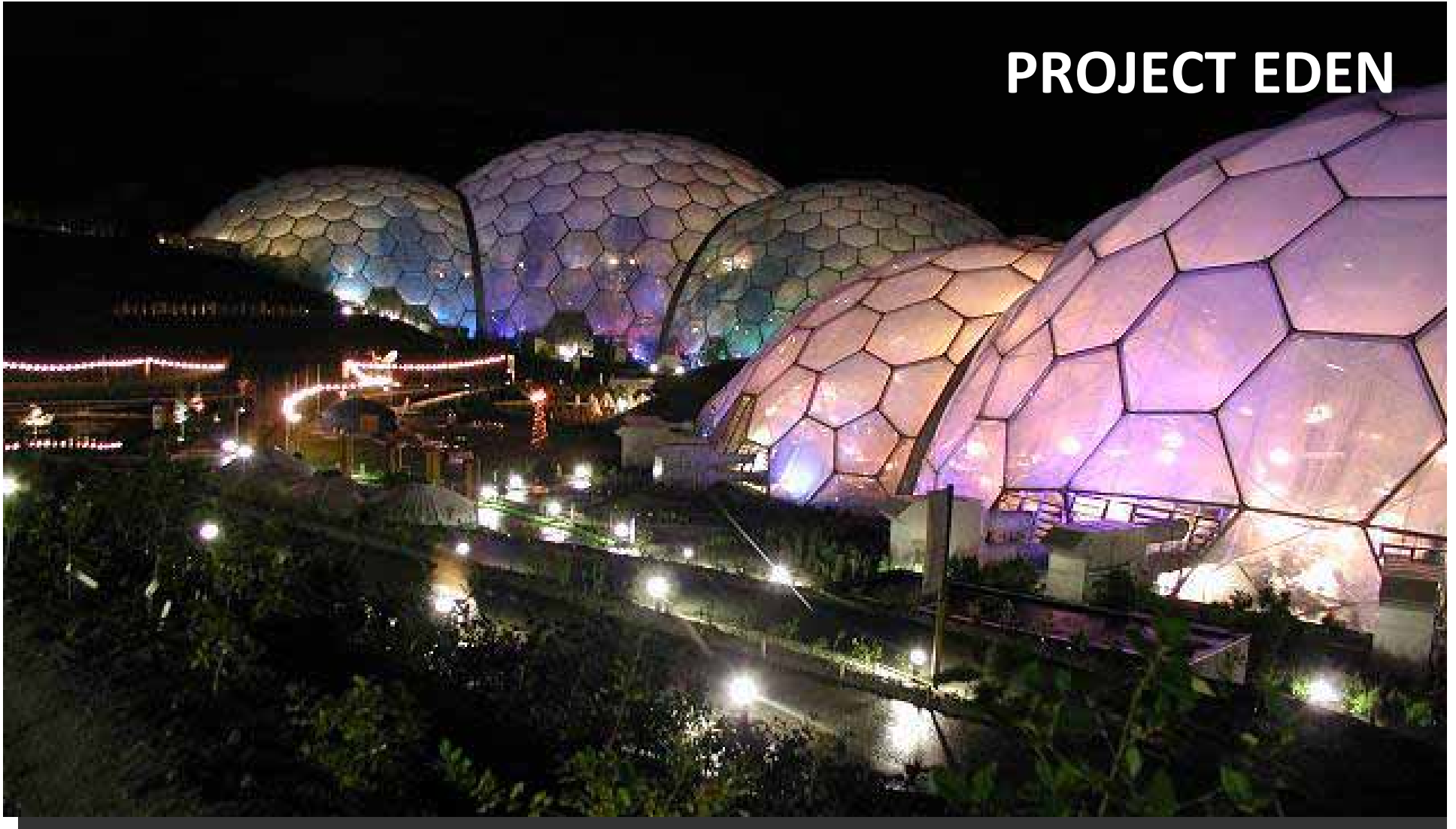


PROJECT EDEN



Kashif Sayed J A D
Manali Prabhu
Pallavi Puranik
Chetan Daga



Project E D E N ... the Largest green house

- Architect: Nicholas, Grimshaw
- Location: St. Austell Cornwall, England
- Construction System: plastic glazing and tensile-braced steel.

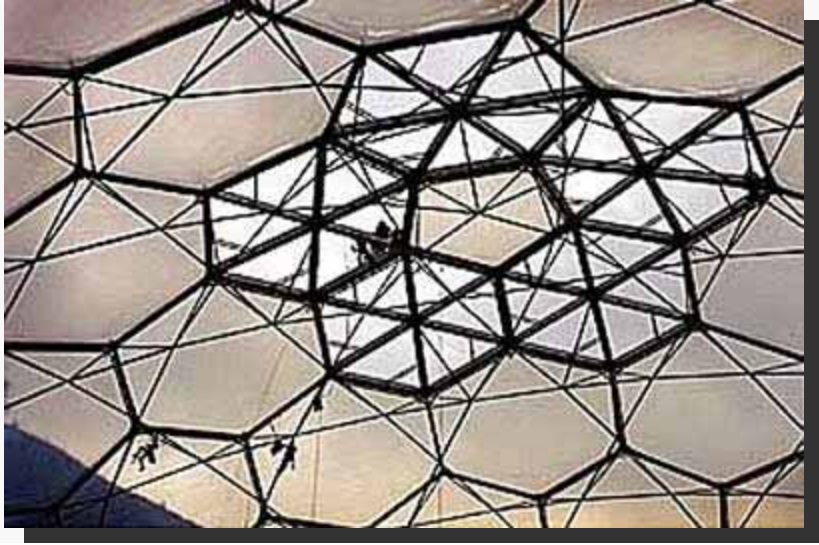


The Components of the structure....

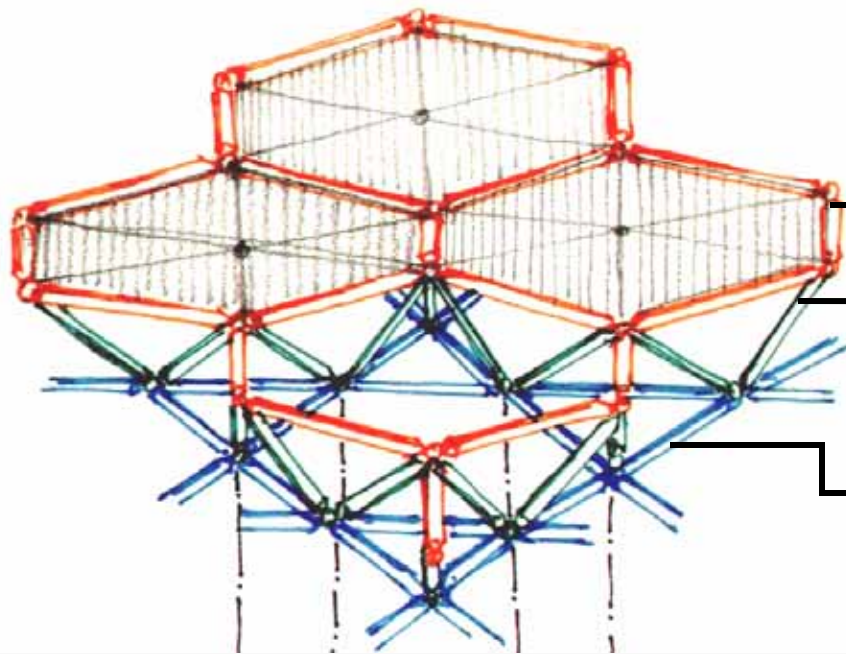


- **Organically deformed vault like form:**
 - Tensile-braced steel.
- **Covered Biomes:**
 - Three layers of **ETFE foil** within the hexagons.
 - Blown apart by air forming an insulating pillow.
 - Air inflated to conserve heat and energy.
- **Girder:**
 - Arched girders transfer the domes load to the strip foundation.

The Structural Geometry....



The structure is composed of hexagons and pentagons to form the desired vault shape.



Tensile braced Steel hexagon

Triangular connectors on hexagon arm.

Steel tying member

Analyzing the structural loads....



Analyzing the structural loads....



The Load is transferred from plastic glazing.....

Analyzing the structural loads....



On to the steel braced
hexagons

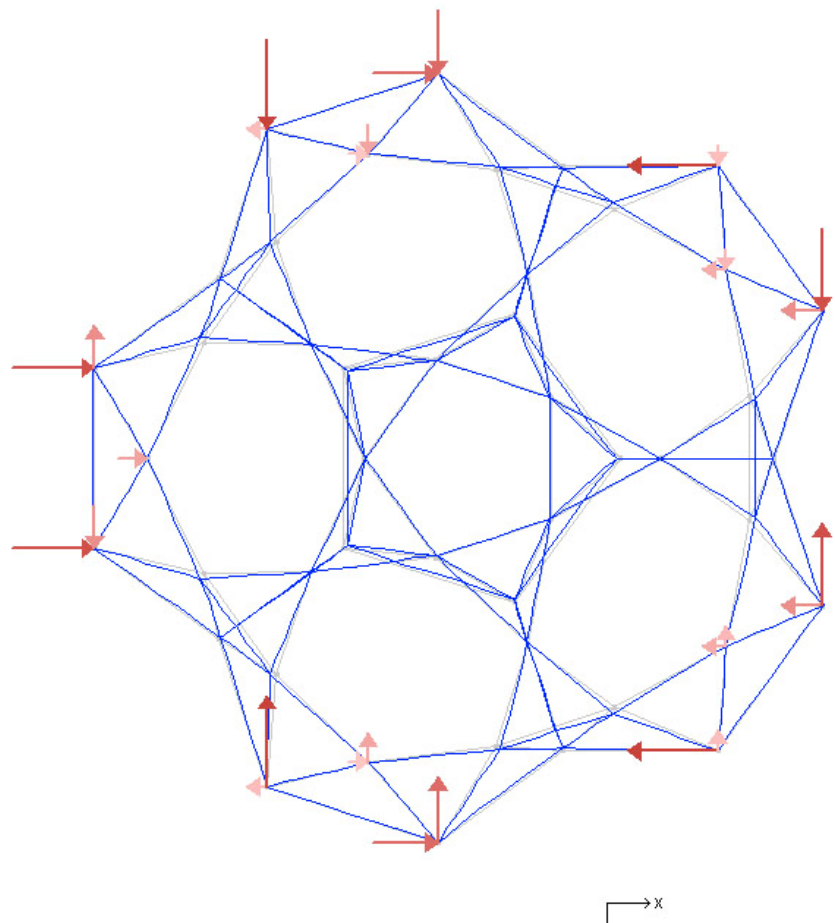
Analyzing the structural loads....



From which the load is carried down to the foundation by steel girders

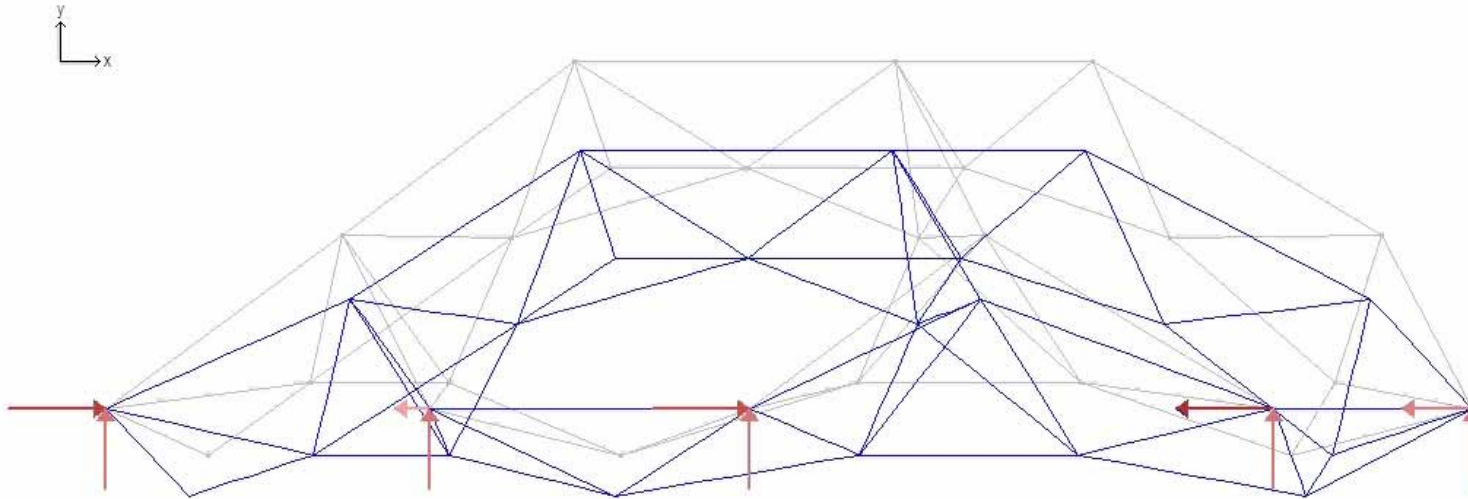
The Multiframe analysis for the studied module

•Deflection:



The Multiframe analysis for the studied module

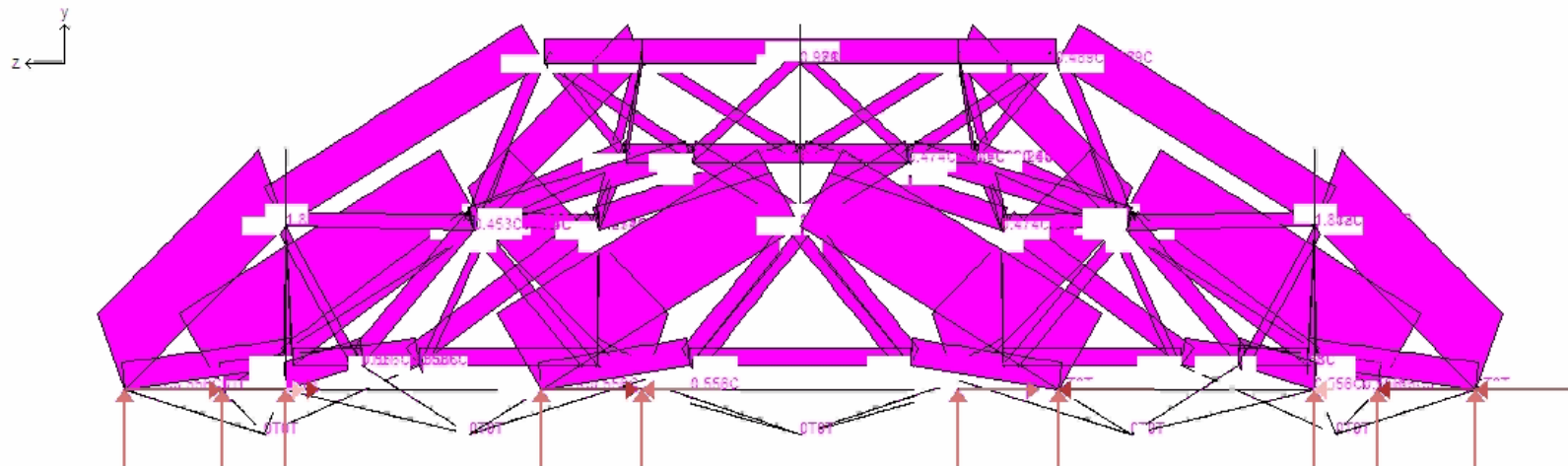
- Deflection:



Static Case: Load Case 1 Defl. (mm)

The Multiframe analysis for the studied module

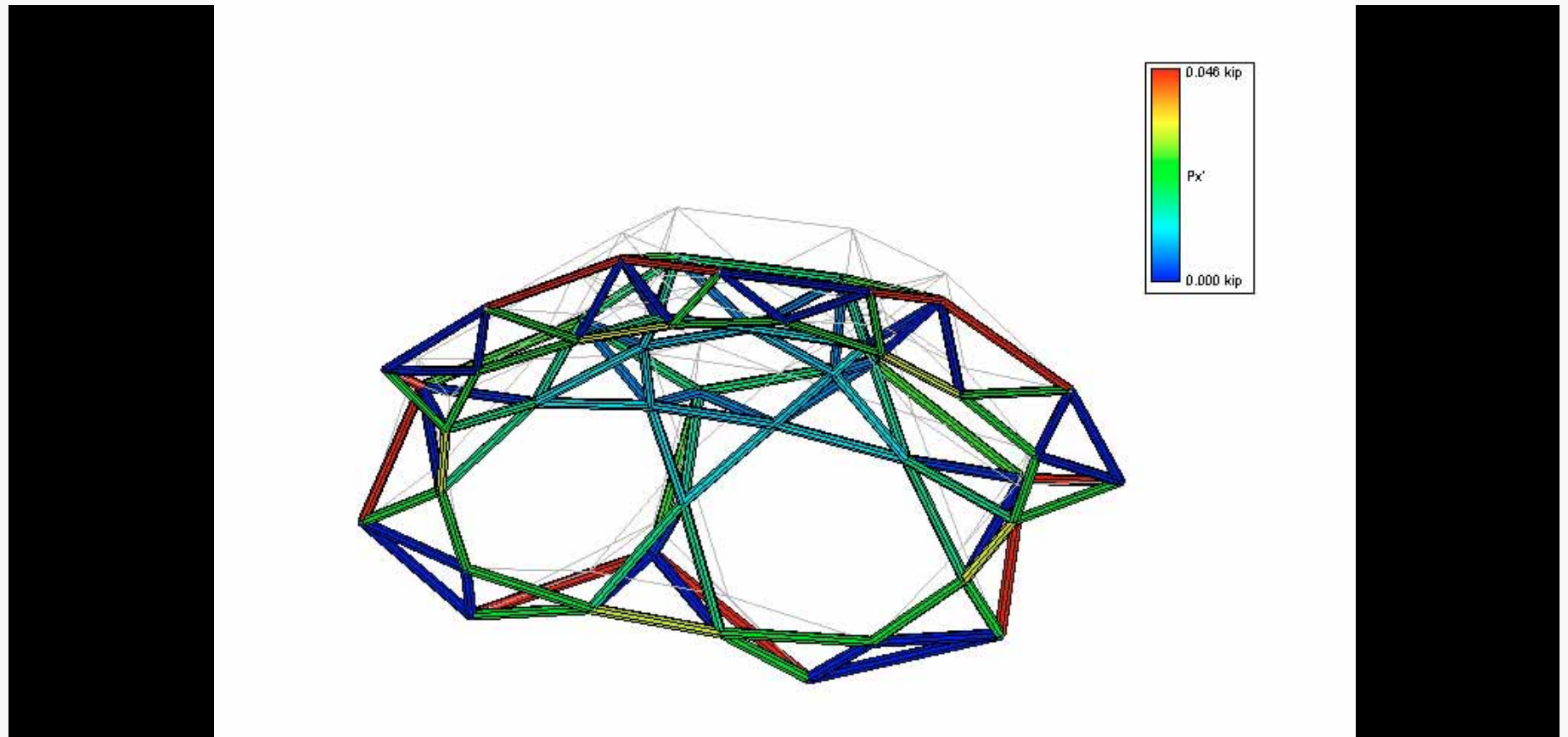
- Axial stresses:



Static Case: Load Case 1 Px' (kN)


The Multiframe analysis for the studied module

- Axial stresses:



 Maximum stresses

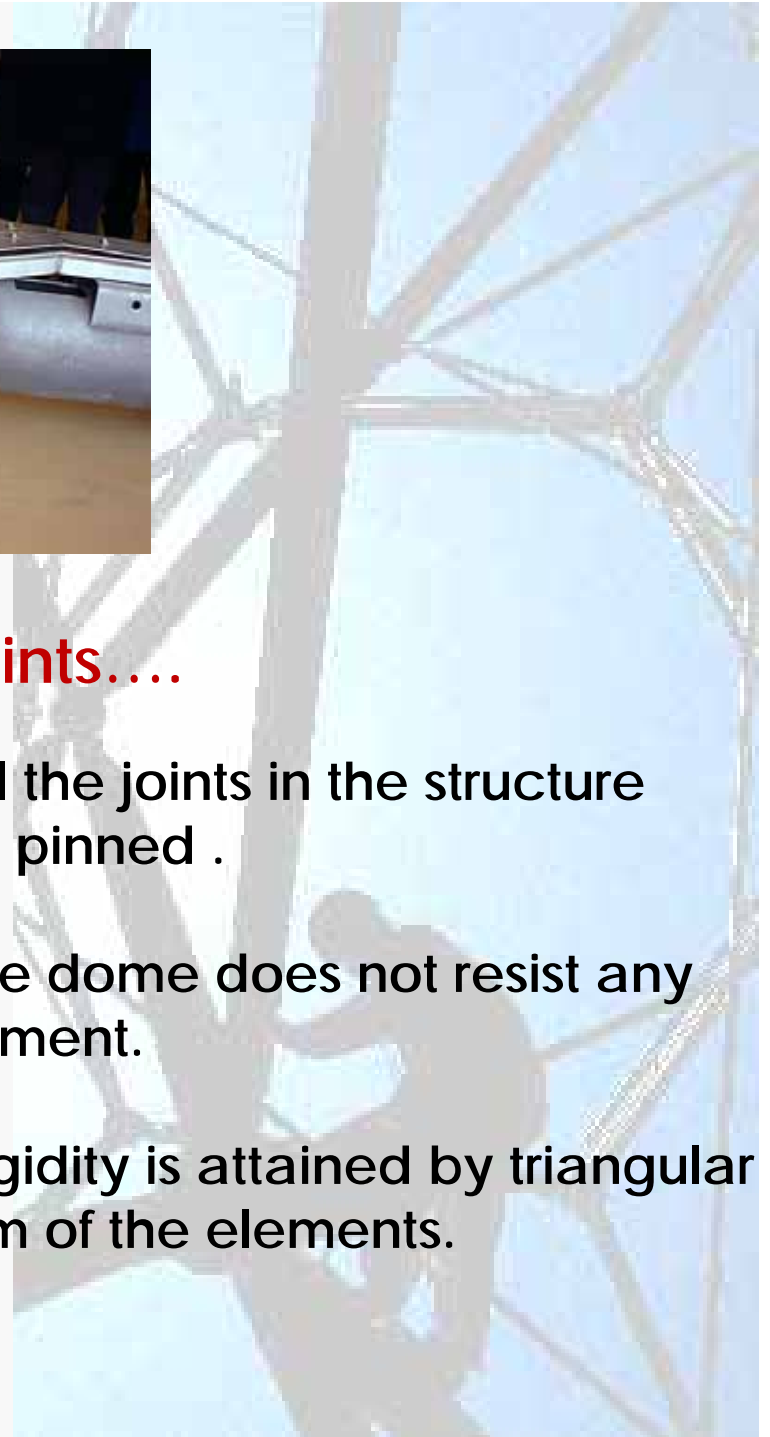
 Nominal forces

 Negative forces

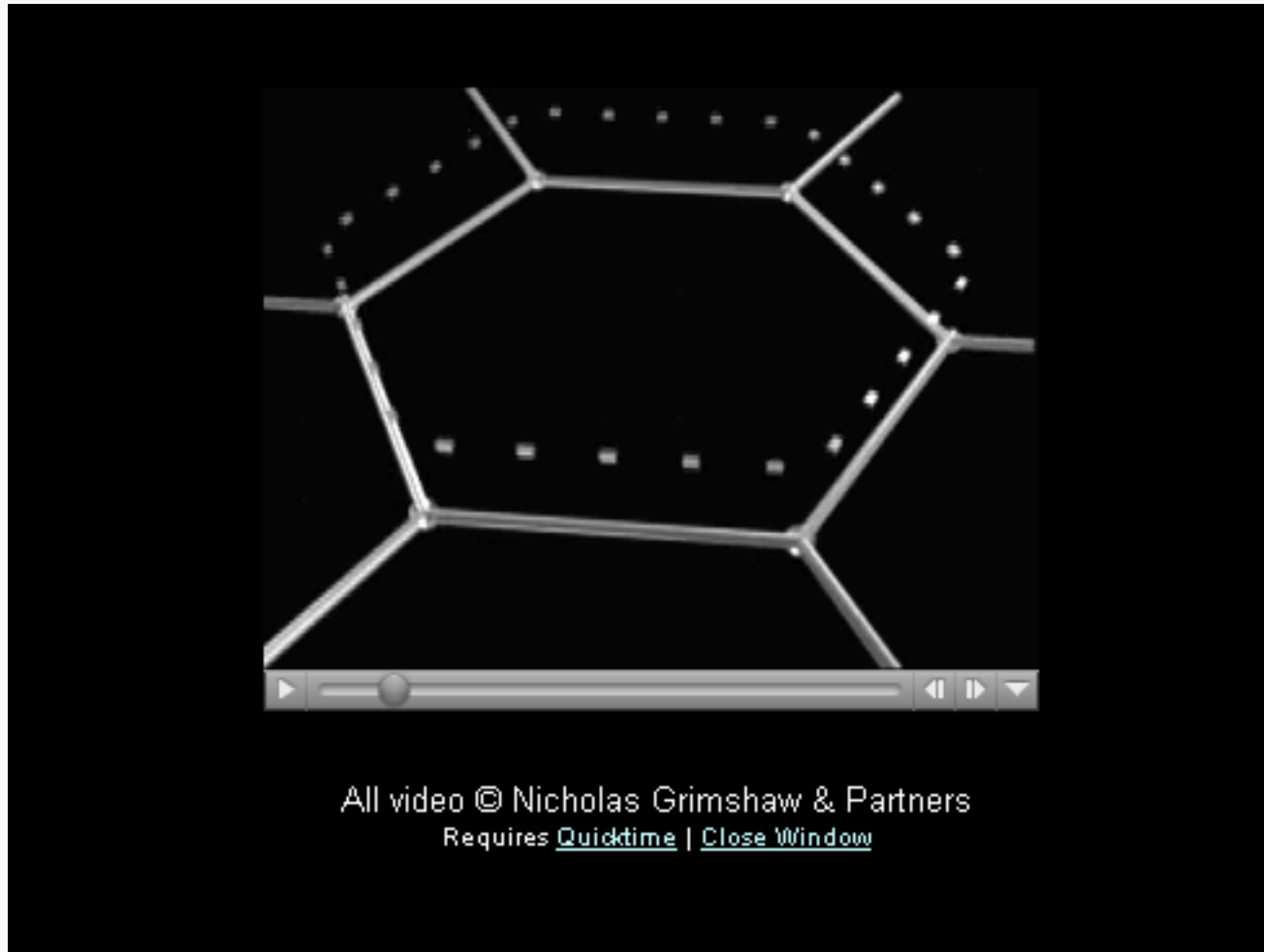


Joints....

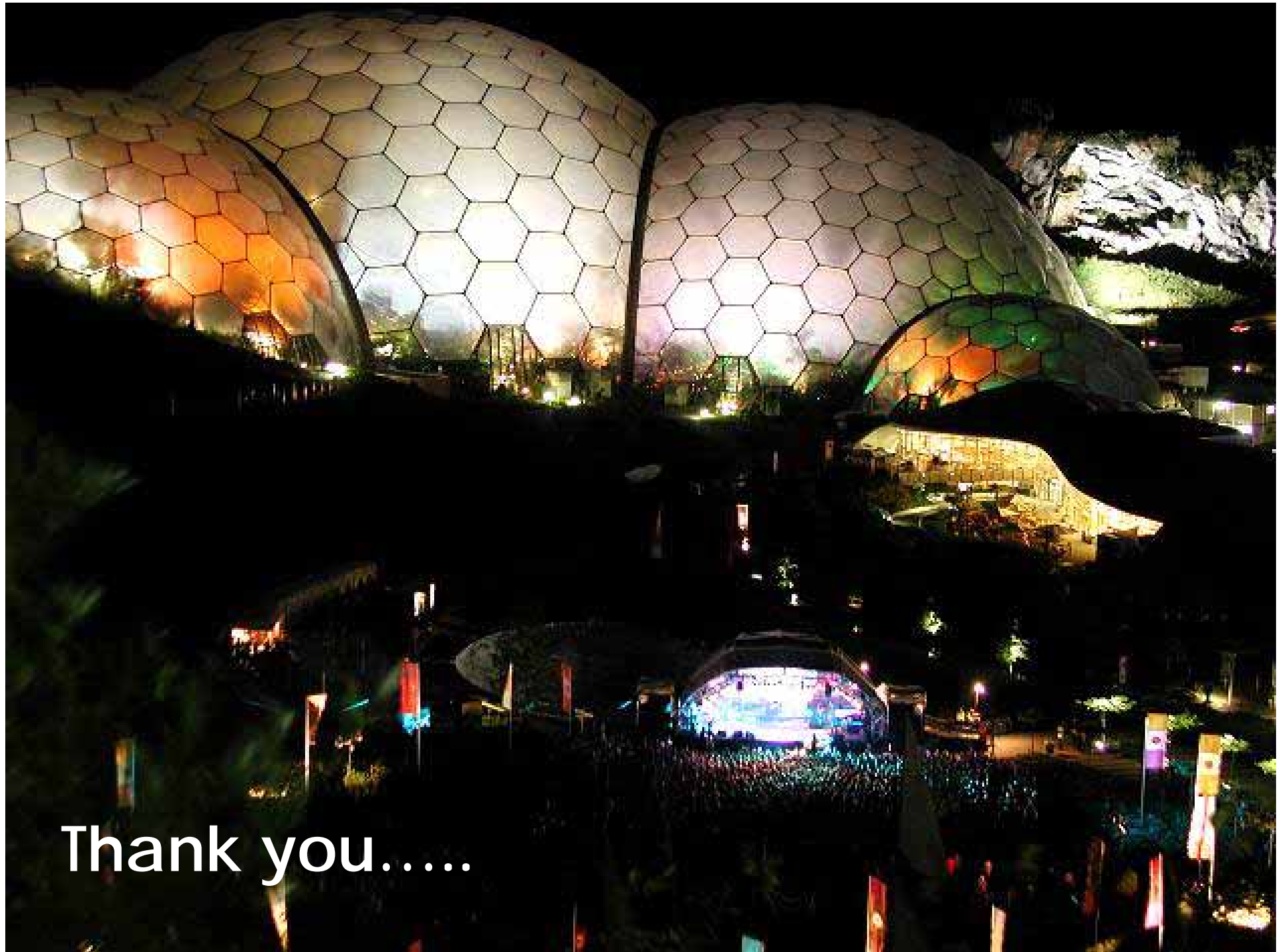
- . All the joints in the structure are pinned .
- . The dome does not resist any moment.
- . Rigidity is attained by triangular form of the elements.



The structural assembly:



<http://archrecord.construction.com/projects/portfolio/archives/0201eden1.asp>



Thank you.....