

KRAAUJVANGER

Materials

Holland Hydrogen 1

Location

Rotterdam

Date

21 April 2022

Revision date

6 July 2022

Team

- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- 5.1.2.e
- Joon Hyung Park
- 5.1.2.e

Document number WR

NL8905/A.02/0006

Document number SH

HHI-1000-CB-3309-0001

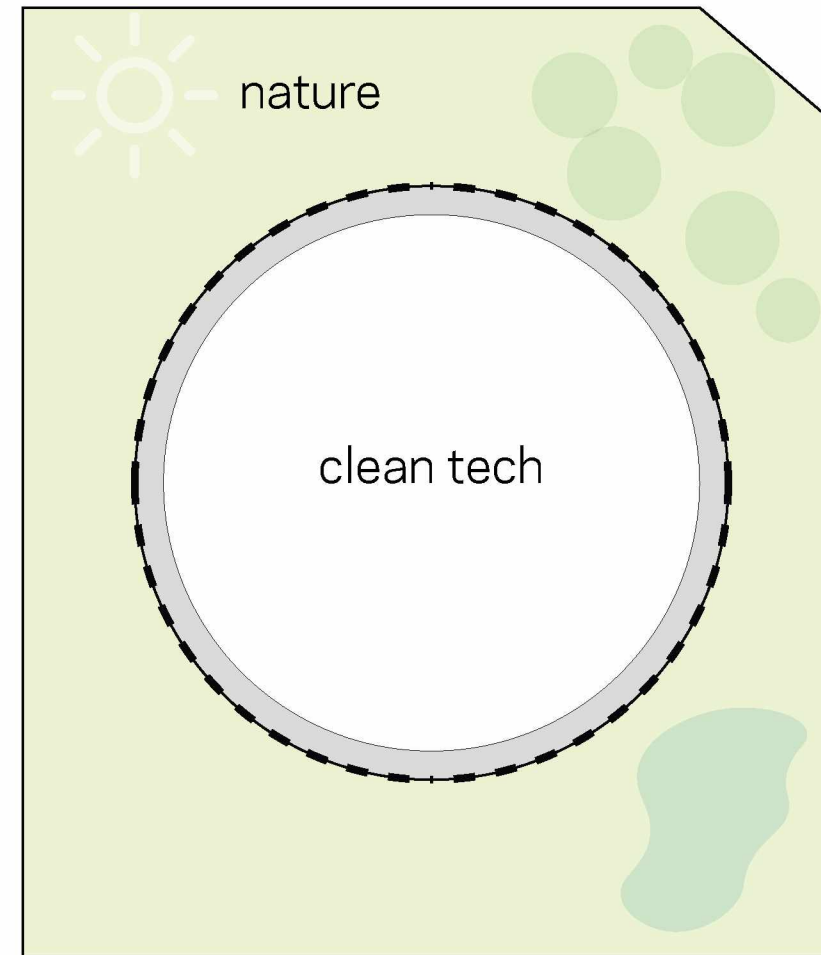


Materials HH1

Nature meets clean tech

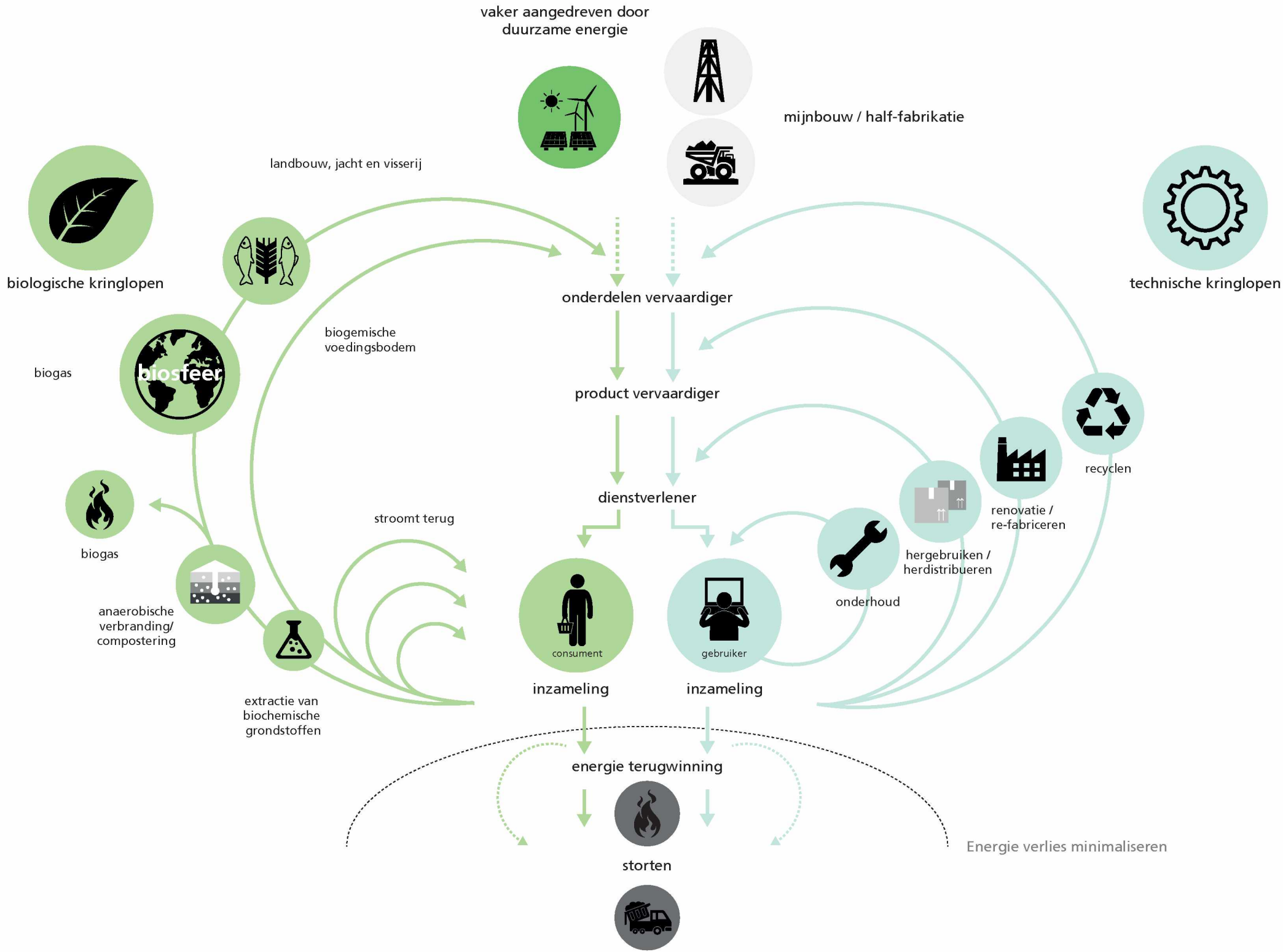
Contrast

The architectural concept revolves around contrast. A contrast between two positives. A natural wild landscape contrasted by a poetic high-tech factory. On the edge, the architectural object will manifest itself belong to both worlds. As a piece of art in the landscape, and marking the perimeter of the energy plant.



Materials HH1

Biobased vs tech



Materials HH1

Materialization strategy

1. Only **non toxic materials** will be used for the buildings, no materials from the red list of building materials will be used. Toxic materials can be found on the red list for building materials:

Alkylphenols
Asbestos
Bisphenol A
Cadmium
Chlorinated polyethylene and chlorosulfonated polyethylene (CSPE); HDPE and LDPE are excluded from the 5.1.2.e
Chlorofluorocarbons (CFCs)
Chlorobenzenes
Chloroprene (neoprene)
Chromium VI
Chlorinated polyvinyl chloride
Formaldehyde (added)
Halogenated flame retardants (HFRs)
Hydrochlorofluorocarbons (HCFCs)
Lead (added)
Mercury
Polychlorinated biphenyls
Perfluorinated compound
Phthalates
Polyvinyl chloride
Polyvinylidene chloride
Short Chain Chlorinated paraffins
Wood treatments containing creosote, arsenic or pentachlorophenol
Volatile organic compounds (VOCs) in wet applied products

2. All elements are **designed for demolition**.

3. During detailed design phase a **material passport** conform CB23 will be made, during the 'in use' phase the material passport will be updated.

CCR Tower



Material sheet Holland Hydrogen I - CCR Tower

General remarks:

Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)

Extra attention for corrosion resistant materials due to proximity to the sea (500m).

All elements are designed for demolition.

During detailed design phase a material passport conform CB23 will be made, during the 'in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	manufacturer	sustainability / health	remarks
---------	------	------------------------	----------	-----------------	--------------	--------------	-------------------------	---------

Casco

Construction								
foundation		beton (gerecycled beton als grindvervanger 70%)	concrete (recycled concrete as substitute of gravel 70%)	onbehandeld	untreated	-	recycled concrete	
floors		kruislaags hout (CLT)	cross laminated timber (CLT)	-	naturel	-	biobased	type of glue to be advised by Arup
walls		kruislaags hout (CLT)	cross laminated timber (CLT)	-	naturel	-	biobased	type of glue to be advised by Arup
columns / beams (inside)		gelamineerd hout	laminated timber	-	naturel	-	biobased	
columns / beams (outside)		gelamineerd hout	laminated timber	-	naturel	Accoya	C2C Gold / biobased	
Facade								
inner layer:								
fire-resistant sheeting		brandwerende beplating	type/ product input Arup					
Cross Laminated 9.1.2.e		kruislaags hout (CLT)	cross laminated timber (CLT)	-	naturel	-	biobased	
insulation:							C2C silver	
mineral wool		ecosewol	ecosewol	-		Knauf	ecose technology	
fire-resistant sheeting		brandwerende beplating	type/ product input Arup					
outer layer:								
wooden battens		SafeWood FRX, Europees vuren	SafeWood FRX, European Spruce	naturel, 95 mm breed	naturel, width 95 mm	Foreco	biobased	fire rating class C
facade grill		aluminium lamellen	aluminium lamellas	geanodiseerd aluminium C31	anodized aluminium C31	Foreco construction specialties, inc	C2C bronze	
openings in wooden facade:								
aluminium windowframes and doors		aluminium geanodiseerd	anodized aluminium	C31	C31	Reynaers, Schuco, Wicona	C2C bronze	60 min fire resistand, 60 min WBDBO
hinges and locks		Rubber (TPE-V) profielen	anodized aluminium or RVS	naturel geanodiseerd/ brushed	naturel anodized/ brushed	AMI / BSW / Deventer	C2C bronze	paumelle scharnieren, geen blokscharnieren toepassen
sill / threshold		Foreco FRX v.v. RVS afdekker	Foreco FRXwith RVS cover	C31	C31			
insulated glass		dubbel beglazing	double glass	low iron, neutral colour	low iron, neutral colour	Guardian/ AGC	C2C silver	RVS spacers between glass sheets in black color. Letswelwerend & scherfwerend.
seals/rubbers		rubber (TPE-V) profielen	rubber (TPE-V) profiles	zwart	black	Deventer profielen	C2C silver	
second skin facade: 'raincoat'								
single glass		gelaagd en gehard glas: 10.2.10	laminated and toughened glass: 10.2.10	low iron, neutral colour. V.v. vogelprotectie (Ornilux glass)	low iron, neutral colour. With bird protection (Ornilux glass)	Ornilux	bird-friendly glass	Glass façade is 30% open. U profiles with glass fixtures. No sun coating. Letswelwerend & scherfwerend. rondom geslepen
lamellas		gelaagd en gehard glas: 12.2.12	laminated and thougened glass: 12.2.12			Guardian/AGC	C2C silver	
glass fixtures (lameldragers en U profiles)		staal gepoedercoat	steel powdercoated	Tiger Drylac 68/90177 ME/MA B, approx C31. Anodized	Tiger Drylac 68/90177 ME/MA B, approx C31. Anodized	Tiger coating		
Roofterrace and circulation space								
hard insulation		EPS gerecycled/ Biofoam	EPS gerecycled/ Biofoam	grijs	grey	Isobouw PolyTop-HR-Bio isolatie	C2C	
roofing		EPDM (luchtdicht)	EPDM (air tight)	grijs	grey			
floor rooftoprace and circulation space	VA-01	RVS rooster met Foreco Nobelwood FRX	RVS grills with Foreco Nobelwood FRX	naturel	naturel	Dejo/ Foreco	C2C/ biobased	Profiling for anti slip
airwasher cladding		biocomposit	biocomposite	Nabasco 8010 Riet	Nabasco 8010 Riet	Nabasco	biobased	To be determined if Airwasher can fit the roof.
glass balustrade		gelaagd en gehard glas: 10.2.10	laminated and toughened glass: 10.2.10	low iron, neutral colour. V.v. vogelprotectie (Ornilux glass)	low iron, neutral colour. With bird protection (Ornilux glass)	Ornilux	bird-friendly glass	U profiles with glass fixtures. No sun coating. Letswelwerend & scherfwerend. rondom geslepen
Staircase circulation space								
folded steel		staal	steel	Tiger Drylac 68/90177 ME/MA B, approx C31. Anodized	Tiger Drylac 68/90177 ME/MA B, approx C31. Anodized	Tiger coating		antislip coating
handrail		hout	wood	naturel	naturel	Accoya	C2C	

Material sheet Holland Hydrogen I - CCR Tower

General remarks:
Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)
Extra attention for corrosion resistant materials due to proximity to the sea (500m).
All elements are designed for demolition.
During detailed design phase a material passport conform CB23 will be made, during the 'in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	manufacturer	sustainability / health	remarks
---------	------	------------------------	----------	-----------------	--------------	--------------	-------------------------	---------

Afbouw

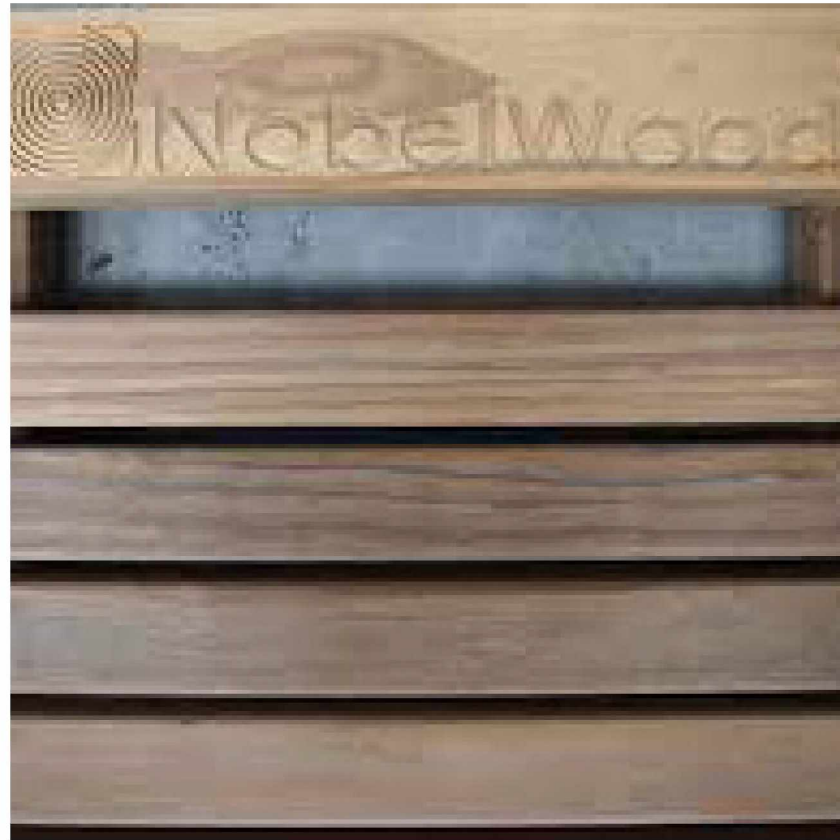
Interior walls								
solid walls		hout / cellulose	wood / cellulose	zie WA01	see WA01	-	biobased	to be finished with WA-01
solid walls (fire resistant)		metalstud	metalstud	zie WA01	see WA01	-	biobased	to be finished with WA-01
glass interior partition walls		pine/ low iron glas	pine/ low iron glass	-	-	Qbiq	biobased	
glass interior partition walls (fire resistant)		steel/ low iron glas	steel/ low iron glass	-	-	Qbiq	C2C	
Floor finishes								
impregnated wood	VA-01	RVS rooster met Foreco Nobelwood FRX	RVS grills with Foreco Nobelwood FRX	naturel	naturel	Dejo/Foreco	C2C/ biobased	Profiling for anti slip
impregnated floor	VA-02	ahsford formula	ashford formula	Retroplate	Retroplate	Ashford	LEED	
bamboo floor	VA-03	bamboo	MOSO Bamboo 1-ply	caramel	caramel	MOSO		antistatic floor with bamboo finish
cocos mat	VA-04	cocos	coconut	naturel	naturel	-	biobased	Backing (rug) of material should not contain pvc.
rubber	VA-05	rubber	rubber	n.t.b.	to be decided	Noraplan		color to be decided
ceramic tiles	VA-06	keramische tegels	ceramic	matt collection mosa	matt collection mosa	Mosa	C2C silver	glued with grapenstone glue (for recycling)
Wall finishes								
clay plaster	WA-01	leem	sand/clay/straw	wit/ grijs	white/grey	Tierrafino	biobased	
ceramic tiles	WA-02	keramische tegels	ceramic	matt collection mosa	matt collection mosa	Mosa	C2C silver	glued with grapenstone glue (for recycling)
glass fiber wallpaper	WA-03	glasvliesbehang	glass fiber	gesausd wit	painted white	Ekotex ecologisch	C2C gold	
Ceiling finishes								
climate ceiling	PL-01	hout	Wood Nordic Pine	naturel	naturel	Shiluvit / Integra	C2C bronze	Climate ceiling % input needed from installation advisor. Climate island dimensions to be determined.
clay plaster	PL-02	leem	sand/clay/straw	wit/ grijs	white/grey	Tierrafino	biobased	
wood lamella	PL-03	hout	Wood Nordic Pine	naturel	naturel	Shiluvit	C2C bronze	
wood wool cement board	PL-04	cement gebonden houtwol	cement bonded wood wool	naturel met profilering	naturel met profilering	Troldekt	C2C gold	
Interior doors								
glass interior doors/ frames		eiken/ low iron glas	oak/ low iron glass	-	-	Verwol woodvision biobased	biobased	
blind door		hout, stompe uitvoering	ecoboard with oak veneer	eiken	oak	mk doors	biobased / C2C	
door fittings		rvs	stainless steel	mat geborsteld	matte brushed	AMI / BSW / Deventer/Schuco	C2C Bronze	
Elevators								
elevator reveals		ecoboard	ecoboard	ntb	to be determined		biobased	
elevator car and control panel		rvs geborsteld paneel voor bedieningstableau 1 wand v.v. spiegel, overige wanden v.v. panelen, type n.t.b.	brushed stainless steel for control panel, 1 wall with mirror, other walls to be determined					to be discussed with experience designer
elevator floor		zie VA-03	see VA-03					
Internal stairs								
folded steel	staal		steel	Tiger Drylac 68/90177 ME/MA B, approx C31 Anodized	Tiger Drylac 68/90177 ME/MA B, approx C31 Anodized	Tiger coating		antislib coating
handrail	hout		wood	Accoya	Accoya		C2C	
Screens								
interior blinds		screens (doek) n.t.b.	to be determined	diverse kleuren en stoffen. n.t.b.	diverse colors and fabrics.	M+N-projecten		not only for light reduction but also for heat reduction
Miscellaneous								
signage		hout/biobased or 3D printed with PLA	wood/biobased			nabasco	biobased	
lightswitches				nog te bepalen	to be determined	gira	biobased	

Material sheet Holland Hydrogen I - CCR Tower

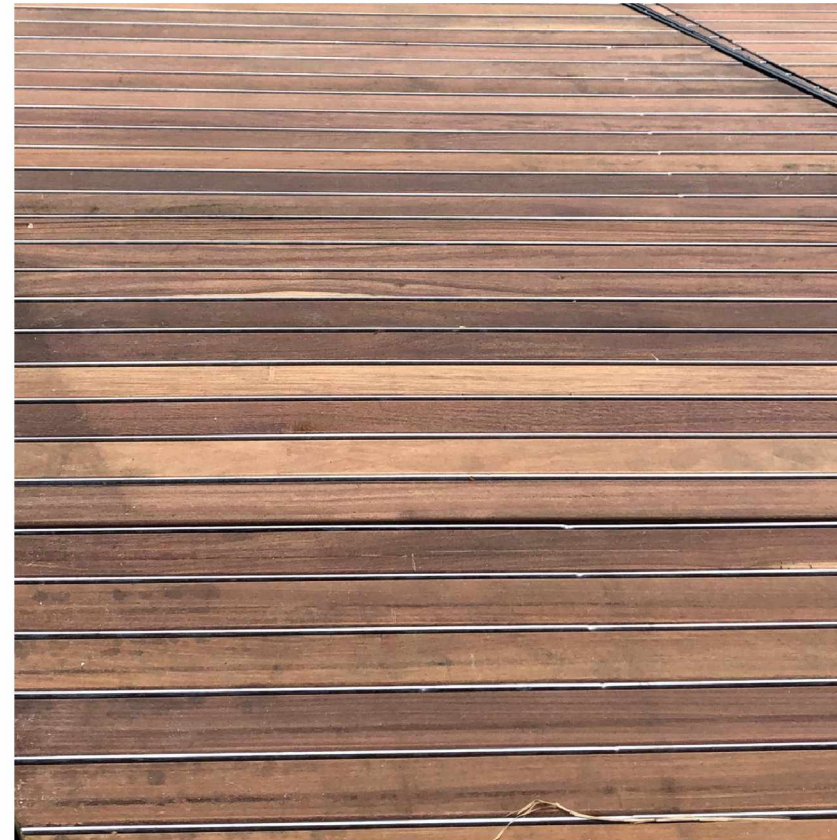
General remarks:
Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)
Extra attention for corrosion resistant materials due to proximity to the sea (500m).
All elements are designed for demolition.
During detailed design phase a material passport conform CB23 will be made, during the 'in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	manufacturer	sustainability / health	remarks
pantry				nog te bepalen	to be determined			
Sanitary								
watertap / shower		upcycled kraan en douche kop	upcycled tap and shower	metaal	metal	Grohe	materiaal C2C platinum en bronz	
toilet		rvs / keramiek grijs	stainless steel or grey ceramic					No white color because of grey water usage.
sink		rvs / keramiek grijs	stainless steel or grey ceramic					No white color because of grey water usage.
Installations								
Installations: no materials from redlist of building materials.								

CCR Tower Floor finishes



VA-01



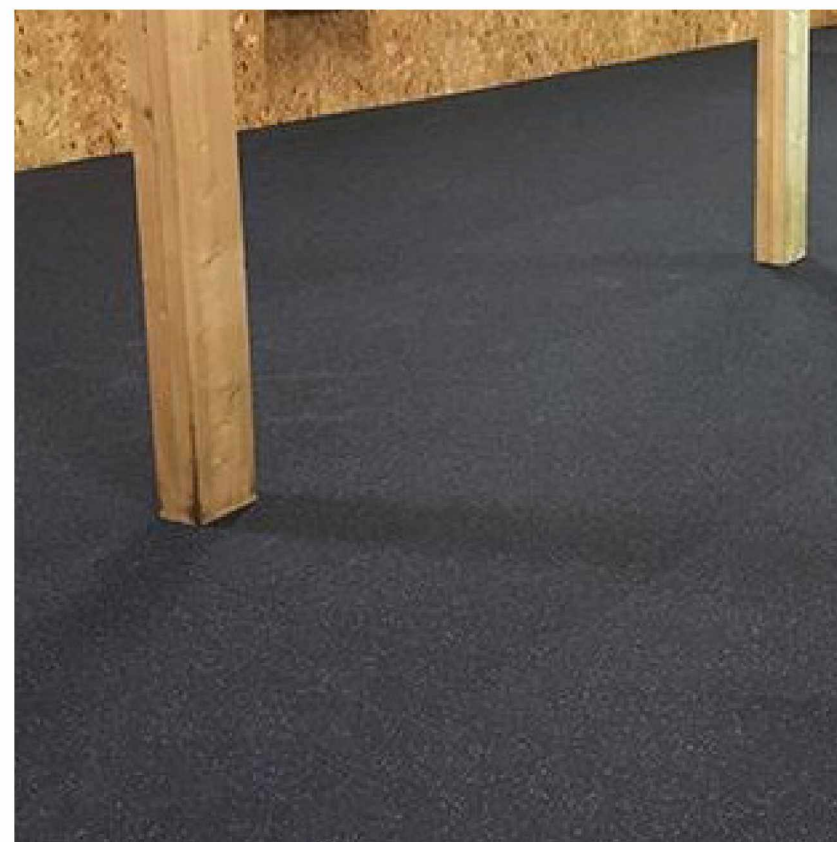
Antislib profiling for VA-01



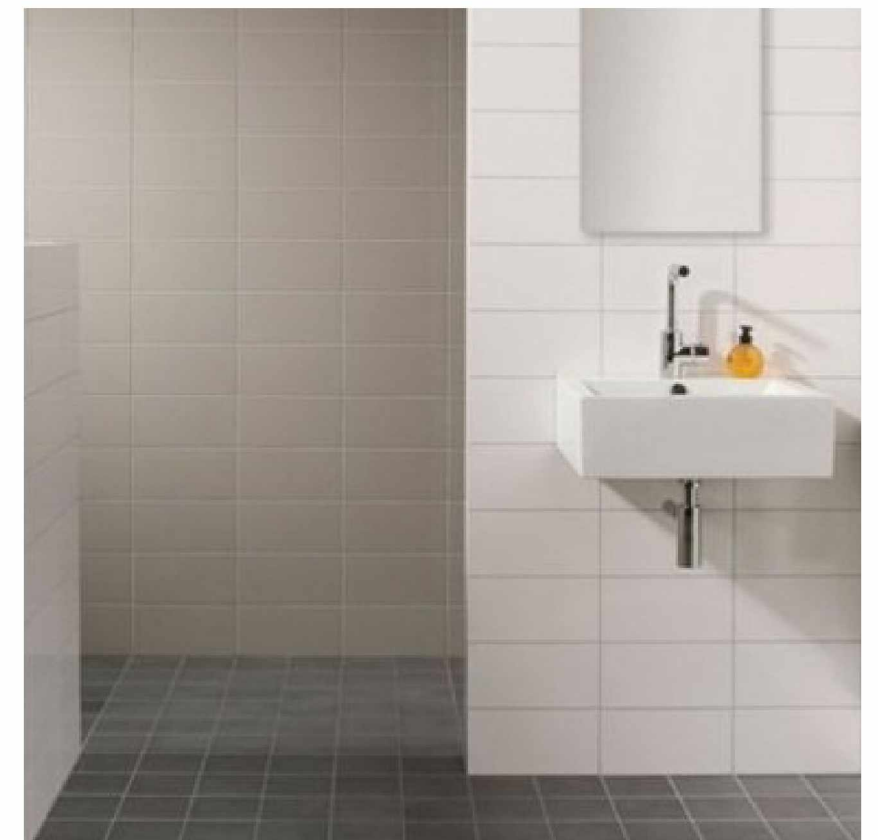
VA-03



VA-04



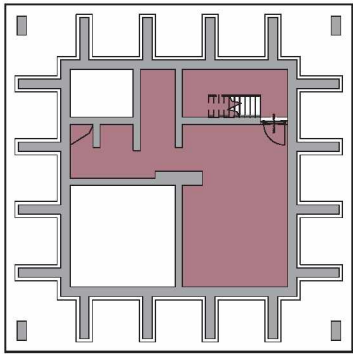
VA-05



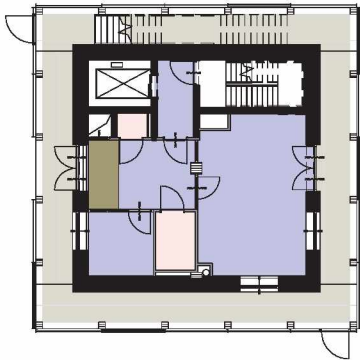
VA-06

CCR Tower

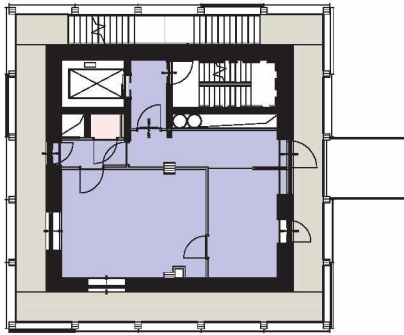
Floor finishes



VA Basement



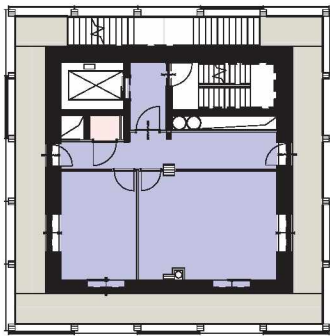
VA Ground floor



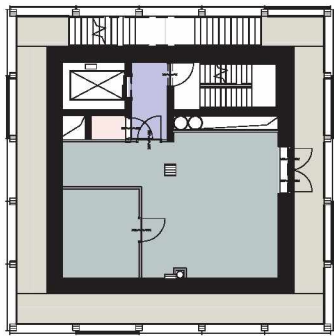
VA First floor

Floor finish

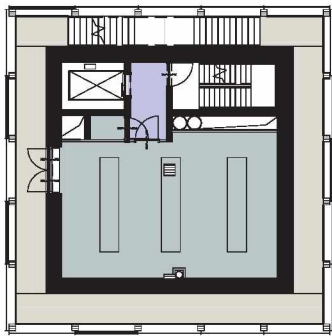
Impregnated wood	VA - 01
Impregnated floor	VA - 02
Woodline/ Wood	VA - 03
Cocos mat	VA - 04
Rubber	VA - 05
Ceramic tiles	VA - 06



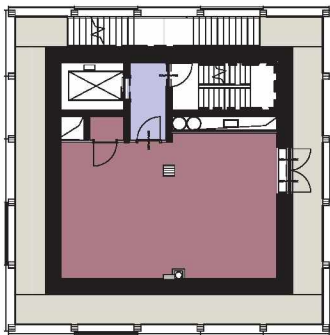
VA Second floor



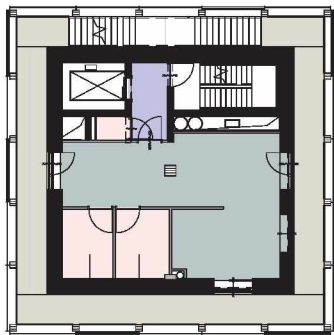
VA third floor



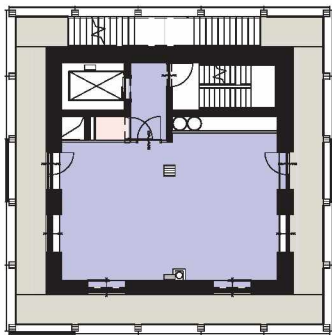
VA fourth floor



VA fifth floor



VA sixth floor



VA seventh floor

CCR Tower

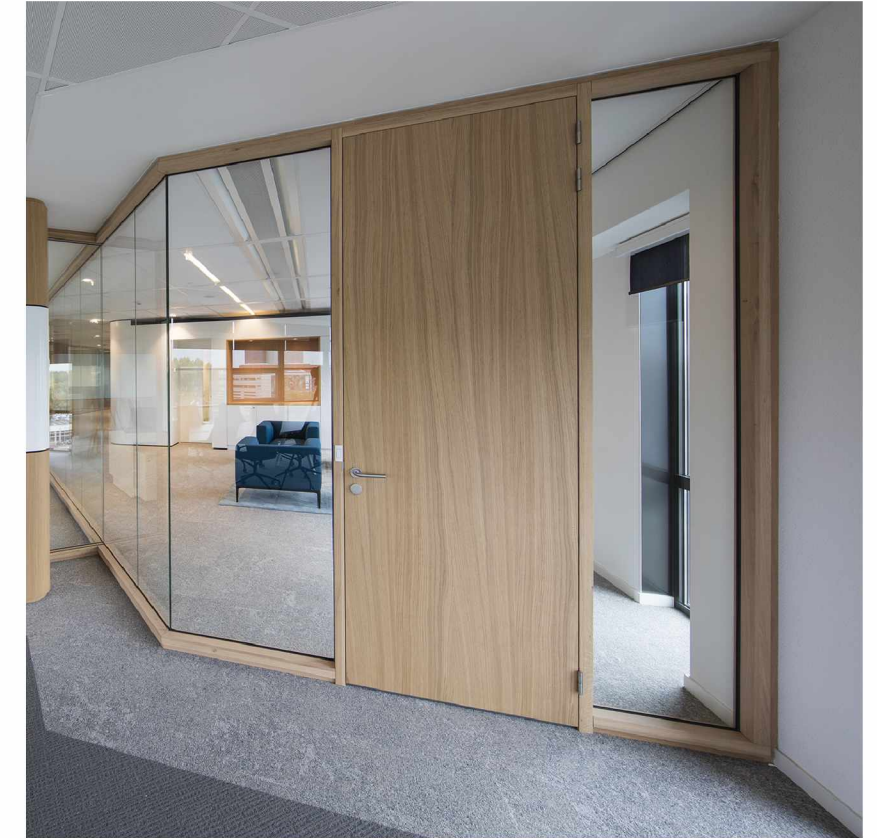
Interior - wall finishes



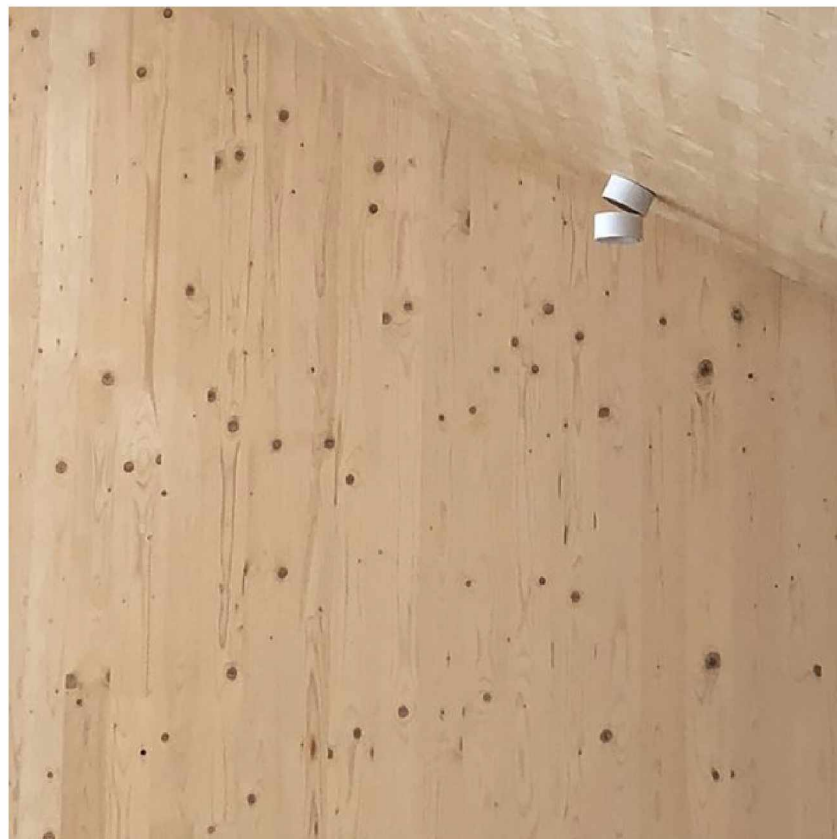
WA-01



WA-02



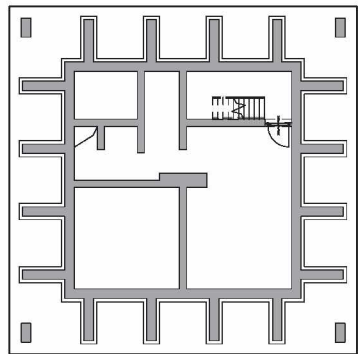
Interior partition walls



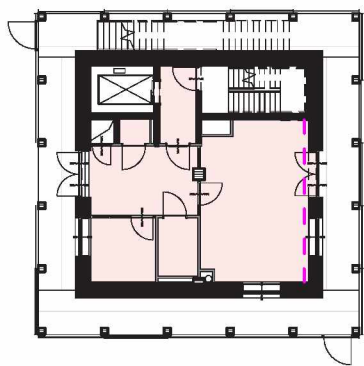
CLT walls

CCR Tower

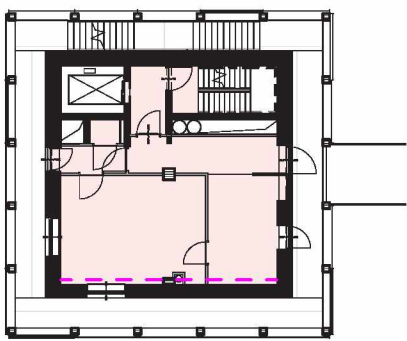
Wall finishes



WA Basement

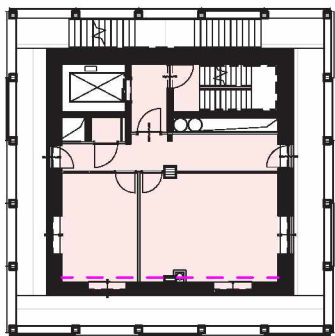


WA Ground floor

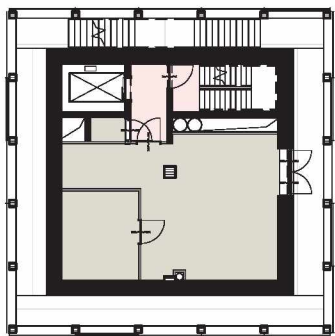


WA First floor

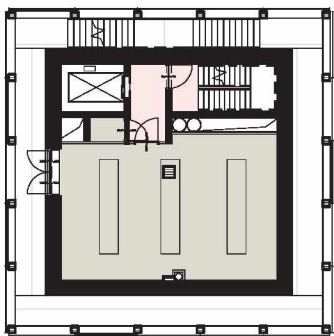
Wall finish	
	Ceramic tiles WA - 01
	Clay plaster WA - 02
	Glass fiber wallpaper with paint WA - 03
	CLT in sight WA - 04



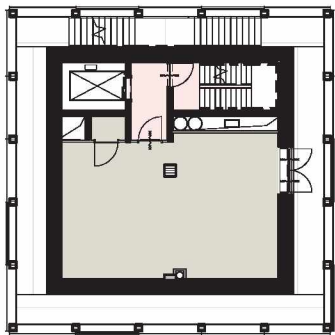
WA Second floor



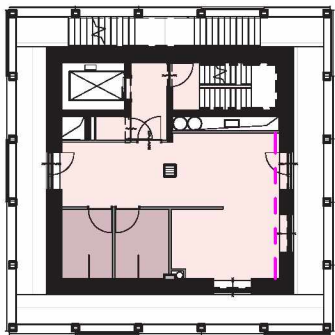
WA third floor



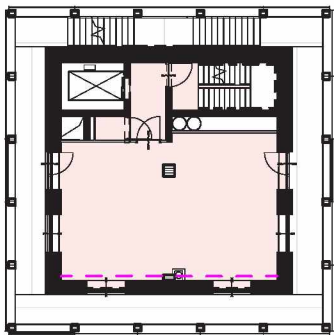
WA fourth floor



WA fifth floor

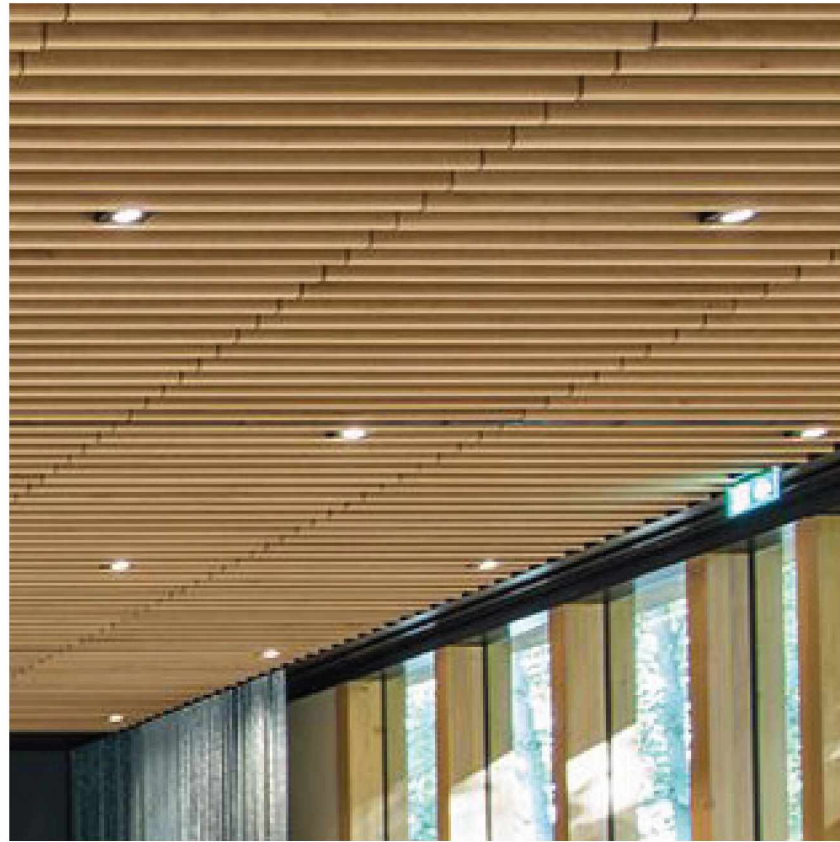


WA sixth floor



WA seventh floor

CCR Tower Ceiling finishes



PL-01 and PL-03



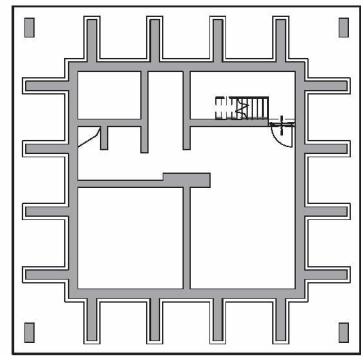
PL-02



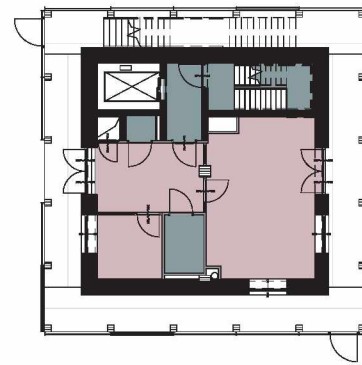
PL-01

CCR

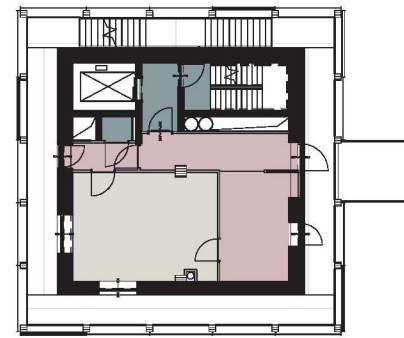
Interior - ceiling finishes



PL Basement

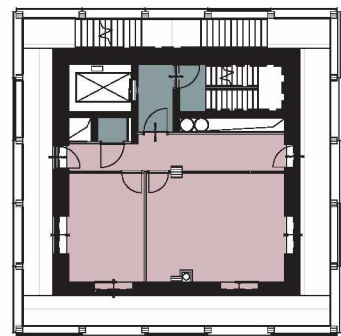


PL Ground floor

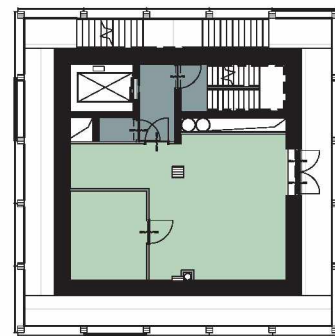


PL First floor

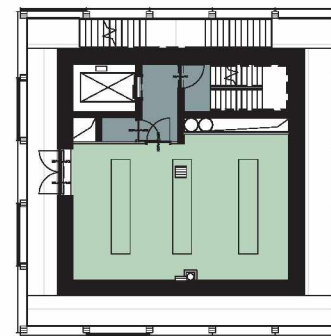
Ceiling finishes	
Wooden grill climate ceiling	PL - 01
Clay plaster and paint	PL - 02
Wooden grill on insulation	PL - 03
Wood wool cement board	PL - 04



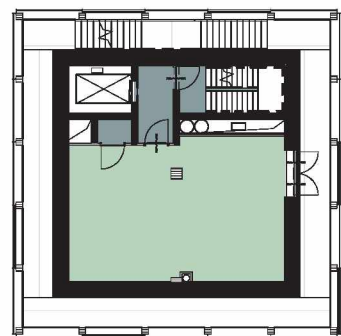
PL Second floor



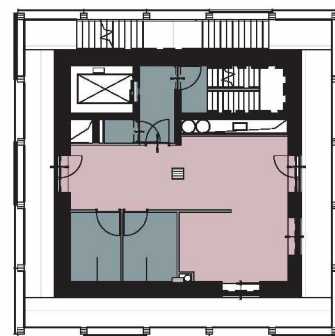
PL third floor



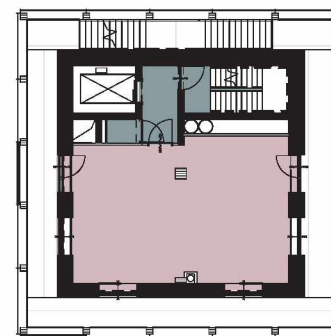
PL fourth floor



PL fifth floor



PL sixth floor



PL seventh floor

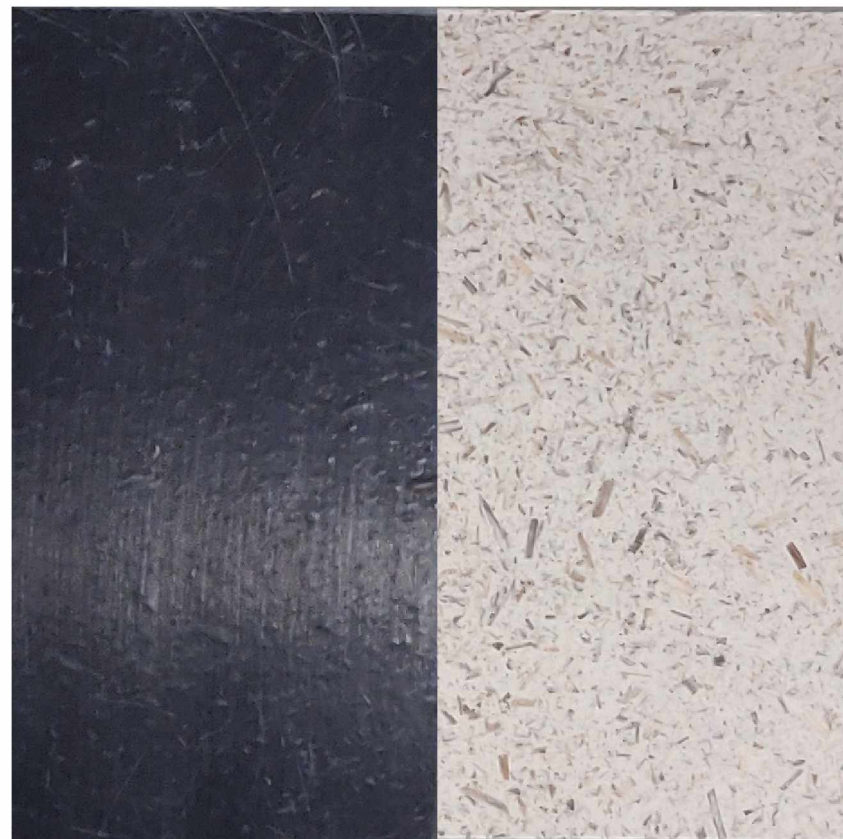
CCR Tower Exterior



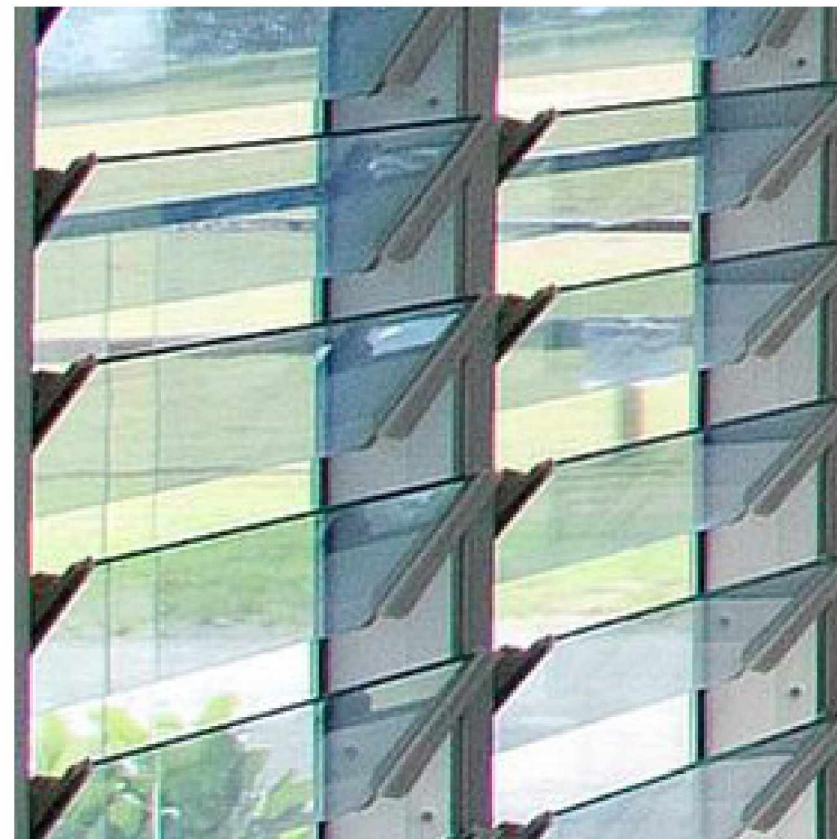
Nobelwood FRX cladding spruce



Accoya beams & columns



Biocomposite cladding



Glass lamellas

Buildings inside the oval

All elements
inside the ring to
be coloured in 1
light grey colour,
to be matching the
aluminium spray.
RAL 7047



Material sheet Holland Hydrogen I -Buildings inside oval wall

General remarks:

Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)
Extra attention for corrosion resistant materials due to proximity to the sea (500m).

Inside ring includes: Electrolyser building, Annex building, Polishing unit and the Warehouse
All structures inside the ring, such as: tanks, piperacks, substations, containerized units, etc. to be coated in RAL 7047
All elements are design for demolition
During detailed design phase a material passport conform CB23 will be made, during the 'in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	fabrikaat	duurzaamheid / gezondheid	opmerkingen
---------	------	------------------------	----------	-----------------	--------------	-----------	---------------------------	-------------

Casco

Construction

foundation		beton (gerecycled beton als grindervanger 70%)	concrete (recycled concrete as substitute of gravel 70%)	onbehandeld	untreated	-		
steel columns/beams		gecoat staal	coated steel	gecoat teg grijs (RAL 7047)	coated telegrey (RAL 7047)	Xcarb, Arcelor Mittal	Carbon Neutral steel	

Façade and roof

inner layer: inner box		staal	steel	gecoat teg grijs (RAL 7047)	coated telegrey (RAL 7047)	SAB 160/600		Where the spam is 8 m (1 corner) they need to be 2 mm thick, in other positions the SAB profiles (binnendozen) need to be 1,5 mm thick. Option for perforation to be researched.
insulation: mineral wool		ecosewol	ecosewool	-		Knauf	ecose technology	
outer layer: profiled aluminium cladding 40 x 40 mm		aluminium	aluminium	gecoat teg grijs (RAL 7047)	coated telegrey (RAL 7047)	VPT Versteeg/Rometa		Recycled aluminium from Hydro Circal. Partly perforated.
facade lamella aluminium flashings		aluminium lamellen aluminium	aluminium lamellas aluminium	gecoat teg grijs (RAL 7047) gecoat teg grijs (RAL 7047)	coated telegrey (RAL 7047) coated telegrey (RAL 7047)	construction specialties, inc	C2C brons	Recycled aluminium from Hydro Circal
(window) frames: aluminium frames / doors hinges and locks sill / threshold seals/rubbers roller shutter doors		aluminium aluminium geanodiseerd kunststeen rubber (TPE-V) profielen	aluminium anodized aluminium artifiical stone rubber (TPE-V) profiles	naturel geanodiseerd naturel geanodiseerd donker grijs zwart	natural anodized natural anodized dark grey black	schüco AMI / BSW / Deventer holonite Deventer profielen	C2C Silver C2C brons C2C brons / silver C2C silver	
eaves (dakranden)		aluminium gecoat	aluminium powdercoated	gecoat teg grijs (RAL 7047)	coated telegrey (RAL 7047)	Royal		
pv panels (only on electrolyser building)						Guardian		Flush mounted/ Integrated pv panels in the roof. To be cleaned with Kiterobotic system.
roof roofing (for annexbuilding, polishing unit, and the warehouse.)		staalplaat air purifying roof	folded steel air purifying roof	gecoat teg grijs (RAL 7047) grijs	coated telegrey (RAL 7047) grey	SAB158/R750 Kewodak https://www.kewodak.nl/luchtzuive-rende-daken/		

Floor finishes

liquid tight layer on concrete floor	VA-07	Rust Grip coating	Rust Grip coating	naturel	natural	Superior Products Europe	C2C Bronze	between 2 layers the floor needs to be sprinkled with sand (ingestrooid voor antislip)
ceramic tiles	VA-05	keramiek	ceramic	matt collection mosa	matt collection mosa	Mosa	C2C Silver	Glued with graphenstone glue

Material sheet Holland Hydrogen I -Buildings inside oval wall

General remarks:

Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)
Extra attention for corrosion resistant materials due to proximity to the sea (500m).

Inside ring includes: Electrolyser building, Annex building, Polishing unit and the Warehouse
All structures inside the ring, such as: tanks, piperacks, substations, containerized units, etc. to be coated in RAL 7047
All elements are design for demolition
During detailed design phase a material passport conform CB23 will be made, during the 'in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	fabrikaat	duurzaamheid / gezondheid	opmerkingen
Wall finishes								
ceramic tiles	WA-02		ceramic		to be determined	Mosa	C2C Silver	glued with grapenstone glue (for recycling)
Miscellaneous								
signage		recycled material from tech cycle	recycled material from tech cycle					
Sanitary								
watertap / shower	-	upcycled kraan en douche kop	upcycled tap and shower	metaal	metal	Grohe	materiaal C2C platinum en brons	
toilet	-	rvs / keramiek grijs	stainless steel or grey ceramic					No white color because of grey water usage.
sink	-	rvs / keramiek grijs	stainless steel or grey ceramic					No white color because of grey water usage.
Installations								
Installations: no materials from redlist of building materials.								

Oval wall and bridge





Material sheet Holland Hydrogen I

General remarks:

Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)
Extra attention for corrosion resistant materials due to proximity to the sea (500m).

All elements are design for demolition
During detailed design phase a material passport conform CB23 will be made, during the ' in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	manufacturer	sustainability / health	remarks
---------	------	------------------------	----------	-----------------	--------------	--------------	-------------------------	---------

Casco

Construction

foundation		beton (gerecycled beton als grindervanger 70%)	concrete (recycled concrete as substitute of gravel 70%)	onbehandeld	untreated	-	recycled concrete	poeren in prefab beton
gravel		schelpengrind	shells					
steel columns/beams		gepoedercoat staal	coated steel	gecoat in kleur overeenkomstig met de aluminium beplating.	powdercoated in color similar to aluminium facade panels	Xcarb, Arcelor Mittal	Carbon Neutral steel	Extra attention for corrosion resistant materials due to distance to sea (500m)

Facade

inner layer / outerlayer								
aluminium (flashings)		aluminium	aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular	Recycled by Hydrocircular	At least 75% recycled aluminium hydrocircular
gutter		aluminium	aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular	Recycled by Hydrocircular	At least 75% recycled aluminium hydrocircular
pv panels		pv	pv	zilver/grijs > gelijk aan afwerking aluminium zetwerk panelen	silver/grey ; similar to aluminium facade panels	Guardian/Saint Gobain		PV panel matches with aluminium cladding
large (sliding) entrance doors:								
frame		gepoedercoat staal	coated steel					
cladding outer wall		aluminium	aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular		At least 75% recycled aluminium hydrocircular
cladding inner wall		aluminium strekmetaal	expanded aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular		At least 75% recycled aluminium hydrocircular
logo		geperforeerd aluminium	perforated aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular		At least 75% recycled aluminium hydrocircular, perforation to be decided

Doors

access gate:								
double doors		gepoedercoat staal	coated steel	gecoat in kleur overeenkomstig met de aluminium beplating.	powdercoated in color similar to aluminium facade panels	Xcarb, Arcelor Mittal	Carbon Neutral steel	Extra attention for corrosion resistant materials due to distance to sea (500m), doors with vertical alignment and integrated Shell logo
turnstile/ tourniquet		gepoedercoat staal	coated steel	gecoat in kleur overeenkomstig met de aluminium beplating.	powdercoated in color similar to aluminium facade panels	Xcarb, Arcelor Mittal	Carbon Neutral steel	Extra attention for corrosion resistant materials due to distance to sea (500m)
hinges and locks		aluminium geanodiseerd	anodized aluminium	naturel geanodiseerd	natural anodized	AMI / BSW / Deventer	C2C brons	
seals/rubbers		rubber (TPE-V) profielen	rubber (TPE-V) profiles	zwart		Deventer profielen	C2C silver	

Floors

floor bridge and viewing platform		RVS rooster met Foreco Nobelwood FRX	RVS grills with Foreco Nobelwood FRX	naturel	naturel	Dejo/ Foreco	C2C/ biobased	Profiling for anti slip
-----------------------------------	--	--------------------------------------	--------------------------------------	---------	---------	--------------	---------------	-------------------------

Railing bridge

glass railing	-	gelaagd en gehard glas	laminated and toughened glass	low iron, neutral colour. V.v. vogelprotectie (Ornilux glass)	low iron, neutral colour. With bird protection (Ornilux glass)	Ornilux	bird-friendly glass	ingeklemd glas No sun coating. Letswelwerend & scherfwerend. rondom geslepen
cladding		aluminium	aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular	Recycled by Hydrocircular	At least 75% recycled aluminium hydrocircular

Stairs to access gate

steel frame (trapbomen)	-	staal	steel	gecoat in kleur overeenkomstig met de aluminium beplating.	powdercoated in color similar to aluminium facade panels	Xcarb, Arcelor Mittal	Carbon Neutral steel	Extra attention for corrosion resistant materials due to distance to sea (500m)
wooden risers and threads		RVS, hout	RVS roosters met Nobel Wood frx, naaldhout	naturel	naturel	Accoya	C2C Gold / biobased	Profiling for anti slip
handrail hidden	-	aluminium	aluminium	bright finish: gepolijst en geanodiseerd.	bright finish: polished and anodized	alumag / aloxide. hydrocircular		At least 75% recycled aluminium hydrocircular
handrail attached	-	staal	steel	gecoat in kleur overeenkomstig met de aluminium beplating.	powdercoated in color similar to aluminium facade panels	-		Extra attention for corrosion resistant materials due to distance to sea (500m)

Material sheet Holland Hydrogen I

General remarks:

Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)
Extra attention for corrosion resistant materials due to proximity to the sea (500m).

All elements are design for demolition
During detailed design phase a material passport conform CB23 will be made, during the ' in use' phase the material passport will be updated.

general	code	materiaalsamenstelling	material	kleur/afwerking	color/finish	manufacturer	sustainability / health	remarks
Lighting								
lighting ring		amber verlichting	amber lighting			maxibel		
Miscellaneous								
bird nests		Accoya	Accoya	naturel	naturel	Accoya	C2C Gold / biobased	
Installations								
Installations: no materials from redlist of building materials.								

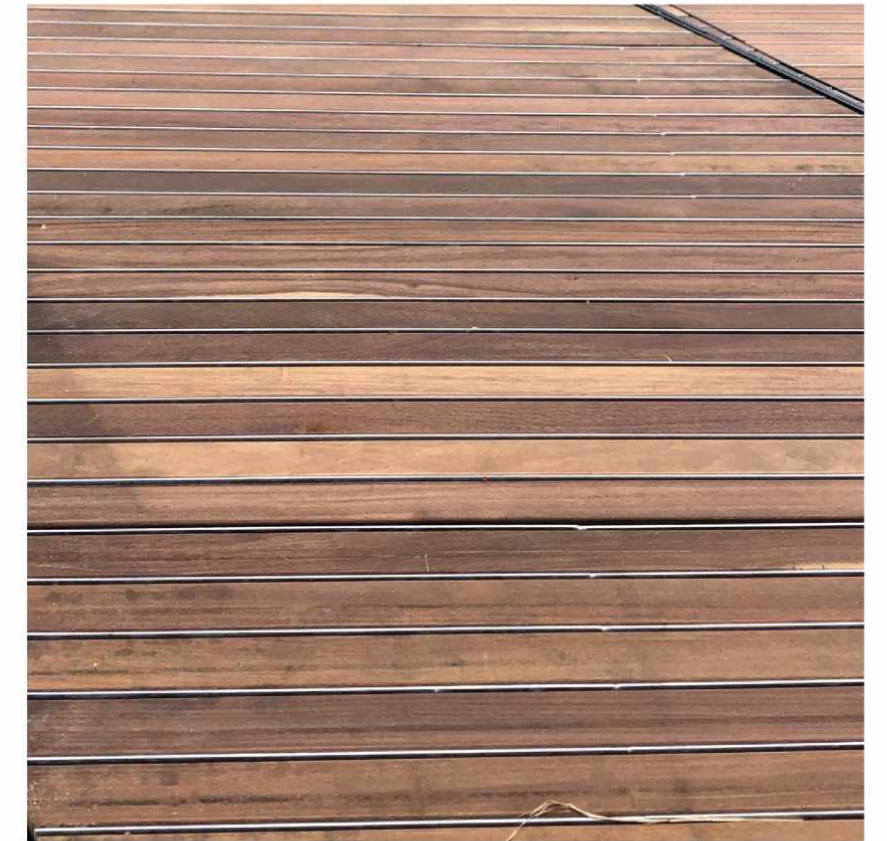
Oval ring & Inside ring Exterior



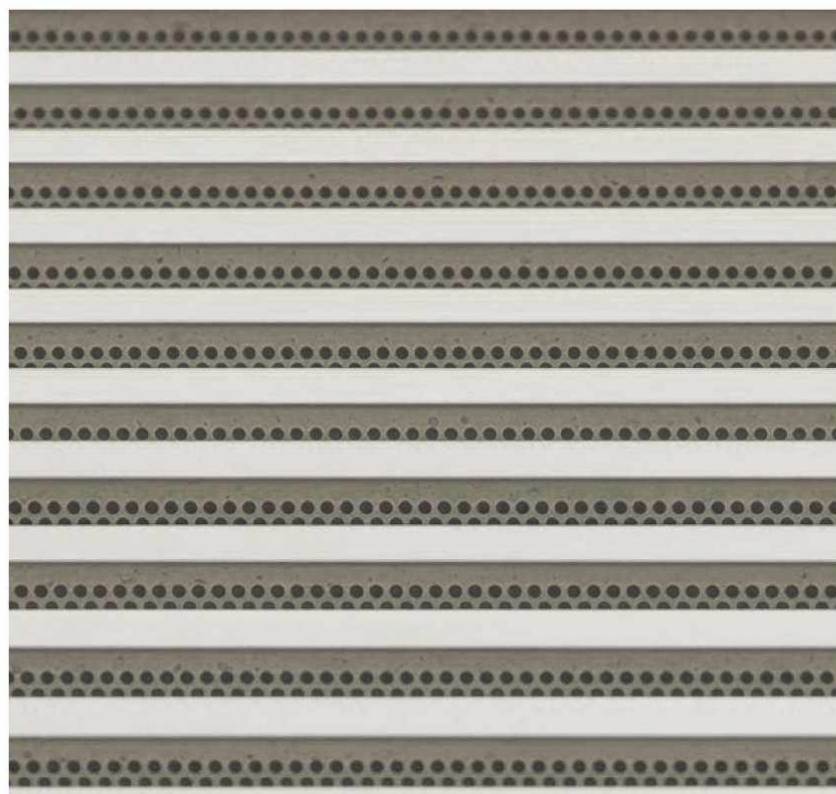
Oval cladding



VA-01



Antislib profiling for VA-01



Inside ring building cladding



Amber lighting with infra red detection

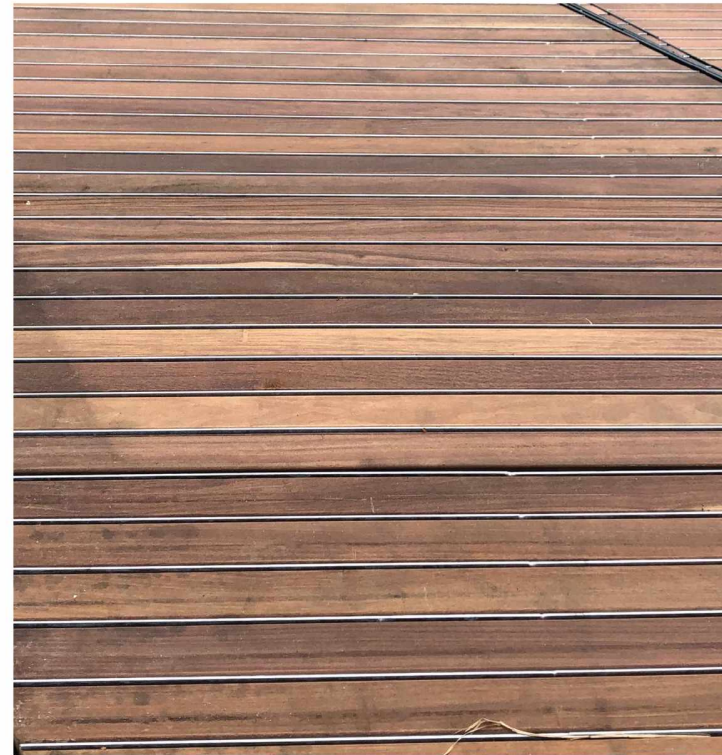


Oval ring & Inside ring

Material samples and color spec



Oval cladding outer ring
Anodized aluminium - brite finish



Visitor walkway floor
Nobelwood - anti - slip strips stainless steel



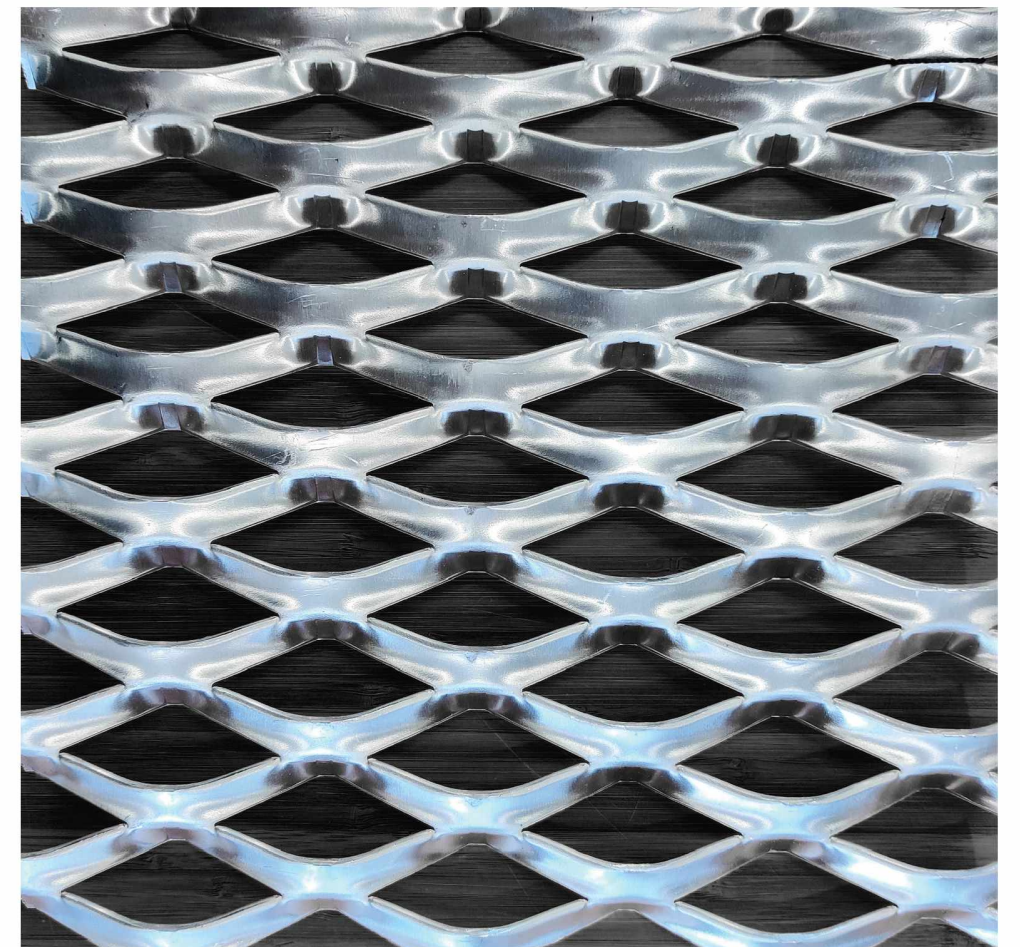
Piping, accessories, etc.
Stainless steel



Buildings inside the ring, steel structures
Powder coated cladding / steel / aluminium - RAL 7047

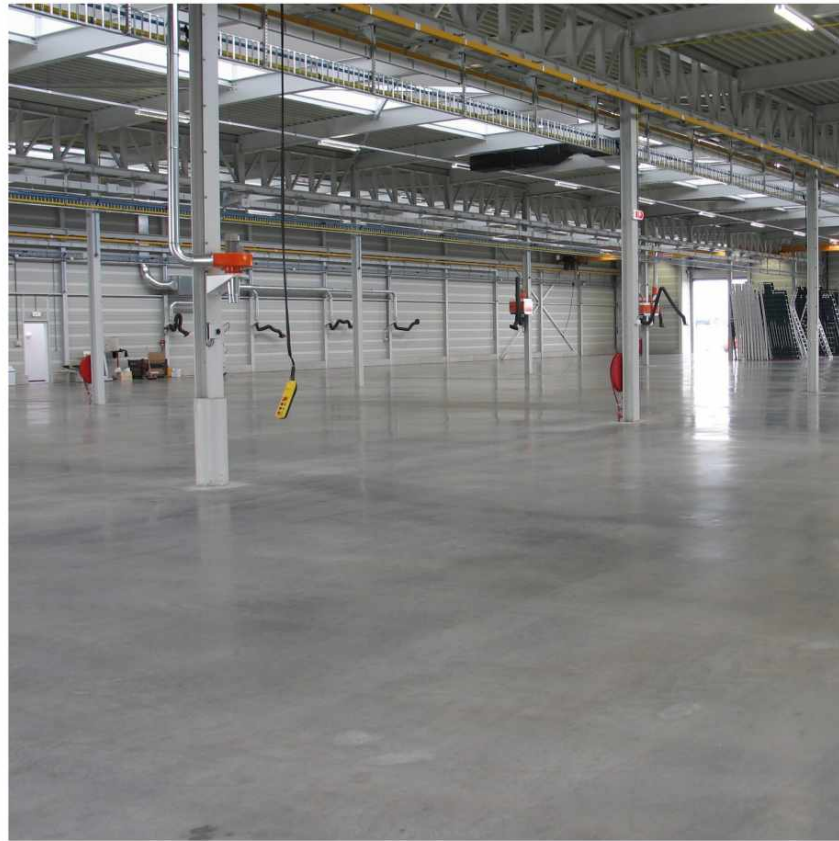


Piping, machines etc.
Galvanized steel



Oval cladding inner ring
Expanded and anodized aluminium - light penetration 20 - 40%, air penetration 40 - 80 %

Oval wall & Inside oval wall Interior



VA-07



VA-05 and WA-02

H2 Stack

Material sheet Holland Hydrogen I - H2 Stack

General remarks:

Only non toxic materials will be used, no materials from the red list of building materials will be used. (including installations)

Extra attention for corrosion resistant materials due to proximity to the sea (500m).

All elements are designed for demolition.

During detailed design phase a material passport conform CB23 will be made, during the ' in use' phase the material passport will be updated.

general	code	material	color/finish	fabrikaat	duurzaamheid / gezondheid	opmerkingen
Construction						
foundation		recycled concrete as substitute of gravel 70%	untreated	-		
steel columns/beams/ profiles		steel galvanised and powdercoated	Tiger Drylac 68/90177 ME/MA B, approx C31 Anodized	Tiger Drylac 68/90177 ME/MA B, approx C31 Anodized	Tiger coating	
façade panels		expanded aluminium	anodized aluminium C31		Recycled aluminium	Recycled aluminium from Hydro Circal
door		aluminium frame with expanded aluminium cladding	anodized aluminium C31			





Kraaijvanger Architects
Blaak 40
3011 TA Rotterdam

info@kraaijvanger.nl

5.1.2.e