

P 5 Henk Rusting

9717445



1^e mentor:
Dr. -Ing. M. Bilow
Chair of Product Design

2^e mentor:
ir. P. de Ruiter
Chair of Design Informatics

Delegate Board of Examiners
ir. G. Coumans
Architecture / Form and Modelling Studies

Fabrication of sustainable
free form
FAÇADE PANELS

Produktie van duurzamere

vrije vorm

FAÇADE PANELEN



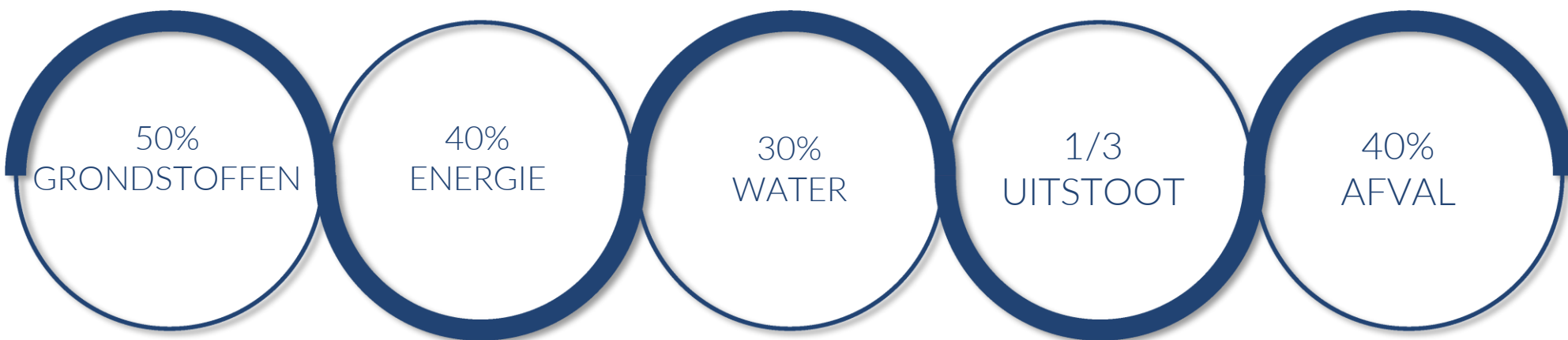
WAAROM
WAT
ONDERZOEK
LAB
ONTWERP
CONCLUSIE



WAAROM



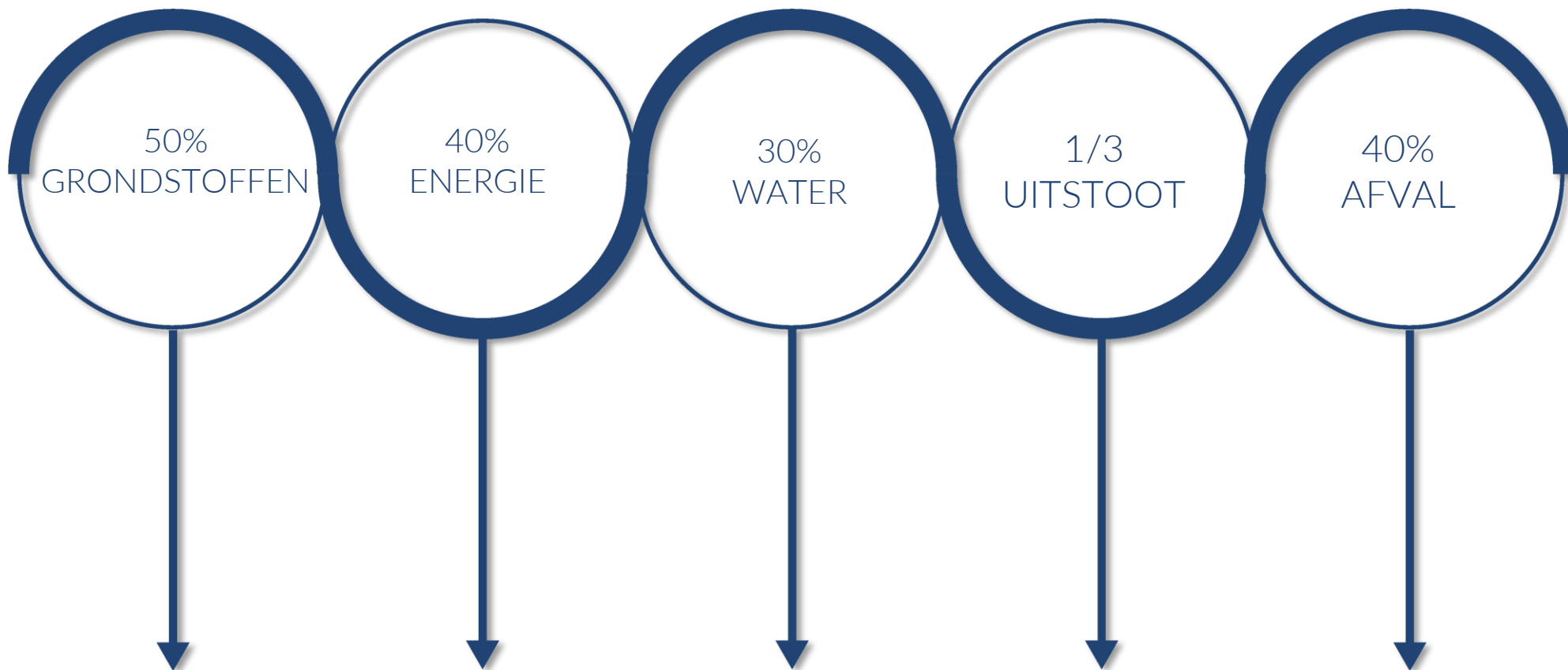
WAAROM



GEBOUWDE OMGEVING, NEDERLAND



WAAROM





Gebouwde omgeving:



de fysieke omgeving die door mensen is gecreëerd



- Gebouwen
- Infrastructuur
- Openbare ruimtes
- Landschappen
- Overige kunstmatige constructies



Gebouwde omgeving:



de fysieke omgeving die door mensen is gecreëerd



- Gebouwen
- Infrastructuur
- Openbare ruimtes
- Landschappen
- Overige kunstmatige constructies





WAT



Heydar Aliyev Center (Zaha Hadid Architects, foto: Iwan Baan)



WAT



Heydar Aliyev Center (Zaha Hadid Architects, foto: Luke Hayes en H  l  ne Binet)



WAT



Kunnen gebogen gevelpanelen,
gemaakt van bio-composiet,
vervaardigd worden met behulp van
een industrieel fabricageproces?



ONDERZOEK

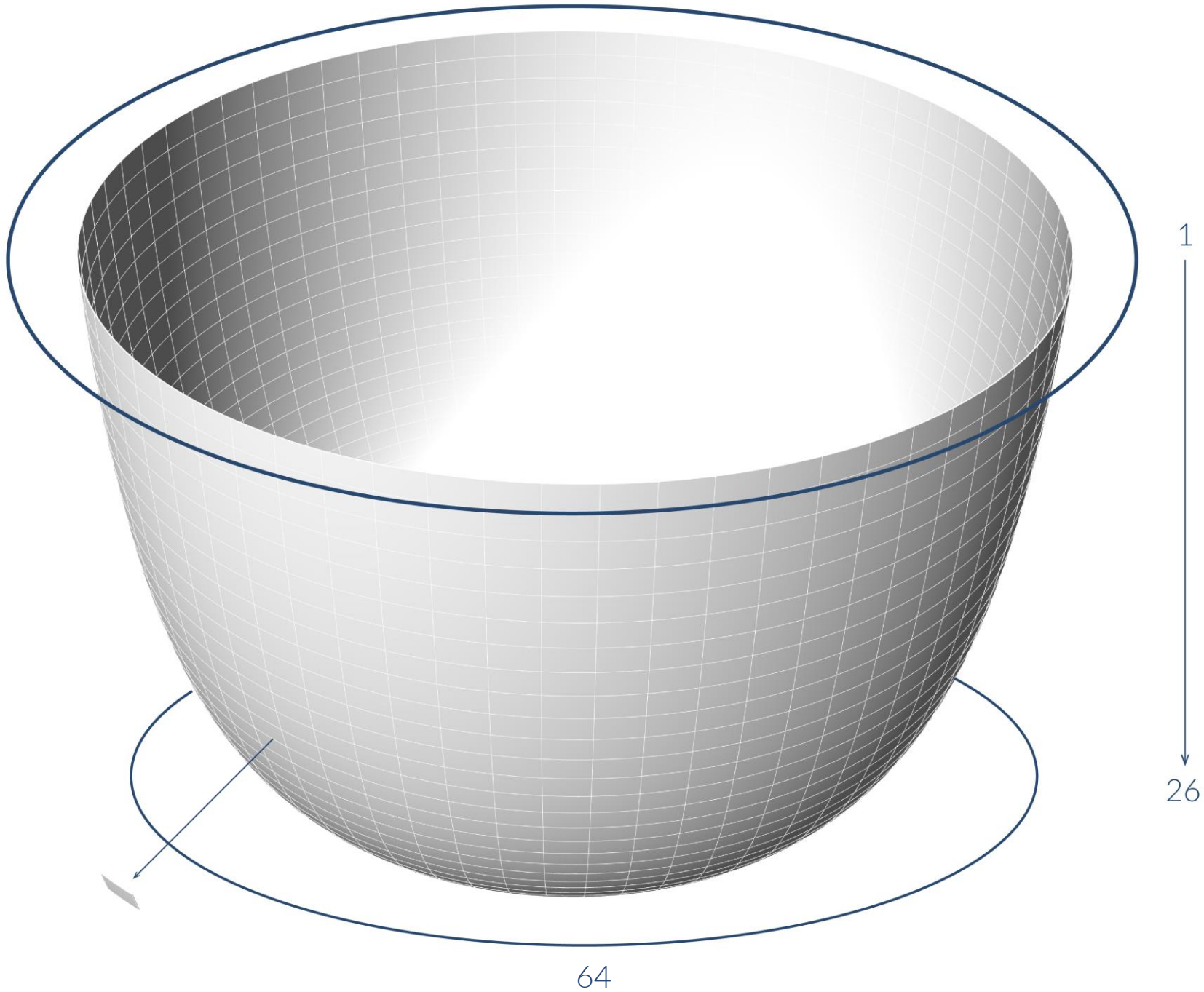


ONDERZOEK



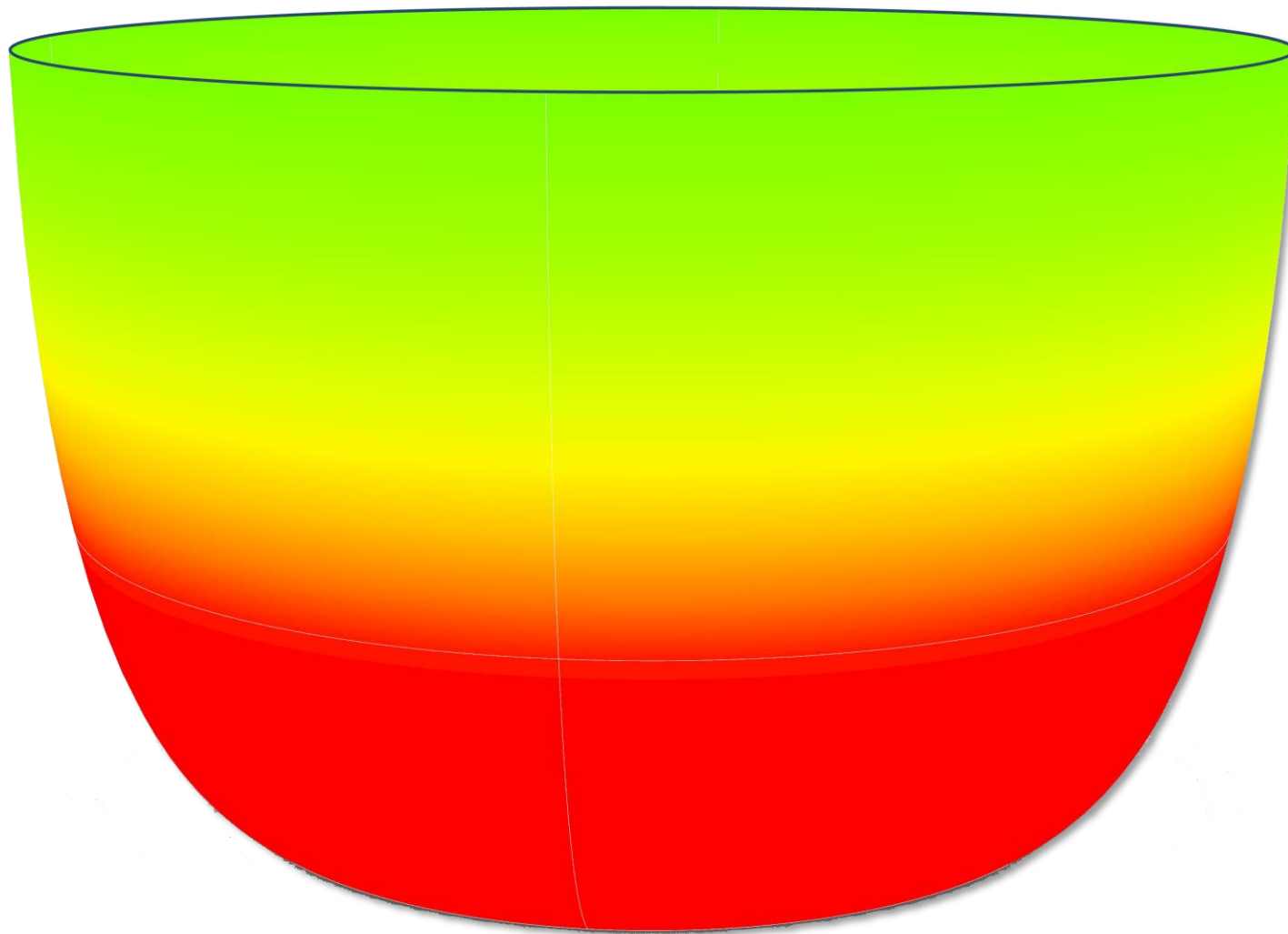


ONDERZOEK





ONDERZOEK



BETON CONSTRUCTIE

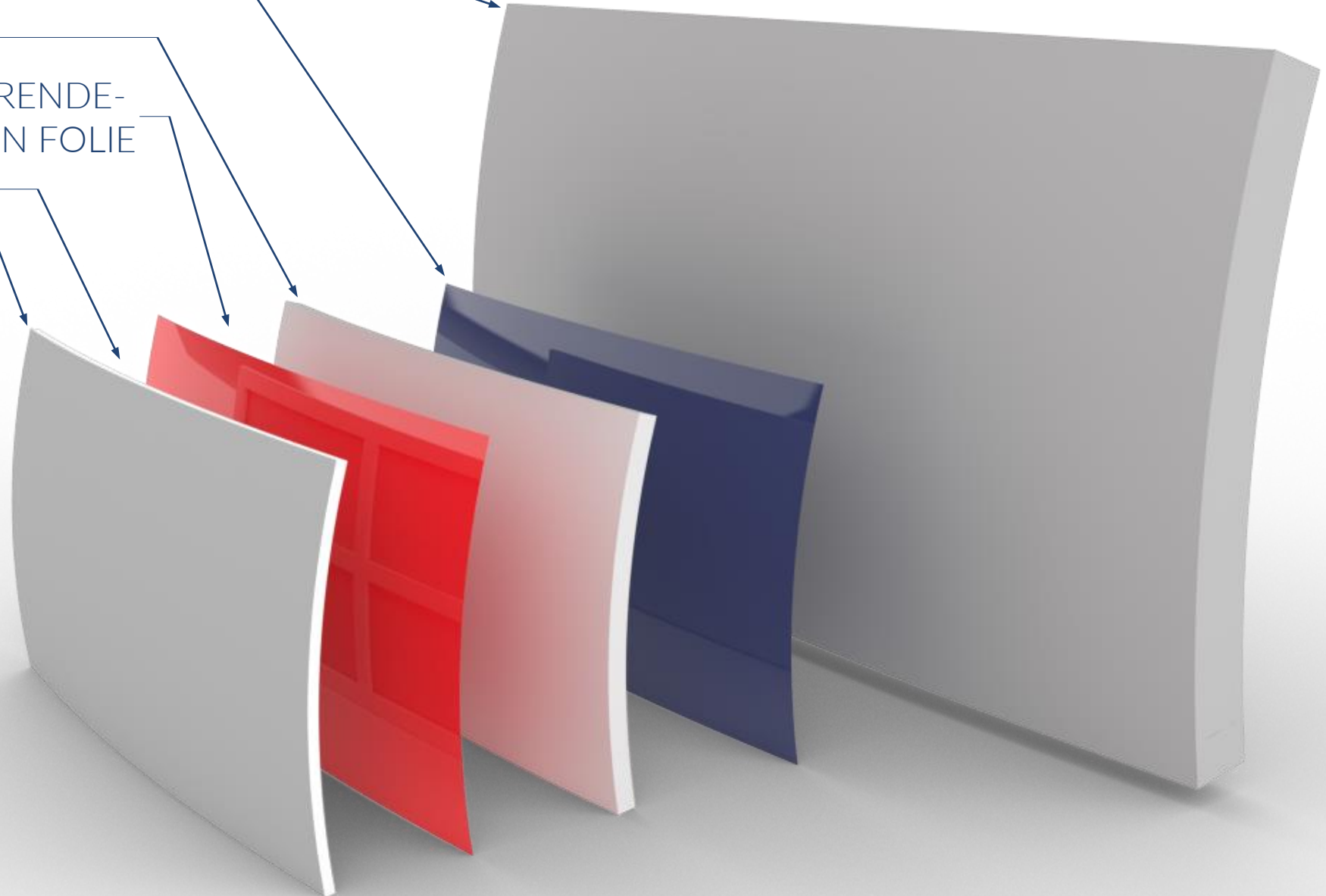
DAMPDICHTTE FOLIE

ISOLATIE

WATERKERENDE-
DAMPOPEN FOLIE

SPOUW

PANEEL

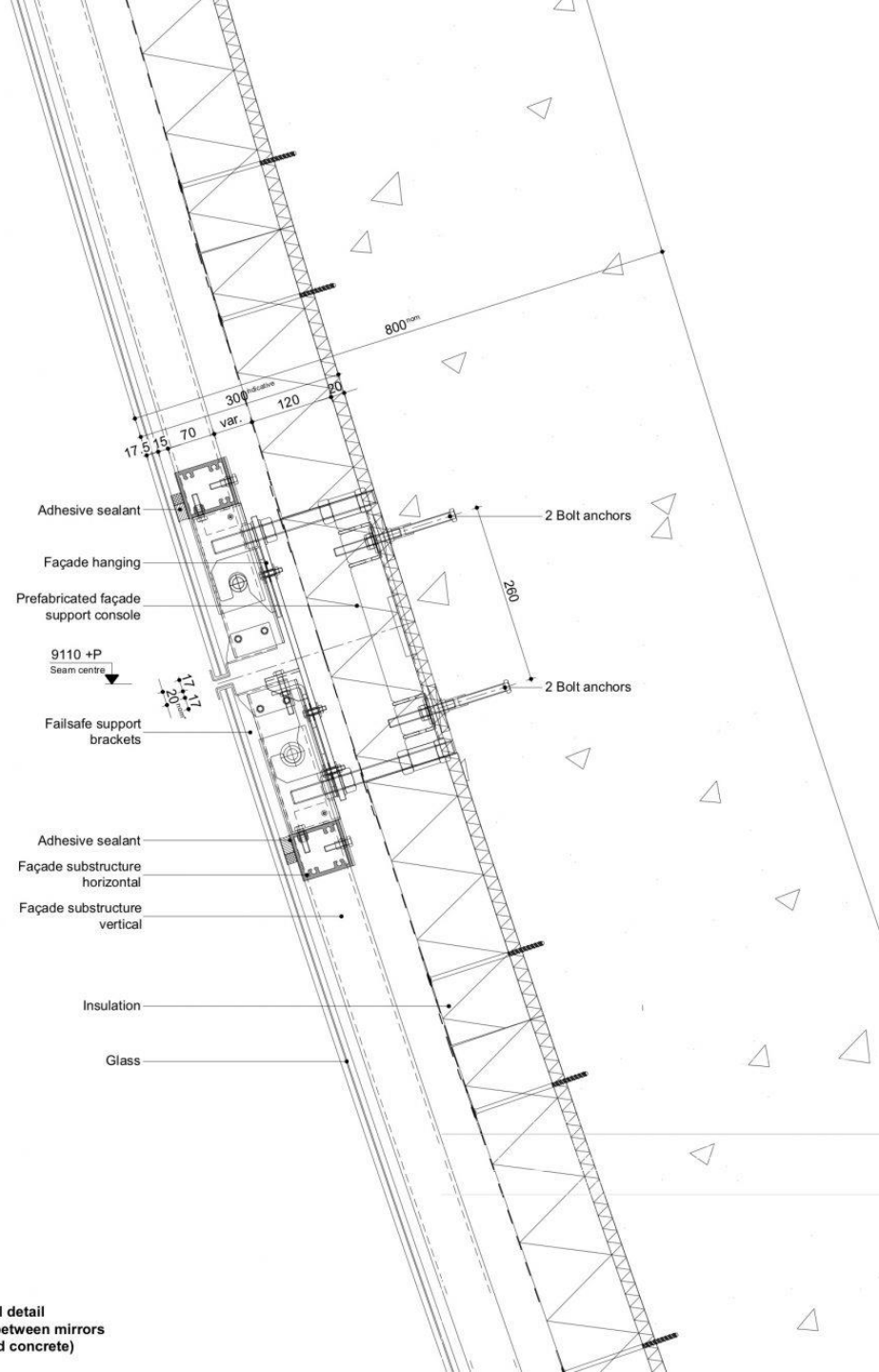


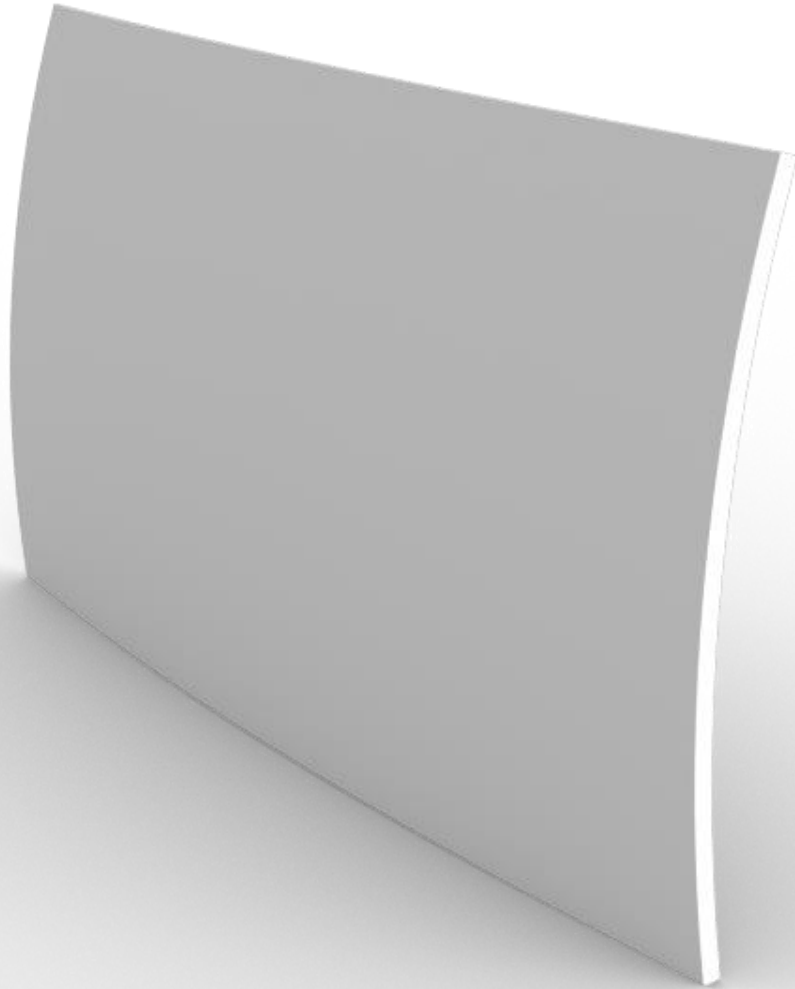
ONDERZOEK





ONDERZOEK





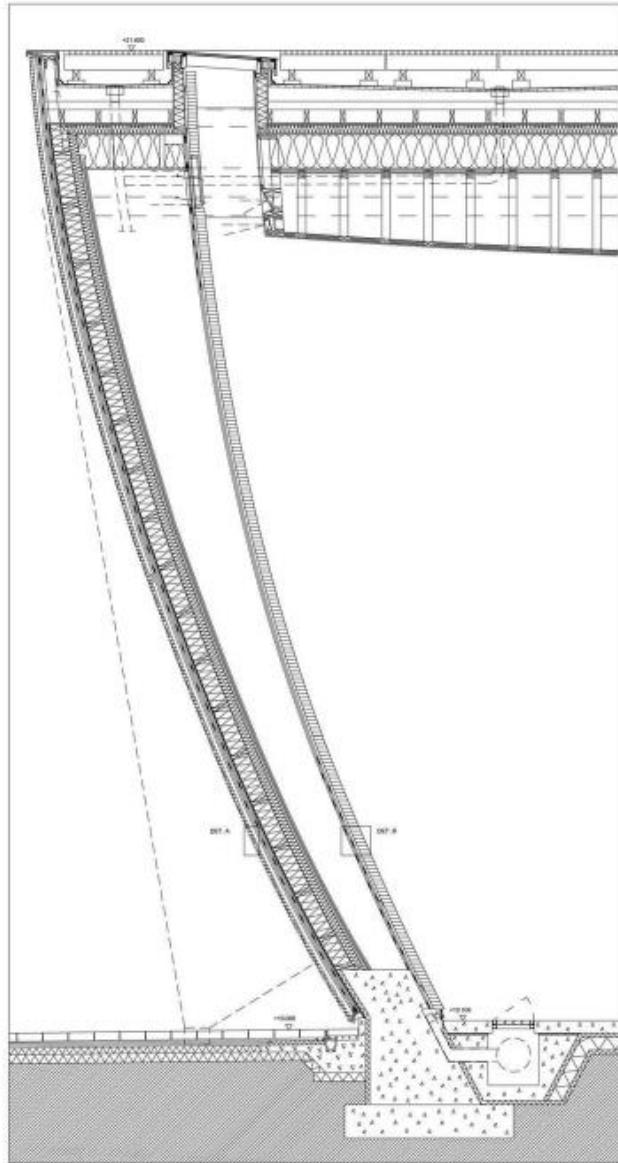


ONDERZOEK





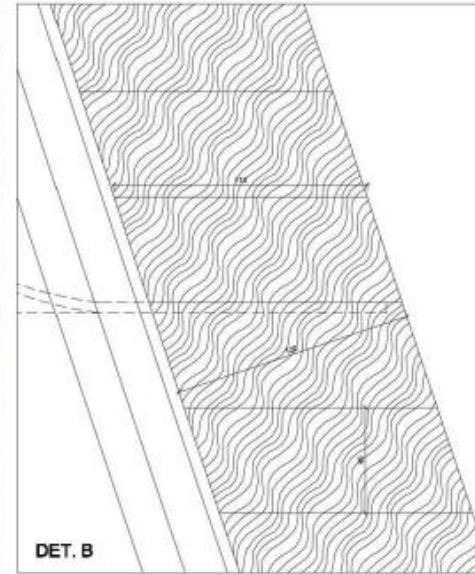
Kampin Kappeli (K2S Architects,foto: Marko Huttunen en Tuomas Uusheimo)



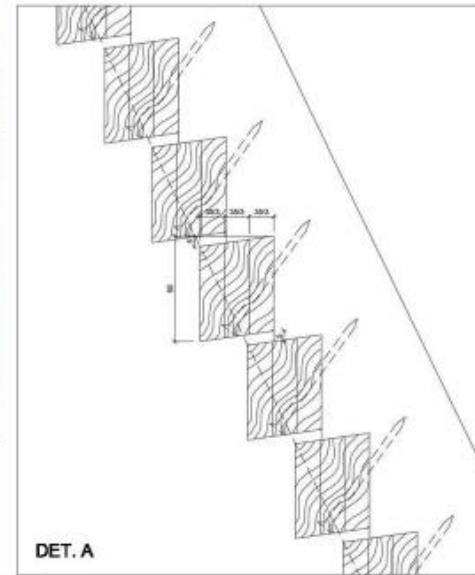
Kamppi Chapel
address : Simonkatu 7, 00100 Helsinki, FINLAND



facade section 1:50, facade detail 1:50, DET A / exterior cladding 1:2, DET B / interior cladding 1:2



DET. B



DET. A

ARKKITEHTITOIMISTO K2S OY
Olympiastadion Ristolaanrakennus C1 00258 HELSINKI
tel. 09 6831 3961 fax. 09 6831 3960 k2s@k2s.fi



ONDERZOEK



Chesa Futura (Foster & Partners, foto: Bill Kingston)



ONDERZOEK





Gelamineerd hout (Curveworks, 2023)





LAB



LAB





LAB



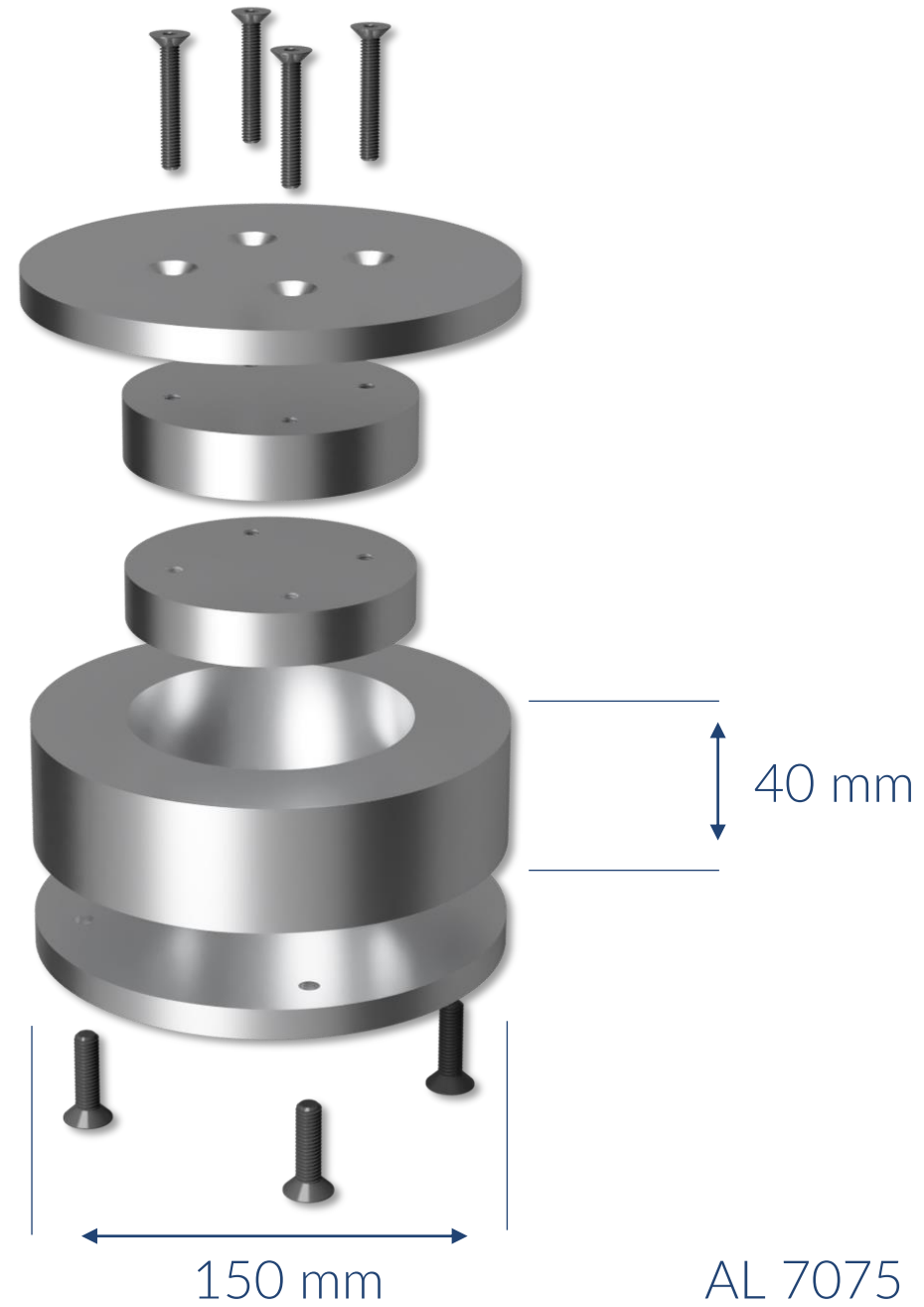


LAB



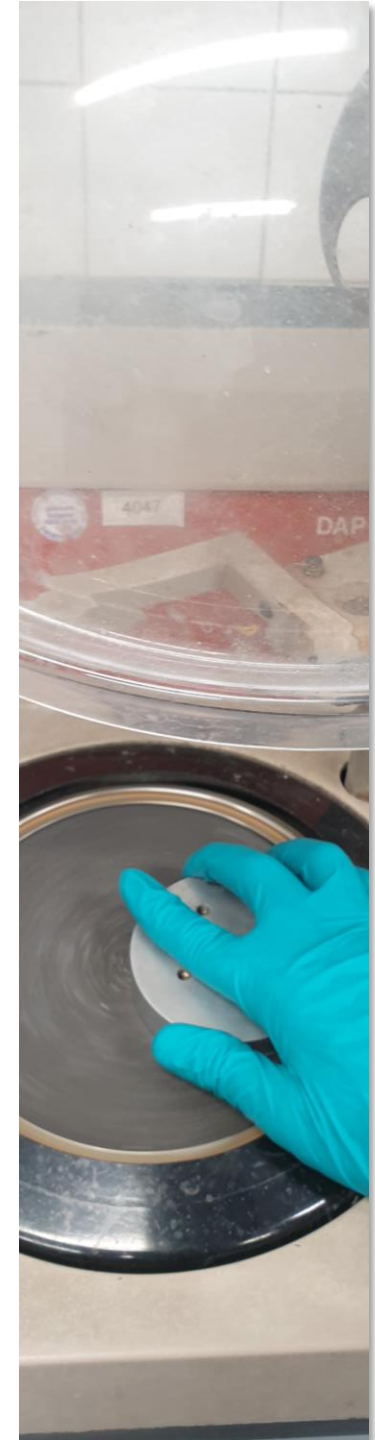


LAB





LAB





LAB



ALUMINIUM 7075

RAKU TOOL
WB-0950



LAB

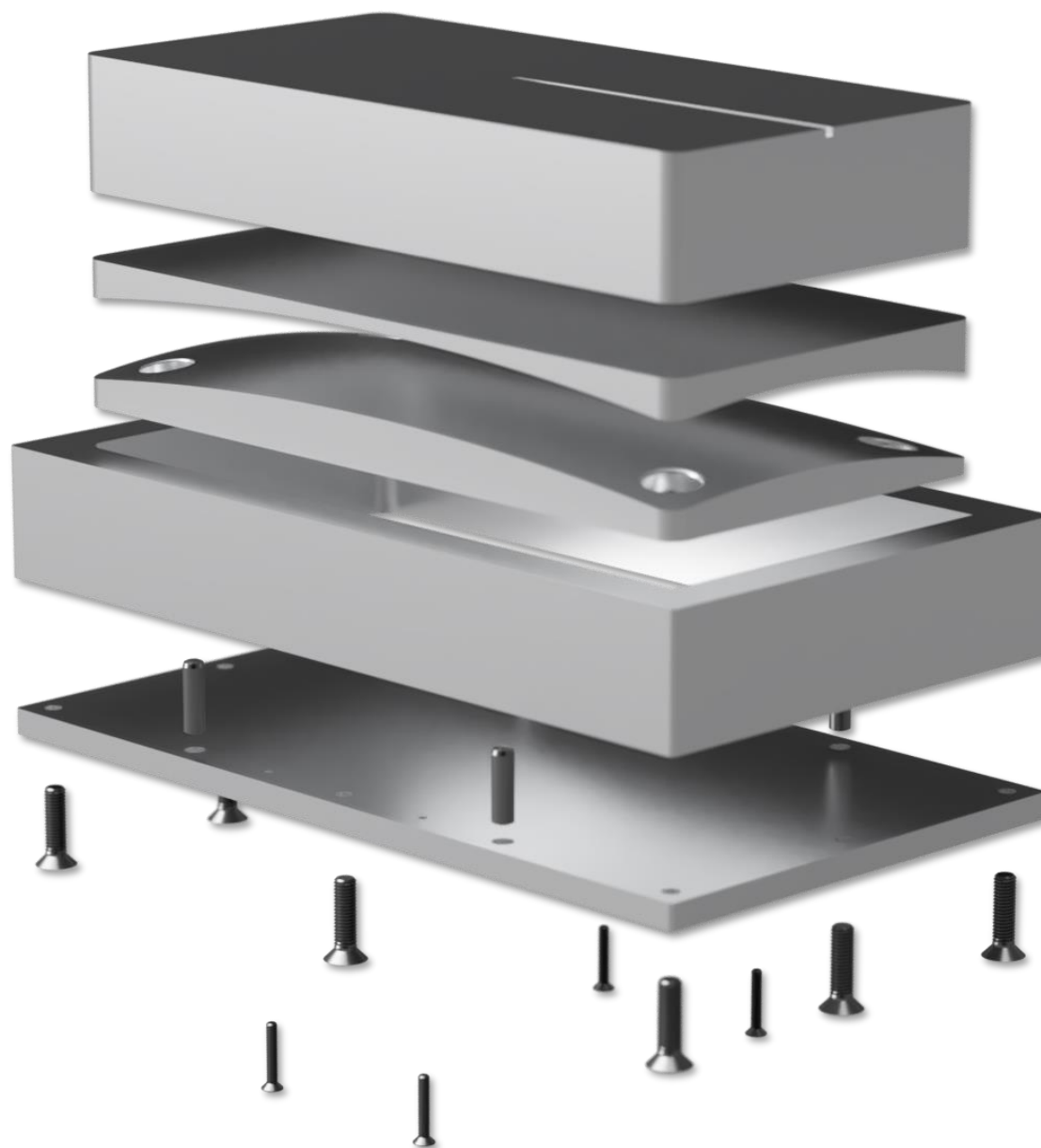


90 mm



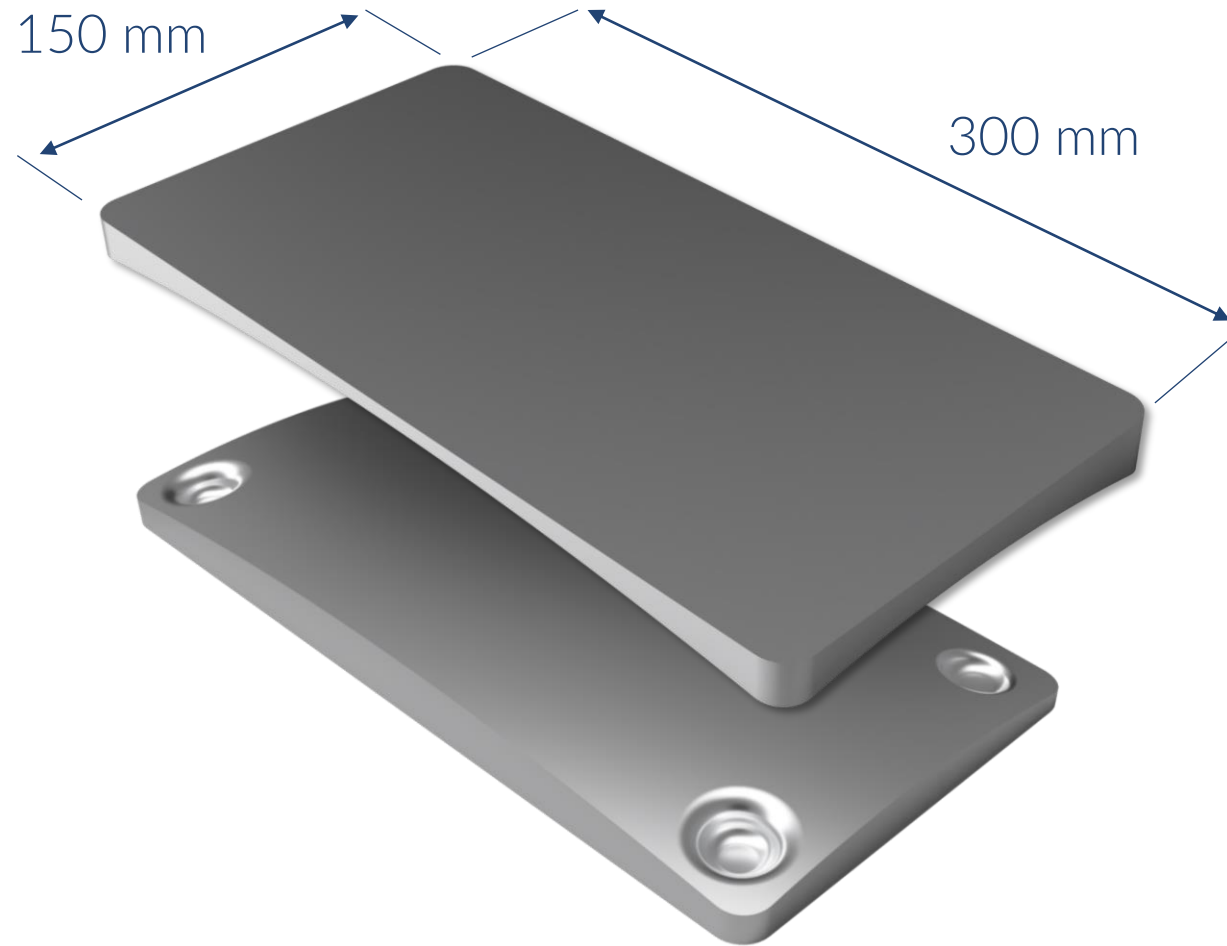


LAB



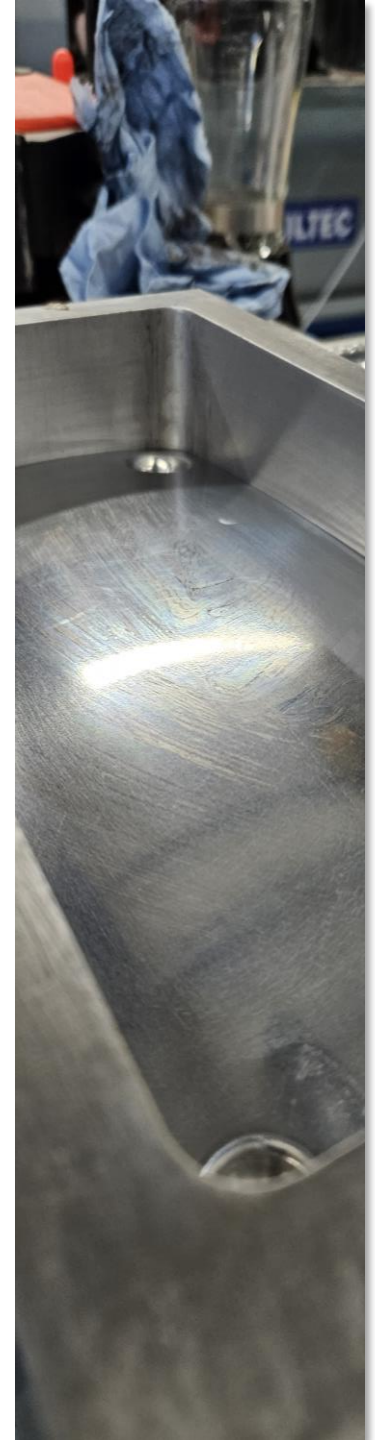
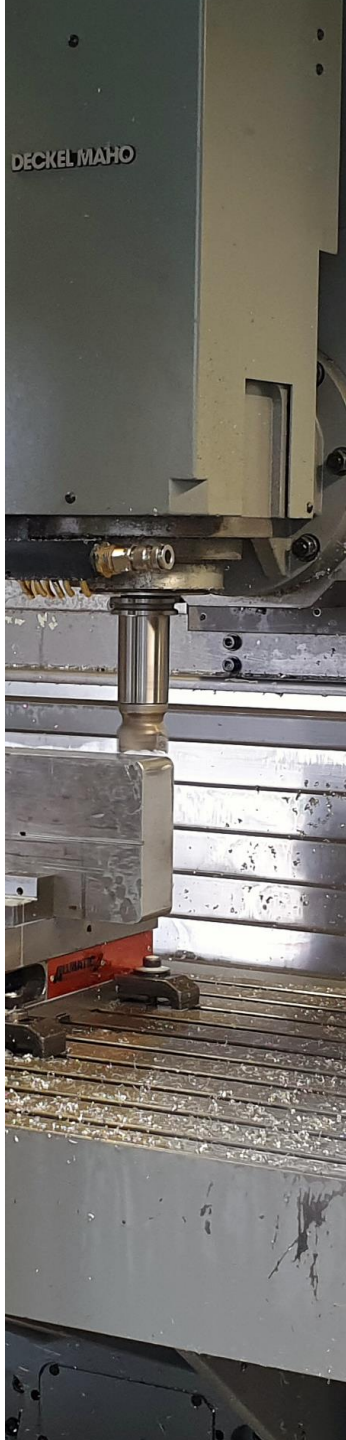


LAB





LAB





LAB





ONTWERP

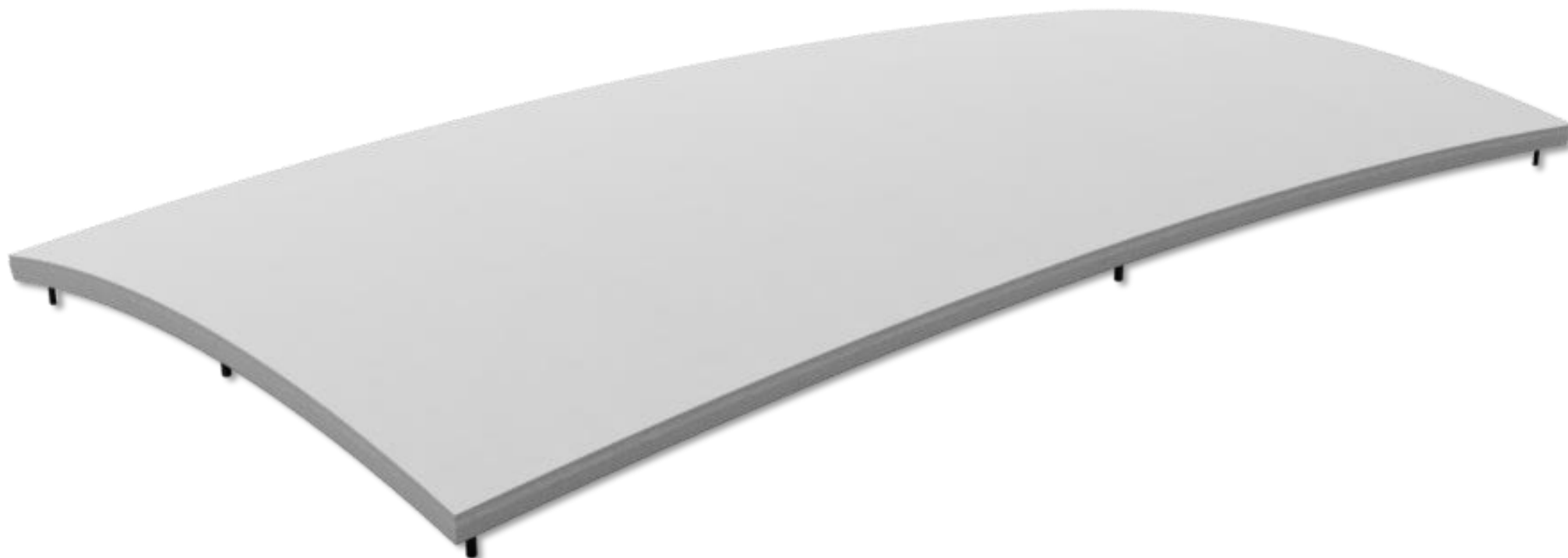


ONTWERP



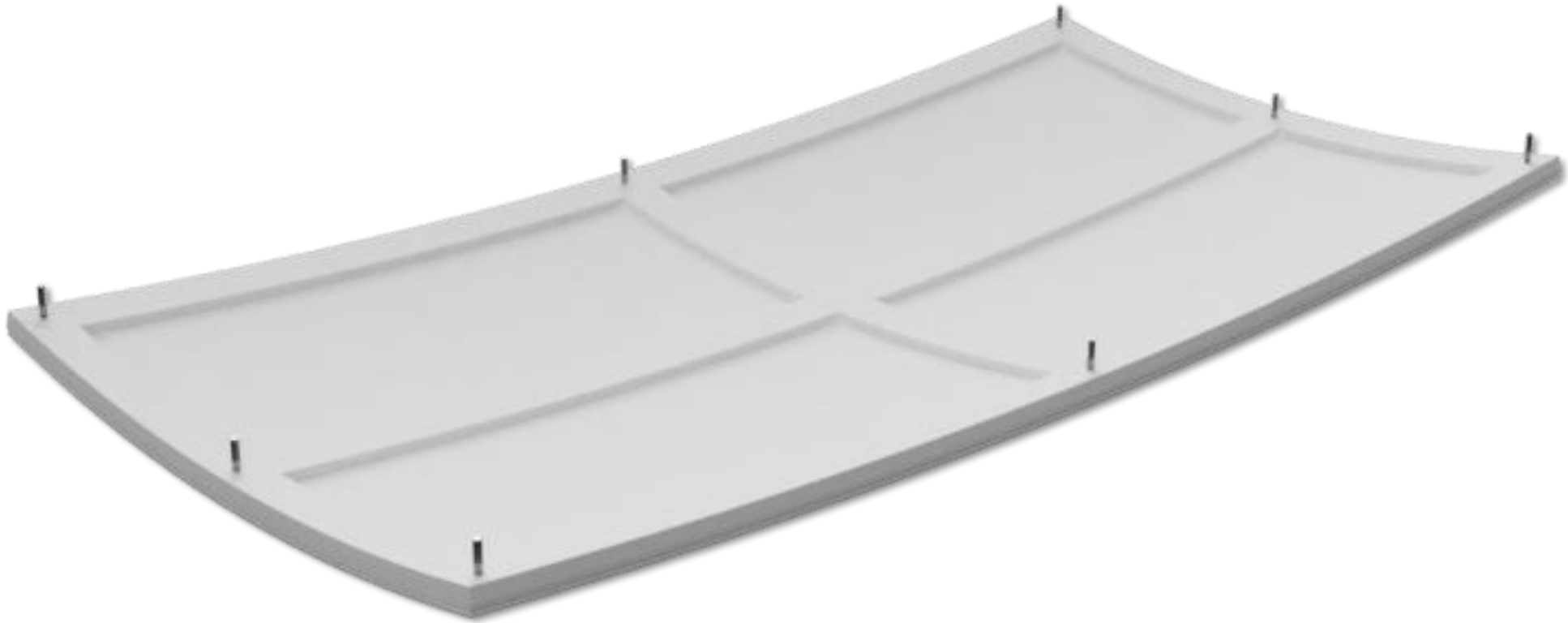


ONTWERP





ONTWERP





ONTWERP





ONTWERP

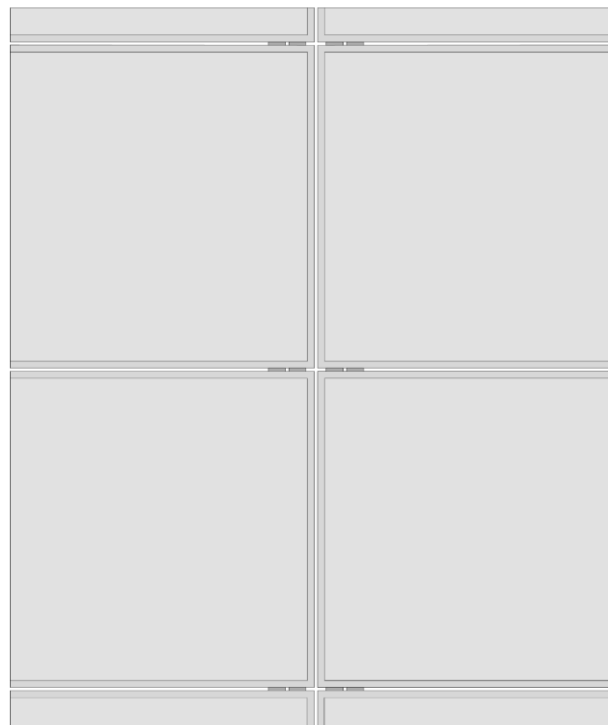
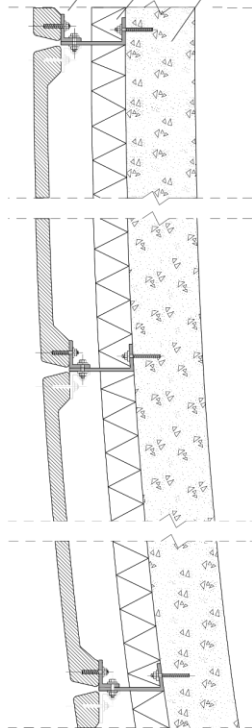




ONTWERP

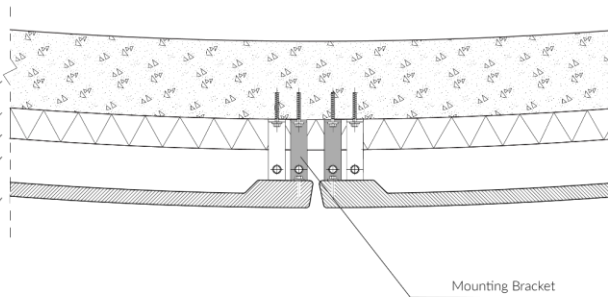


Mounting Bracket
Insulation
Concrete
(In situ & PreFab)



Vapour Layer
Waterproof Layer
Façade Panel

Concrete
(In situ & PreFab)
Vapour Layer
Insulation
Waterproof Layer
Façade Panel





ONTWERP



Bevestigingsbeugel

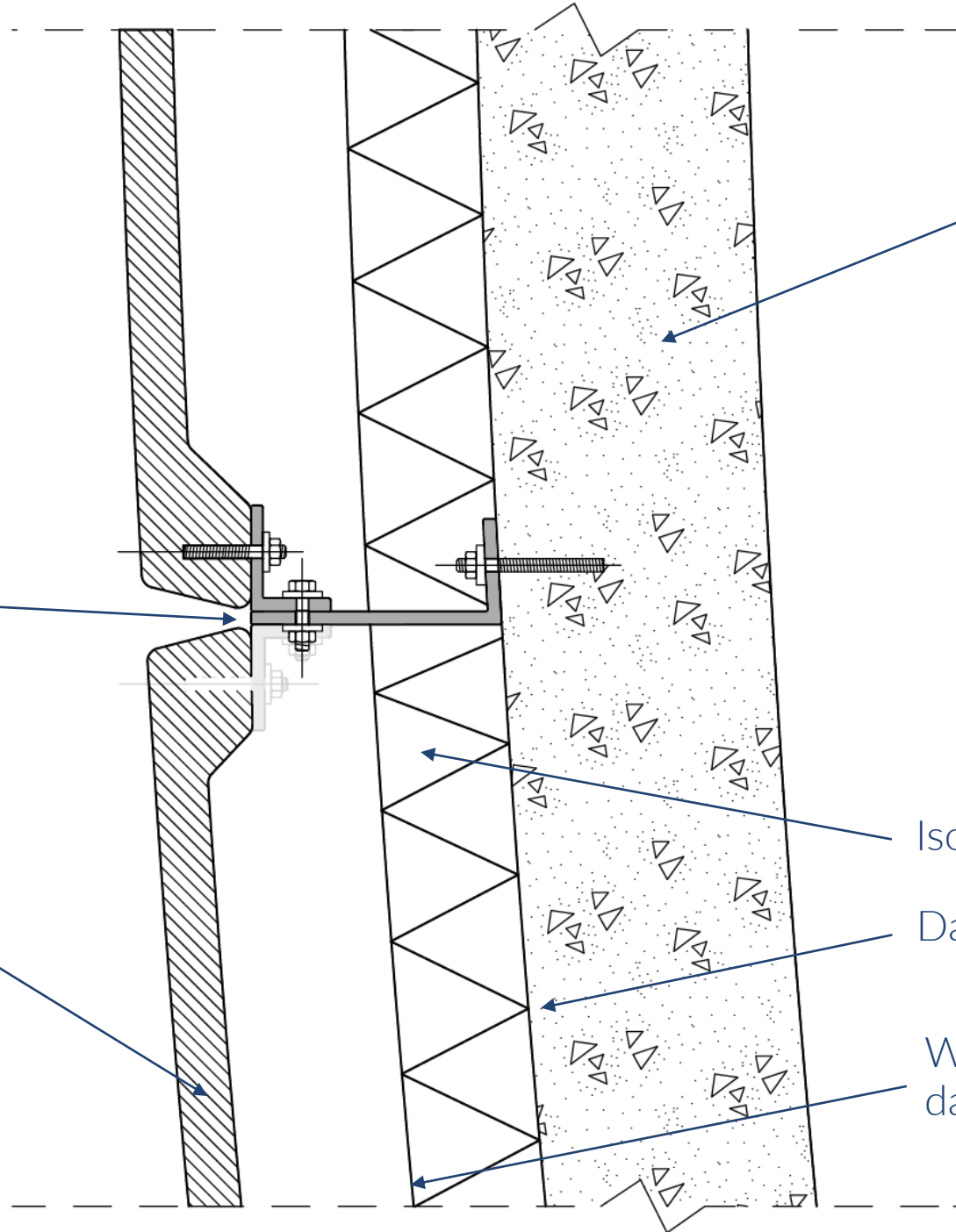
Bio-Composiet
gevelpaneel

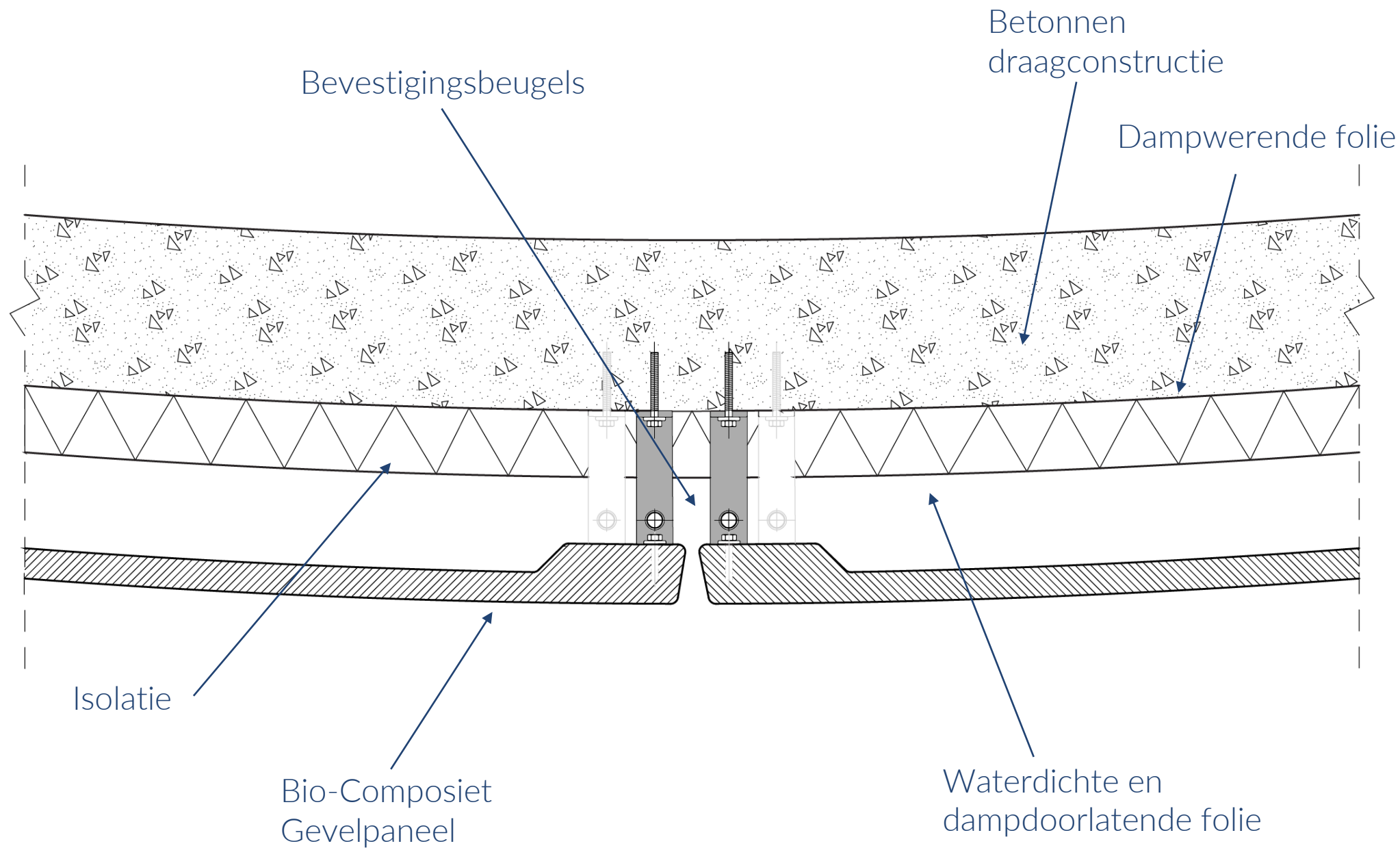
Betonnen
draagconstructie

Isolatie

Dampwerende folie

Waterdichte en
dampdoorlatende folie



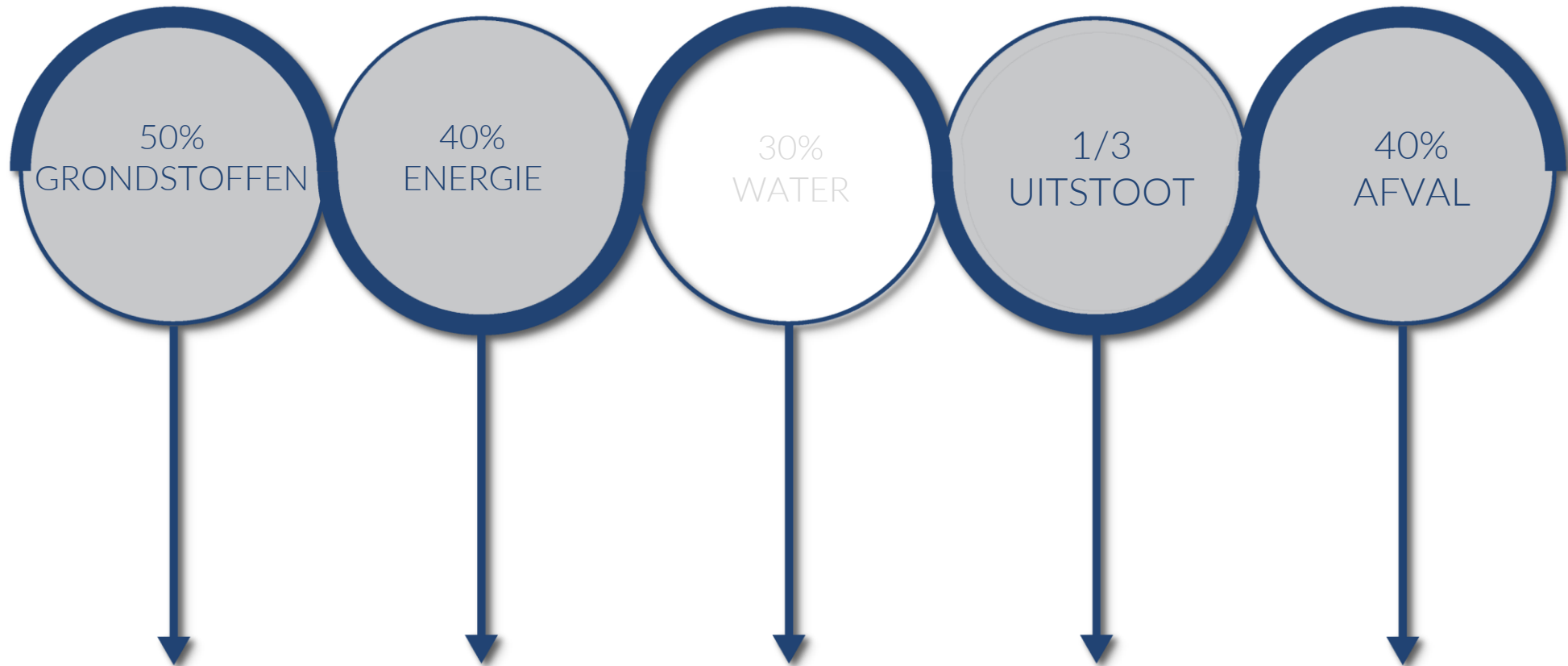




CONCLUSIES



CONCLUSIES





CONCLUSIES

PRODUKTIE

Hot-pressing

Grote series

Materiaal mallen

Productie mallen



CONCLUSIES

MATERIAAL

Veelbelovend

Sterkte vergelijkbaar met hout

Hydrofiel

Anisotroop

Goede oppervlaktekwaliteit

Goede bewerkbaarheid

100% Duurzaam



CONCLUSIES

ONTWERP

Grote panelen

Shingles

Technisch mogelijk



CONCLUSIES

AANBEVELINGEN VERVOLGONDERZOEK

Optimaliseren materiaal
Waterbestendigheid
Alternatieve produktiemethoden
Materiaaleigenschappen

DANK!