

PROYECTO FINAL DE GRADO  
SUPERFICIES ARQUITECTÓNICAS SINGULARES

# Cúpula zona Ártico

Oceanogràfic, Valencia.

ALICIA LLOVERA SÁNCHEZ



TUTOR:  
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UNIVERSIDAD  
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ESCOLA TÈCNICA SUPERIOR  
ENGINYERIA  
D'EDIFICACIÓ



01. Superficie Arquitectónica.

02. Análisis Geométrico.

03. Análisis Estructural.

04. Análisis Constructivo.

05. Conclusiones.

# Superficie Arquitectónica



Vista aérea antiguo cauce del río Turia, Valencia.



Vista aérea Ciudad de las Artes y las Ciencias.



Vista aérea Parque Oceanográfico Universal.

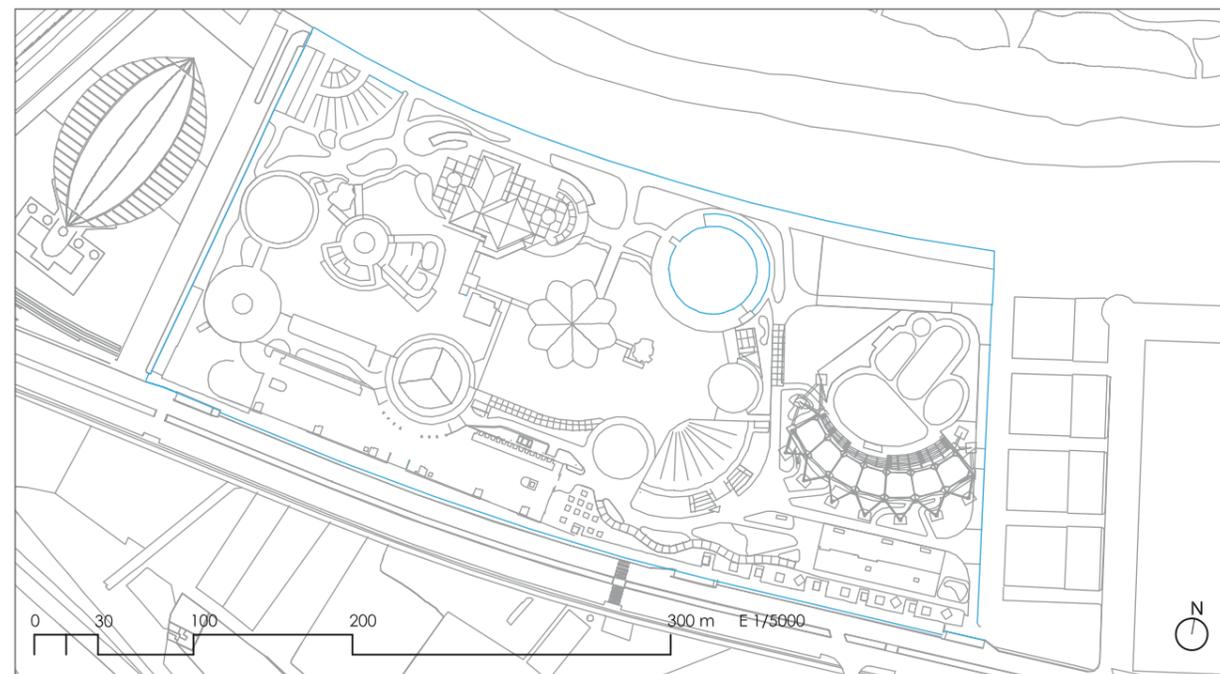
# Superficie Arquitectónica



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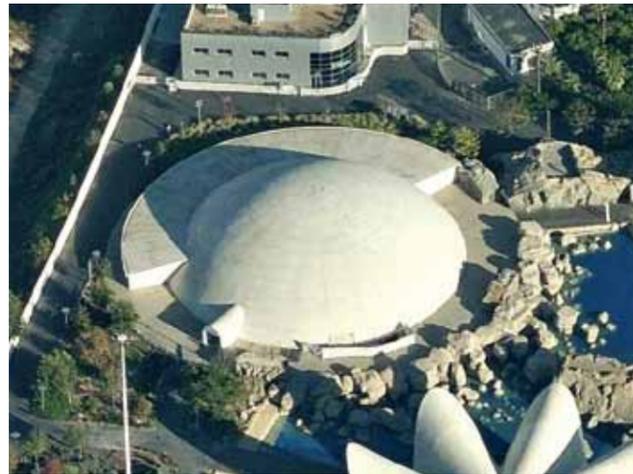


Plano de emplazamiento edificio Mares Árticos.

# Superficie Arquitectónica



## ZONA EXTERIOR



Vista aérea edificio Mares Árticos.



Marquesina zona norte.



Túnel de entrada a modo de iglú.

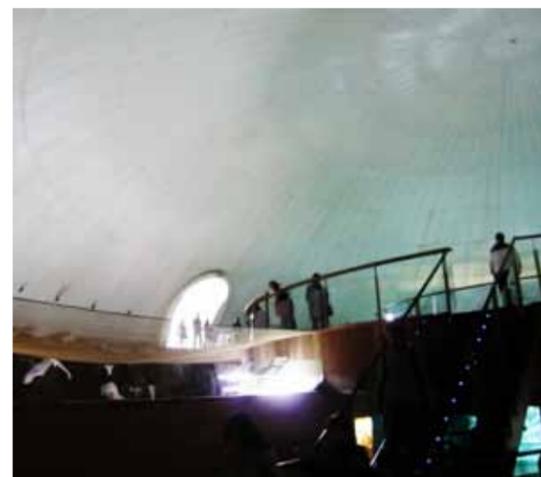


Entrada al interior del edificio.

## ZONA INTERIOR



Acceso nivel superior.



Vista interior de la cúpula.



Cilindro central.

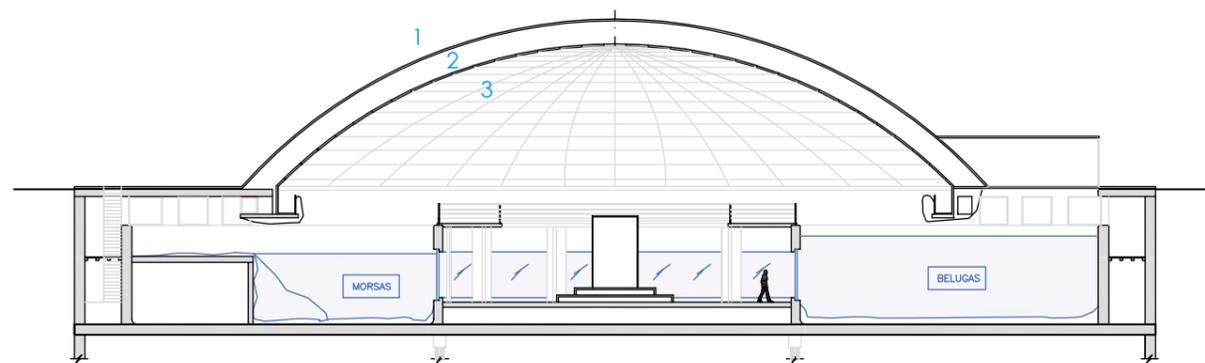


Dos niveles de observación.

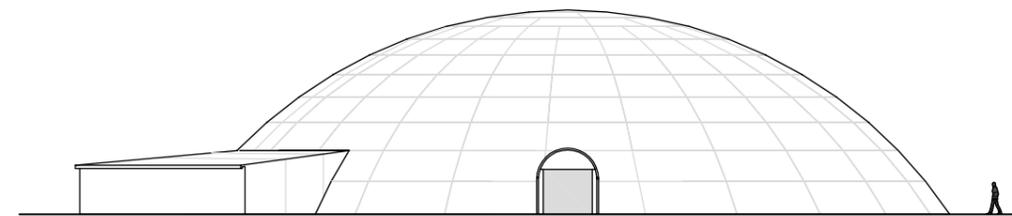


Tienda interior del edificio.

# Superficie Arquitectónica



SECCIÓN A-A'

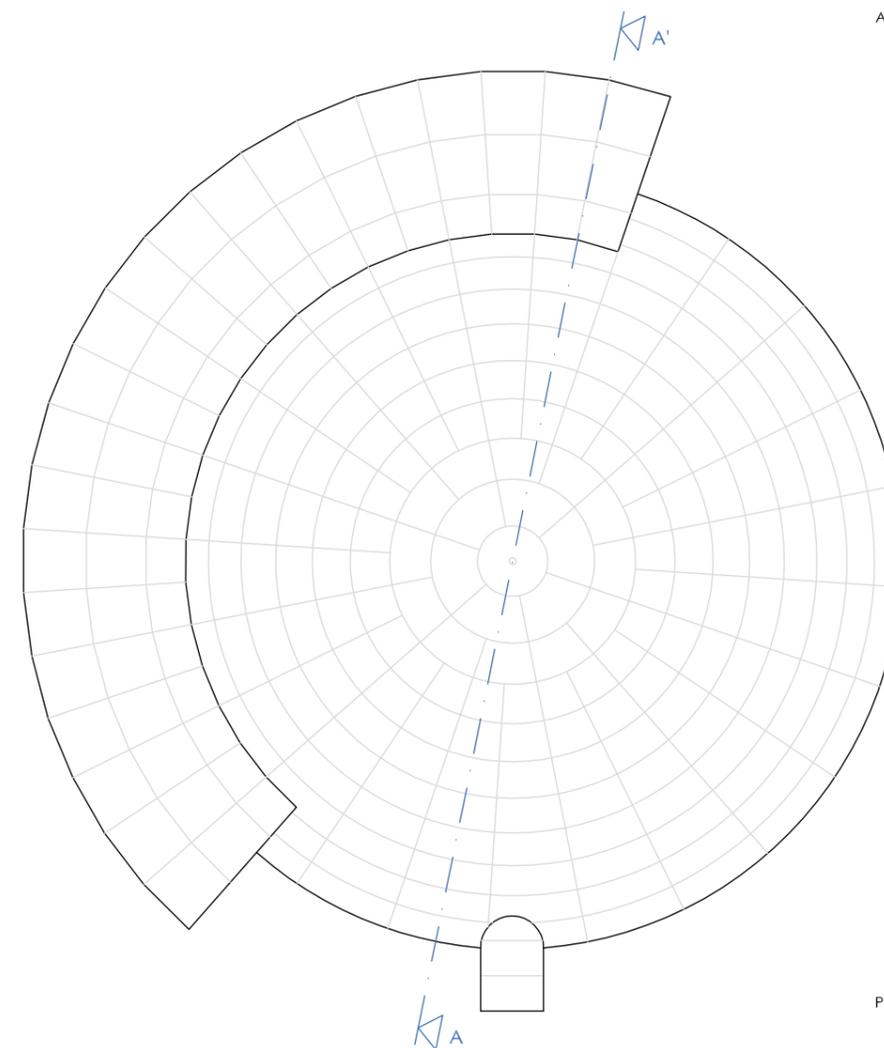


ALZADO

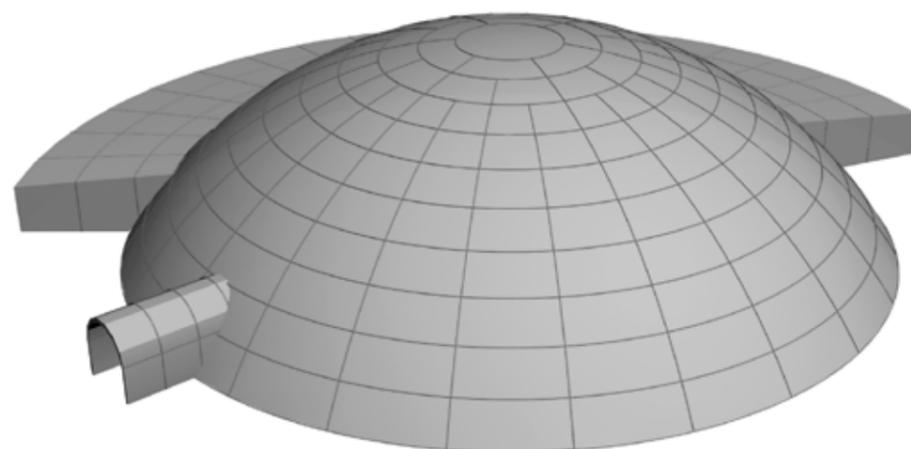
1. Cerramiento exterior:

2. Estructura portante:

3. Cerramiento interior:



PLANTA



0 2 8 12 32 m E 1/400



01. Superficie Arquitectónica.

02. Análisis Geométrico.

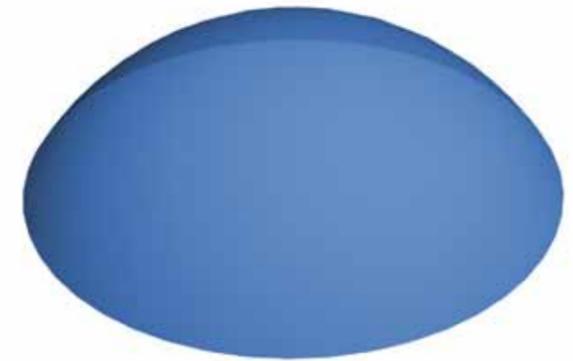
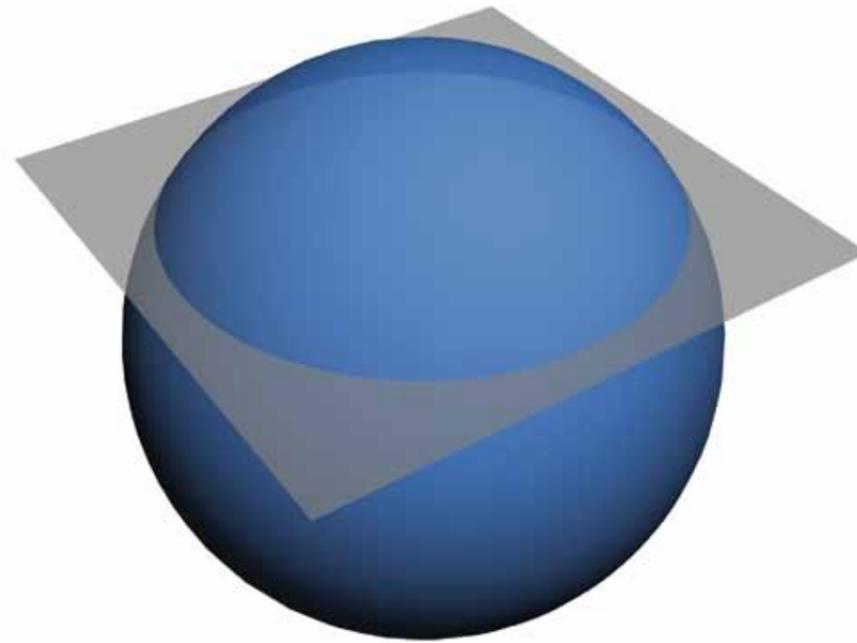
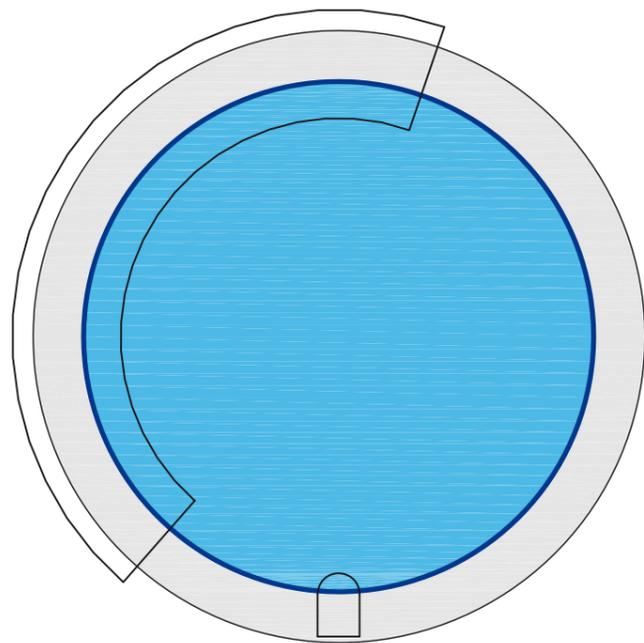
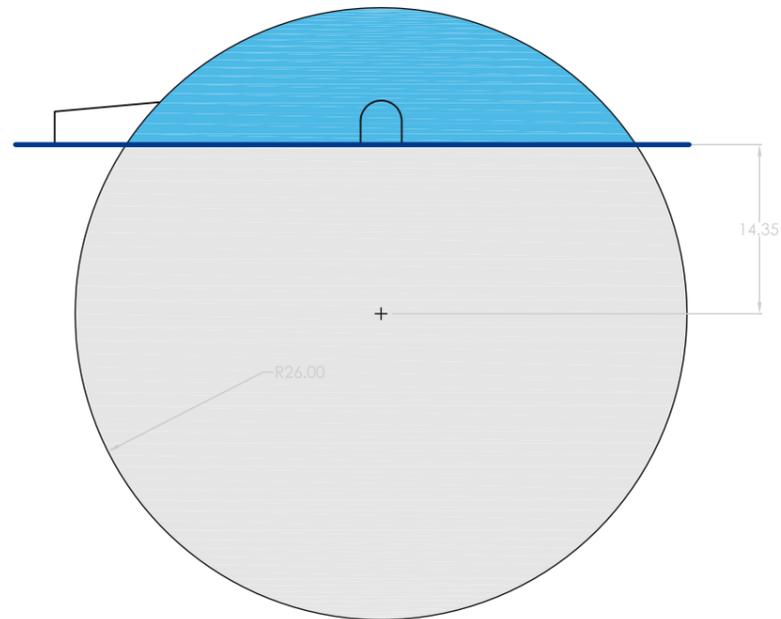
03. Análisis Estructural.

04. Análisis Constructivo.

05. Conclusiones.

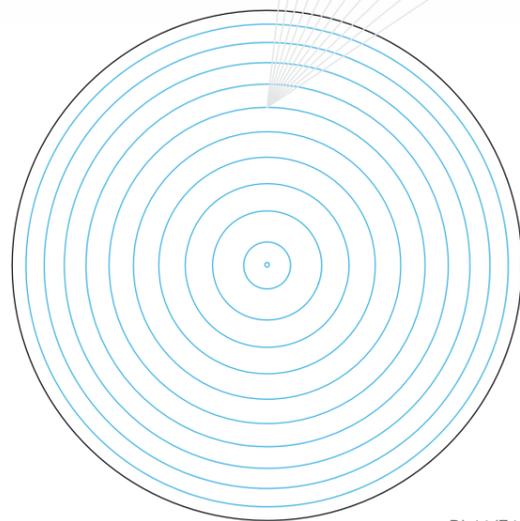
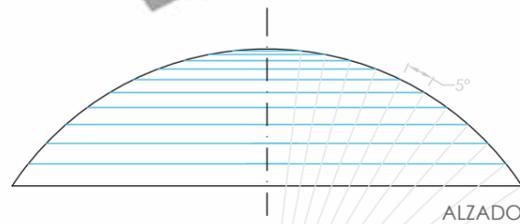
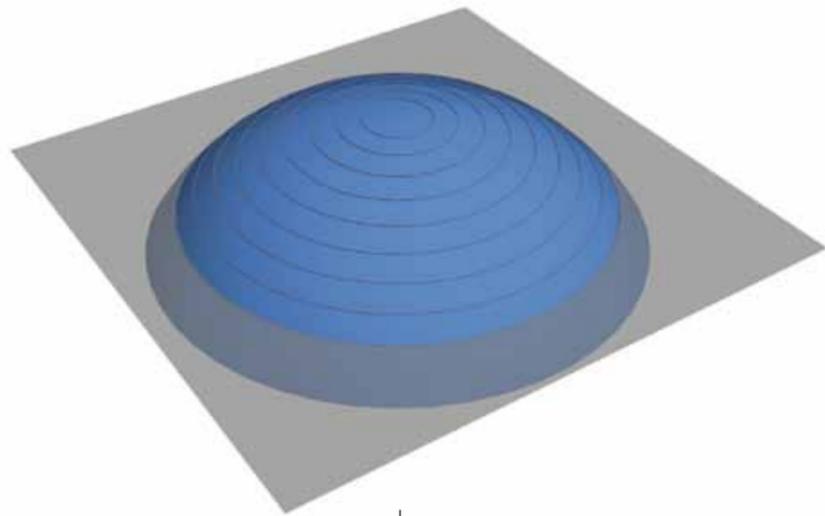


## GENERACIÓN DE LA CÚPULA:

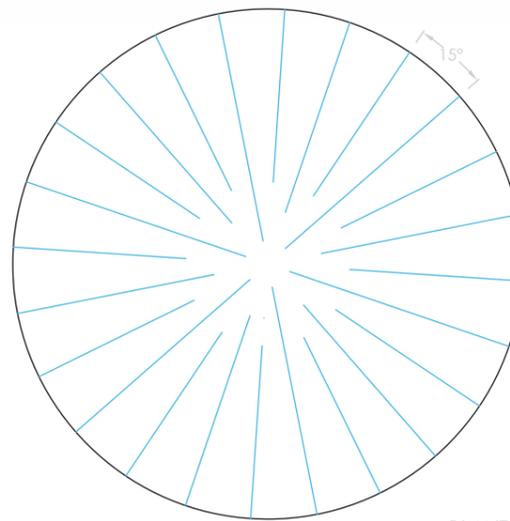
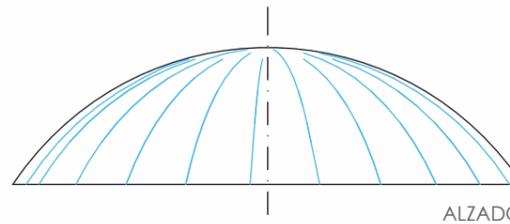
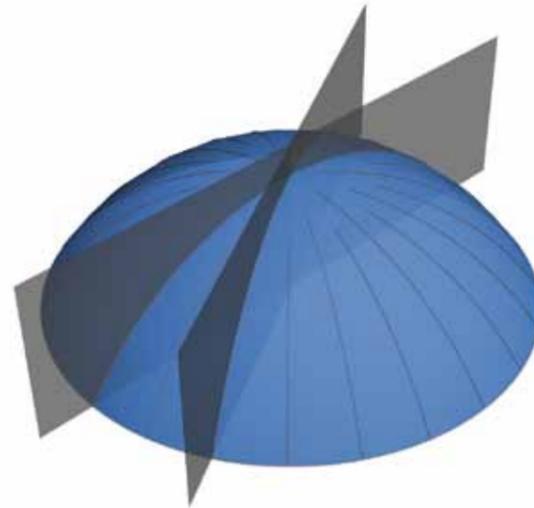




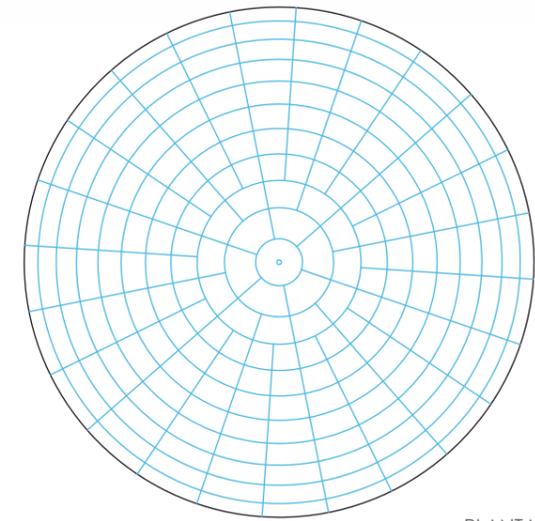
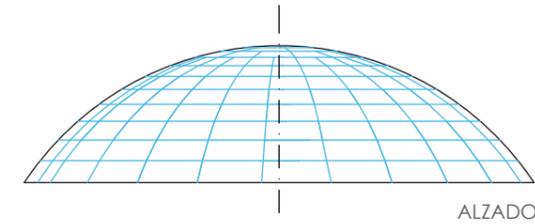
## DISPOSICIÓN DE JUNTAS DE LA CÚPULA:



PLANTA



PLANTA

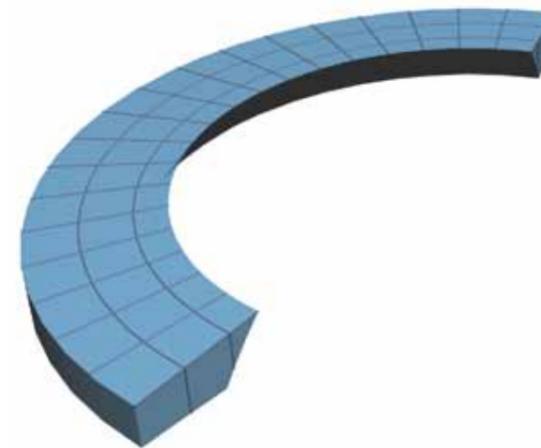
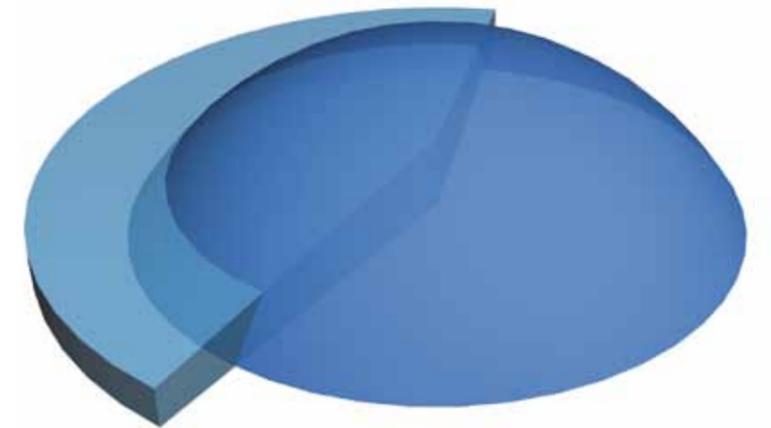
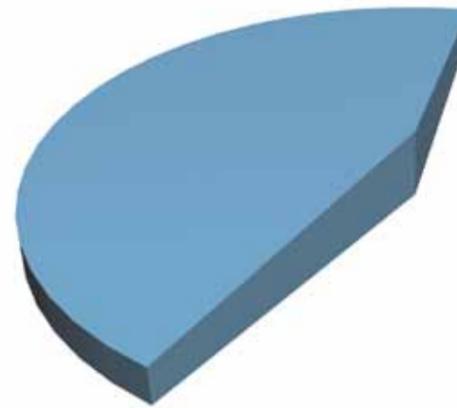
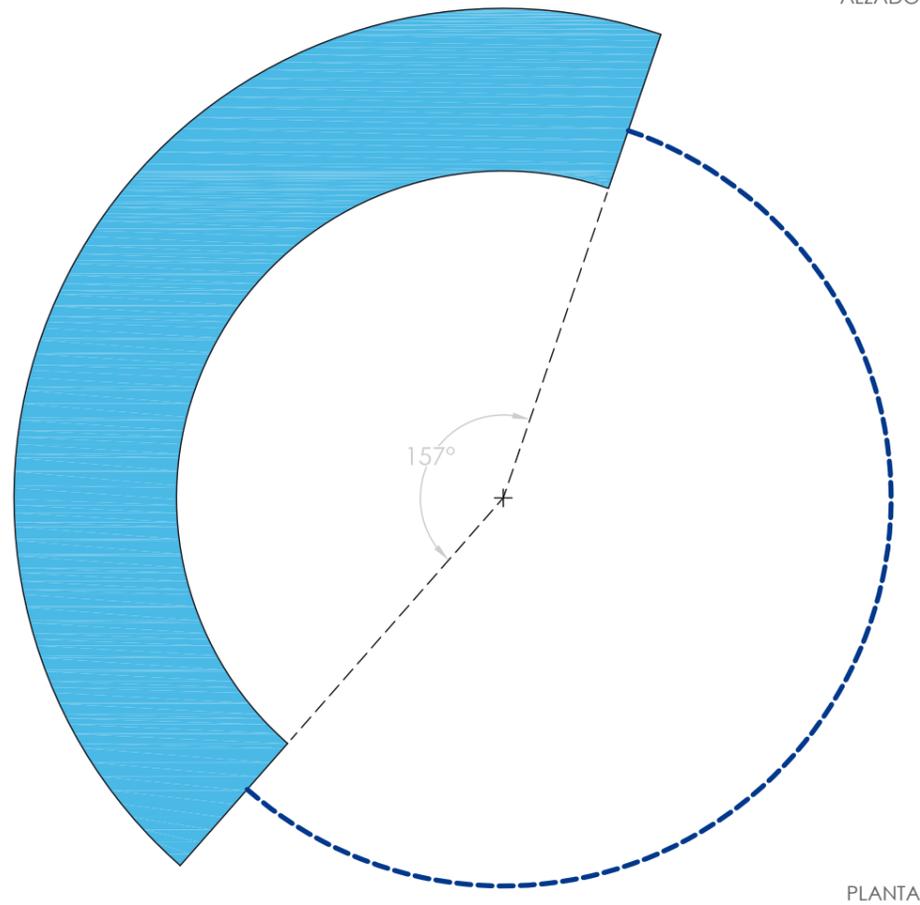
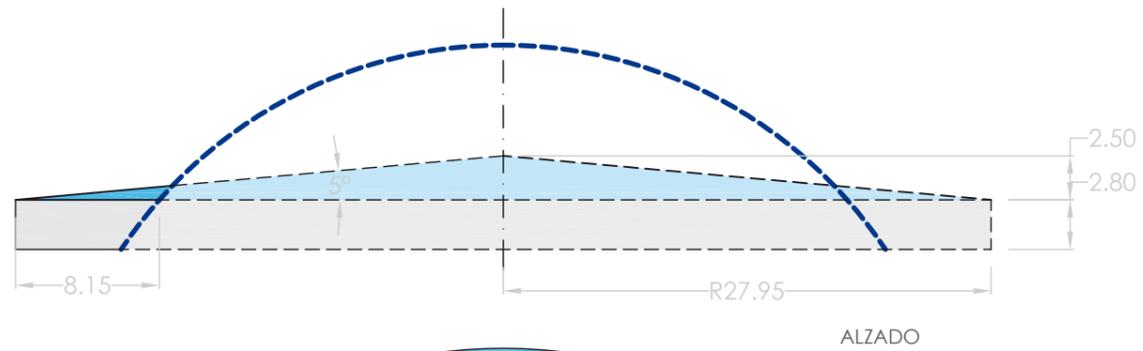


PLANTA



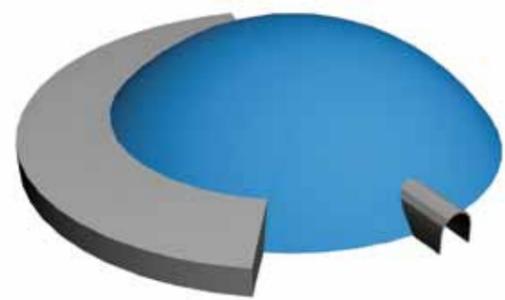


## GENERACIÓN DE LA MARQUESINA:

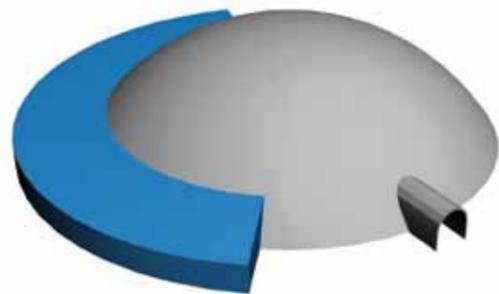




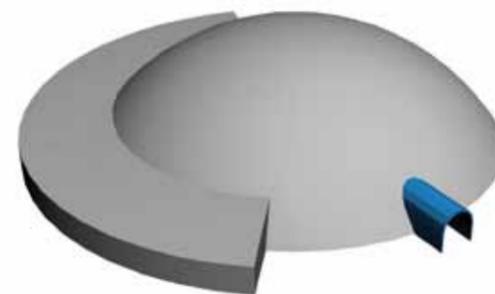
## CONJUNTO DE SUPERFICIES:



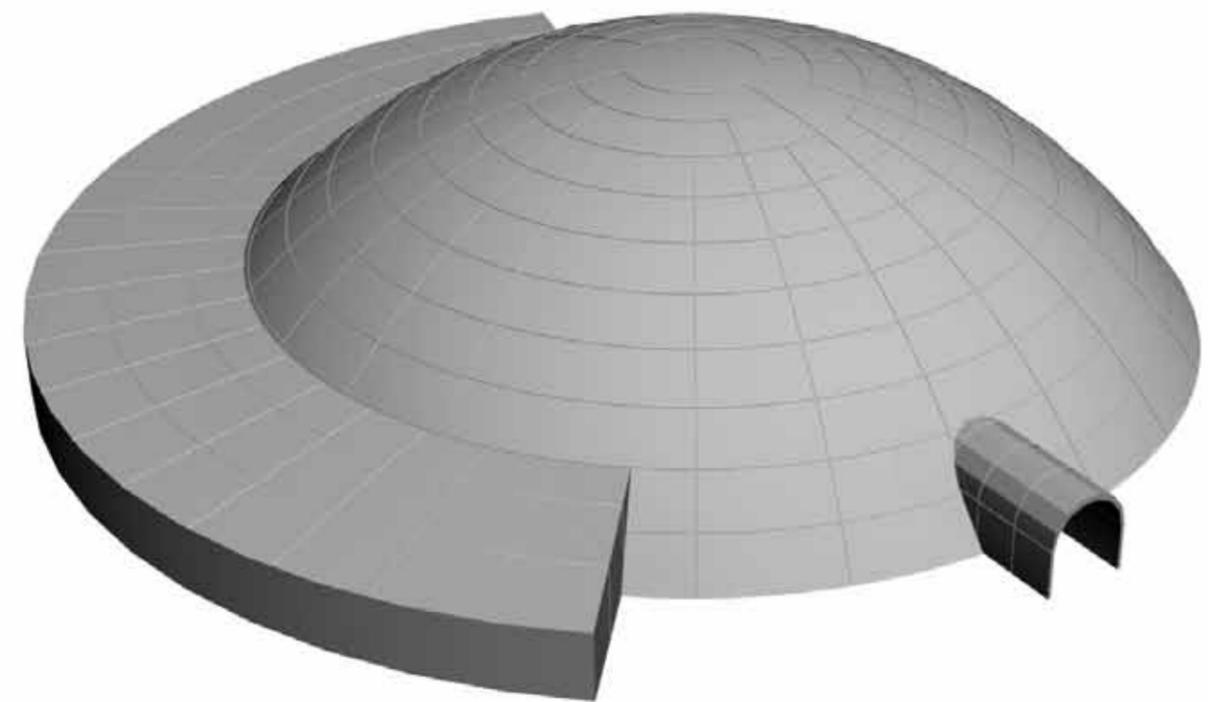
CÚPULA



MARQUESINA



ENTRADA





01. Superficie Arquitectónica.

02. Análisis Geométrico.

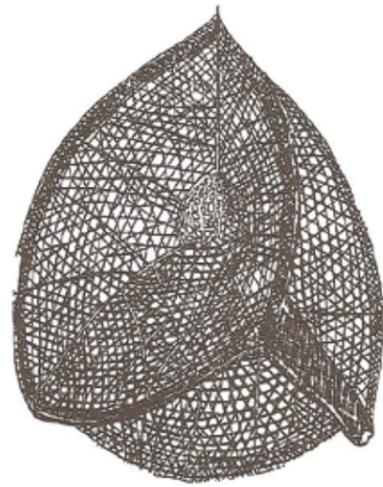
03. Análisis Estructural.

04. Análisis Constructivo.

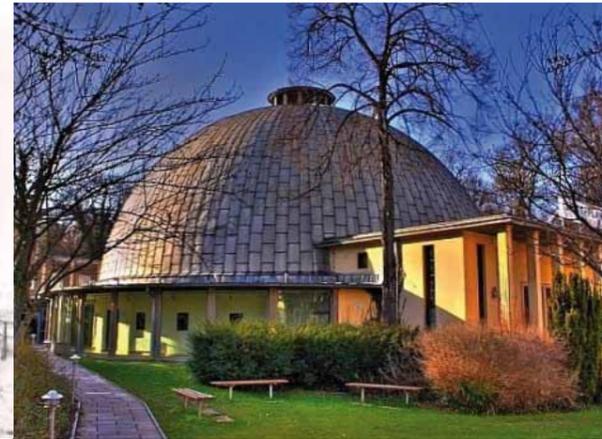
05. Conclusiones.



## ANTECEDENTES HISTÓRICOS:



Radiolario. Heinrich Haeckel.

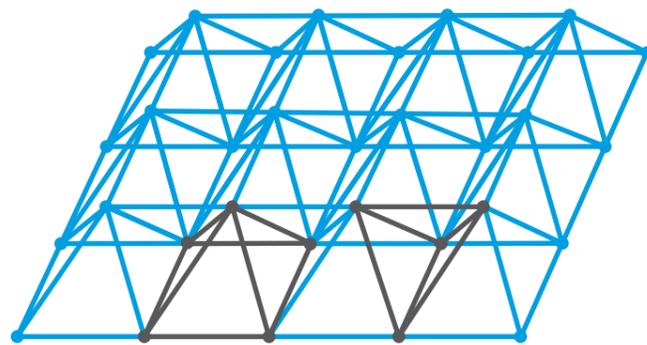


Planetario Carl Zeiss, Jena. Walther Bauersfeld, 1926.

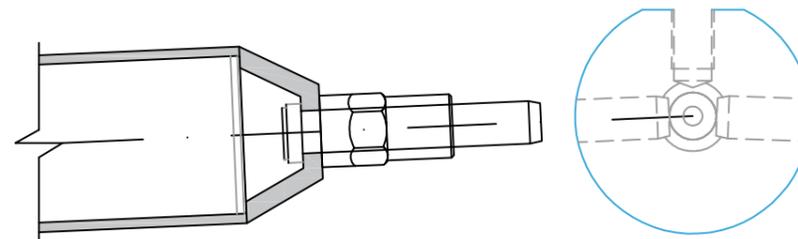


Richard Buckminster Fuller, 1950.

## MALLA ESPACIAL BICAPA:



Malla espacial semioctaédrica bicapa.



0 0.3 0.6 1.2 2.4 m E 1/30

Barra tubular y esfera con taladros.

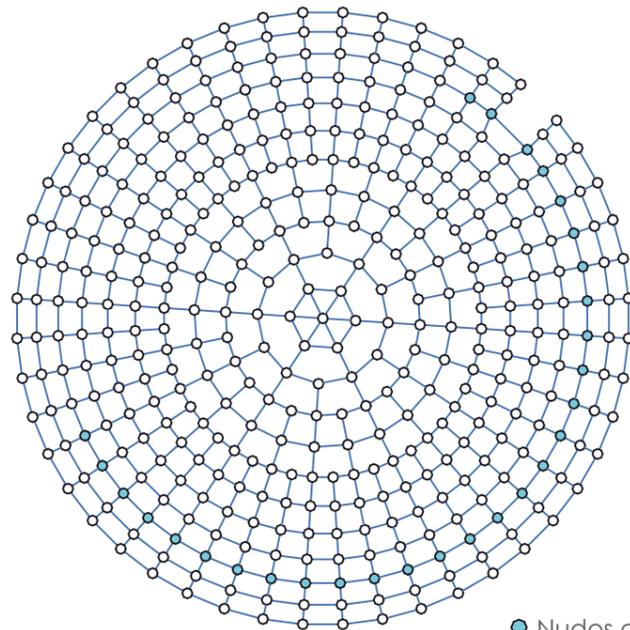


Malla esférica bicapa.

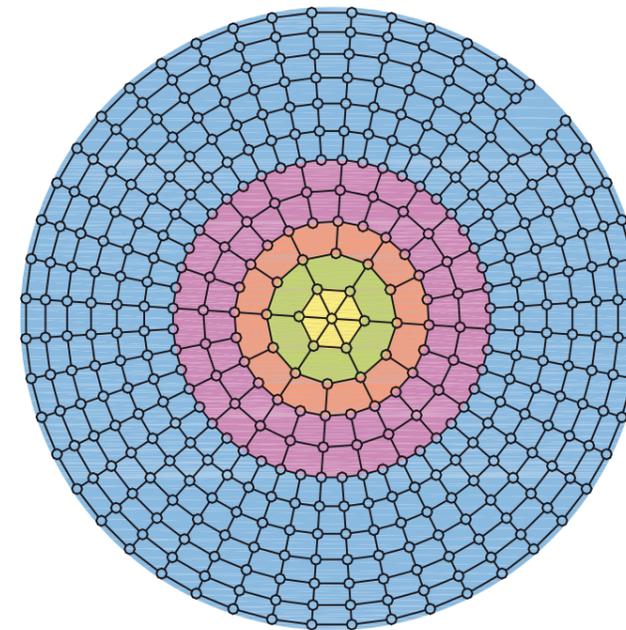


## DESGLOSE MALLA ESFÉRICA:

CAPA SUPERIOR

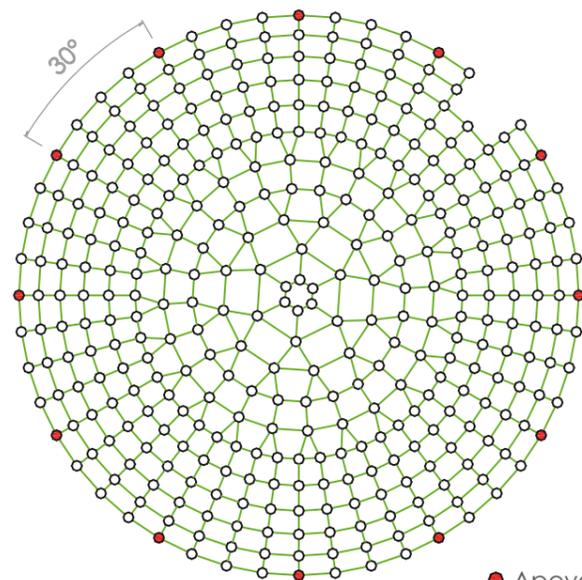


● Nudos de apoyo marquesina.

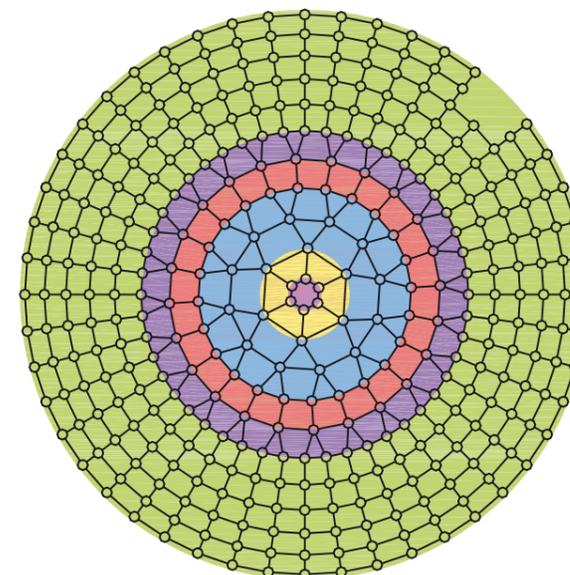


- 6 anillos, todos los meridianos.
- 2 anillos, 1/2 de los meridianos.
- 1 anillo, 1/4 parte de los meridianos.
- 1 anillo, 1/8 parte de los meridianos.
- 1 anillo, 6 triángulos.

CAPA INFERIOR



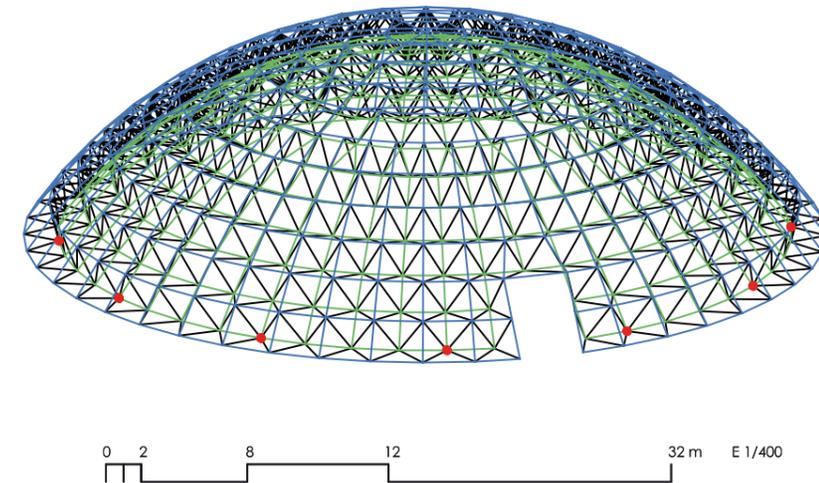
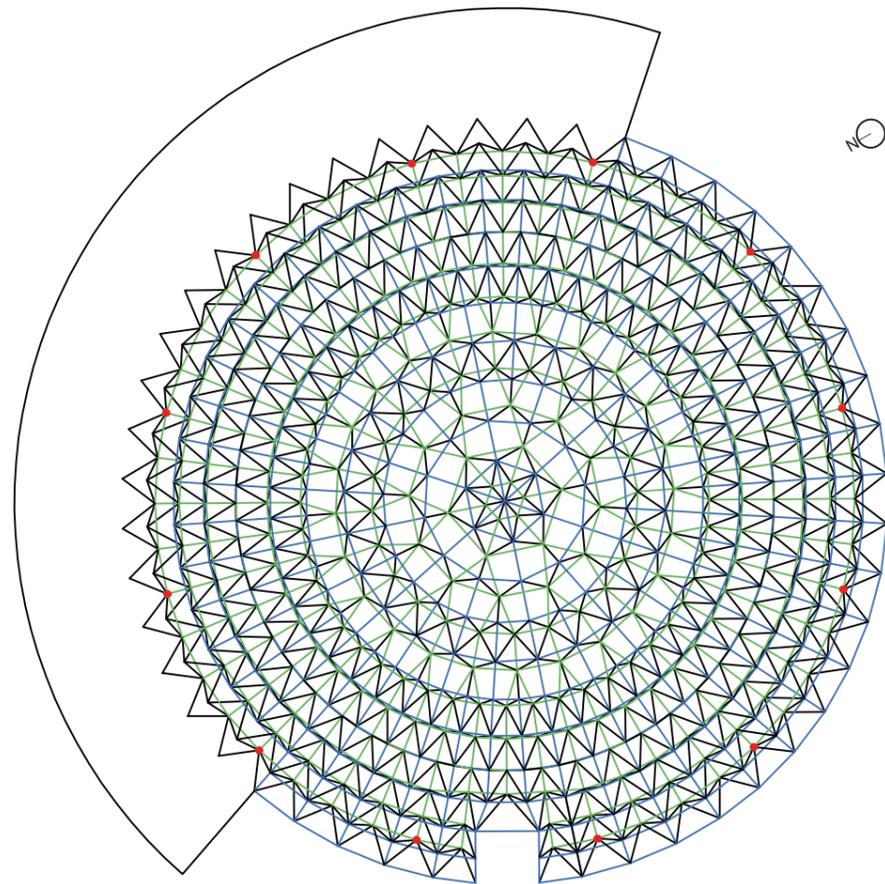
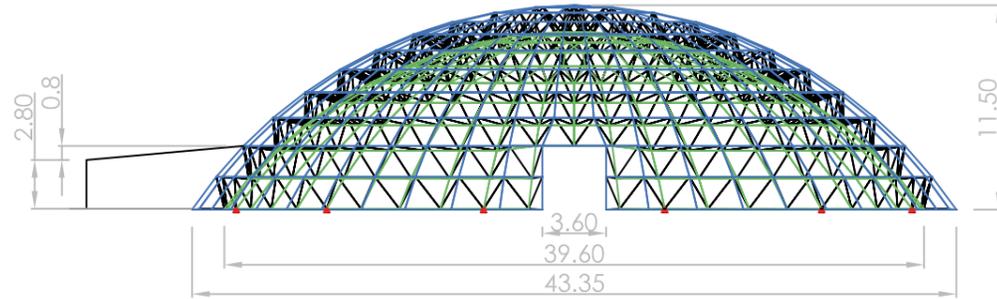
● Apoyos articulados estructura.



- 5 anillos de trapecios.
- 1 anillo de triángulos y trapecios.
- 1 anillo de trapecios.
- 2 anillos de triángulos y trapecios.
- 1 anillo de trapecios.
- 1 anillo hexagonal.



## CONJUNTO ESTRUCTURAL:





01. Superficie Arquitectónica.

02. Análisis Geométrico.

03. Análisis Estructural.

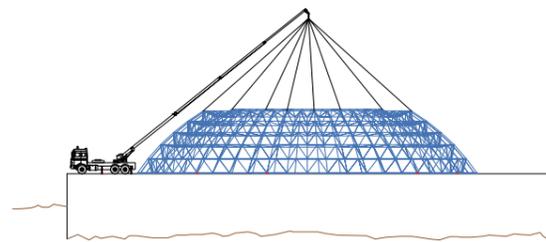
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05. Conclusiones.

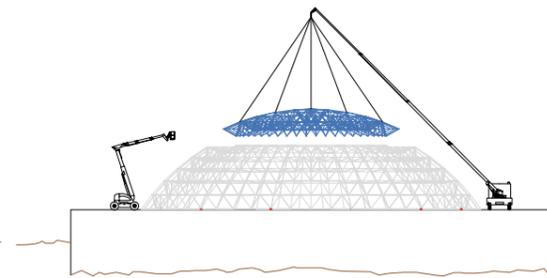


## SECUENCIA DE LA EJECUCIÓN:

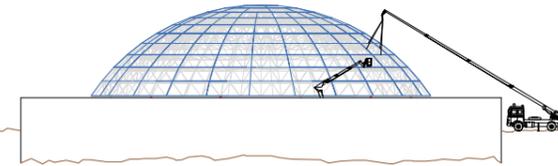
FASE 1: Malla esférica bicapa A.



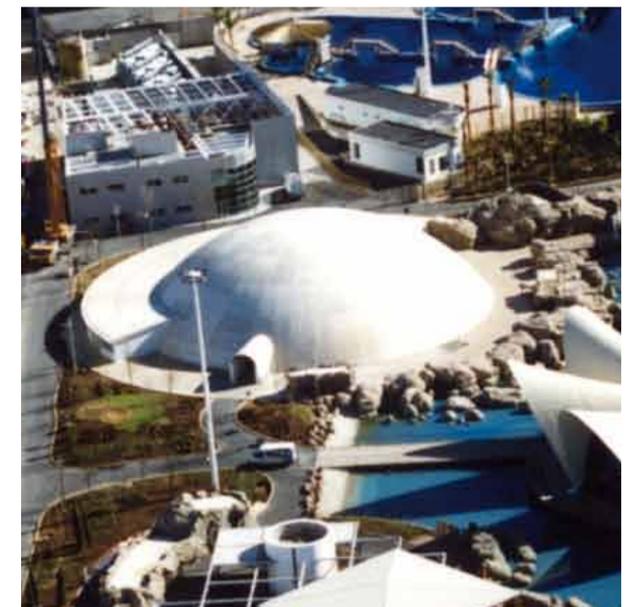
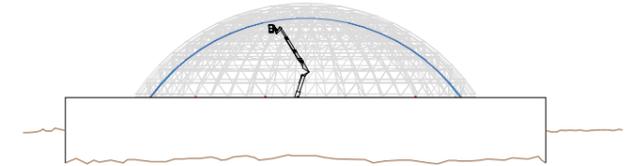
FASE 2: Malla esférica bicapa B.



FASE 3: Cerramiento exterior, GRC.

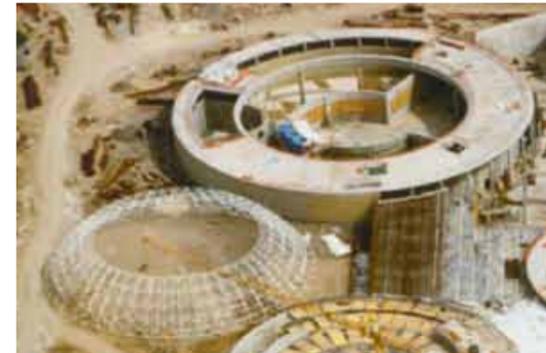
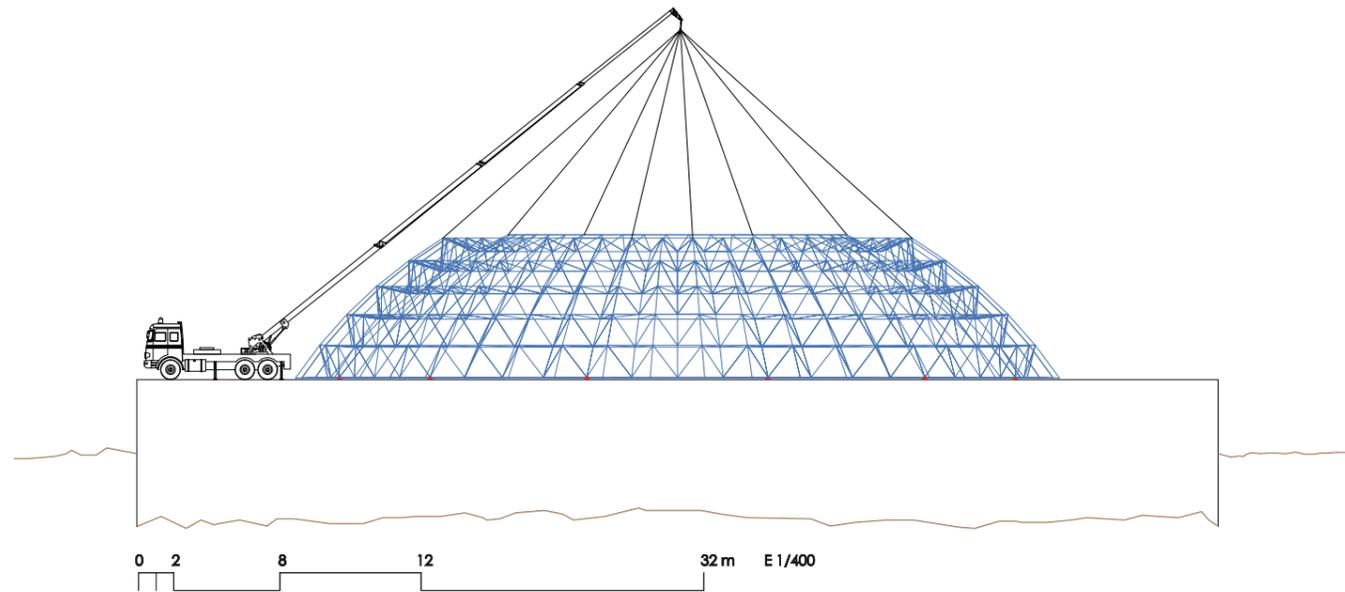


FASE 4: Cerramiento interior, falso techo.

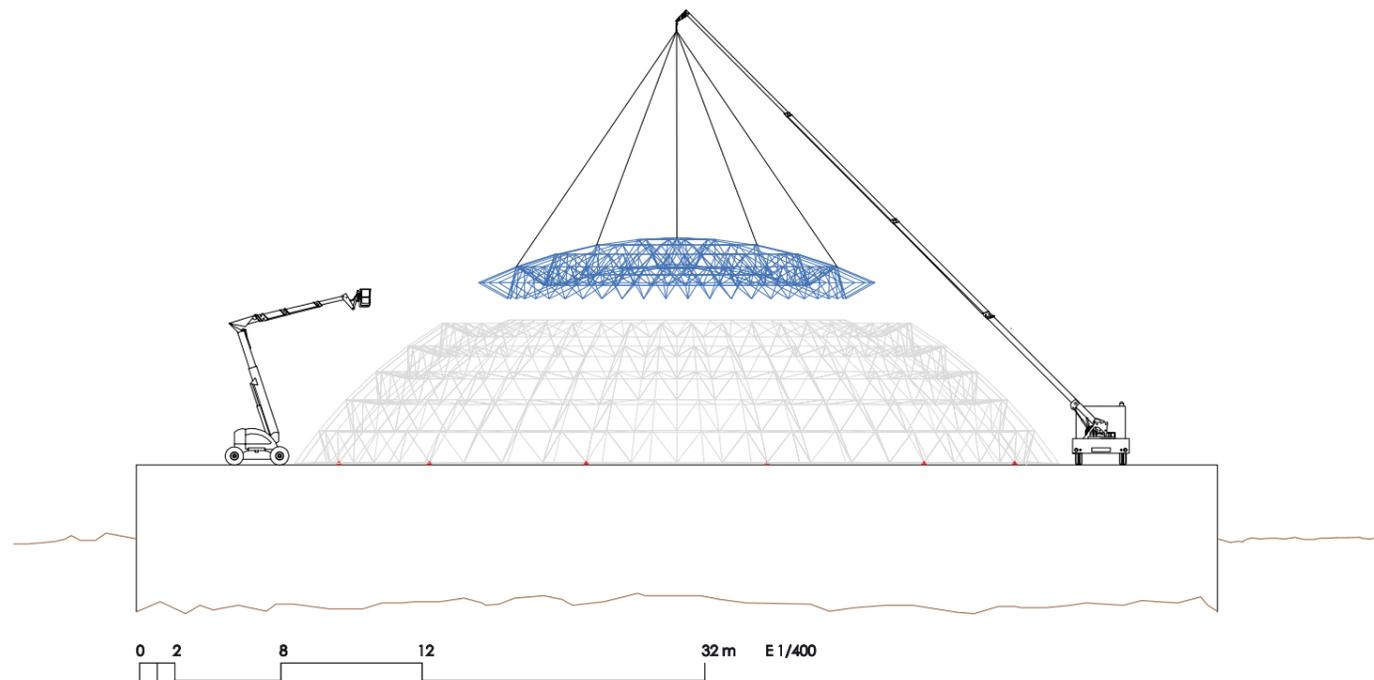




FASE 1: Malla esférica bicapa A.

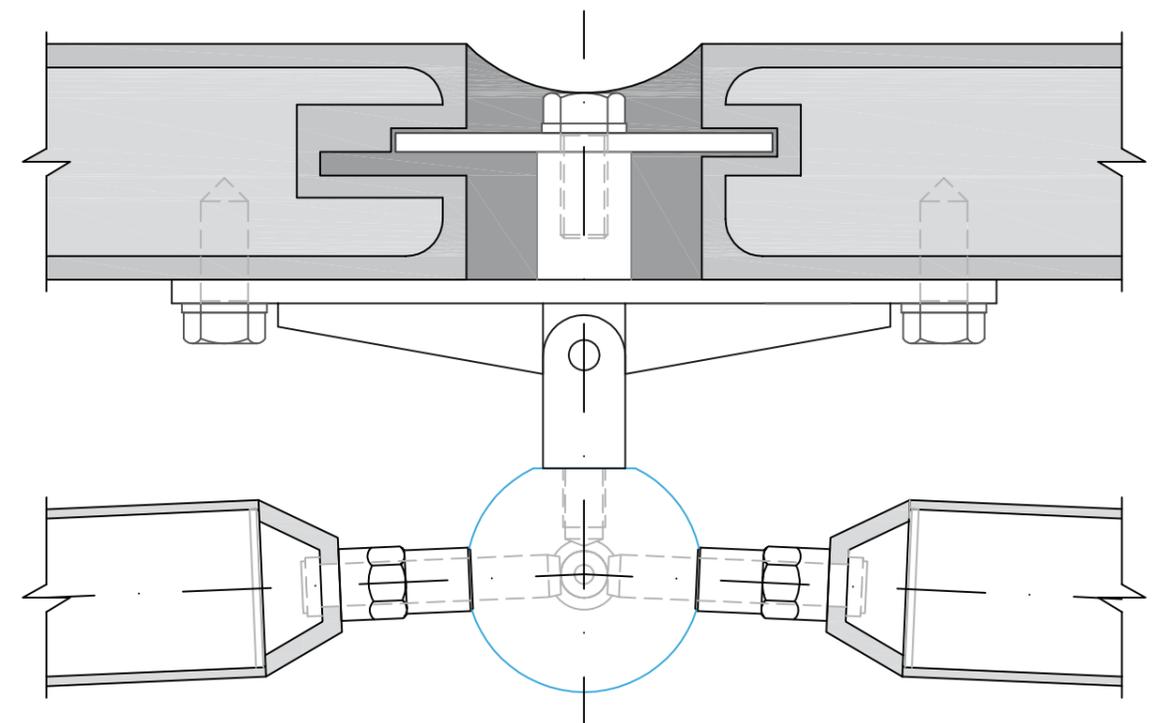
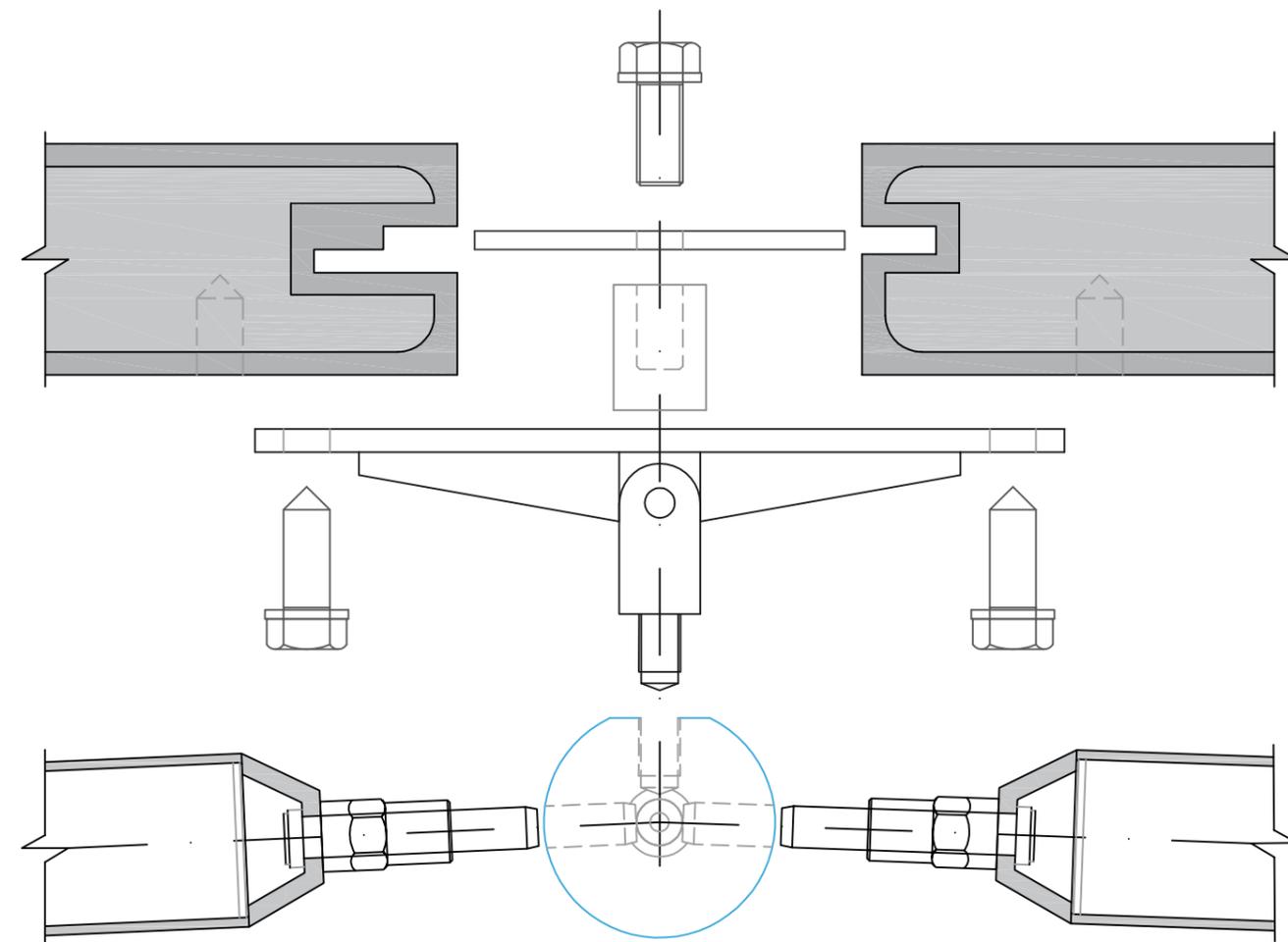
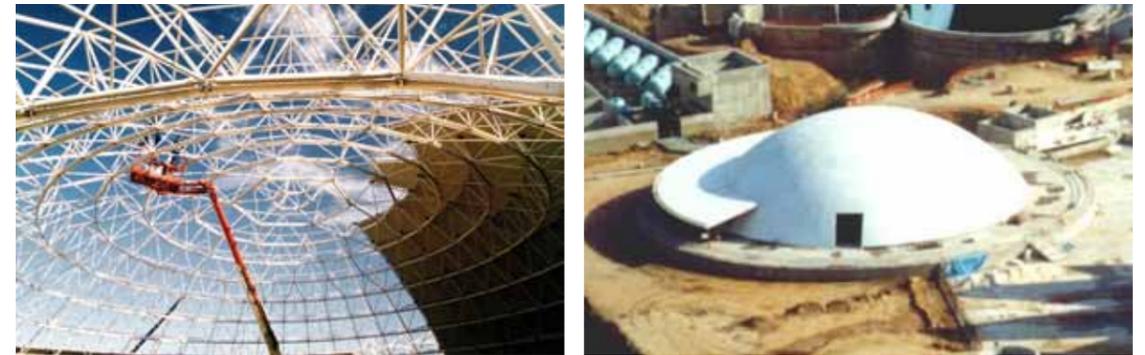
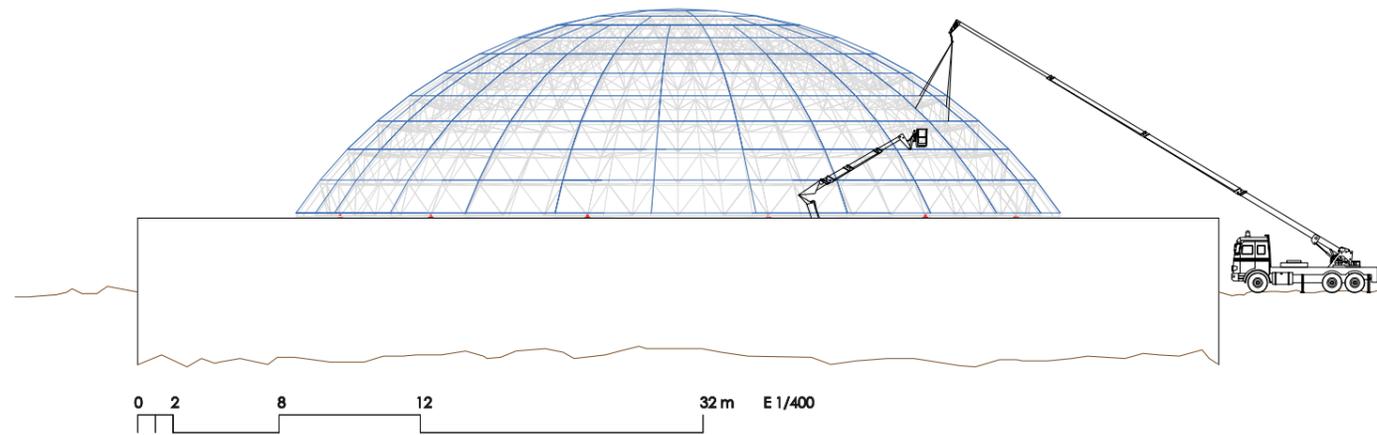


FASE 2: Malla esférica bicapa B.





## FASE 3: Cerramiento exterior, GRC.

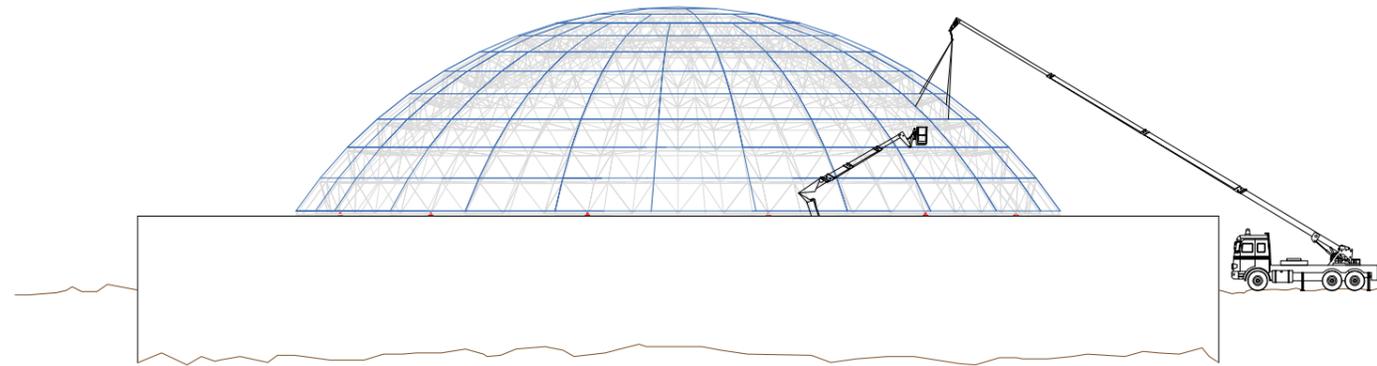


Pieza de soporte Paneles GRC tipo.

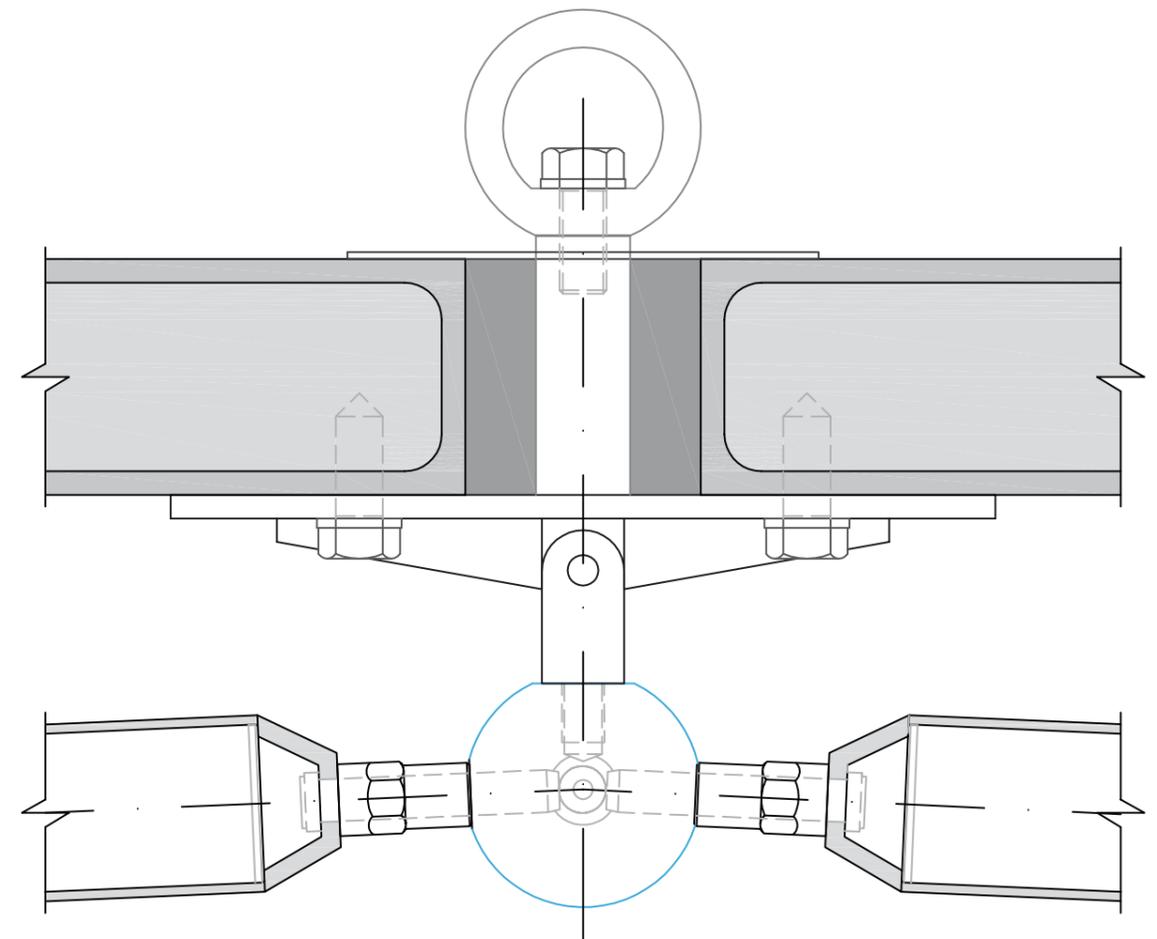
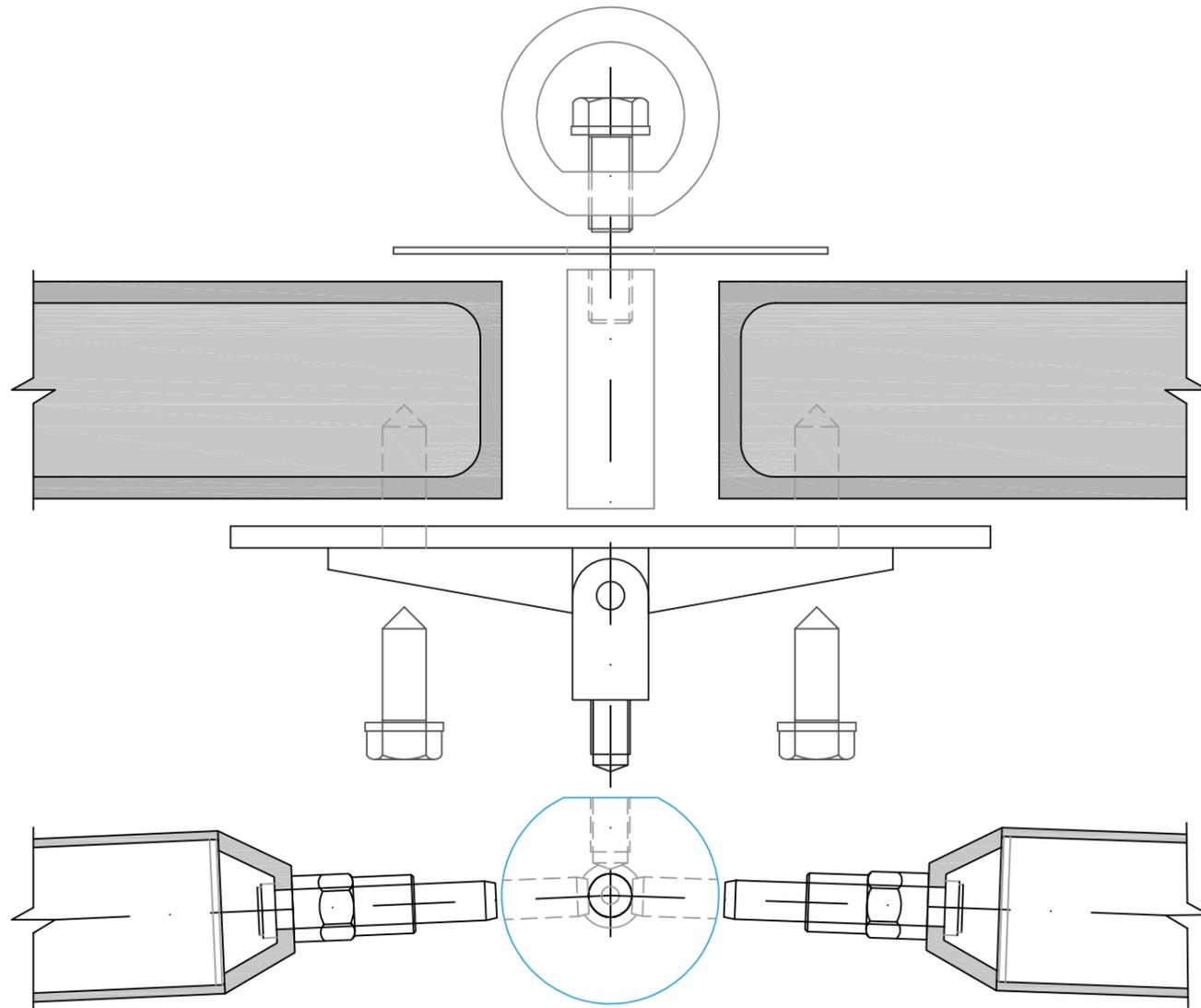
0 0,3 0,6 1,2 2,4m E1/30



## FASE 3: Cerramiento exterior, GRC.



0 2 8 12 32 m E 1/400

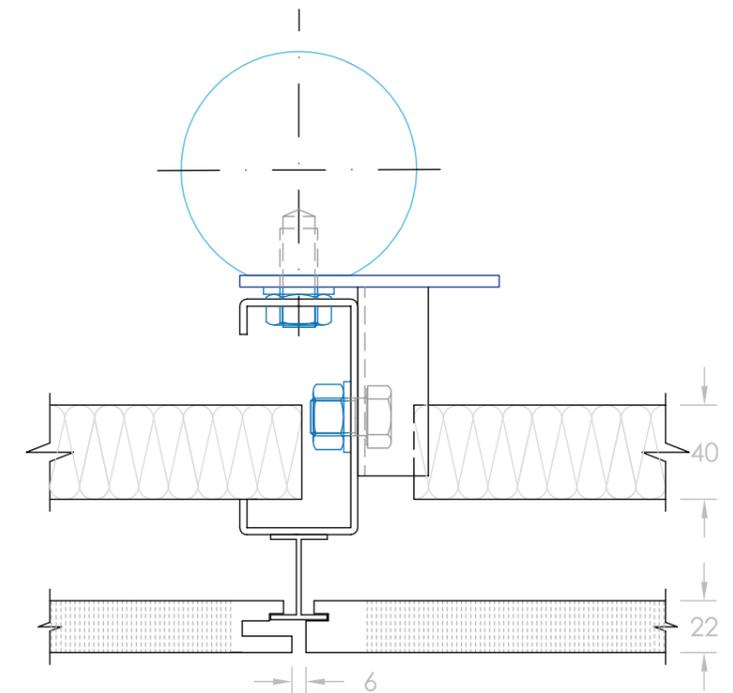
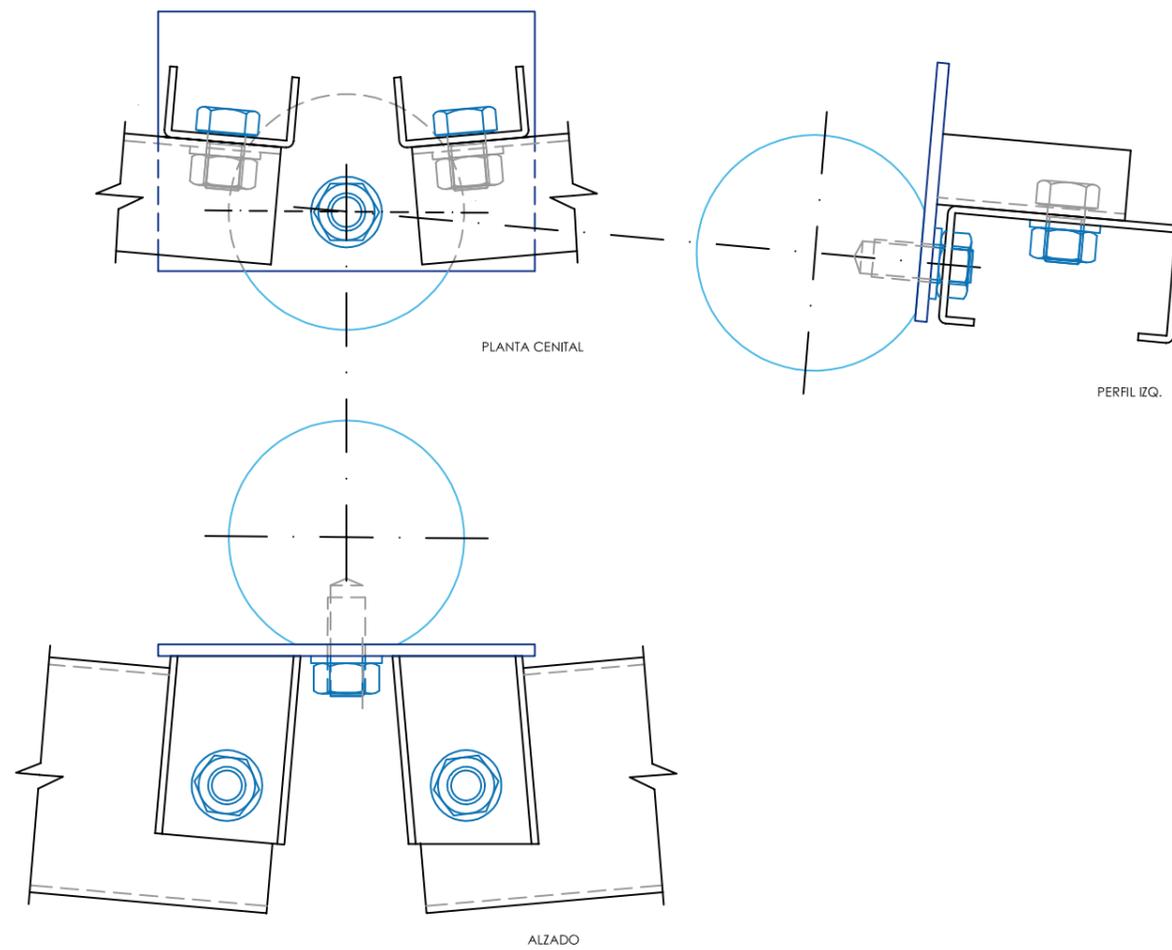
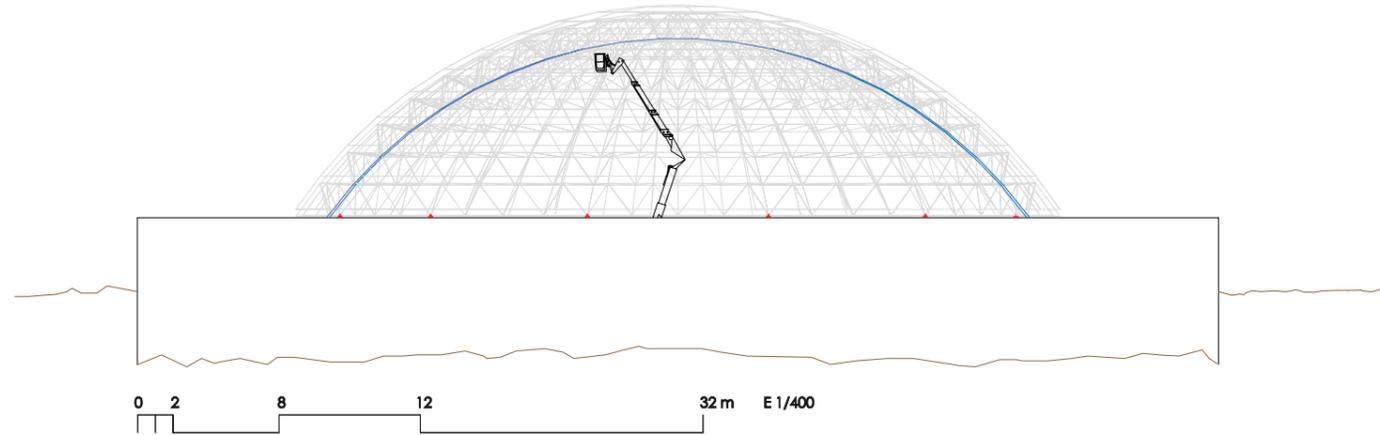


Pieza de soporte Panel GRC nº11.

0 0,3 0,6 1,2 2,4 m E 1/30



## FASE 4: Cerramiento interior, falso techo.



Estructura auxiliar de sujeción falso techo.





01. Superficie Arquitectónica.

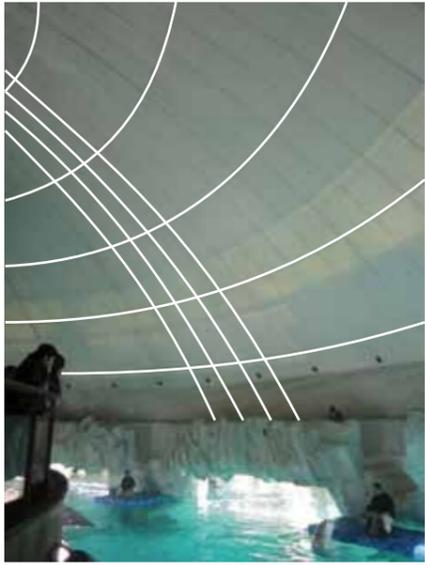
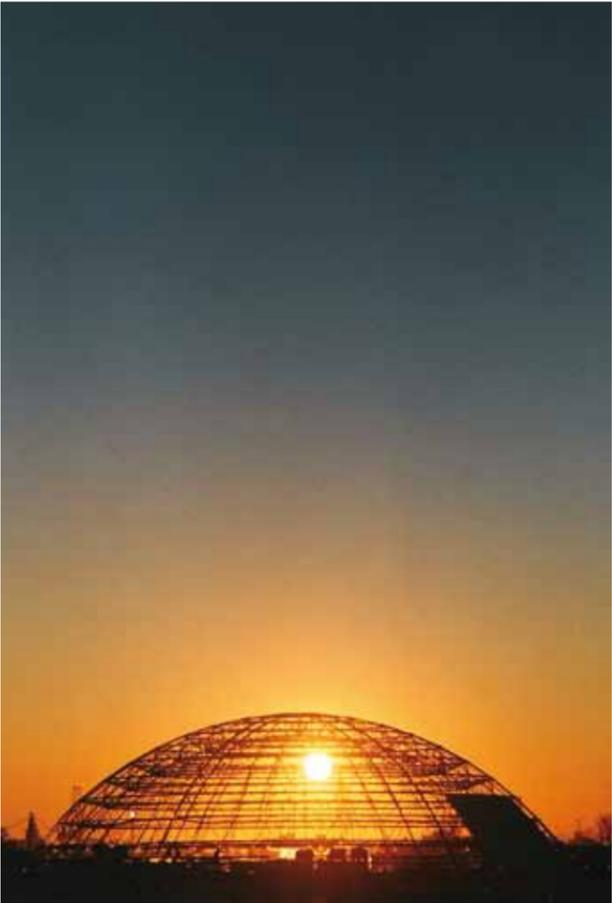
02. Análisis Geométrico.

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# Conclusiones



PROYECTO FINAL DE GRADO  
SUPERFICIES ARQUITECTÓNICAS SINGULARES

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Oceanogràfic, Valencia.

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