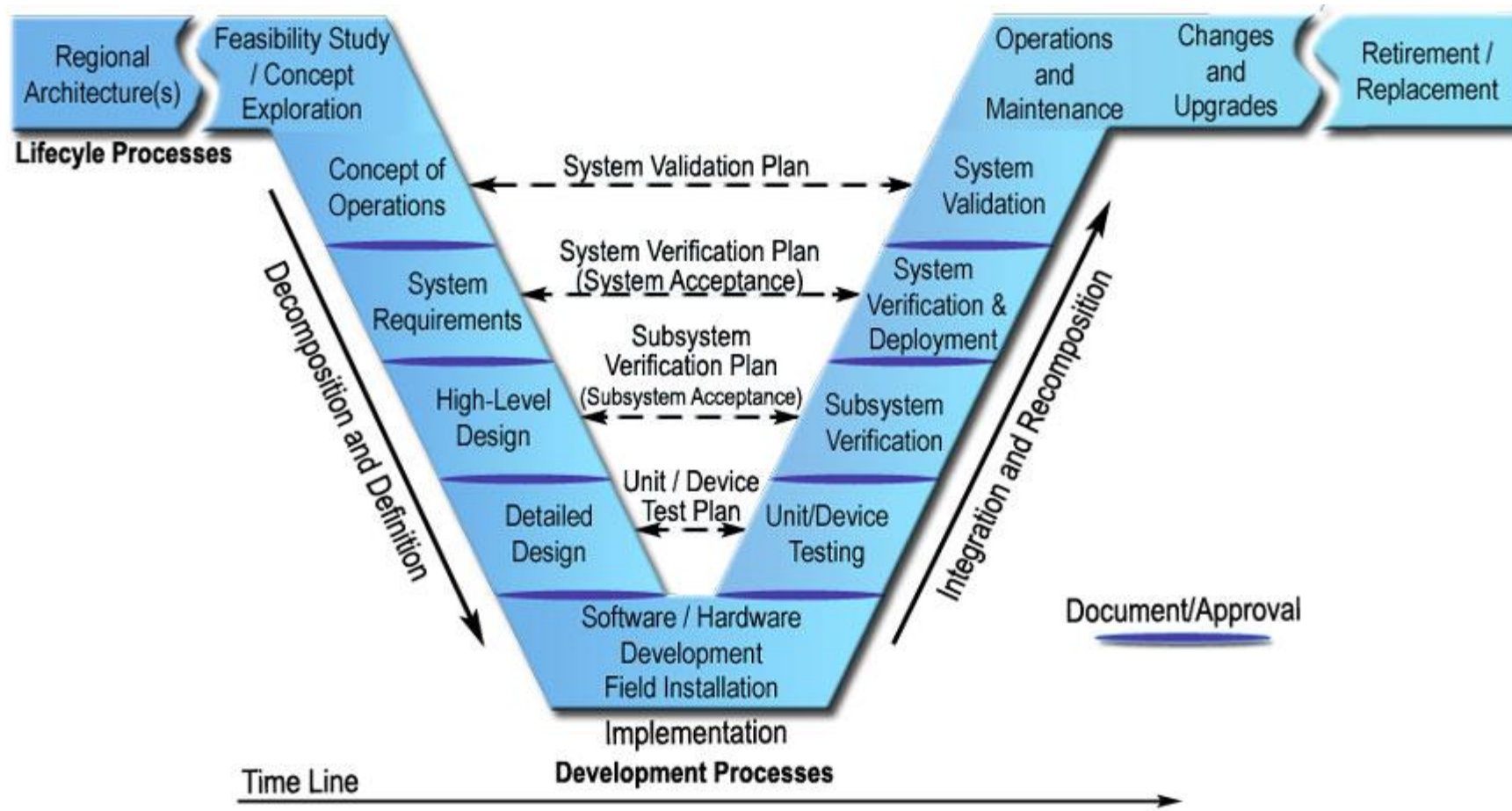
Contract

- **Basis UAV-GC contract**
- **Program of requirements**
- **Quality requirements**
- **System requirements**
- **Annex I-XX**
- **General conditions**
- **Agreement**

Aantoonbaarheid

- **Alle ontwerp en realisatiestappen aantonen door Systems engineering**
- **Relatics als middel**
- **Verificatiematrix met onderscheid in projectfases**
- **Construction Work Inspection Plan**
- **ISAT**
- **Wijzigingenbeheer**
- **Extended Warranty Inspection Plan**

System engineering

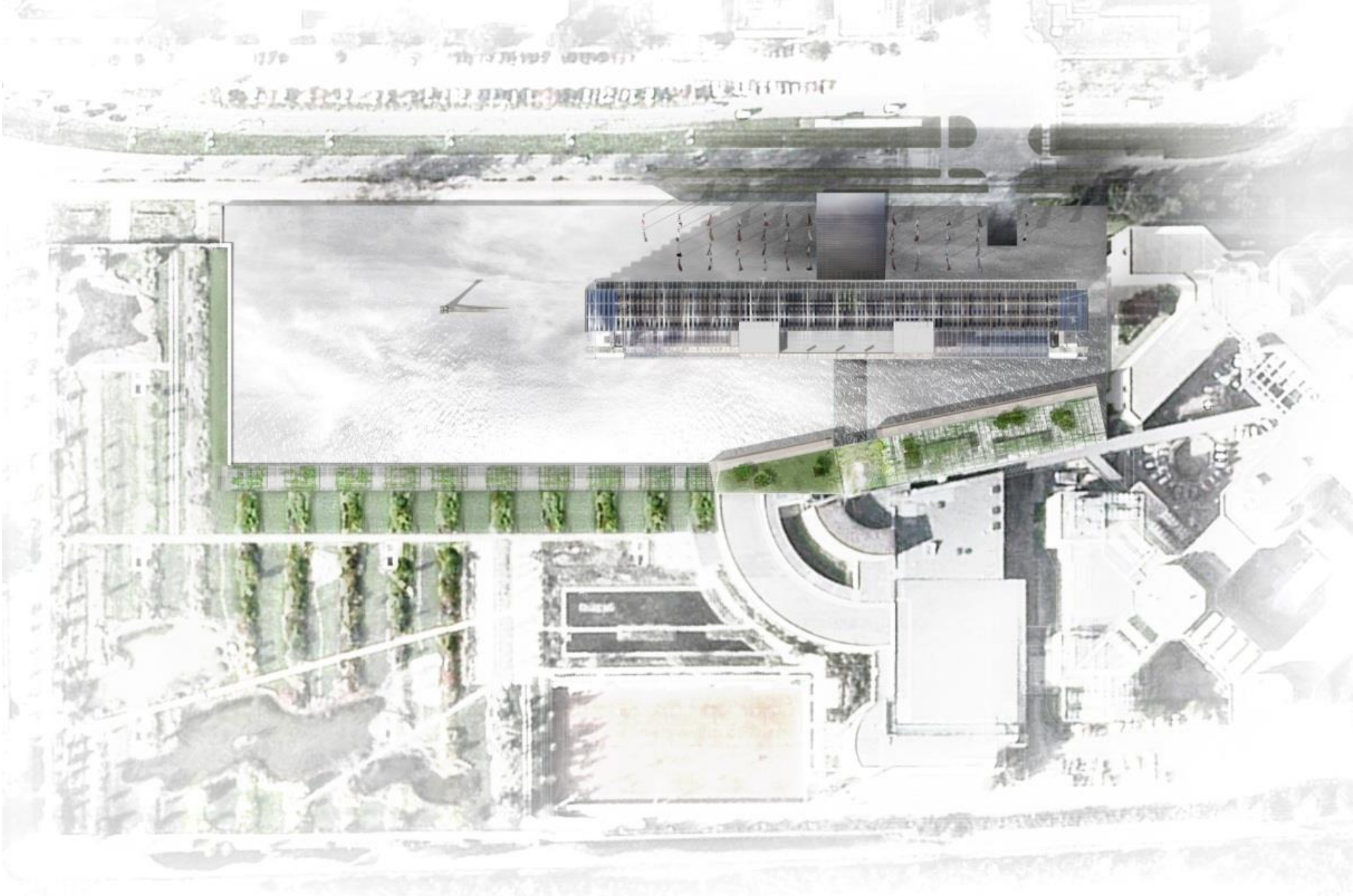


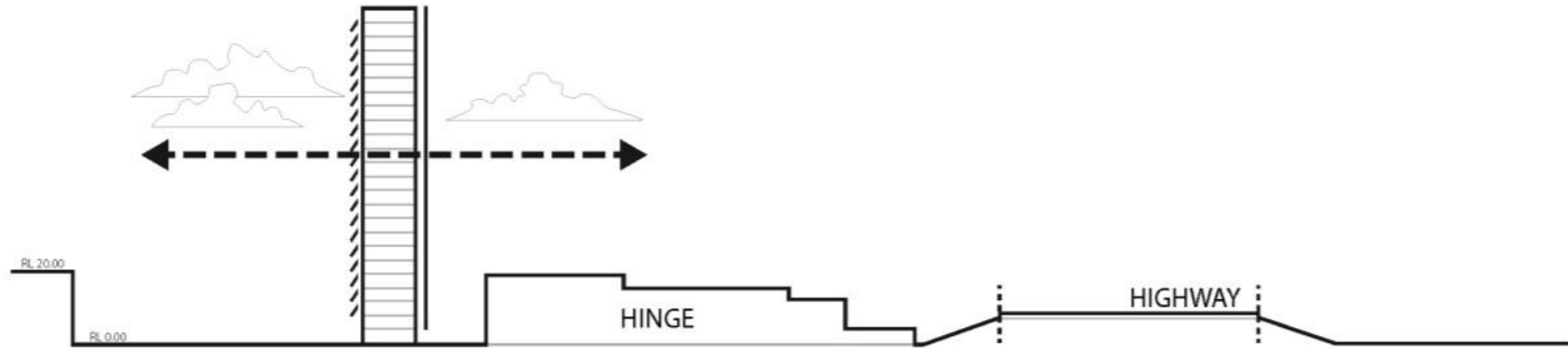
System engineering

- **Alle EPO eisen in relaties gezet**
- **Plus de afgeleide eisen**
- **Methode van verificatie benoemen**
- **Bewijstukken**
- **Discussie over het niveau van afleiden van de eisen**

- **Ontwerpen vanuit de eisen en niet vanuit aannames**

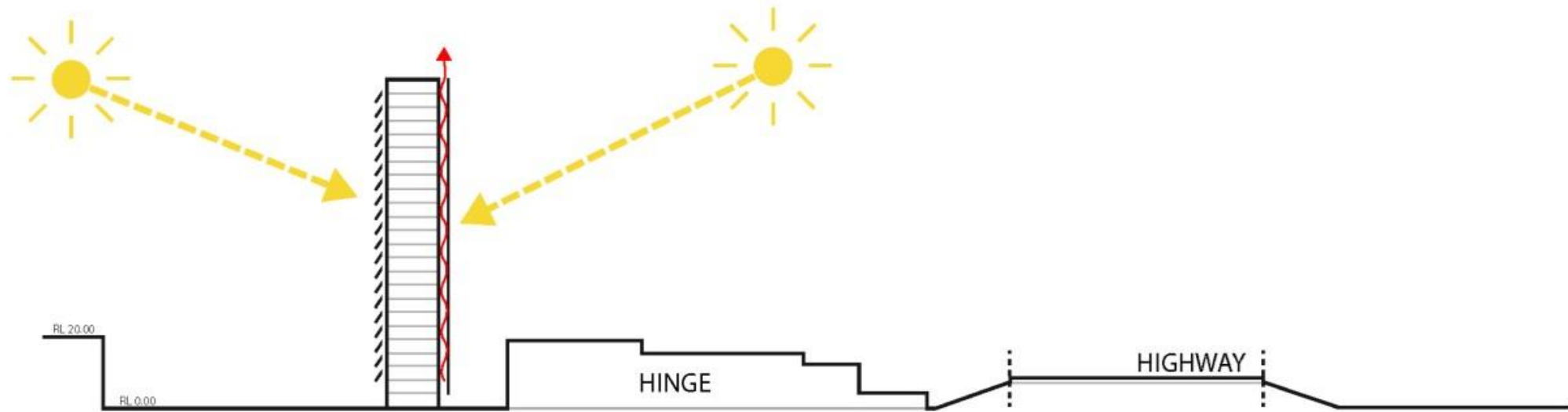






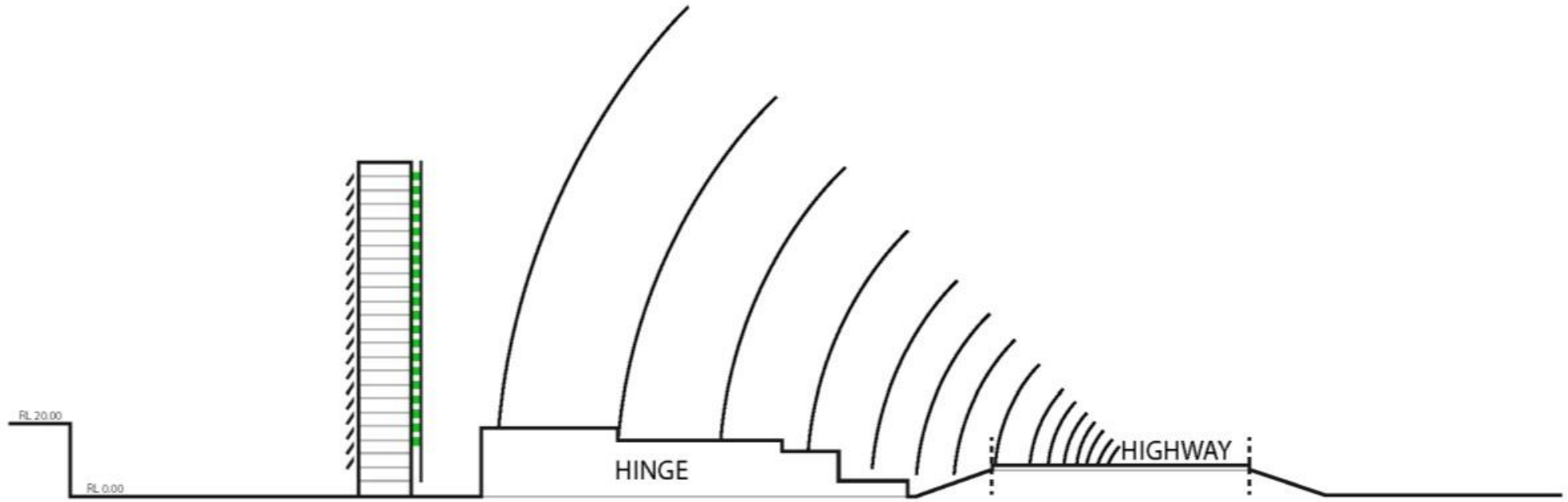
TRANSPARENCY AND LIGHTNESS

Slenderness and transparency creates the experience of floating in midair, providing dual panoramic views and maximum natural light.



PASSIVE COOLING/HEATING SYSTEM

The air gap and vegetation within the double skins simultaneously regulate temperature and improve air quality.



SOUND BARRIER

The East double skin serves as a green buffer, reducing noise pollution.



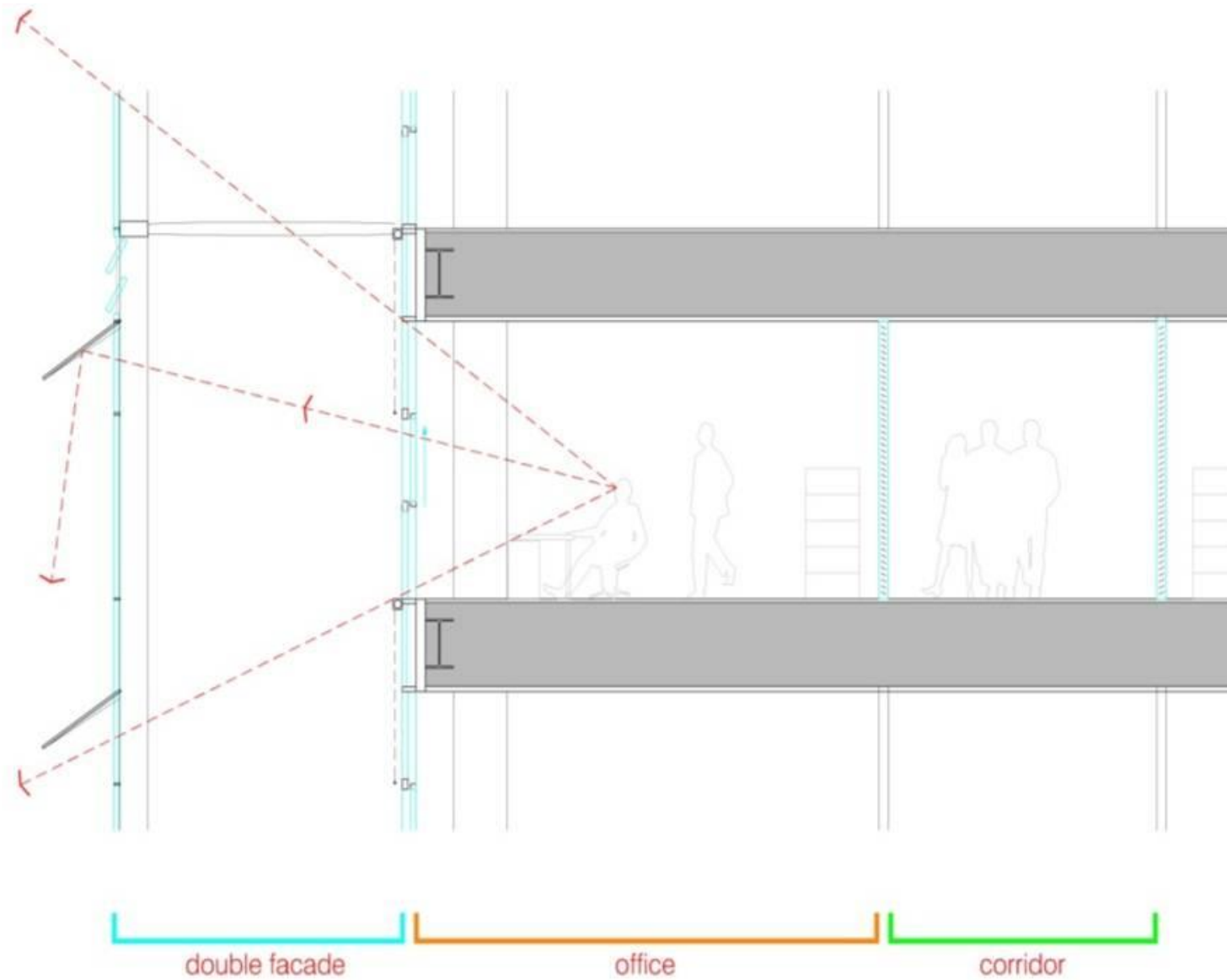
REFLECTIVITY

The pool is reflected off the louvers, becoming visible from the offices and integrated into the sky and the horizon.

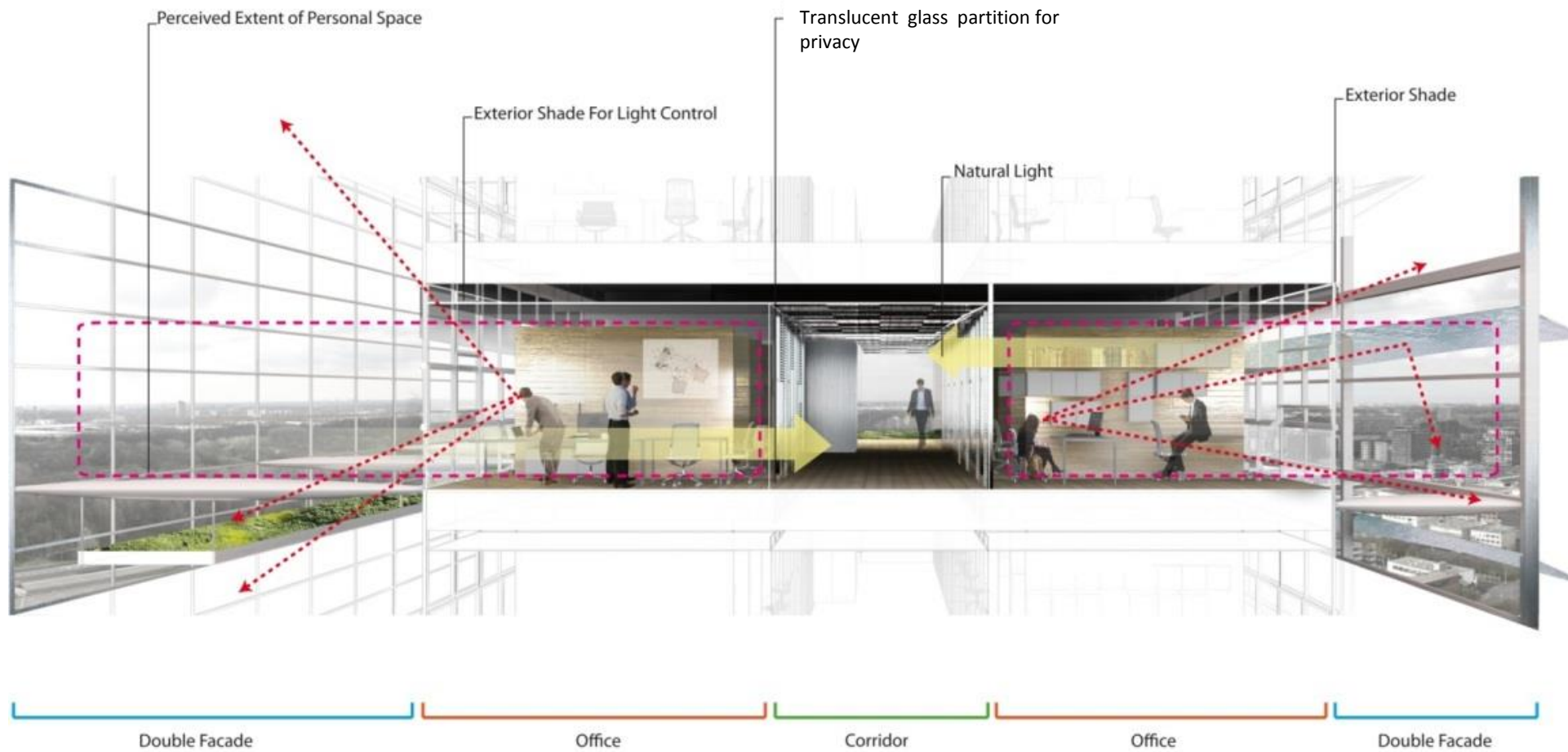


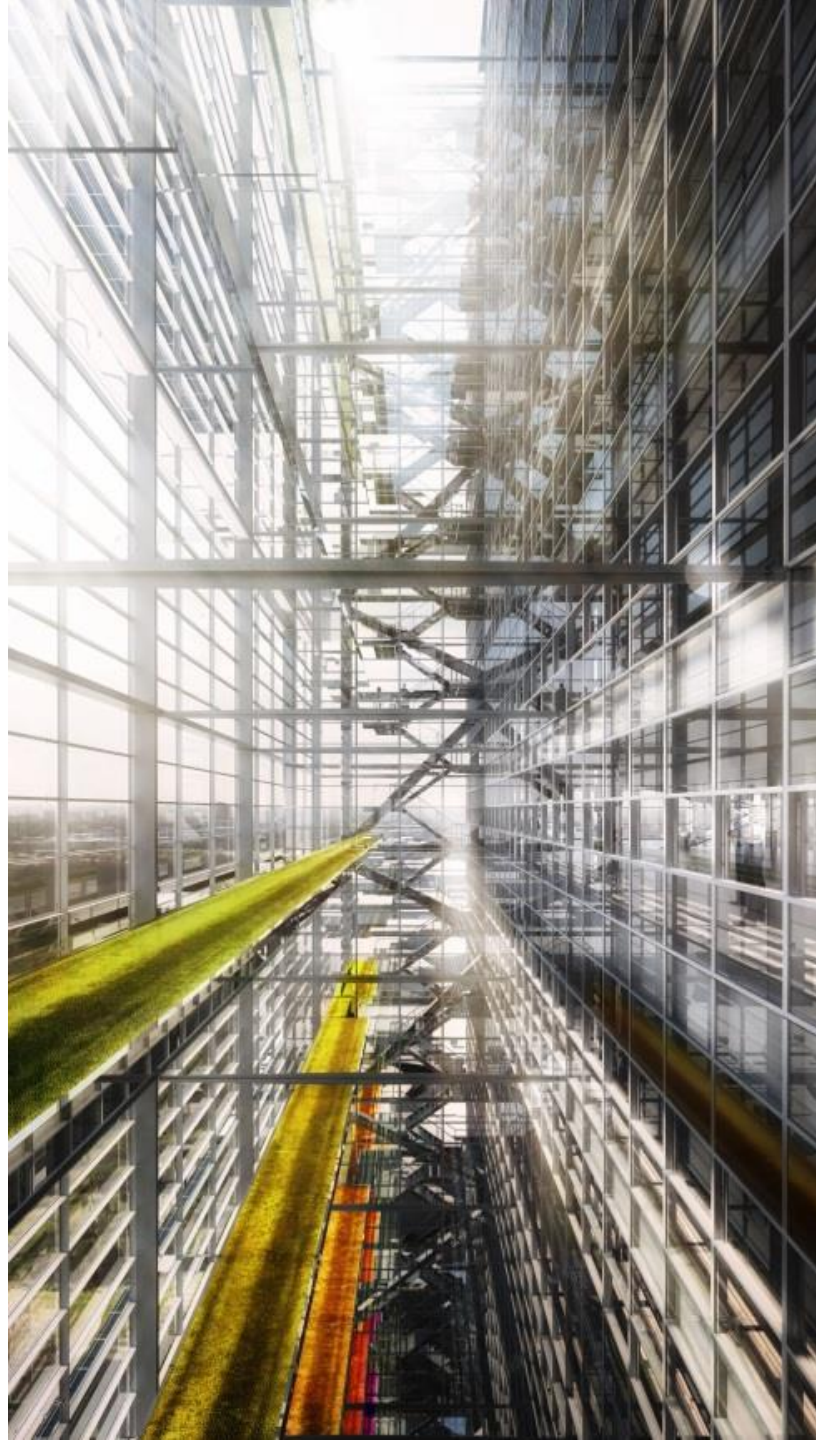
UNDERWATER CONNECTION

Employees and visitors experience the unique sensation of underwater light and reflections as they enter the lobby.

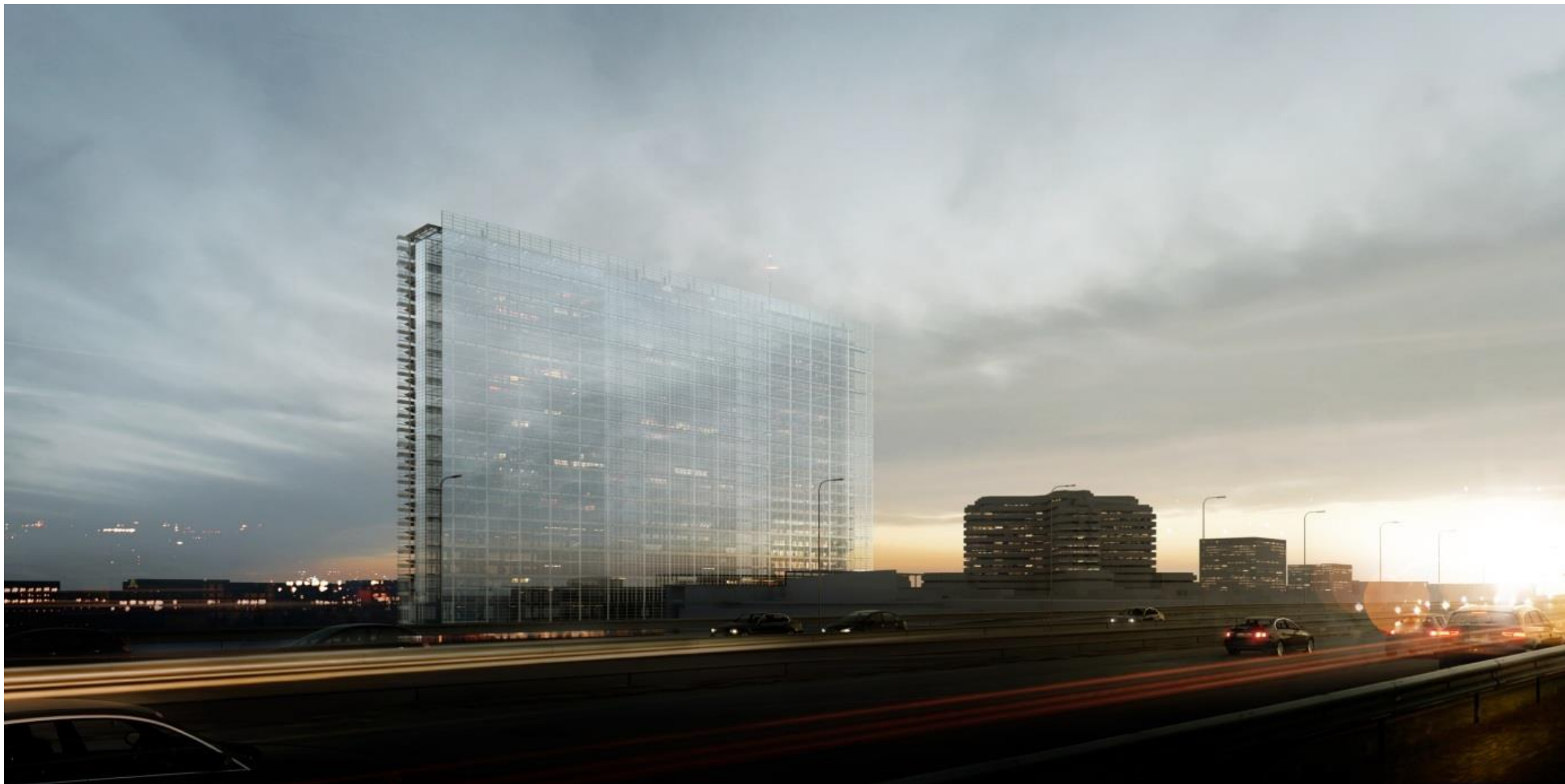


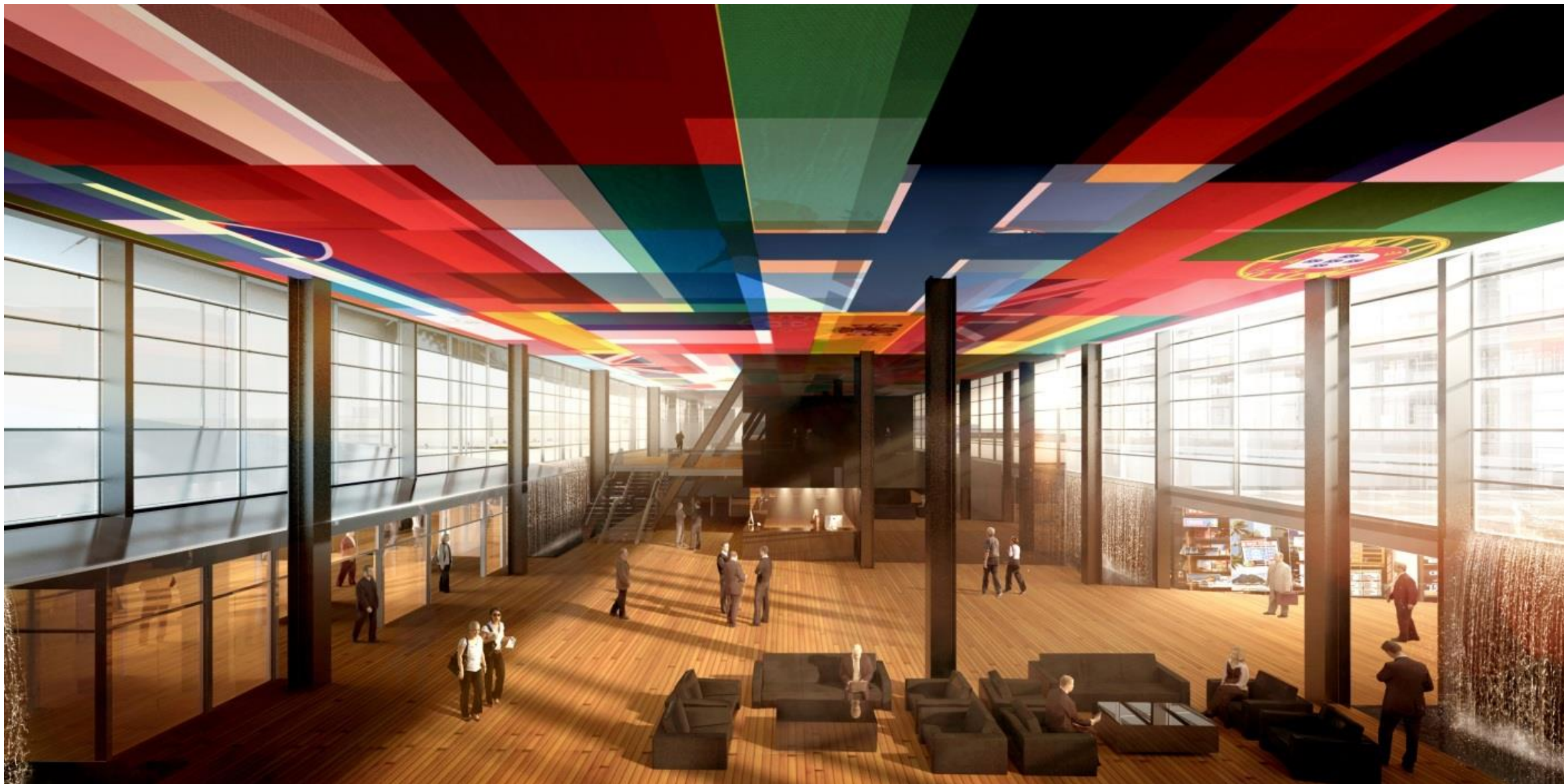
←----- views



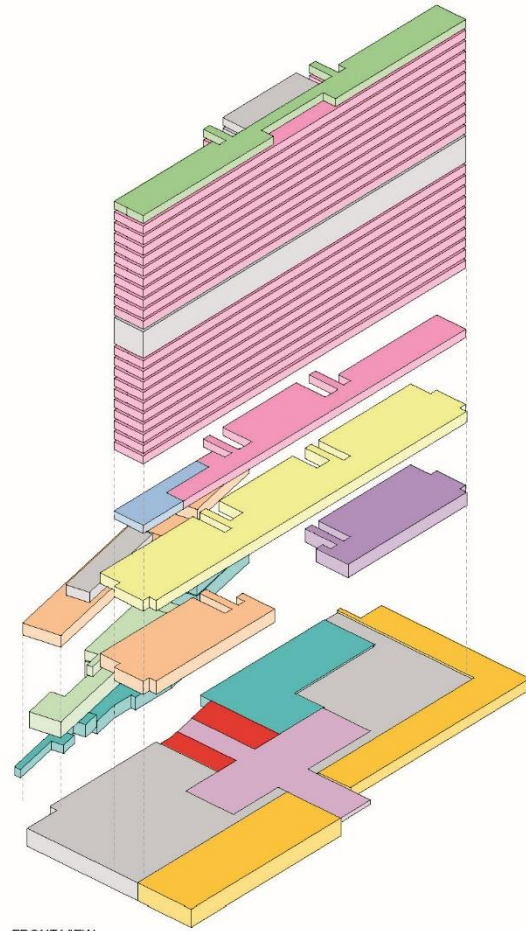




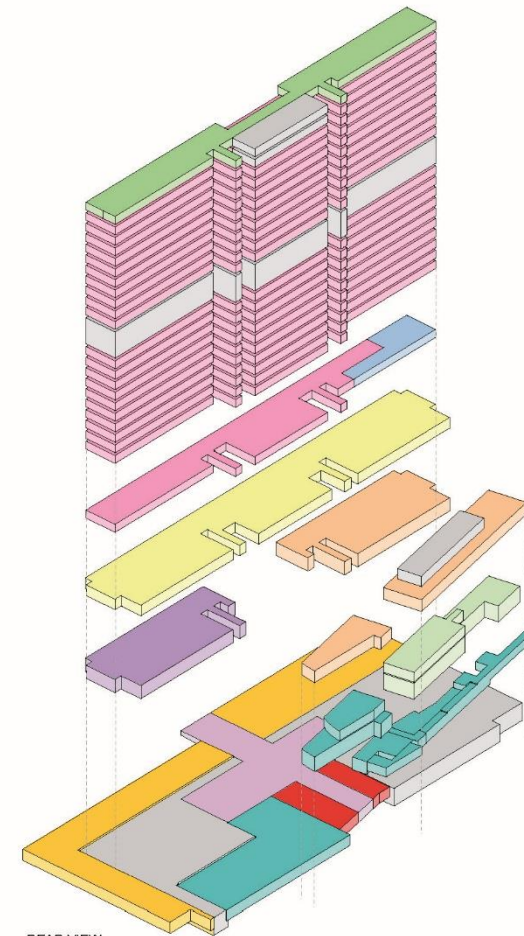




- SKY GARDEN ■
- PRESIDENTS, VICE PRESIDENTS & DIRECTORS OFFICE FLOOR ■
- STANDARD OFFICE FLOORS ■
- MECHANICAL FLOOR ■
- STANDARD OFFICE FLOORS ■
- STANDARD OFFICE FLOOR ■ + HEALTH SERVICES
- TRAINING CENTRE FLOOR ■
- ORAL PROCEEDINGS + MEETING ROOMS ■
- COFFEE CORNER ■
- MEETING ROOMS ■
- SOCIAL AREA ■
- RELOCATED FUNCTIONS FROM ZONE B ■
- LOBBY ■
- COMMERCIAL AREA ■
- TECHNICAL FUNCTIONS ■
- GROUND (PARKING) ■

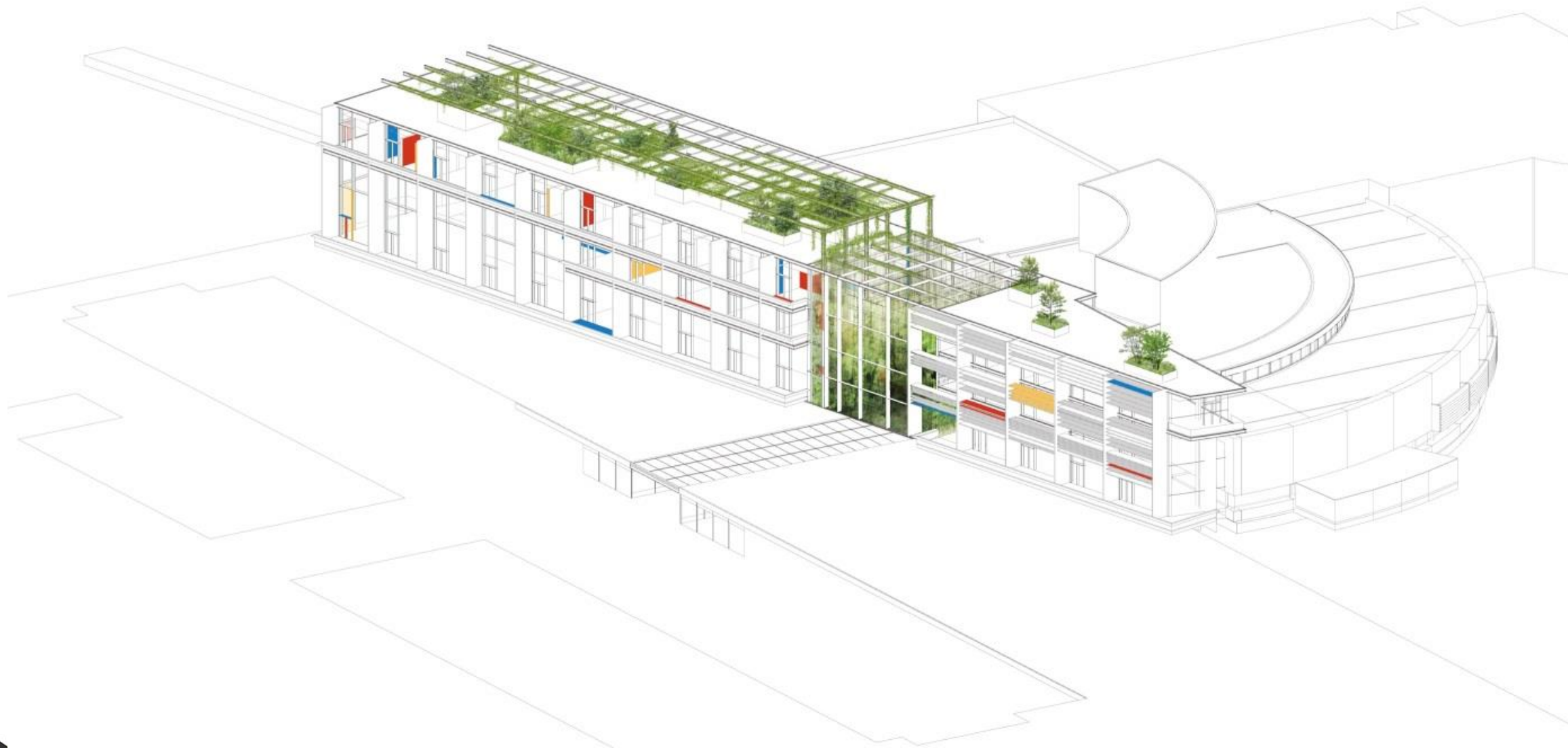


FRONT VIEW



REAR VIEW

- SKY GARDEN ■
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- GROUND (PARKING) ■









Techniek

- **Opzet**
 - Technische ruimtes in de kelder voor opwekking en luchtbehandeling en noodstroom
 - Technische ruimte 14^e verdieping, luchtbehandeling en trafo's
 - Technische ruimte 26^e verdieping, ketelhuis
 - Drycoolers op het dak van 27^e voor vrije koeling en WKO
 - Technische ruimte dakopbouw Hinge
- **Technische ruimte 14^e verdieping**
 - Drukscheiding
 - Beperken schachtafmetingen

Techniek

- **Verwarming en koeling**
 - 51000 m² klimaatplafond van HCKP in de kantoren en vergaderruimten.
 - Ontzinkingsbestendige appendages, Econosto, Sauter.
 - Naregelingen per 3 meter met een 6 weg klep en drukgecompenseerde regeling. Indeelbaar per 1,5 m'
 - Overige ruimte met luchtbehandeling
- **Luchtbehandeling**
 - Constant volumesysteem met kanalen in de slimline vloer.
 - Vergaderruimten met variabel volume systeem.

Techniek

- **WKO**
 - Twee bronparen, 100m³ per doublet
 - Drie warmtepompen, 1000 kWt, 800 kW
 - 4 Drycoolers
 - Bijstookketels 2 x 700 kW
- **Koeling**
 - Koelmachines ICT koeling, 420 kW redundant
 - Drycoolers
 - Tier III certificaat voor de ICT

Techniek

- **Luchtbehandeling**
 - 11 luchtbehandelingskasten, totaal 220.000 m³
 - Bevochtiging Cumulus systeem
 - Warmtewielen
- **Sprinkler**
 - In de kantoren extended coverage
 - Reinwaterkelder met diesel en elektrapomp

Techniek

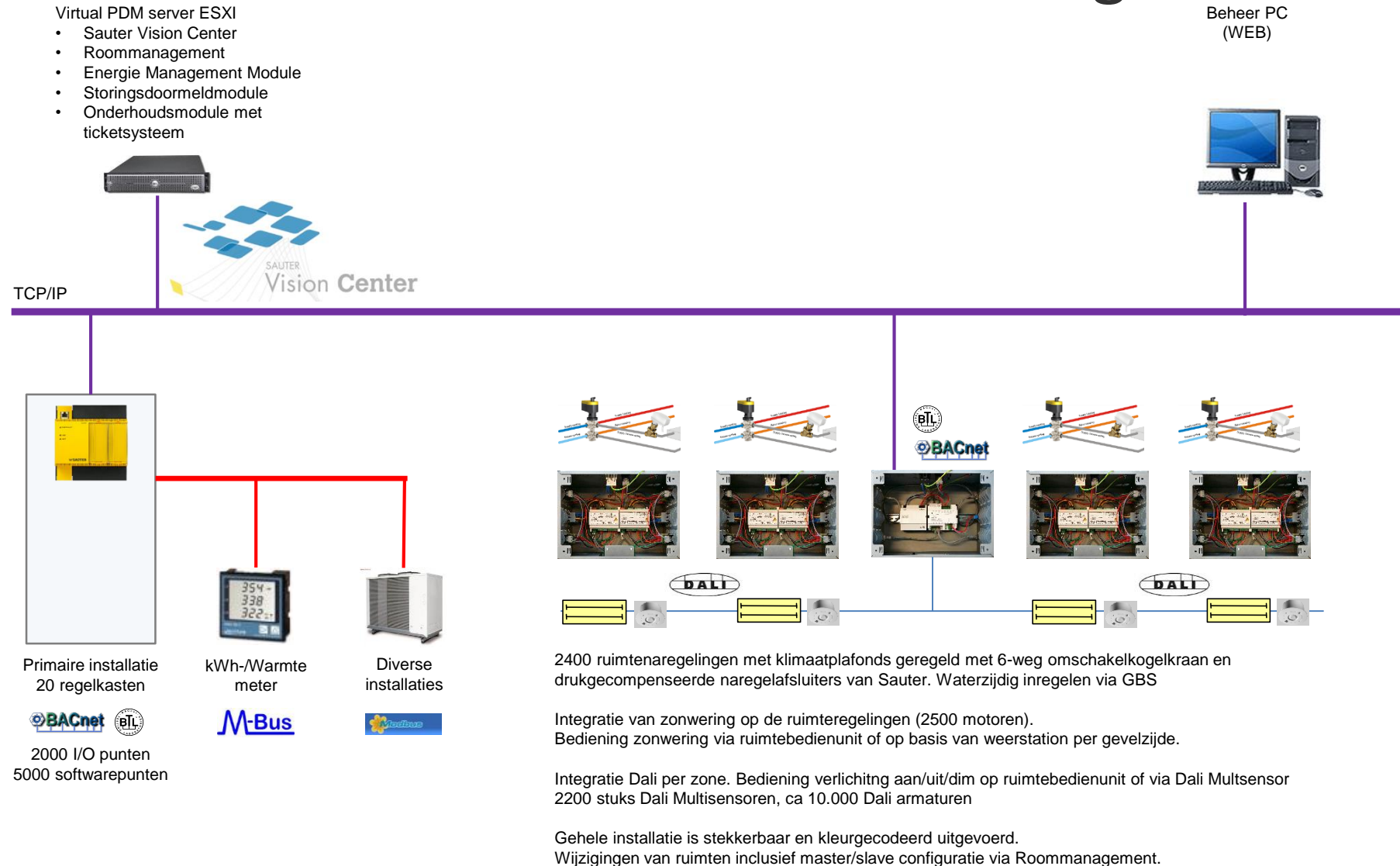
- **Sanitaire installaties**
 - Hydrofoors opgedeeld in 3 drukzones
 - Grijswater installatie voor toiletten en vijver suppletie
 - Waterbehandeling klimaatplafond installatie

- **Vijver en waterval**
 - 18000 m² vijver
 - 176 m¹ waterval
 - Vijver gebruikte voor ICT koeling

Techniek

- **Verlichting**
 - LED armaturen Philips
- **Tier III certificaat voor noodstroominstallatie**
- **Gedeeltelijke bewaking brandmeldinstallatie**
- **Ontruiming gesproken woord**
- **Security installatie**
- **DAS/WiFi**

Gebouw automatisering

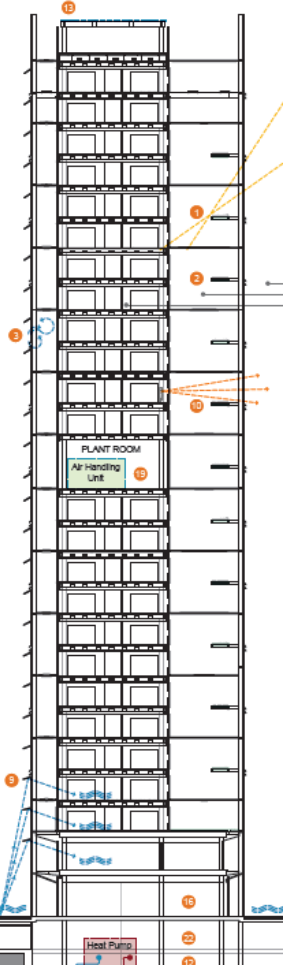
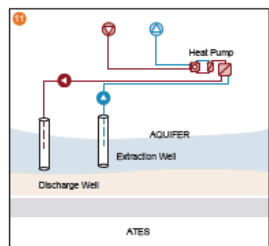
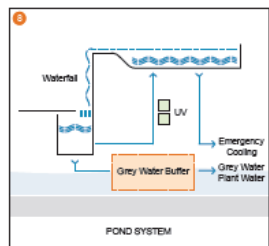
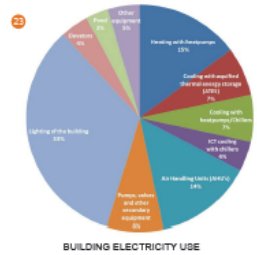


Duurzaamheid

- **Dubbele huid gevel**
- **Warmtewielen**
- **IE 4/5 motoren voor LBK's en pompen**
- **Vijver gebruikt voor ICT koeling**
- **LED verlichting**
- **PV panelen**

- **Onderhoudsaspecten meegenomen in materiaal keuzes**

SUSTAINABILITY CONCEPT



KEY FEATURES

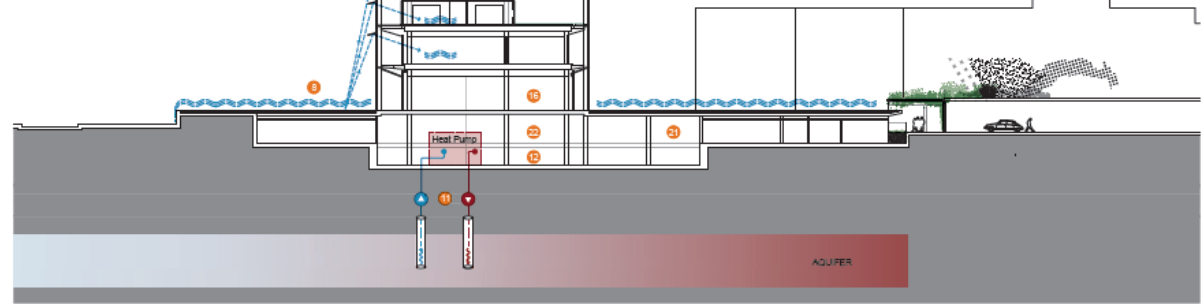
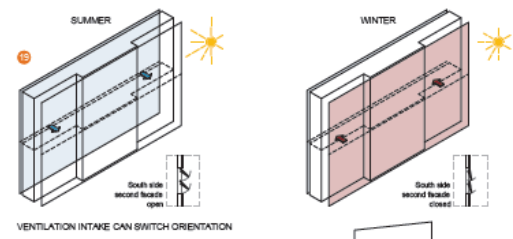
- 1 Solar shading within double facade
- 2 Double facades act as an environmental noise barrier
- 3 Double facades act as a windbreaker and improve thermal insulation
- 4 High quality insulation ensures minimum energy loss
- 5 Focus on daylight: lower artificial light dependency results in lower energy needs
- 6 Artificial lighting linked to daylight sensor
- 7 Non occupancy control in rooms reduces energy consumption
- 8 Stormwater retention used for irrigation, ICT backup cooling and grey water circuit
- 9 Mirror reflectors reflect view of the pond to building occupants
- 10 Cavity planters expand office room perception visually
- 11 Open loop ground source heat pump with aquifer thermal energy storage (ATES)
- 12 High temperature cooling and low temperature heating
- 13 PV cells on roofs provide energy and act as sunshades
- 14 Focus on air quality in ventilation
- 15 Low speed ventilation in offices and meeting rooms secures no draft
- 16 CO2 monitored ventilation in conference areas
- 17 Vegetation improves indoor air quality
- 18 Double facades preheat ventilation air in winter
- 19 Plant room ventilation intake can switch orientation to either cavity to optimize use of naturally generated heat differences
- 20 Air handling units make use of a heat recovery wheel for heat recovery and moisture recuperation
- 21 Changing rooms and lockers provided for cyclists
- 22 Main lobby provides employees and visitors real-time information on the behaviour of the buildings physics
- 23 Focus on minimizing energy consumption
- 24 Optimal room acoustics: Internal, airborne and structure borne

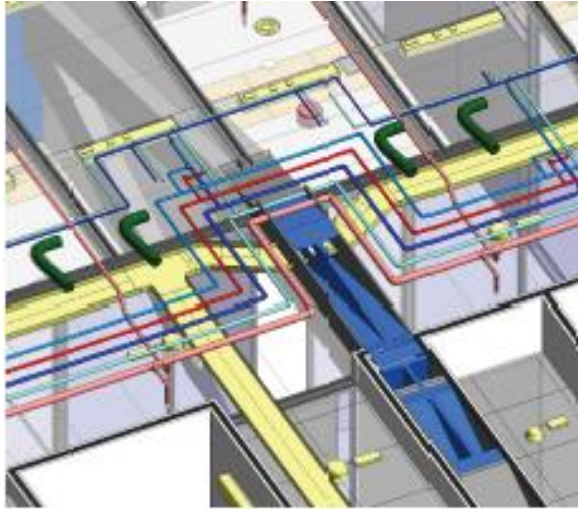
ENVIRONMENTAL NOISE REDUCTION

67 dB(A)
59 dB(A)
32 dB(A)

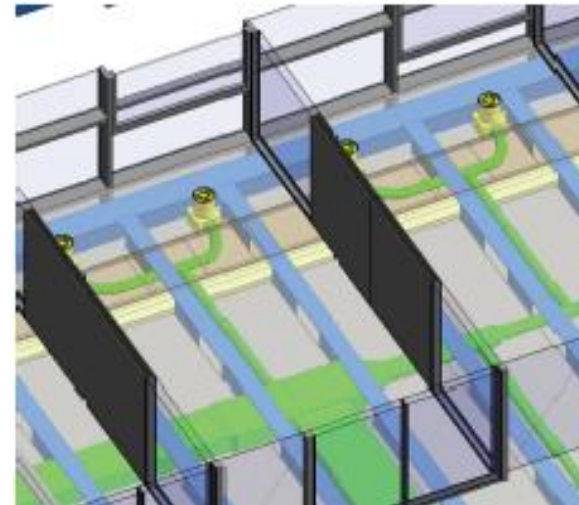
CAVITY PHYSICS

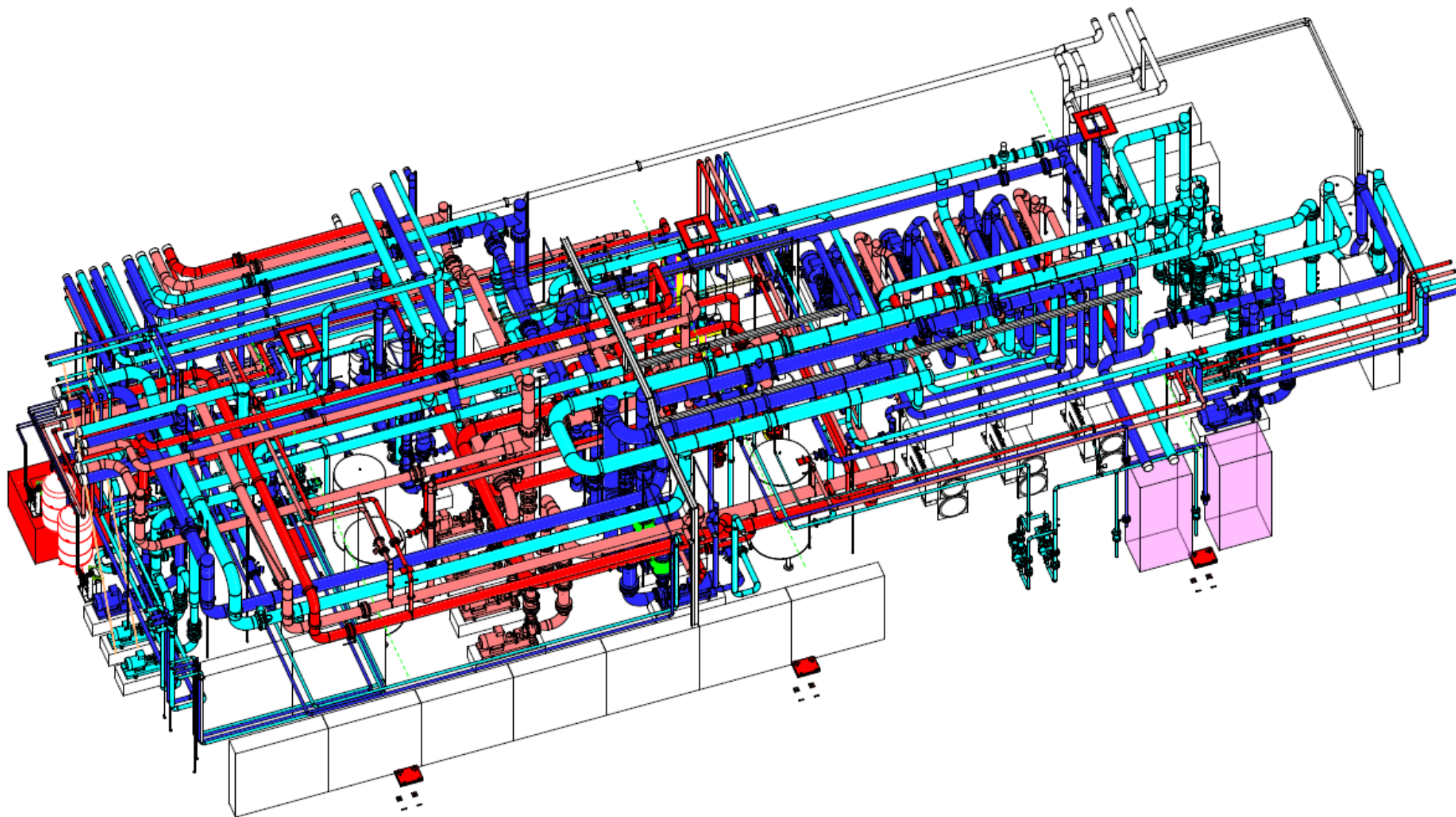
Season	Outside	Cavity average	Wind speed in cavity
SUMMER	21°C	+3°C	<2m/s
WINTER	0°C	+14°C	<1m/s
WINTER	-10°C	+1-1,5°C	<1m/s

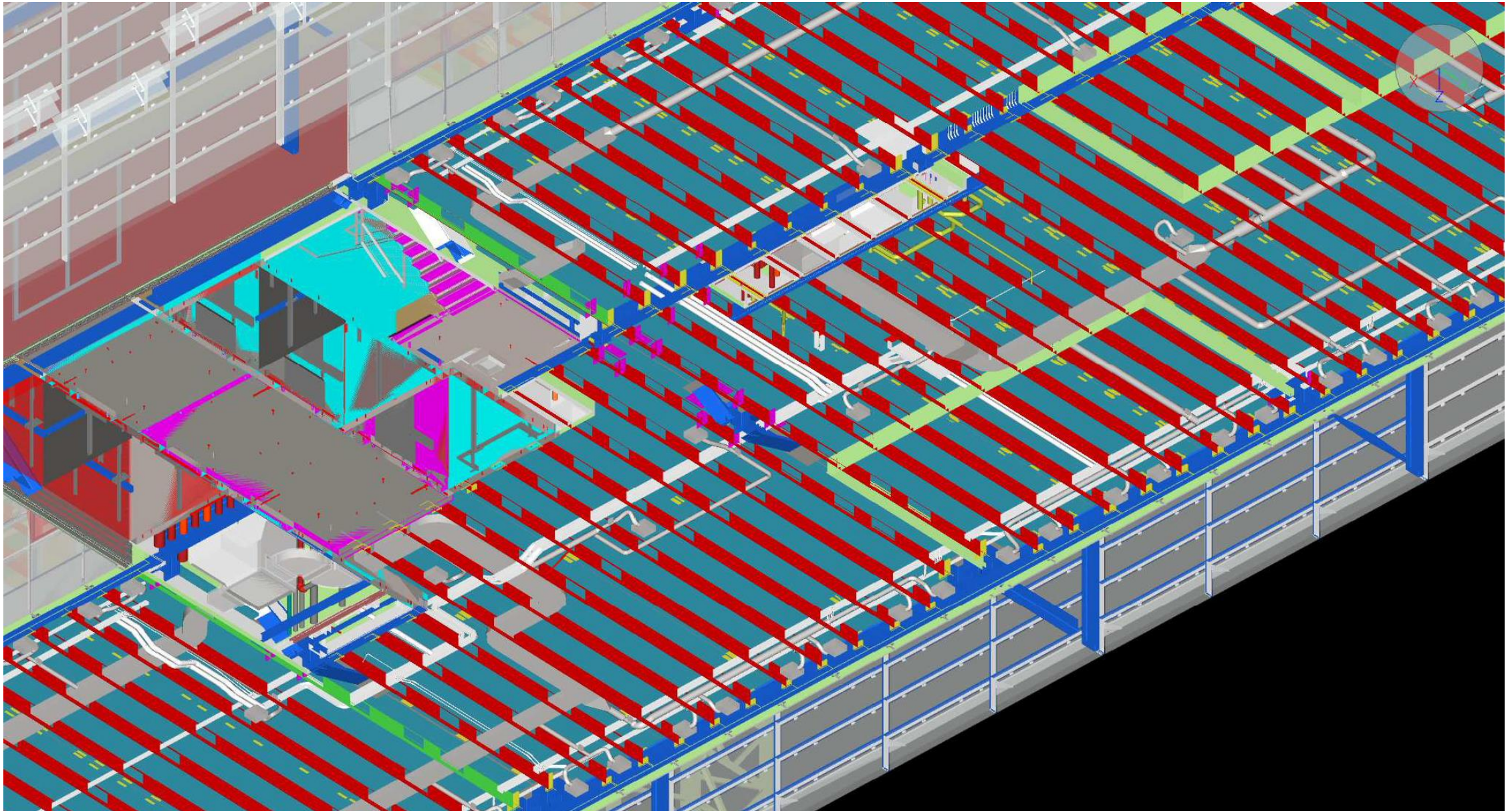


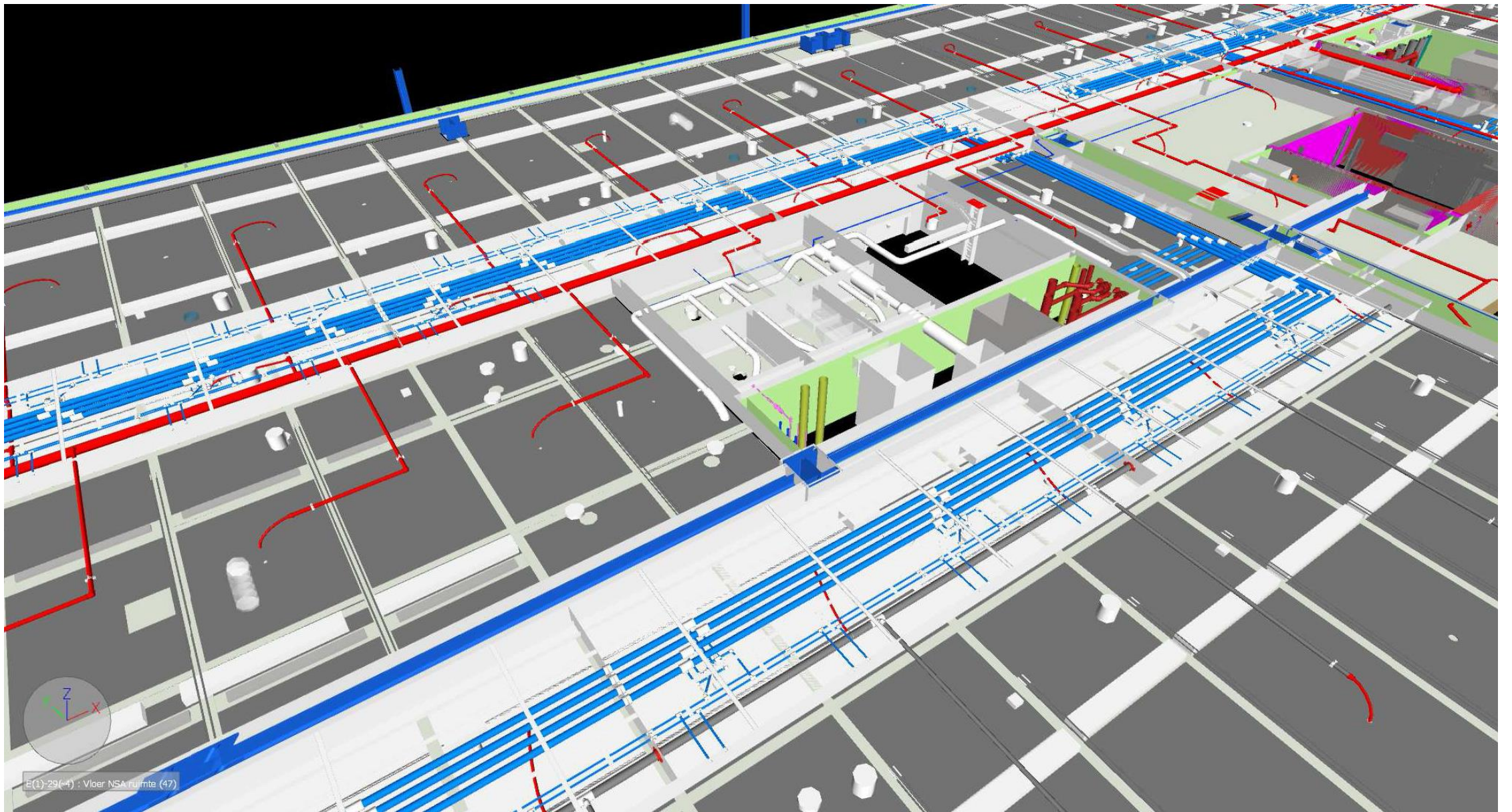


Getekend in Revit,
Clash controle in Navisworks









Prefabricage



VRAGEN



Pictures are under (c)