



FLEETGUARD FACTORY

: Richard Rogers Partnership

Ga Ram Cha

Min Hee Lee

Seon wook Park

CASE STUDY

The Architect

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• Richard Rogers

- Team 4
- Richard + Su Rogers
- Piano + Rogers
- Richard Rogers Partnership

Introduction

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Location	Quimper, Brittany, France
Site Areas	8,750 + 30,000 Sqm
Type	Industrial
Building Scope	1 Floor (Mezzanine Level)
The Architect	Richard Rogers Partnership
Structure	Steel
Dates	1979 - 1981

• Awards

- Awards Constructa-Preis for Overall Excellence in the Field of Architecture 1986
- Concours de Plus Beaux Ouvrages de Construction Metallique 1982 - Premier Award for Exceptional Steel Structure, France 1982

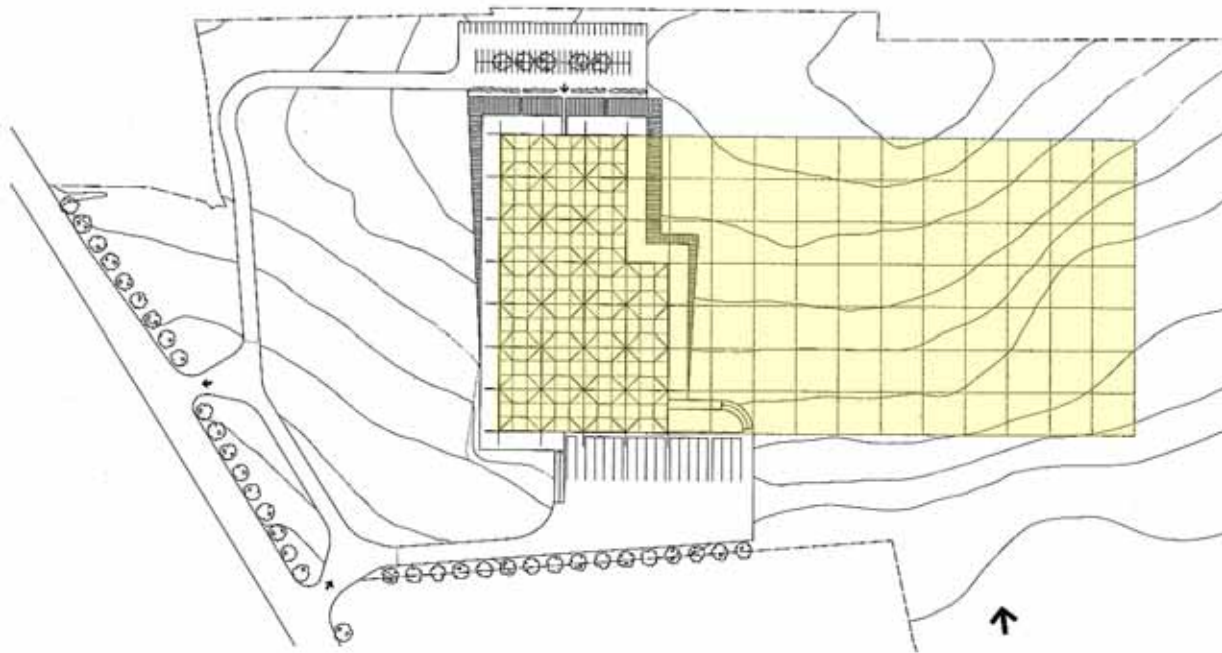


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Background

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- Site
 - Newly designed industrial zone
 - Near town of Quimper in Brittany



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Background

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- Design Concept

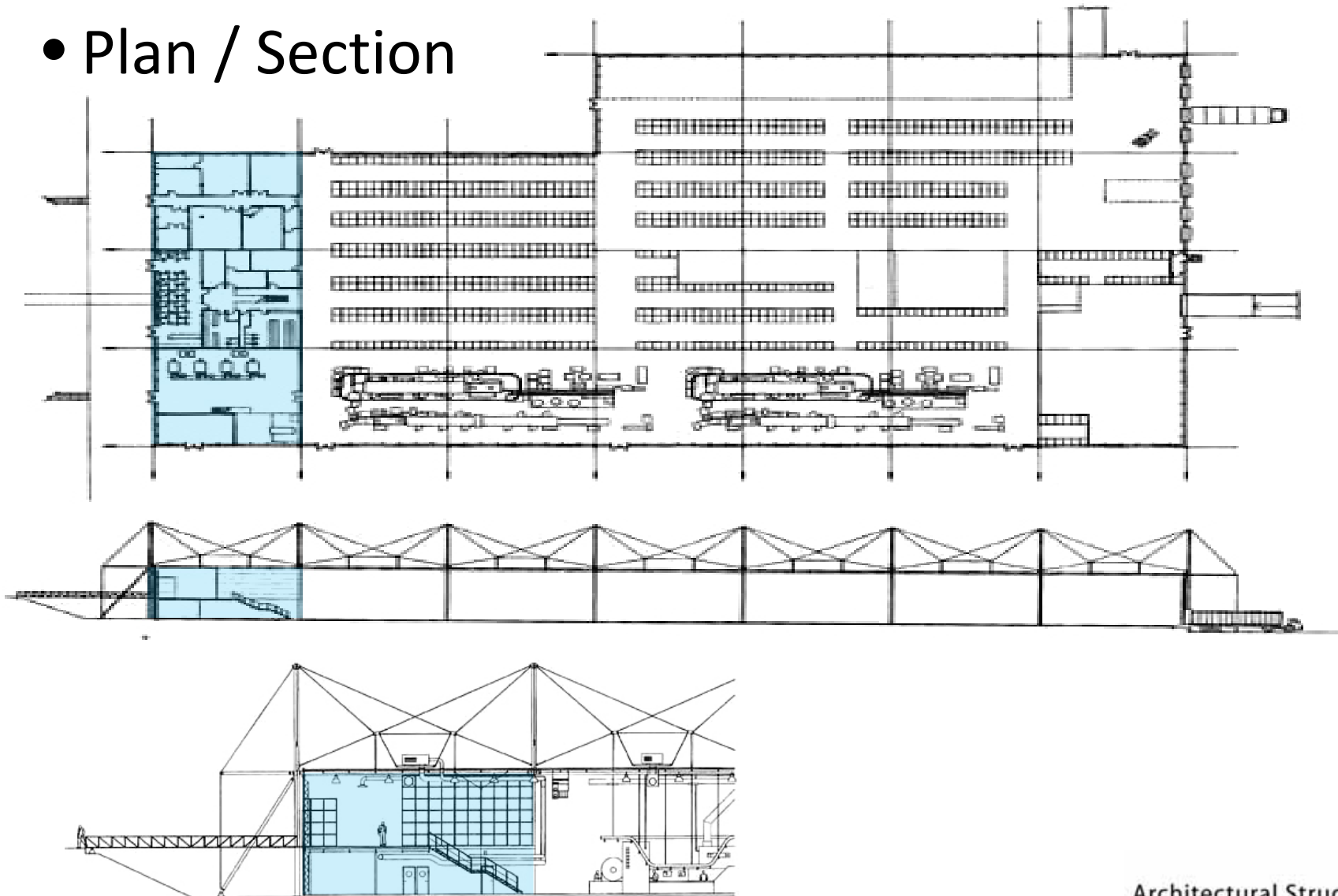


- Minimising intrusion on the landscape
- Dynamic suspension structure
- External structure frees
- Interior roof zone for flexible services distribution

Architecture

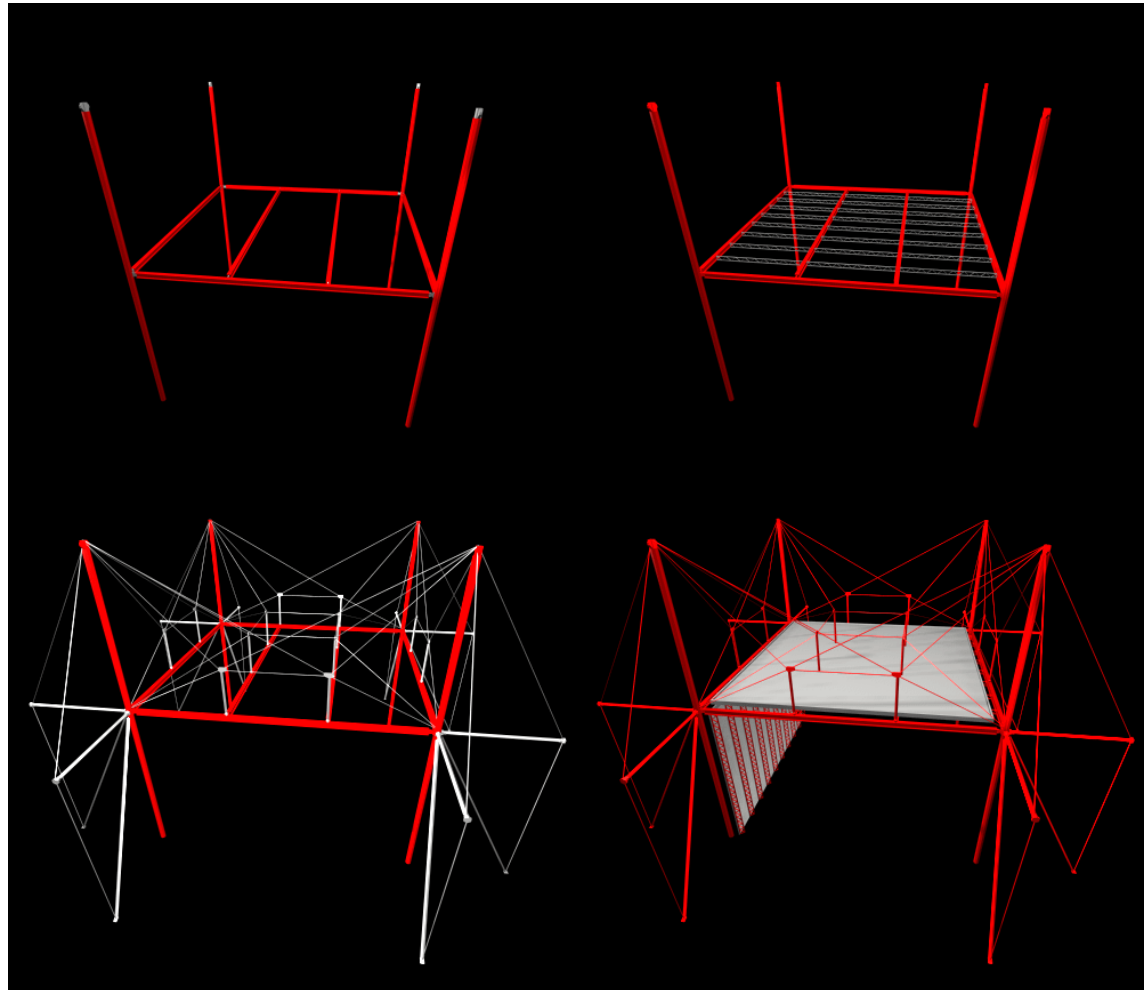
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- Plan / Section



Assembly Elements

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• Assembly Process

-Column and Beam system

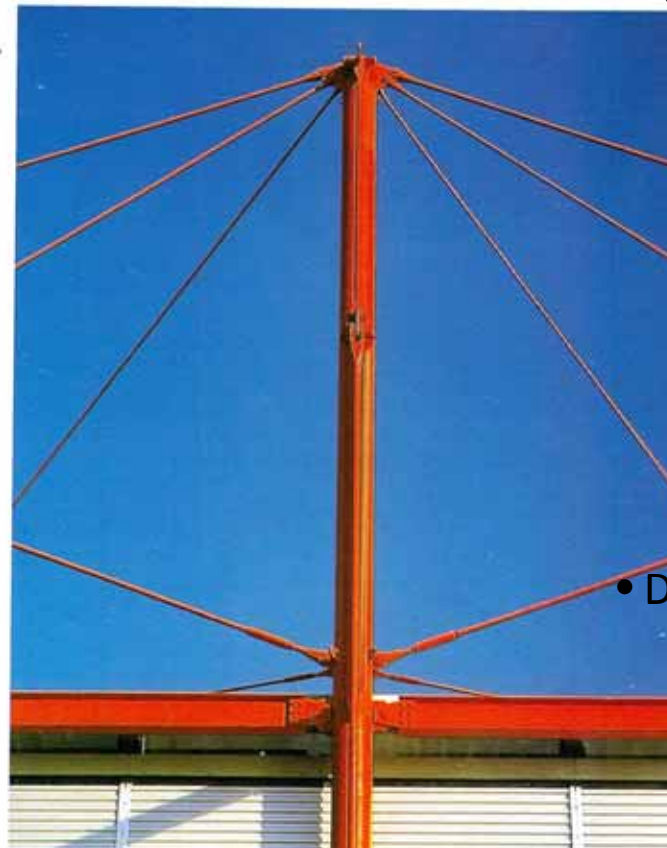
-Trusses system
for lateral stability

- Cable system
to increase beam span

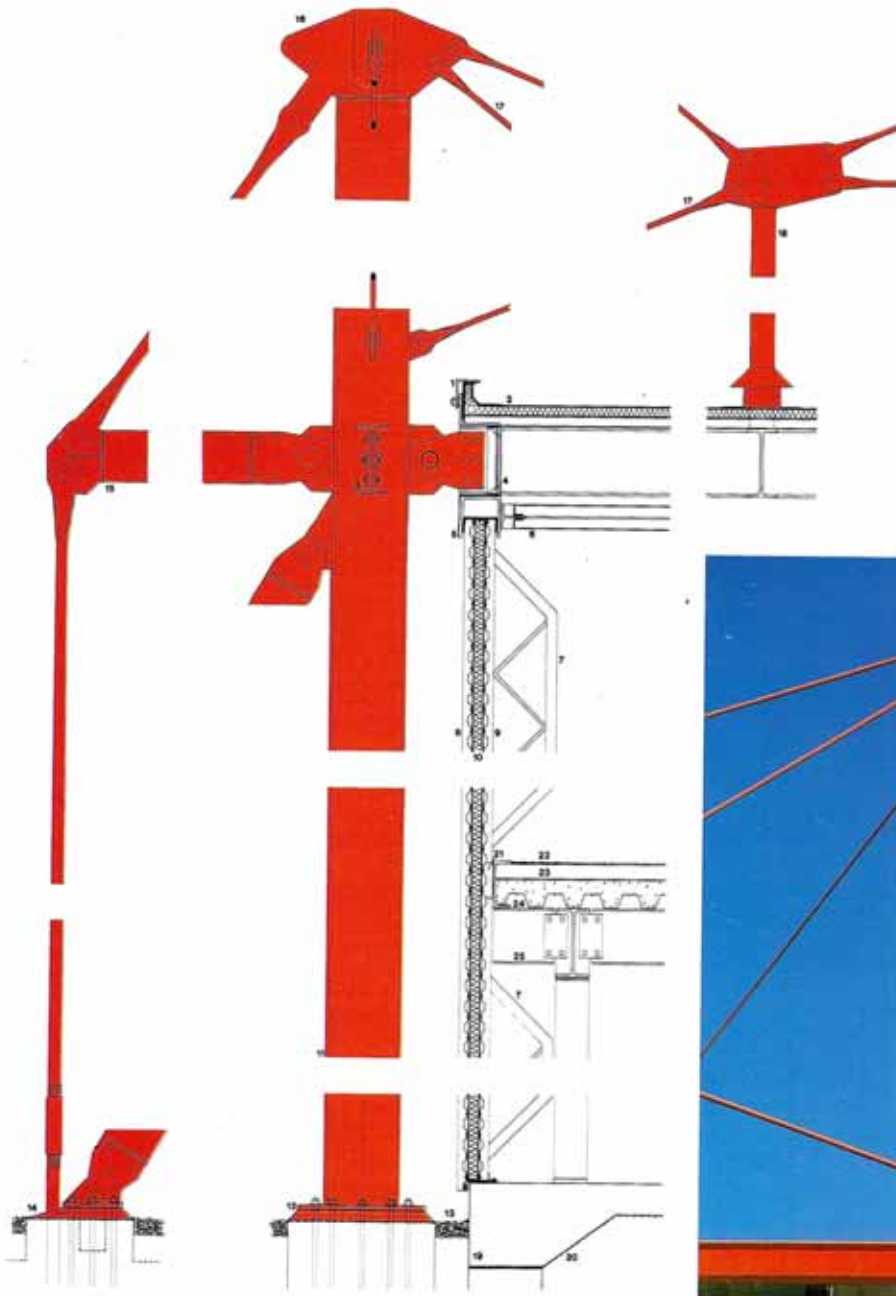
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• Suspension rod



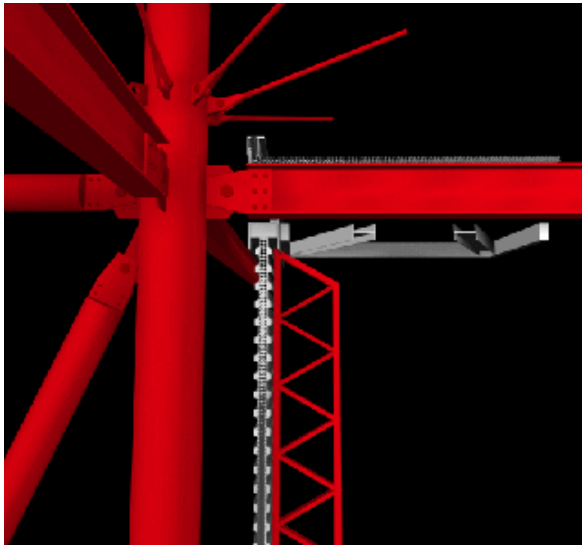
• Detail of mast connections



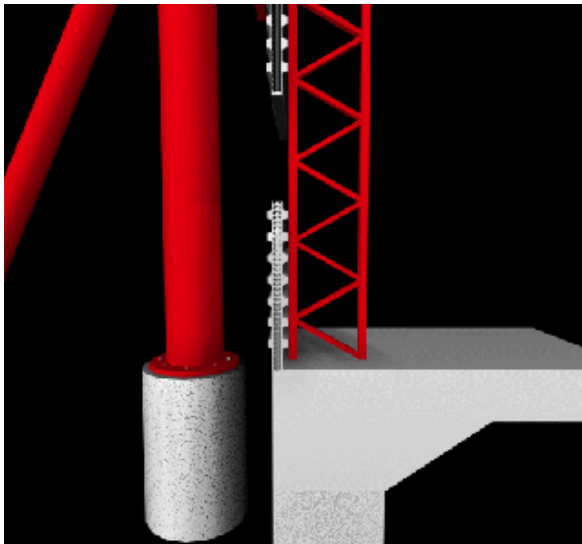
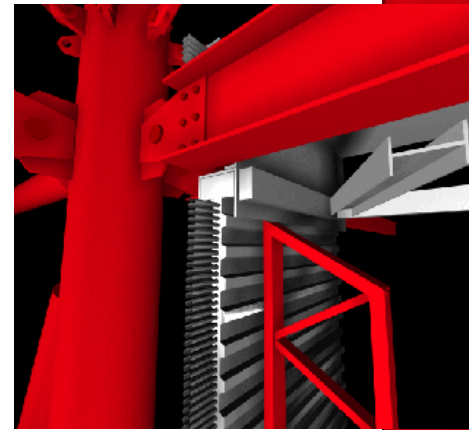
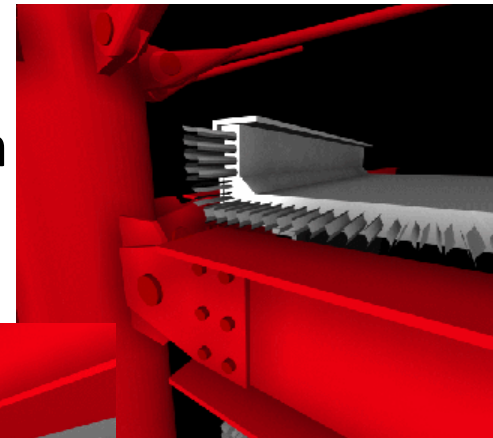
• Detail drawings of the mast

Details

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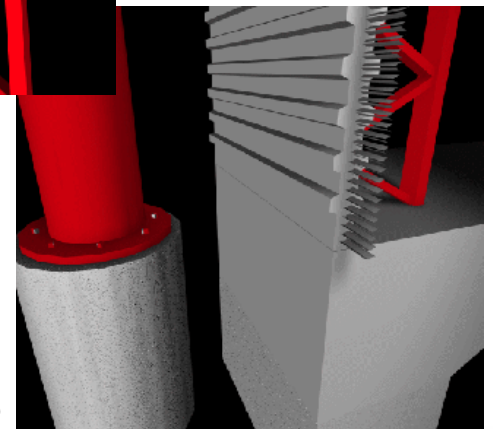


Detail of
Pinned connection



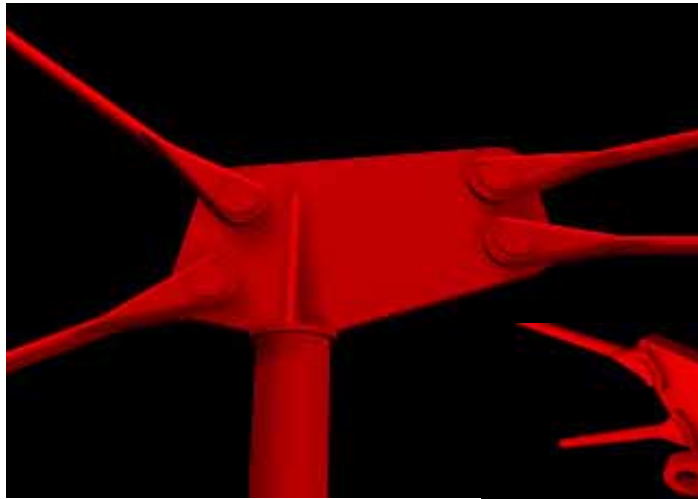
Wall section

Baseplate on footing
& power floated slab



Details

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Tubular steel hanger and suspension rods



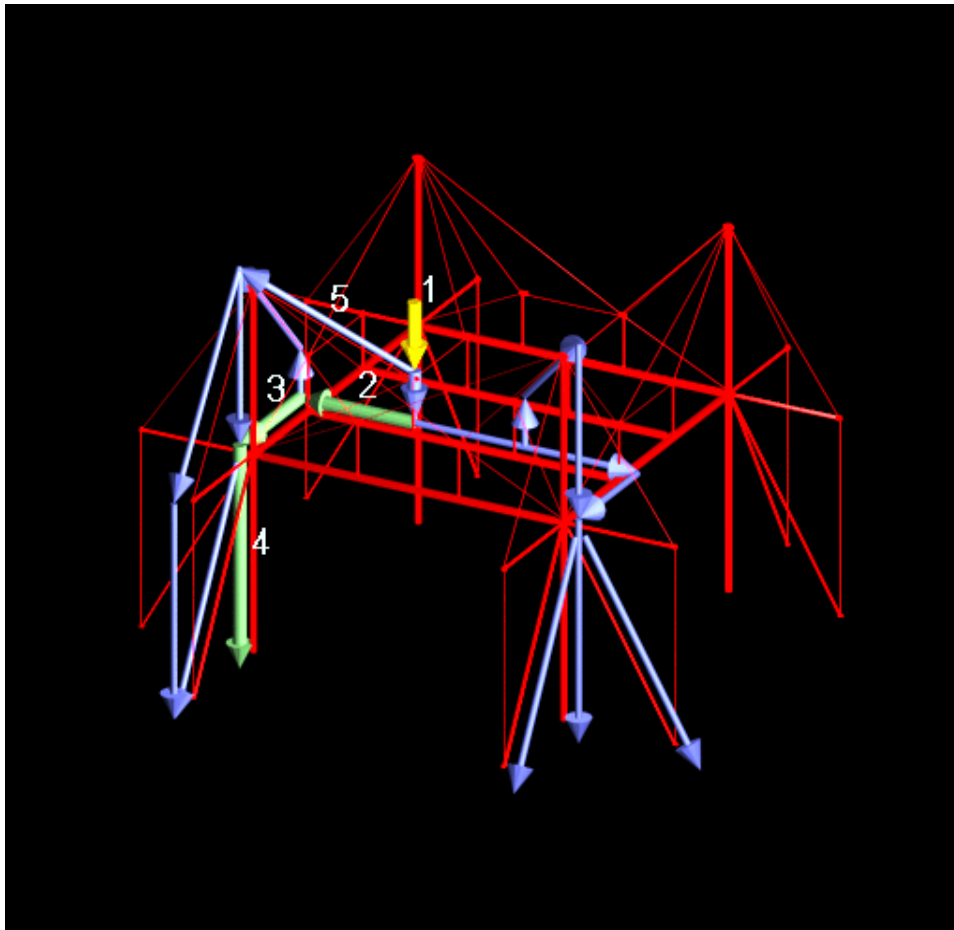
Column head detail showing forked-end mild-steel suspension rods



Detail of mast connections

Structural System

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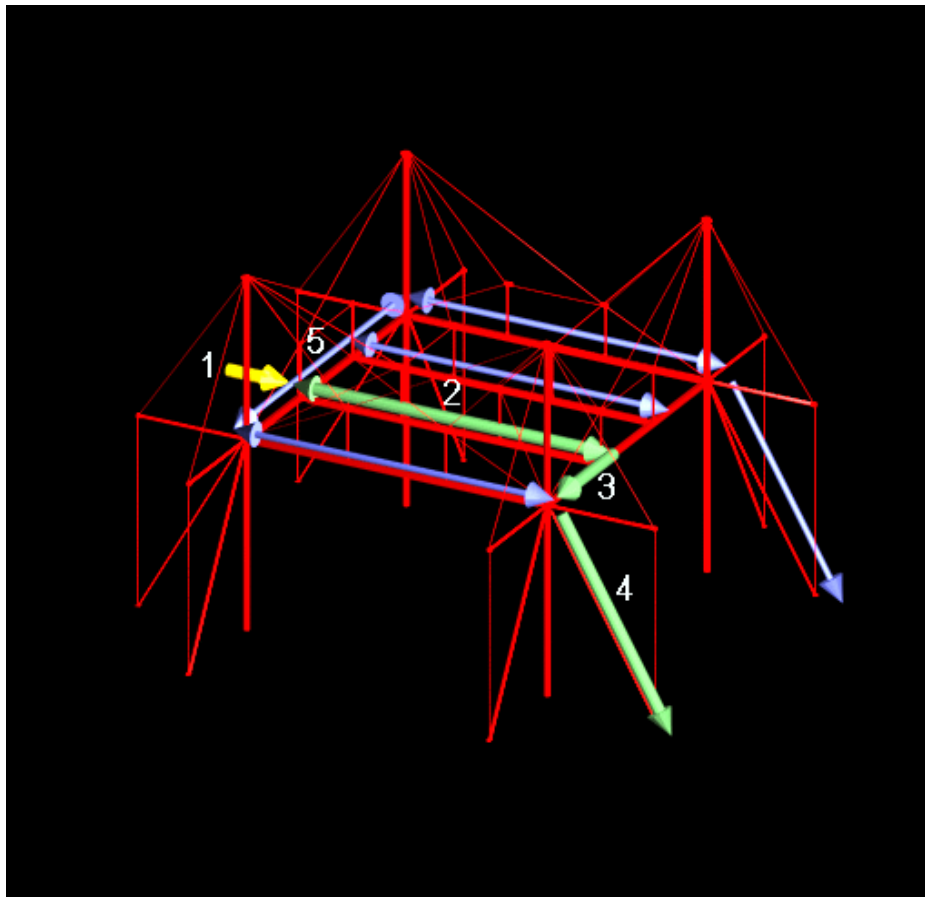


• Vertical Loading

1. Point load applied to roof
2. Central beam bends in vertical plan
3. Surrounding beam bends in horizontal plan
4. Steel columns transfer load to footings
5. Tension cables serve as secondary load carrier

Structural System

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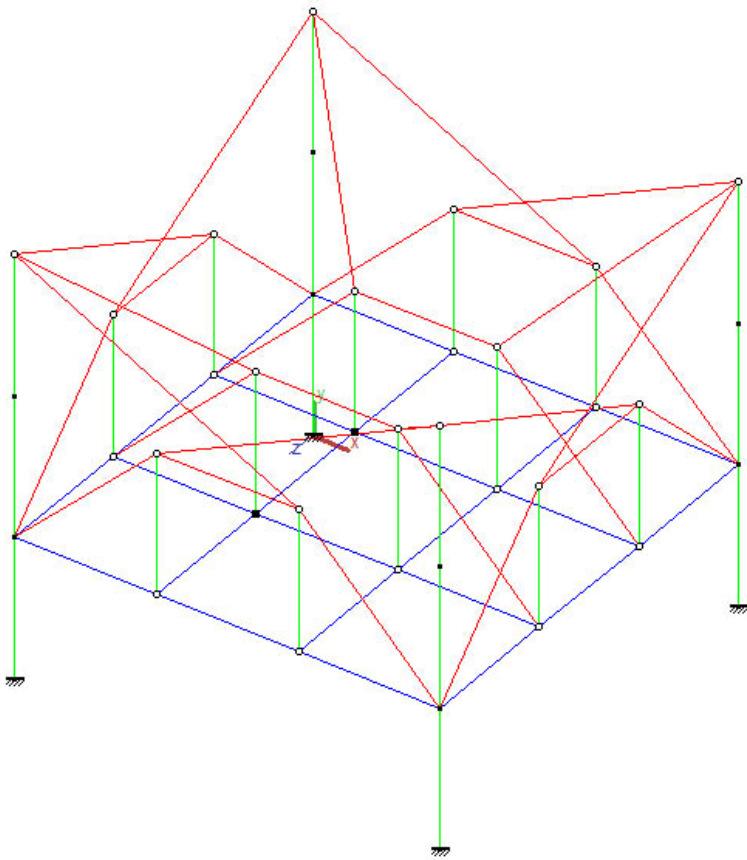
- Lateral wind loading

1. Lateral wind load hits surrounding frame
2. Load resists by central beam in compression
3. Surrounding beams in bending
4. Lateral forces transfer to footing through triangulation
5. Secondary structural elements

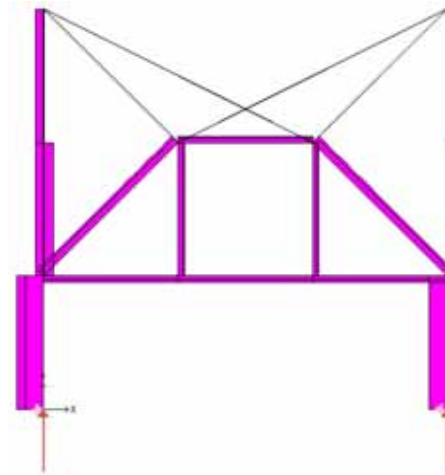
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Multiframe 4D

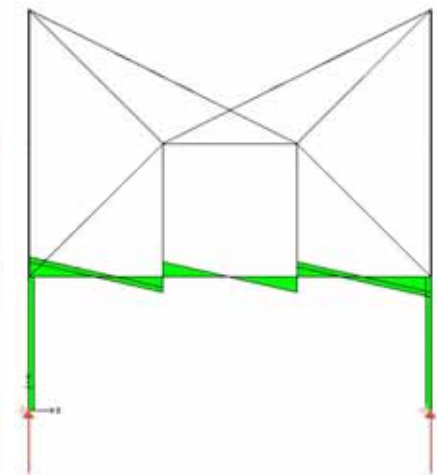
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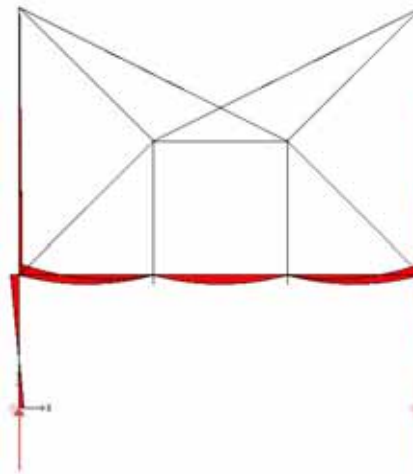
• 3D frame copy



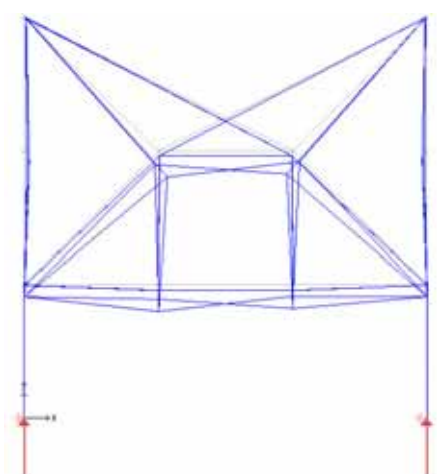
• Axial force



• Shear force



• Bending moment



• Deflection

• View of the rooftop masts

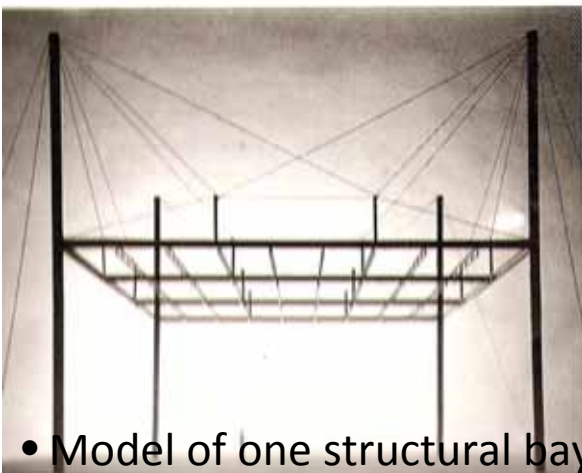
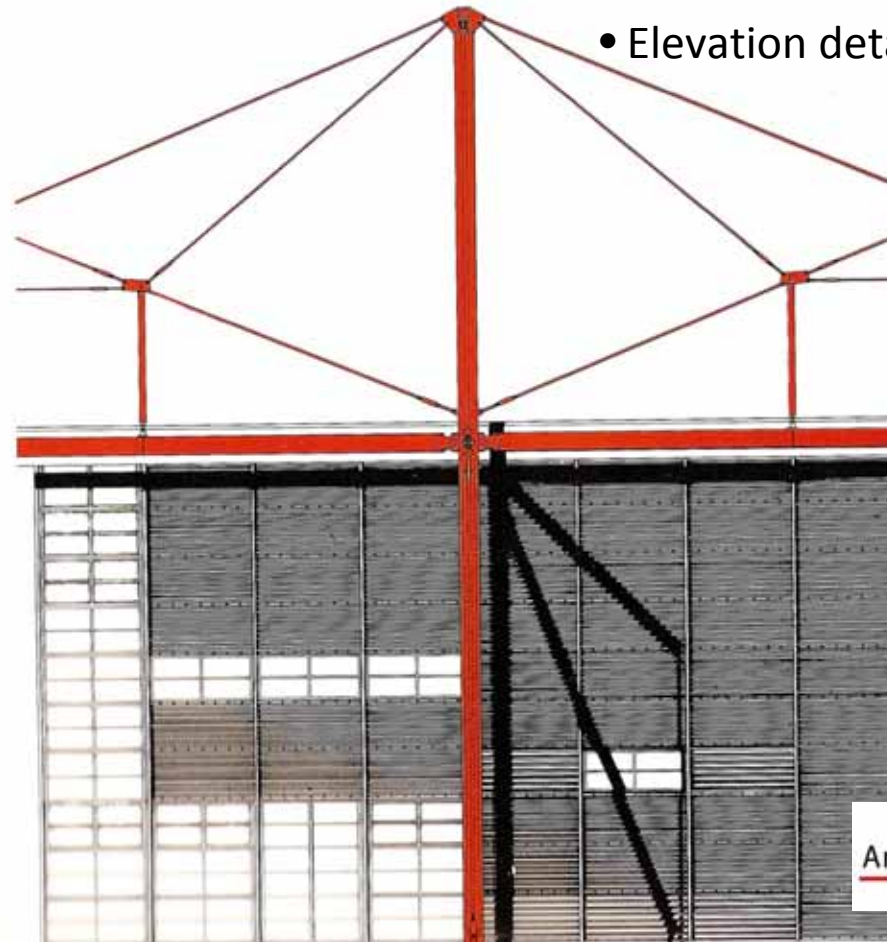


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• Side view of the building

• Elevation detail drawing



• Model of one structural bay

Conclusion

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- The building is supported by column, beam and cable structure.
- Vertical load : Beam and column + cable structure.
- Lateral load : Truss + beam and column
- It shows the architect's style and clear cable structure.
- Minimalization

• Reference

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