

Intelligent Building Trends Innovations in Building Envelope

Gautam Bhasin
Arup

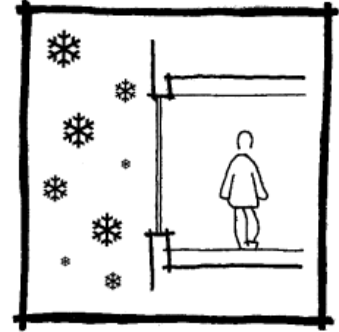
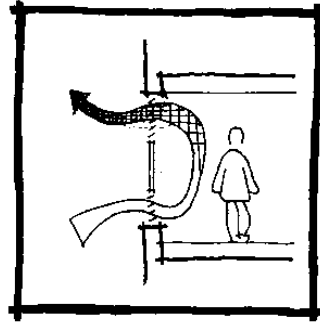
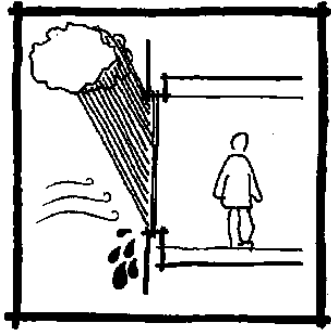
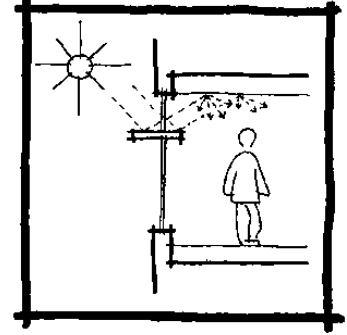
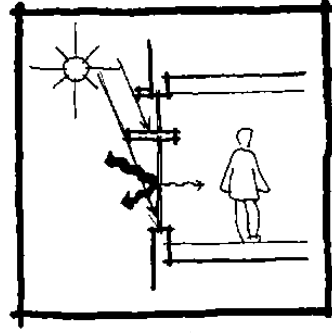
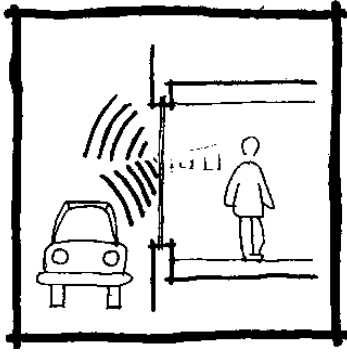
Now

New

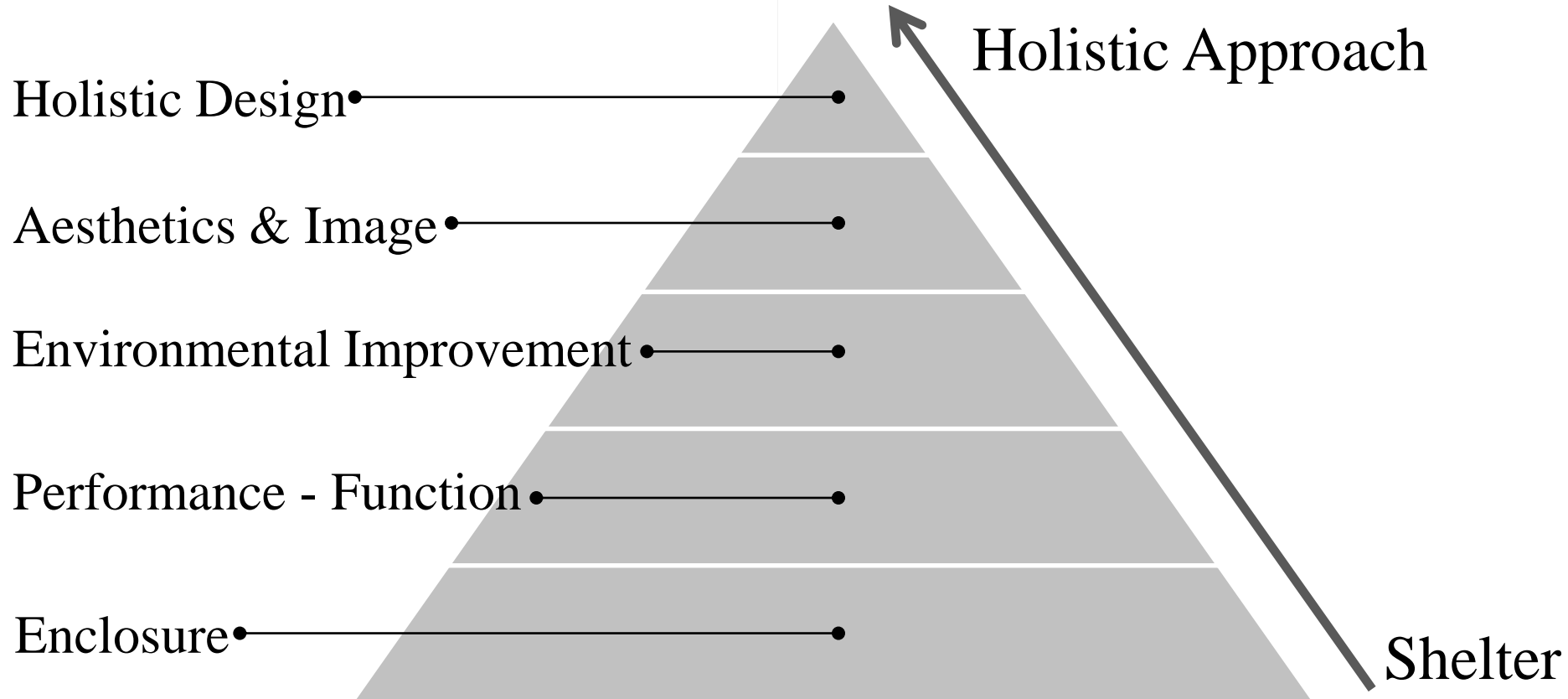
Next



What we build - Enclosure



What we build - Hierarchy

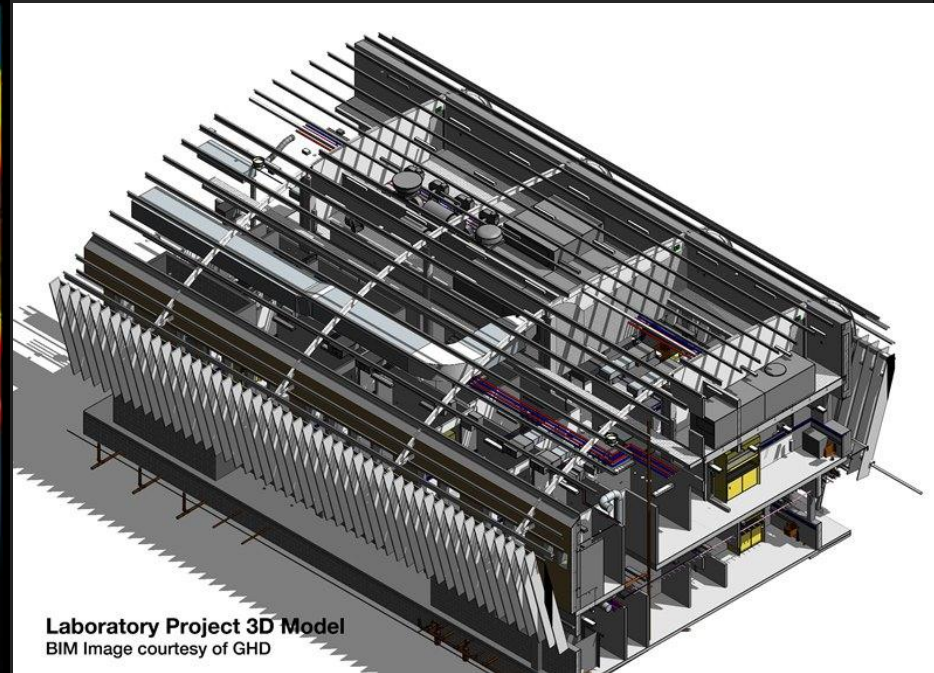
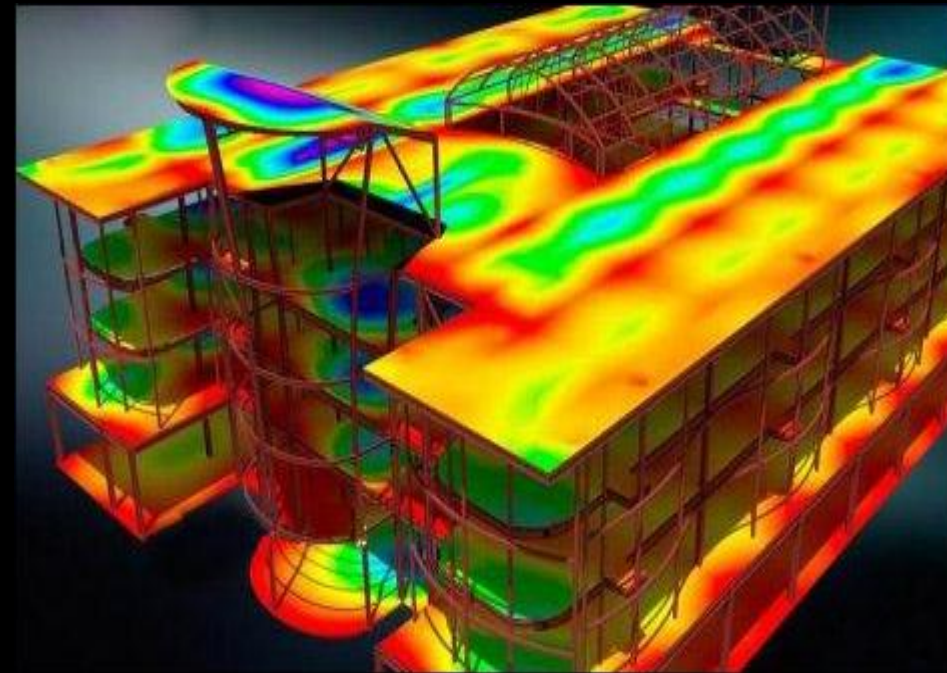


What we build – Robust and Stable

- Regulatory codes
- Design standards – local / international
- Familiar range of construction materials
- Well established methods

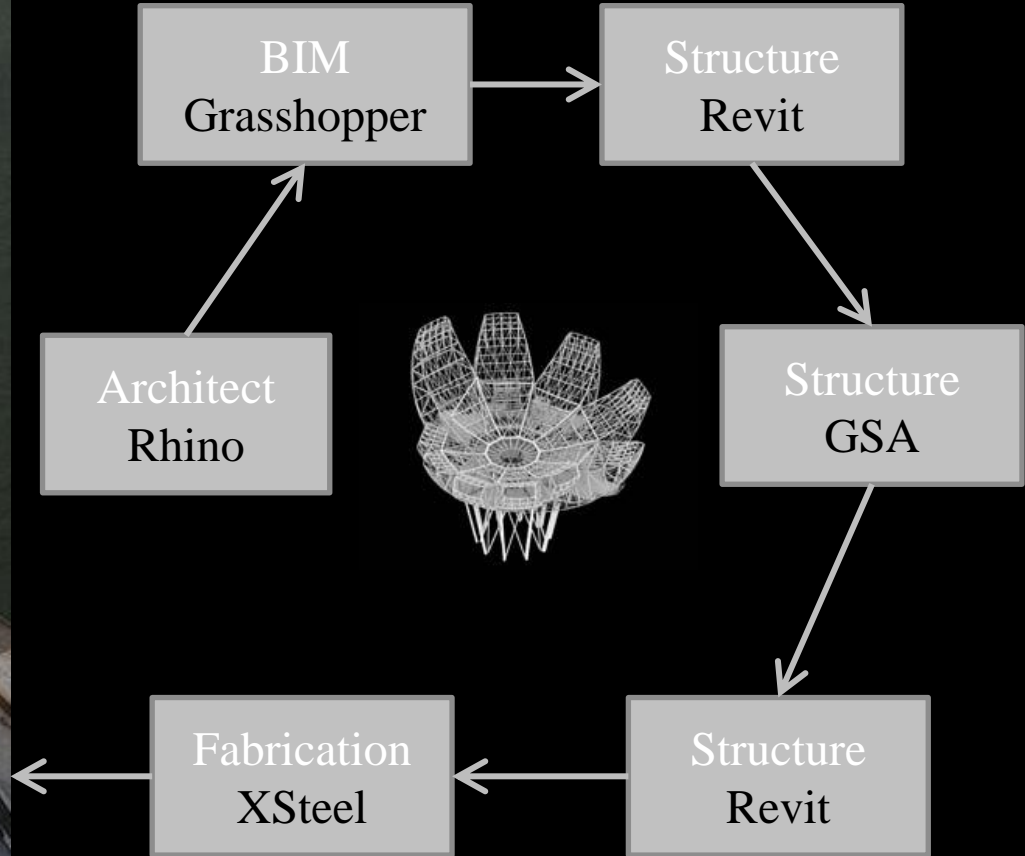
How We Build – Design Tools

Effective Coordination, conflict resolution and time savings



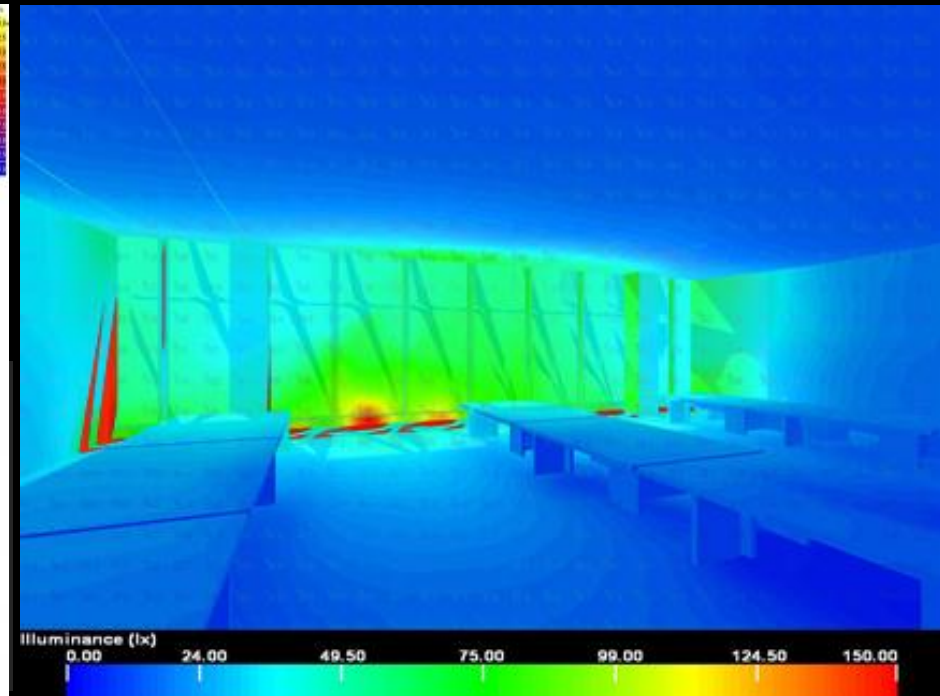
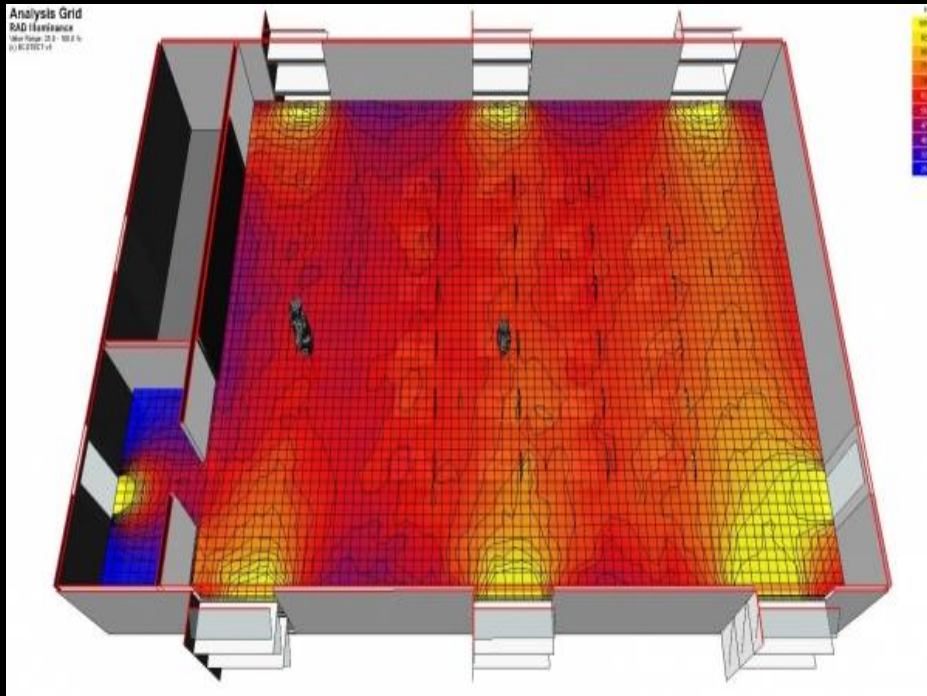
Laboratory Project 3D Model
BIM Image courtesy of GHD

How We Build – Design Tools



How We Build – Design Tools

Efficiency and better comfort conditions



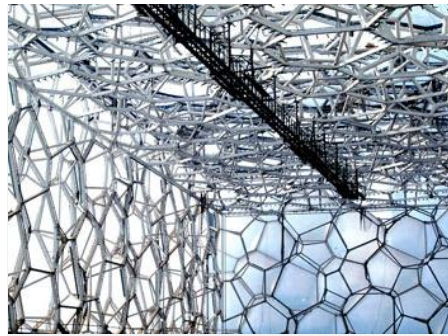
How We Build – Prefabrication

Pre-fabrication and quicker assembly



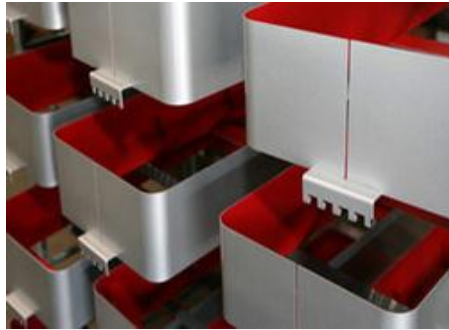


Efficient
Composites



Plastics

Newer
Cladding
Systems



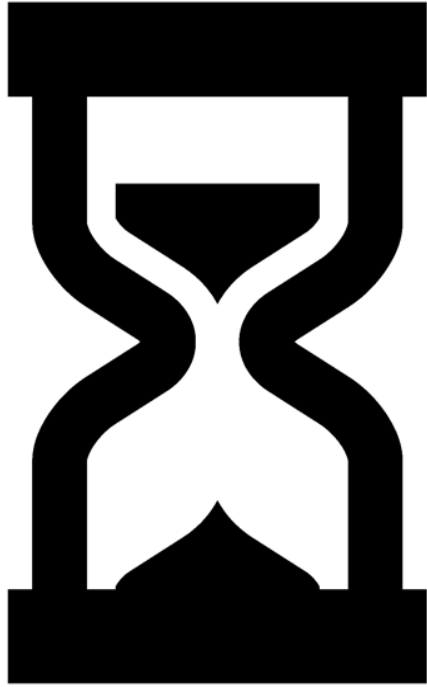
Lighter
Structures



Improved
Protective
Coatings



Improved
Glazing
Technology



Improvements in
size, performance,
installed life,
aesthetic Choices and
overall quality

New



New Material Palette

Metal Composites

Ceramics

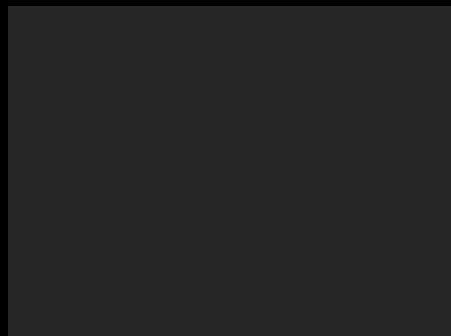
High Pressure

Laminates

Sandwich Panels

Glass Fiber

Reinforced Panels



Architectural
Appendages
Fixed Shades
Fixed Screens
BIPV
LED Facades



Material

Improvements

3rd Generation metal
coatings

Optimised Glass
Coatings

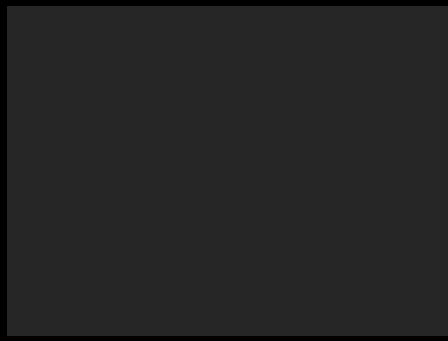
LOW / No VOC

Paints and Coatings

Self Cleaning
Surfaces

Non Bleeding
Silicones

2nd Generation Glass
Interlayer



- LED Facades
- Metal Composites
- Ceramics
- High Pressure Laminates
- Sandwich Panels
- Glass Fibre Reinforced Panels

Architectural

- Optimised Glass Coatings
- Fixed Shades
- Fixed Screens
- BIPV
- LOW / No VOC Paints and Coatings
- Self Cleaning Surfaces

Environmental

- 3rd Generation metal coatings
- 2nd Generation Glass Interlayers
- Non Bleeding Silicones

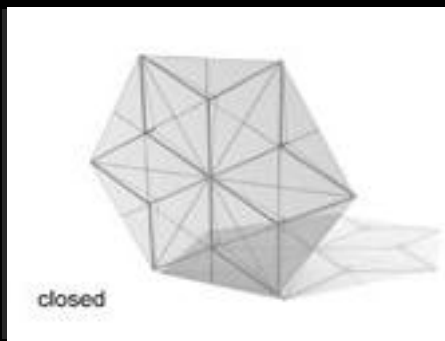
Industrial

Reactive

Next....

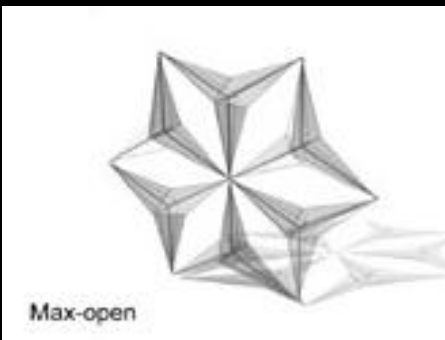
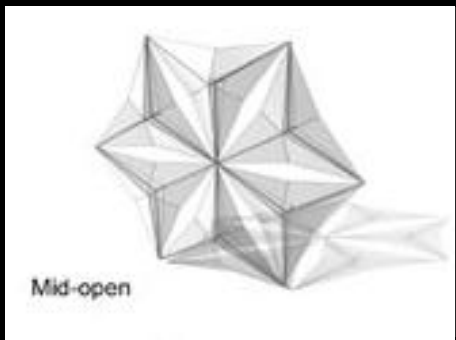


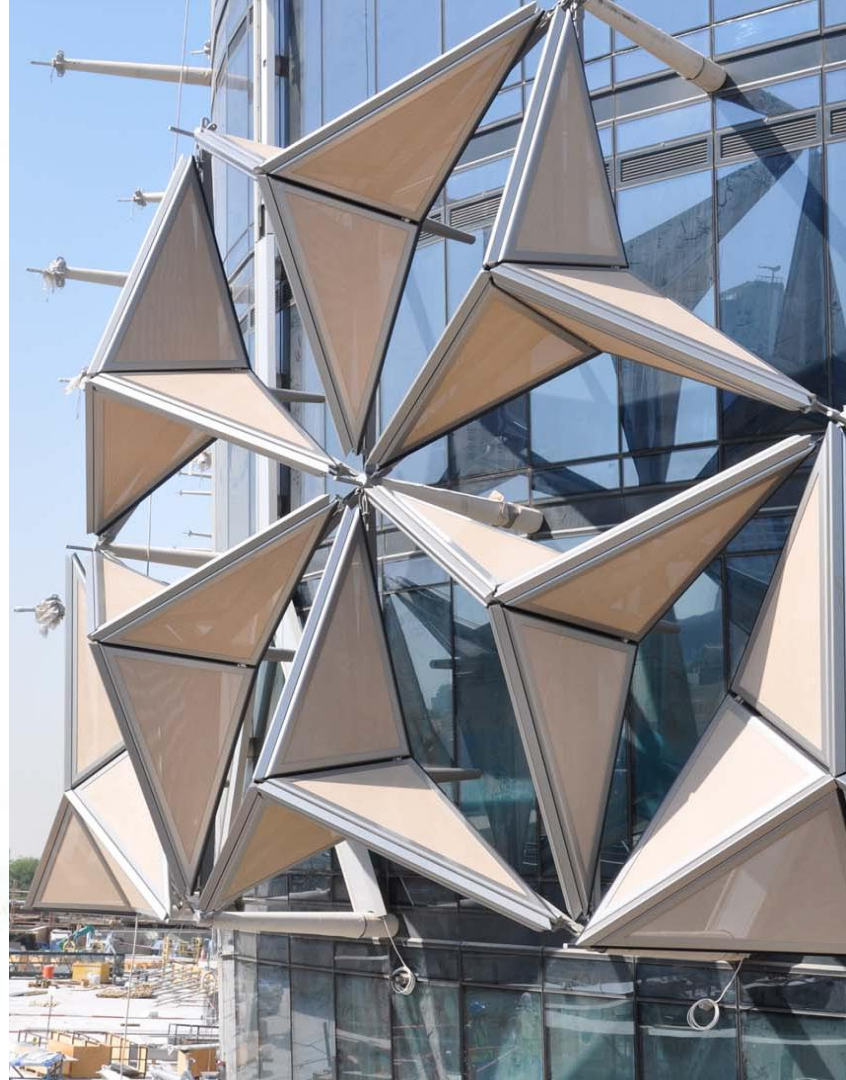
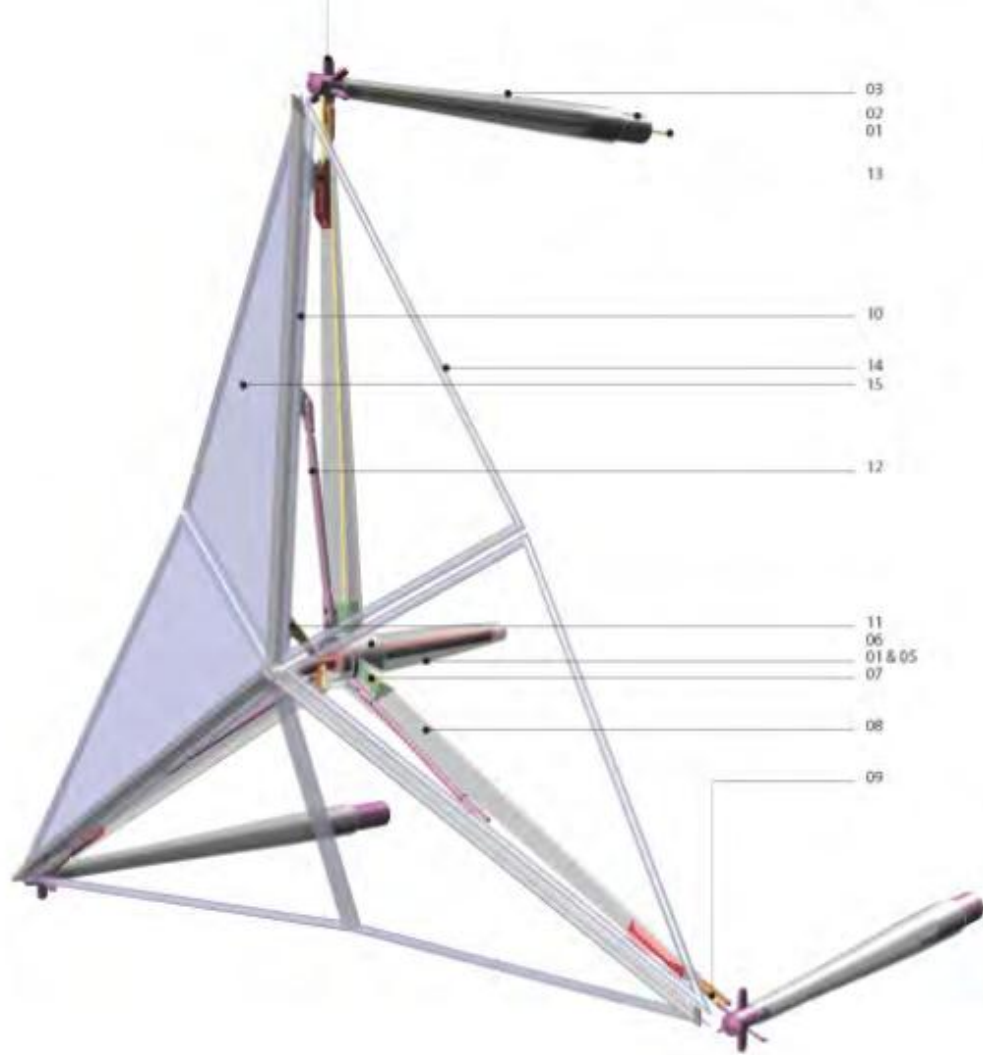
Proactive



Active Second Skin

ADIC Abu Dhabi







Active Second Skin

Thyssen Krup AG





Active Second Skin

TU Delft

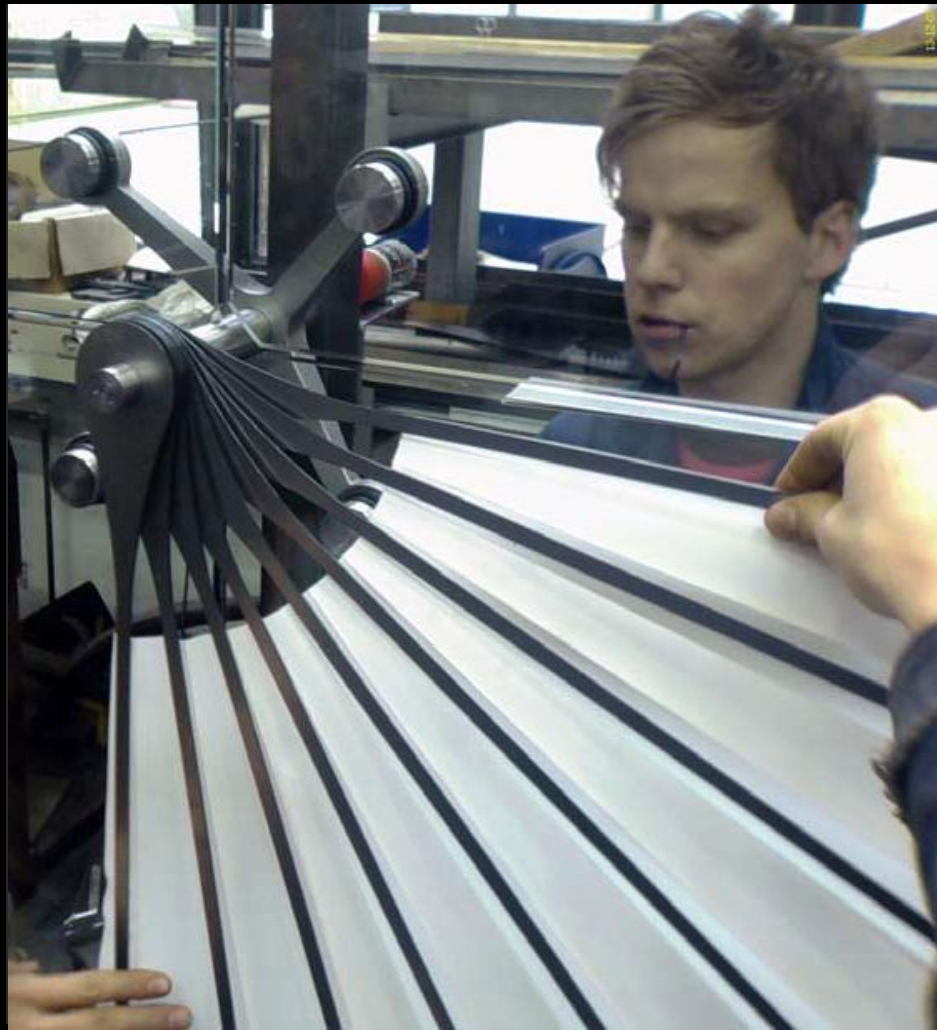


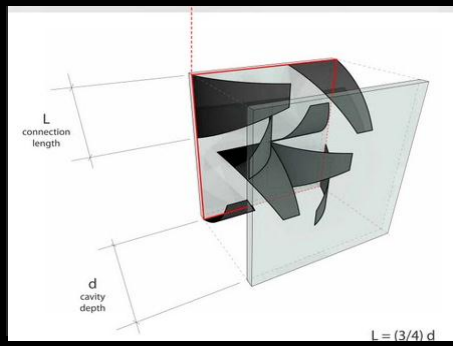
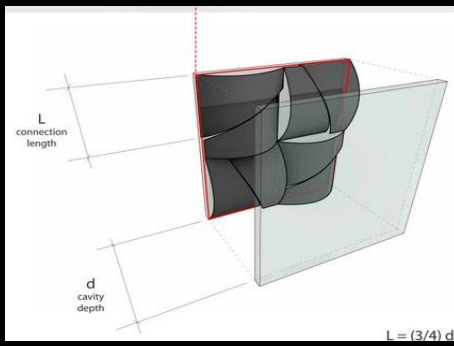




Photo Bioreactive Skin

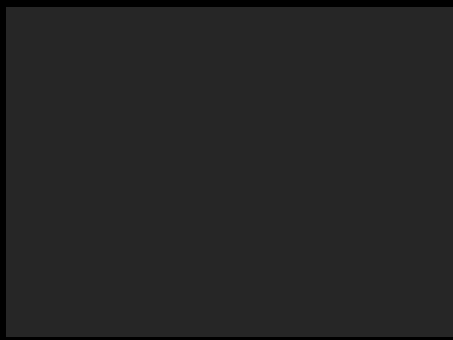
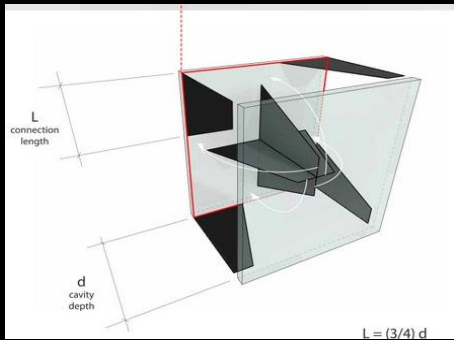
Hamburg WihemsBurg

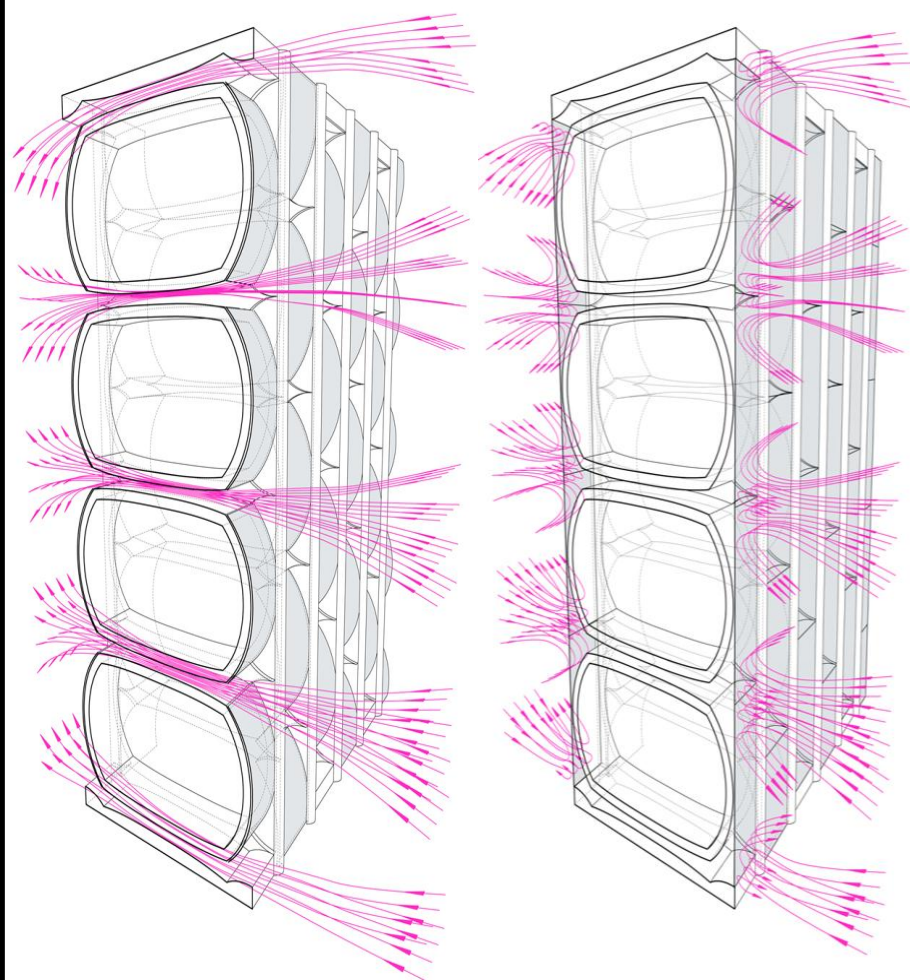
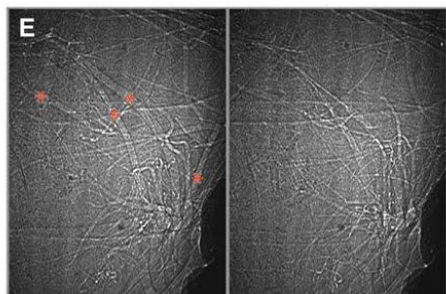
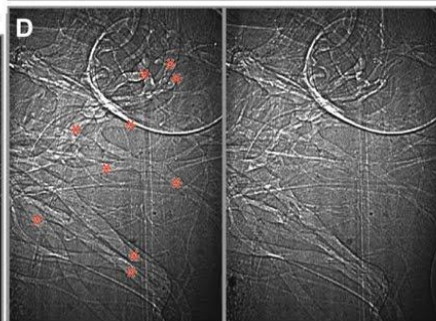
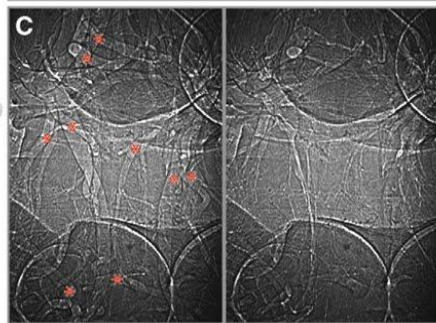
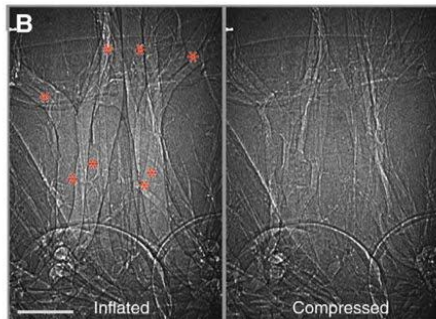




Thermo-bimetals

Do|Su Studio Architecture





Reusable Facades

Arup Sydney

- Smarter Designing Process
- Innovation limited to improvements
- Proactive than reactive
- From the ground up
- Rethink and challenge

Thank You !

