THE FERRARI EXPERIENCE

YAS ISLAND - ABU-DHABI

REYNAERS
aluminium

FAÇADE DESIGN & ENGINEERING

Location:	YAS Island, Abu Dhabi
Investor:	ALDAR Properties
Architect:	Benoy architects
Reynaers office:	Reynaers Middle East
Main Contractor:	SixConstruct
Façade Team:	Besix Global Façade Organisation (BGFO)
Façade Engineering/Fabricator	Jungbluth Alu Partners Ltd (JAP)
Reynaers systems:	CW86 based OS-design (Shield façade) New OS-design (Funnel façade)
Total Façade area:	Shield façade: 18.000m2 Funnel façade: 11.000m2

THE LOCATION & PROJECT

Situated in the prestigious 2,500 hectares Yas Island development, Ferrari World is an entertainment activity theme park with 24 family attractions. This fun paradise is equipped with a 70-meter-high G Force tower promising a one of a kind ecstatic ride, a unique twin racing rollercoaster, tracks for kart, rally and dune buggy racing as well as an 18-screen complex and numerous food outlets.

The Island will feature attractions such as:

- A world-class motor sports racetrack,
- Signature hotels.
- The Ferrari World.
- Water park.
- Retail development of 300,000 sq m retail area.
- Parkland golf courses, lagoon hotels, marinas, polo clubs, apartments, villas and numerous food & beverage outlets that will create a unique international tourist destination.

‘At Reynaers, we fulfil our vision by investing in research and development of innovative and sustainable aluminium building solutions.
We go the extra mile to meet the needs and demands of builders for energy-efficiency, comfort, design and safety’.

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‘Yas Island occupies a total land area of 2,500 hectares, of which 1,700 hectares will be claimed for development’.

ABOUT THE CURTAIN WALLS

Reynaers Aluminium embarked on the landmark project by developing more than 30 new profiles with 12 new gaskets and accessories. Project specific details include:

- Two major parts, Funnel and Shield.
- Additional Walk Way.
- Due to the Funnel's special shape, it was installed via a 3D space frame.
- The Shield's curtain wall was uniquely anchored to the outside steel.
- Different colours for outside and inside parts.
- The steel Walk Way has a large aluminium ball nose accepting light fixtures.
- The roof is molded after Yas Island's logo.

Schedule:

First design meeting with façade designer (JAP):	02/2008
First die drawings finished of the Funnel facade:	08/2008
First die drawings finished of the Shield facade:	09/2008
First official order:	10/2008
First deliveries to test center by air cargo:	11/2008
Testing of Funnel facade element:	11/2008
Testing of Shield facade element:	12/2008
Final delivery of complete materials:	04/2009
Installation of last Shield element:	06/2009
Installation of last Funnel element:	07/2009

Additional orders for extensions.

Mock-up Test (Reynaers Institute - Belgium)

‘The Reynaers Institute, our testing and research facility, is now being expanded by 80% to 2800m² to become one of the largest private test centres in the industry’.

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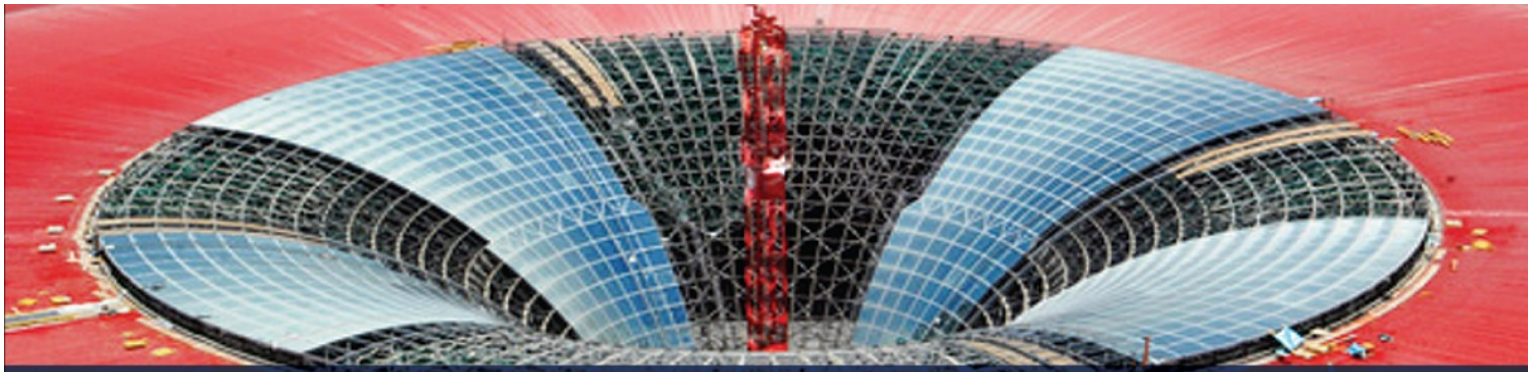
‘Reynaers Aluminium developed more than
30 new profiles, 12 new gaskets and accesories’.

THE FUNNEL TECHNICAL CHALLENGES

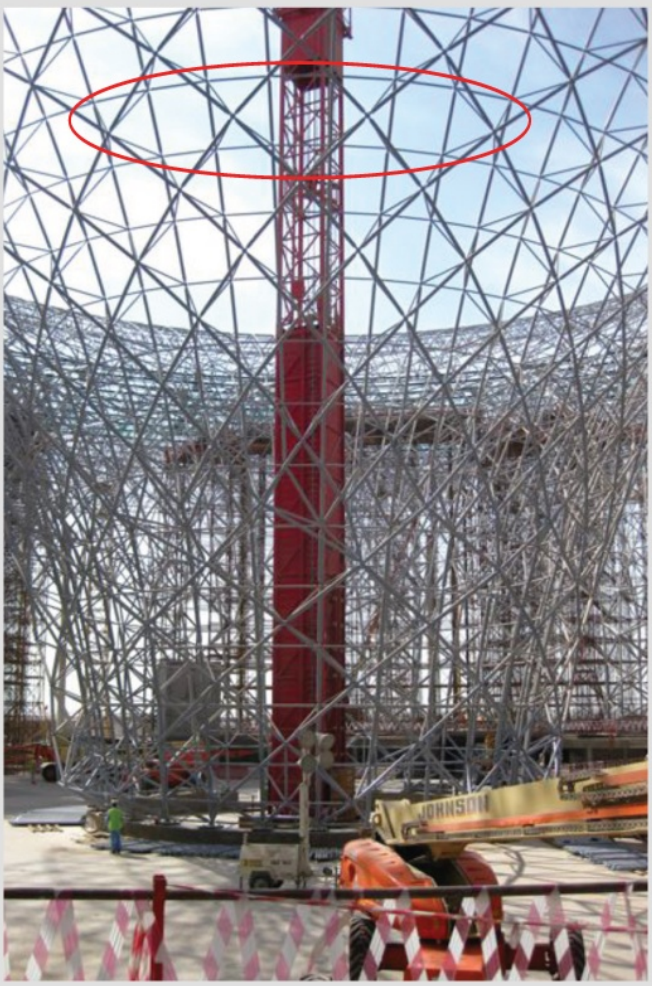
IMPRESSION
OF THE FUNNEL
WITH 70M
HIGH TOWER

- Curtain walls were installed via a 3D space frame to allow movement prompting proper dilatation adjustments.
- The mullion's shape was fixed (visual architectural aspect) but the final size was determined through inertia calculations.
- Due to the predetermined shape, there was a need to solve issues of movement, connections with transoms coming under different angles, anchoring and obviously AWW performance.
- Strong fixation of heavy elements to the frames.
- Panels are mostly trapezoidal and 3D shaped.
- Executing AWW tests to the highest European standards.
- The result is designing a new insulated system.

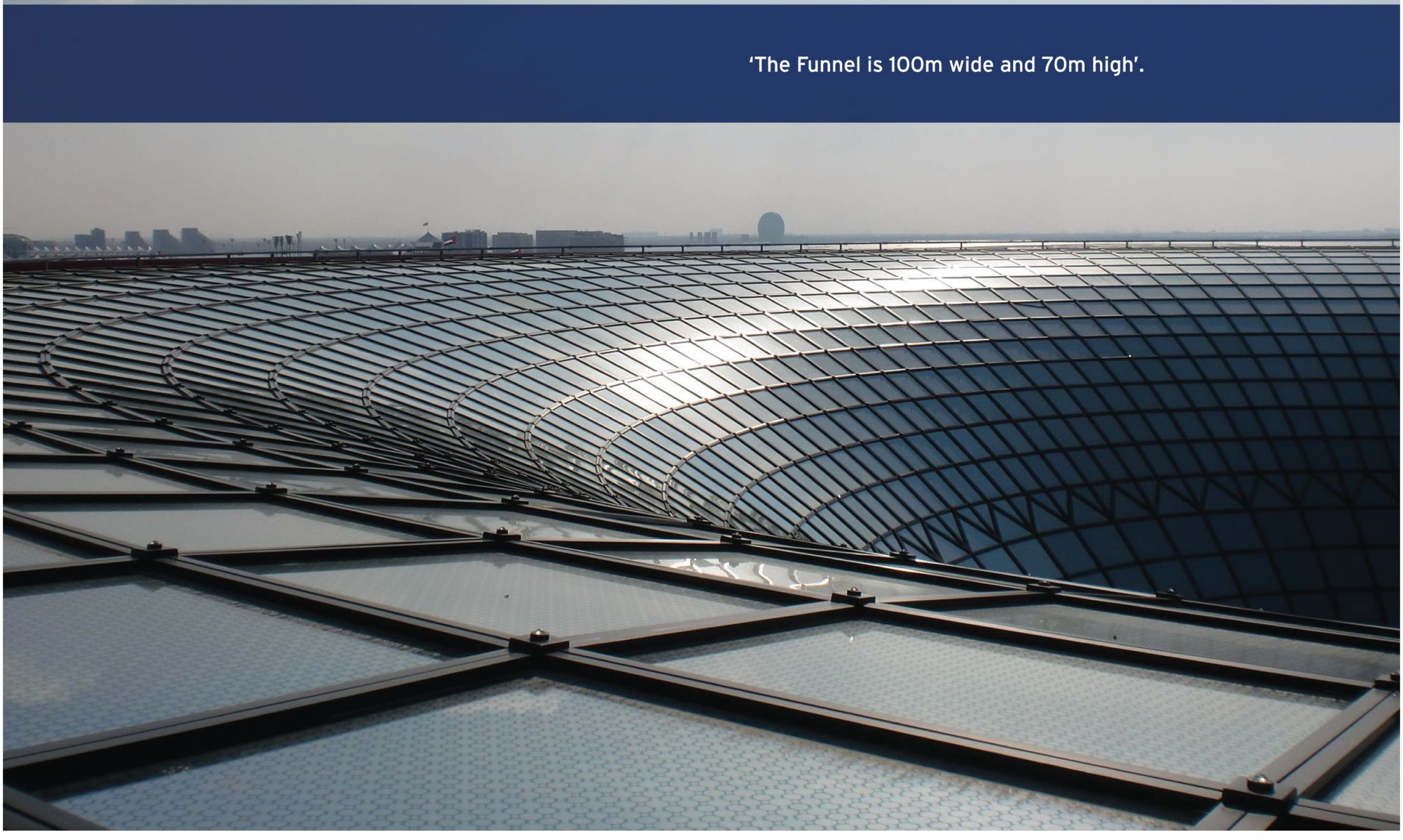


THE FUNNEL CONSTRUCTION & FAÇADE

Starting from down upwards, the funnel grows wider. It will need 30 panels to complete its lowest circle multiplying into 60 and 120 to complete its middle and upper circles. This challenge is solved by the insertion of triangular shapes.

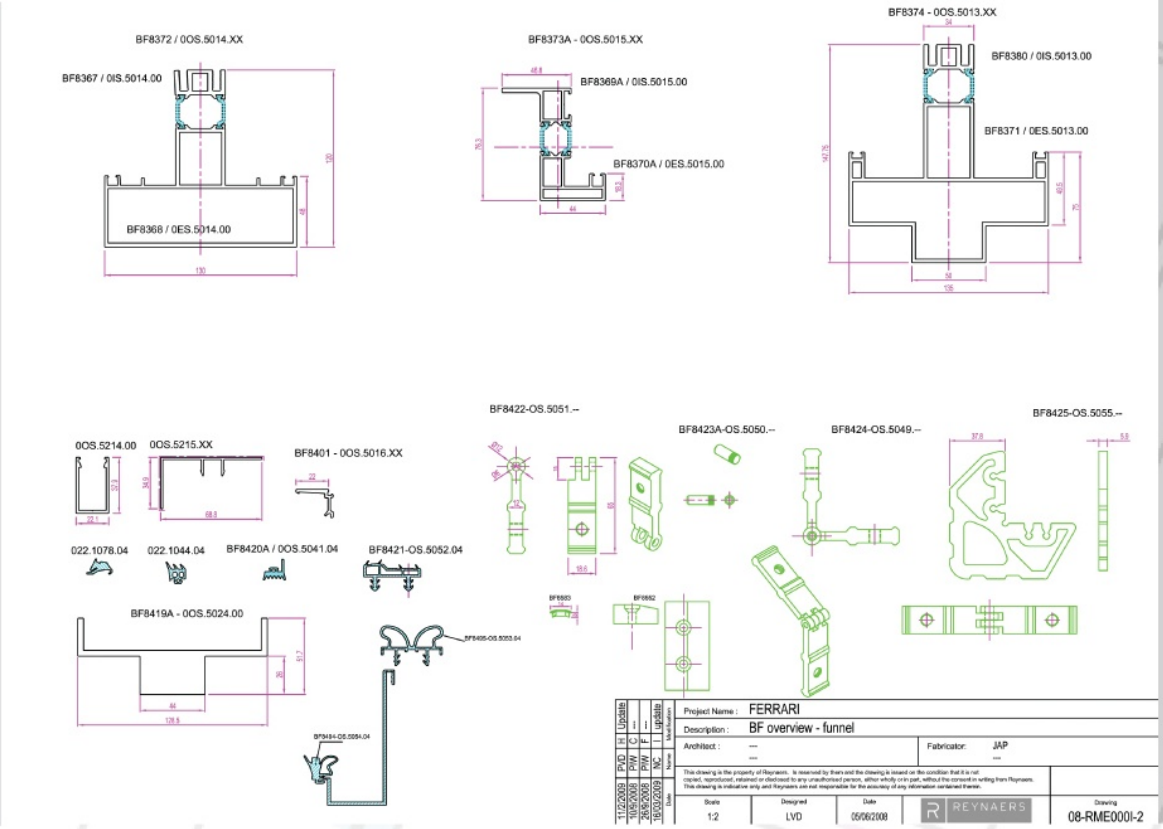


‘The Funnel is 100m wide and 70m high’.



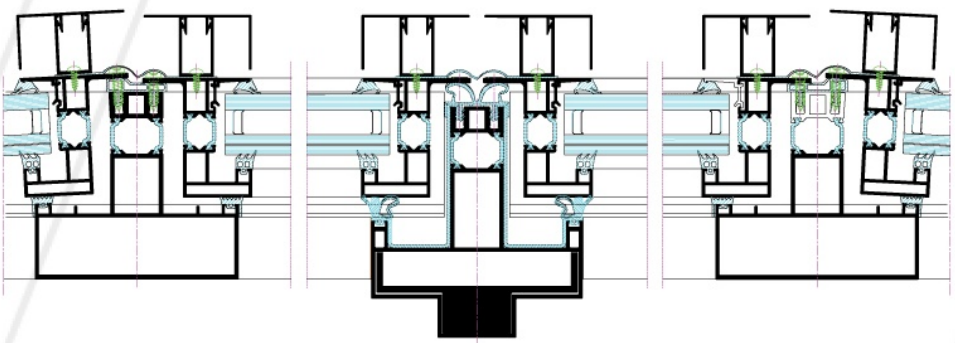
THE FUNNEL TECHNICAL CHALLENGES

FUNNEL PROFILES OVERVIEW

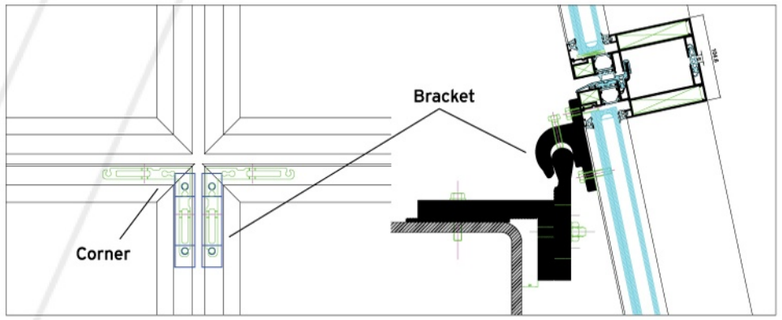


THE FUNNEL FAÇADE SECTIONS

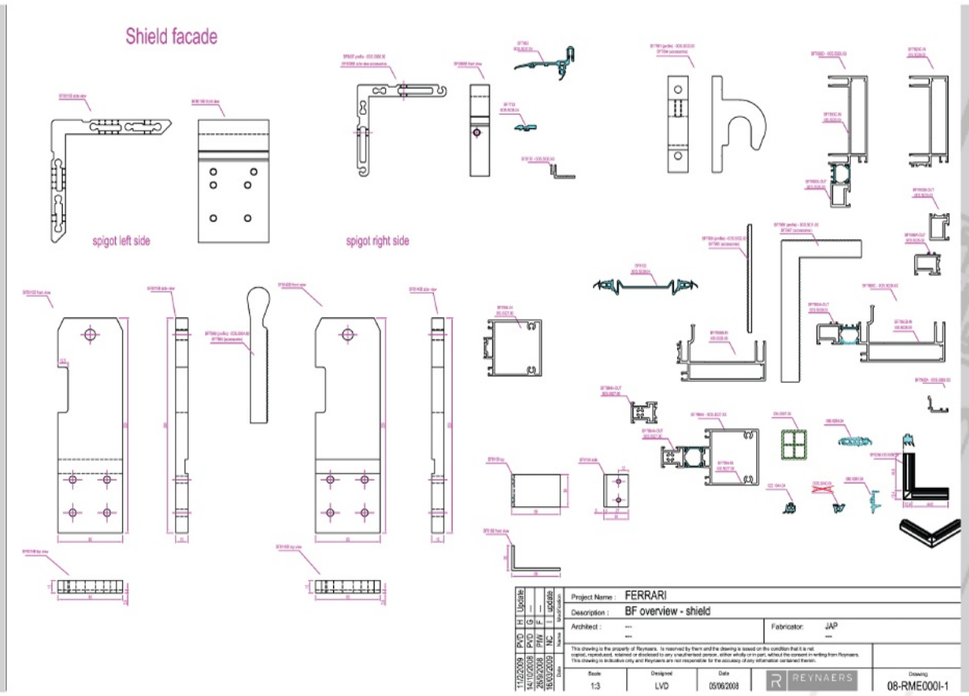
Third layer: 0.95° till 0.05°



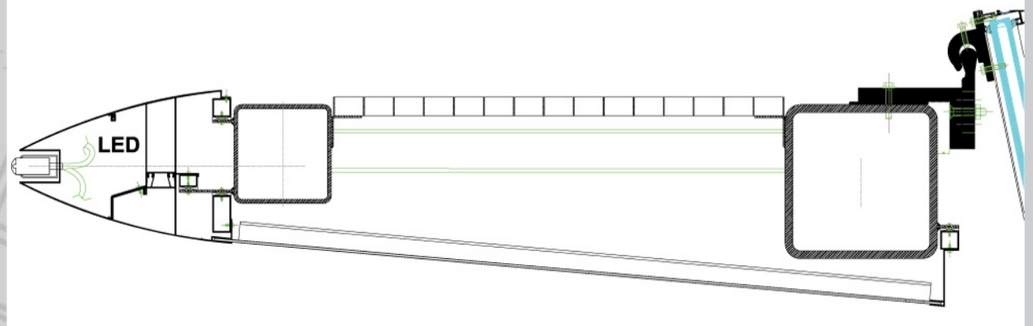
SHIELD DESIGN ACCESSORIES



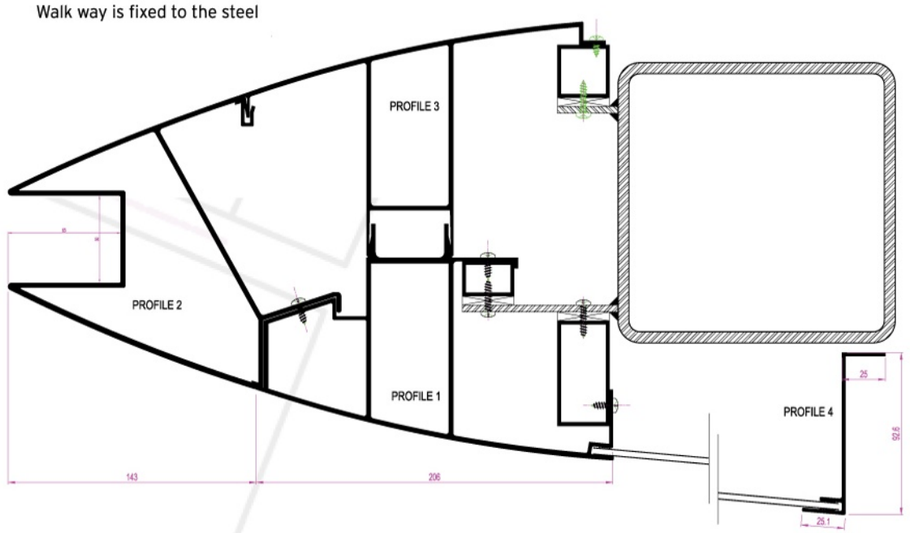
SHIELD PROFILES OVERVIEW



WALK WAY SECTION

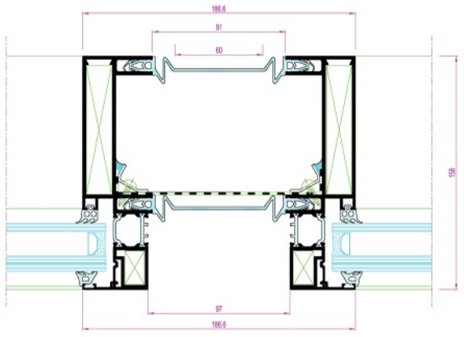


Walk way is fixed to the steel



SHIELD MULLIONS

The Standard Mullions were 105 mm



The Curtain wall was fixed to the outside steel structure

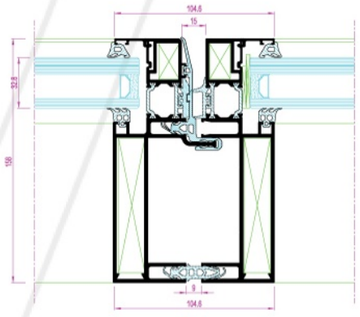
SHIELD TRANSOMS

Transoms were 105 mm

Design to accept cascade drainage gasket.

It was extruded into one profile.

This influenced the design of accessories and other gaskets.



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