



AEROPORTI DI PUGLIA

BARI BRINDISI FOGGIA TARANTO



REGIONE
PUGLIA



CRIPALIAE
SpacePort

Grottaglie Spaceport

Technical Feasibility Design for the Italian Spaceport

Agenda

1. Introduction
2. The Path
3. Geographical Setting
4. Masterplan and Design: Zoning
5. Sustainability Target: LEED Approach
6. Airside Target: Flexibility
7. Concept Volumes Balance
8. Hangar Focus
9. Parametric and Digital Design
10. Training Center Multifunctional Building
and Mezzanine Walkway

1. Introduction

Since 2020, following numerous assessments and pre-feasibility studies, the ideal site for the construction of the Grottaglie Spaceport has been identified, thanks also to the territorial vocation of Puglia, an Italian Region already flourishing in the spaceport economy. The promoted infrastructure will be the first one in Italy dedicated to the aerospace, suborbital and orbital flights.

The Italian Government and the Puglia Region have thus promoted an international tender for design. The selected design team managed to win the tender procedure and delivered, within the deadlines, the masterplan update and the preliminary design of the infrastructure necessary for the spaceport operation.

Overall, the spaceport will include structures such as a multifunctional hangar for shelter, assembly and maintenance of vehicle systems, a two-level building with a training center, museum and business incubator for research institutions and start-ups, and a cultural attraction event area. In this document, today at the important *Mediterranean Aerospace Matching (MAM)* event, we have the honor of presenting the first results of this very important project to the aerospace community gathered so numerous in Grottaglie.



2. The Path

Step 01.
Tender Publication
August 27, 2022



Step 02.
Temporary Consortium
of Professionals
Awarded
January 1, 2023



Step 03.
Commencement Airport
Development Plan
May 10, 2023



Step 04.
Delivery Airport
Development Plan
October 10, 2023
*Currently under ENAC
approval*



Step 05.
Commencement Feasibility
Design
October 13, 2023

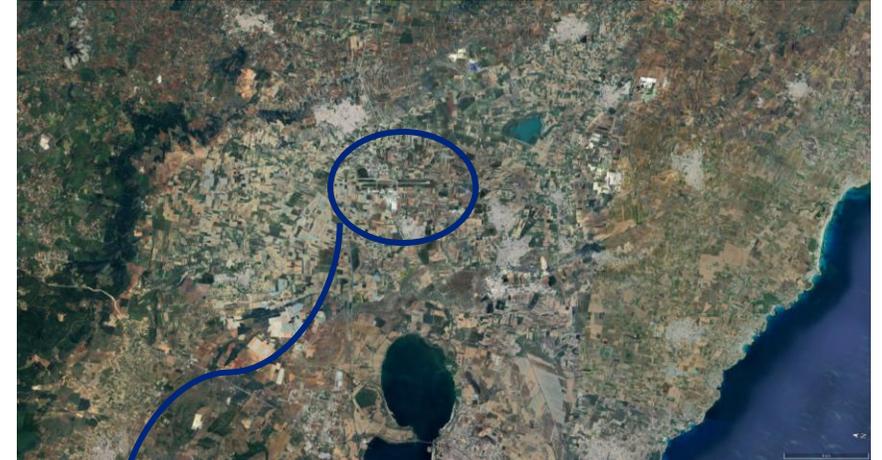


Step 06.
Feasibility Design
Delivery
March 2024



3. Geographical Setting

Trans-European Transport Network



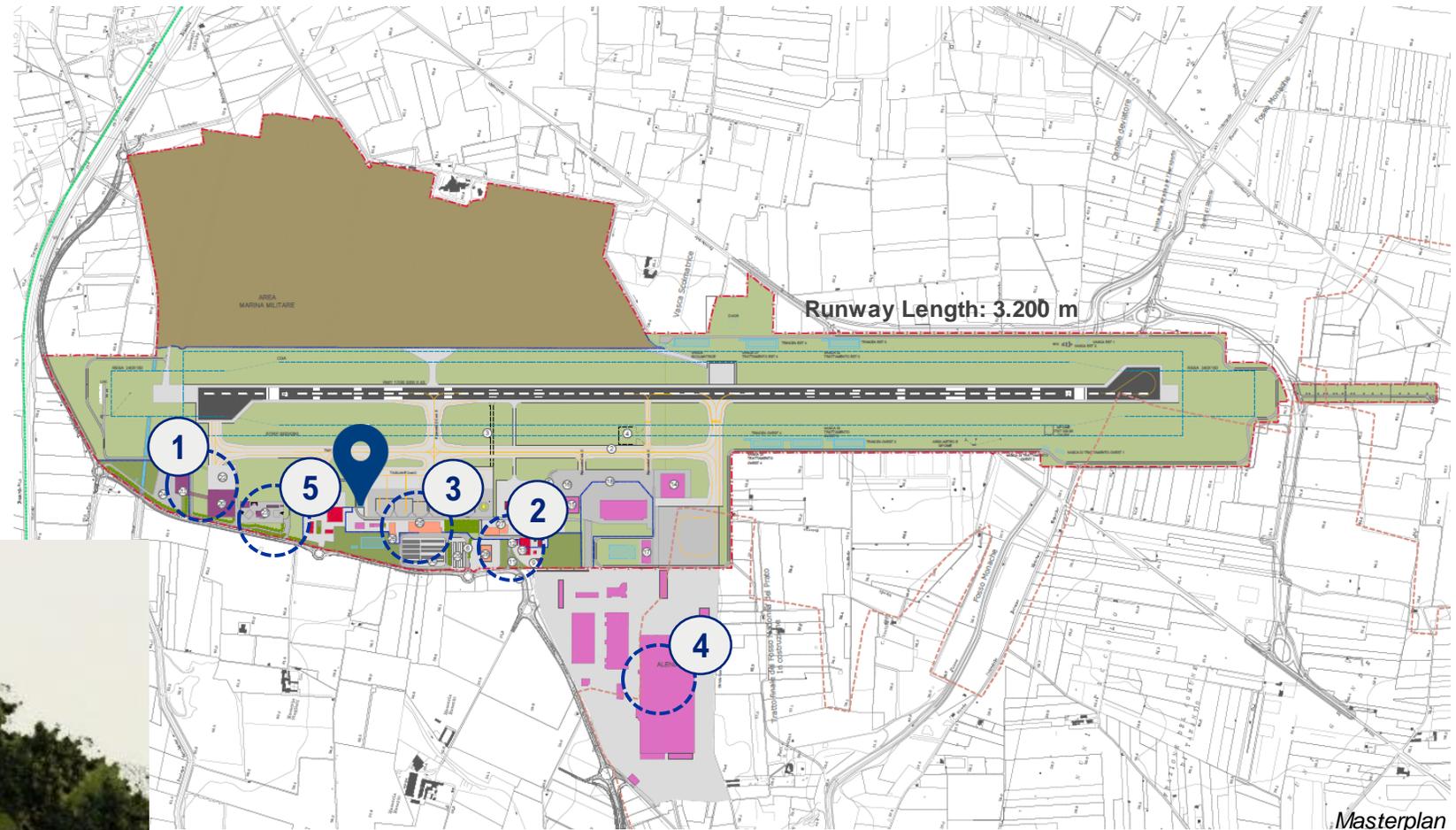
The airport is about 321 ha. Including a military area of 106 ha, and a civilian area dedicated to commercial air traffic of 25 ha. The airport is 20 km from the center of Taranto, 50 km from Brindisi and 85 km from Lecce.



Taranto Airport - Grottaglie

4. Masterplan and Design: Zoning

- 1 New Spaceport Area
- 2 Main entrance landside
- 3 Commercial / General Aviation Terminal
- 4 Industrial district
- 5 Fuel Farm
-  You Are Here



The airport development plan aims to redefine the previous volumes of the 2017 version, in order to update the general requirements such as:

- Customization of new spaceport area
- Redistribution of the volumes, targeting future development needs.

5. Sustainability Target: LEED Approach

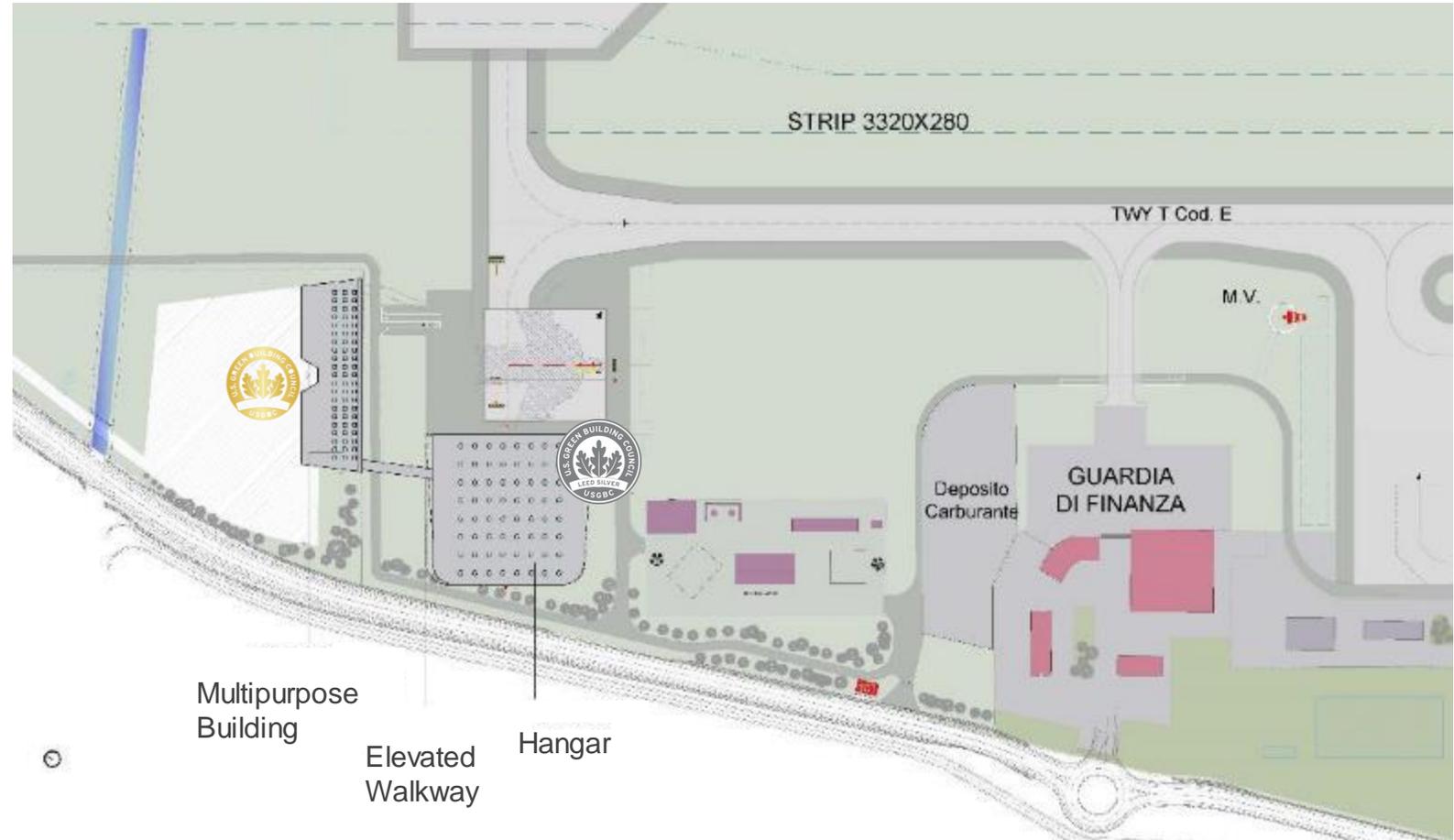
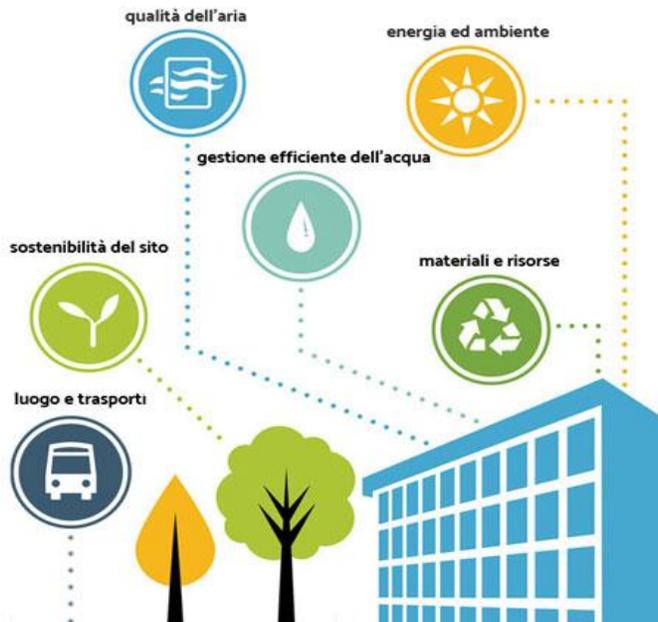


Forecasted score
Multipurpose Building
 LEED BD + C
 New Construction



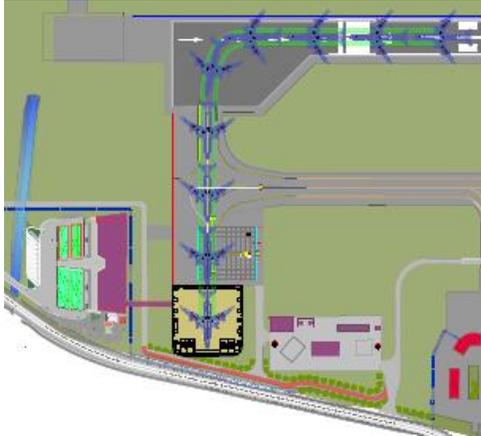
Forecasted score
Hangar
 LEED BD + C
 Warehouse

A LEED Charrette has been set up involving the stakeholders

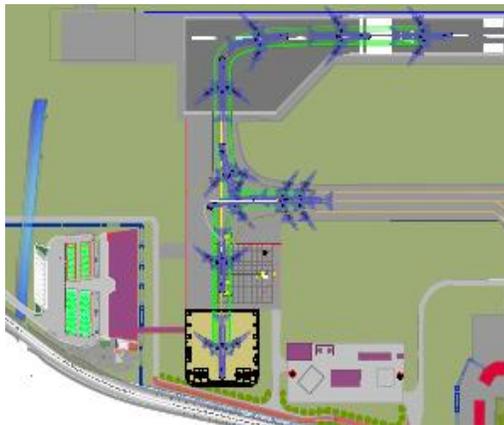


6. Airside Target: Flexibility

Multiple maneuver possibilities

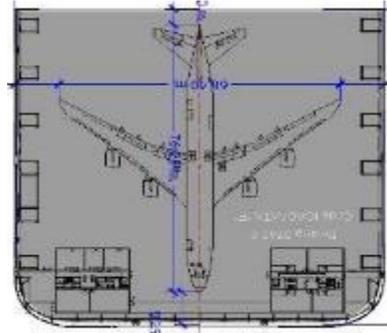


Boeing 787-8 self maneuvering from RWY 17/35 to Hangar

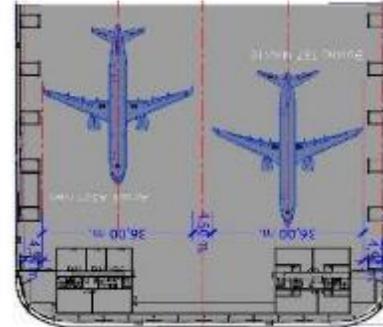


Boeing 787-8 push back on taxiway "Tango", self taxiing on RWY 17/35

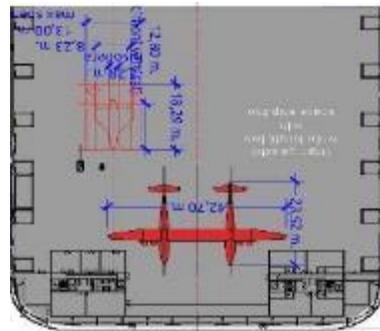
Multiple Hangar layouts



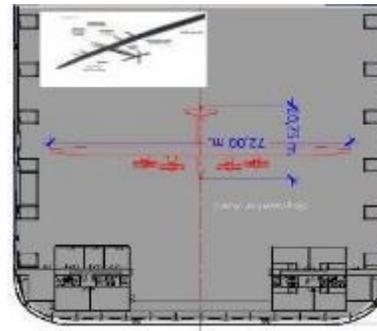
N. 1 EASA "F" Aircraft



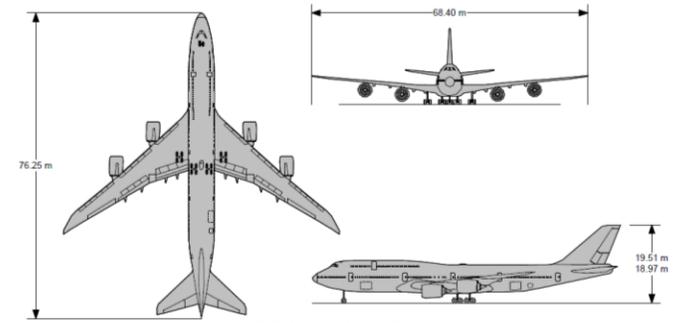
N. 2 EASA "C" Aircrafts



White Knight Two – Spaceship Two



Skydweller Aircraft

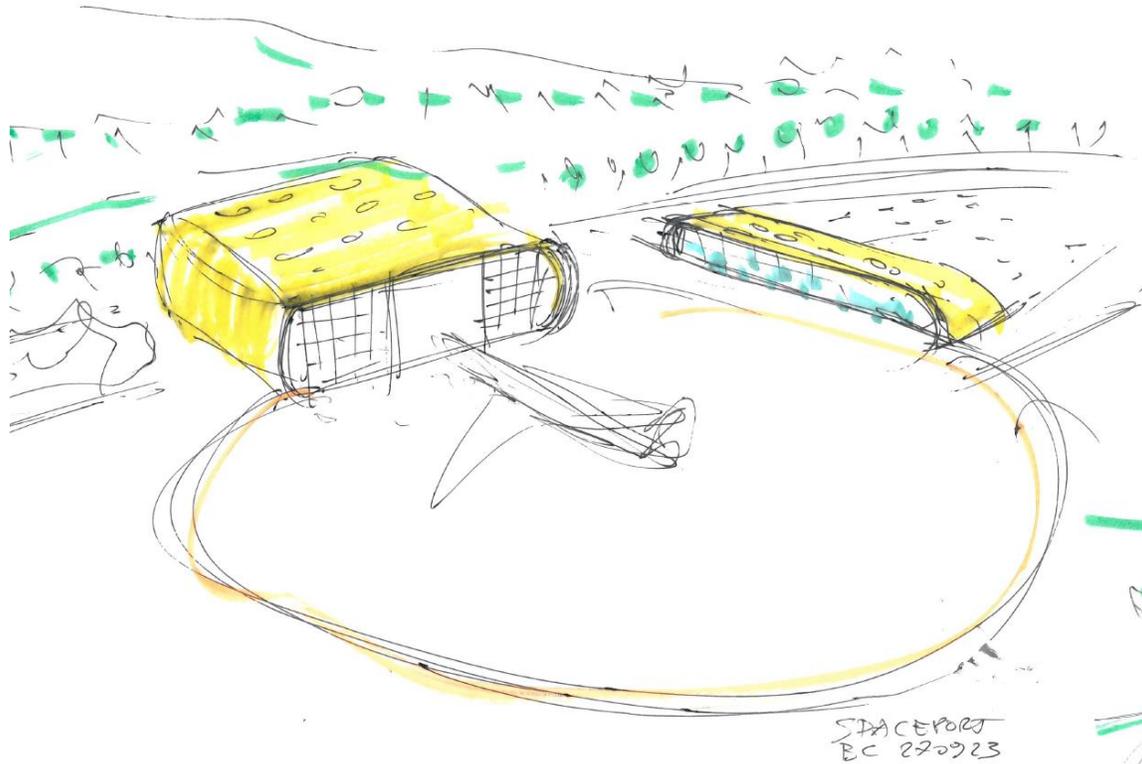


Boeing - 747-8 (No BGS) [GENx-2B]

In order to ensure the maximum flexibility of the airside infrastructure serving the Grottaglie Spaceport, the Boeing 747-8 has been considered for flight operation sizing.

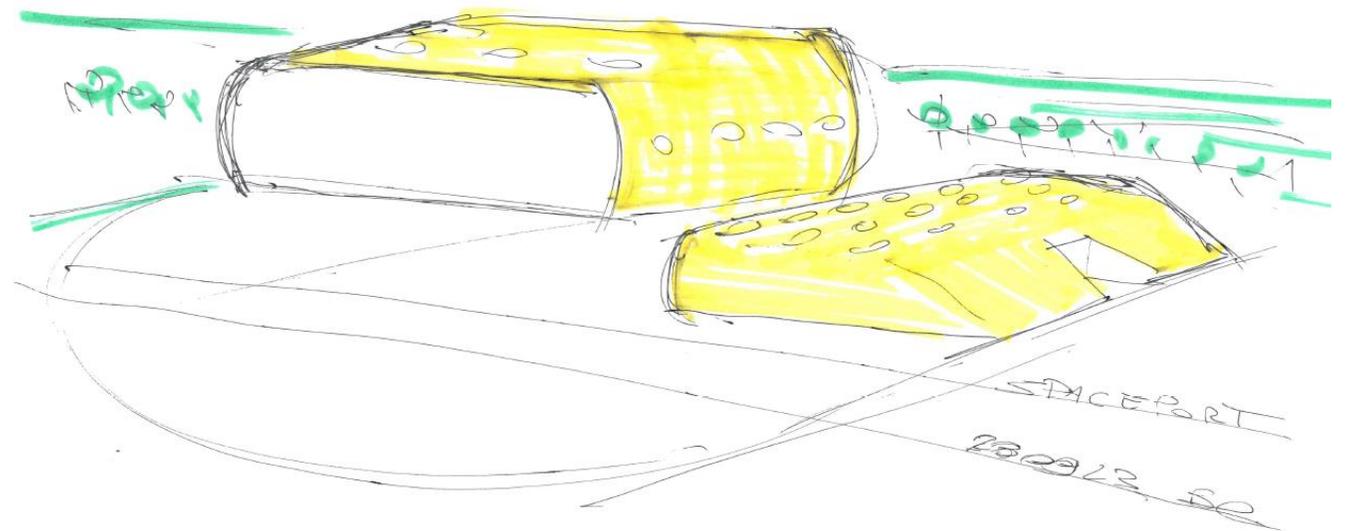


7. Concept Volumes Balance



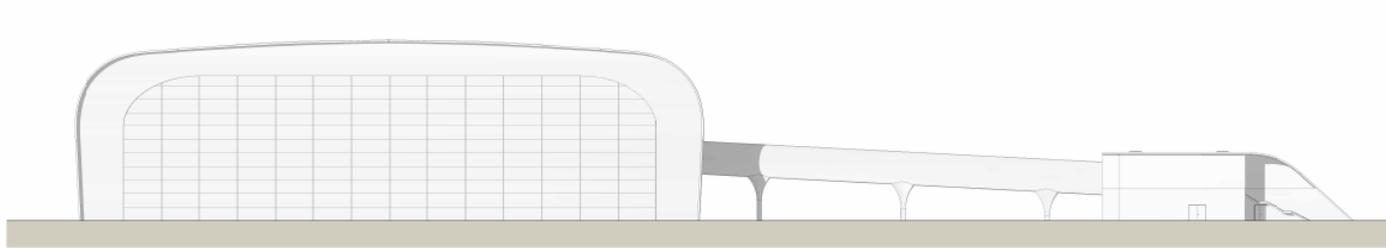
"The language adopts an aerospace design with shell-like shape, curved structures, metal frames and block window."

"The proposed, memorable and vibrant colorations are not typically space-like but draw inspiration from the bodywork of airplanes and special vehicles."

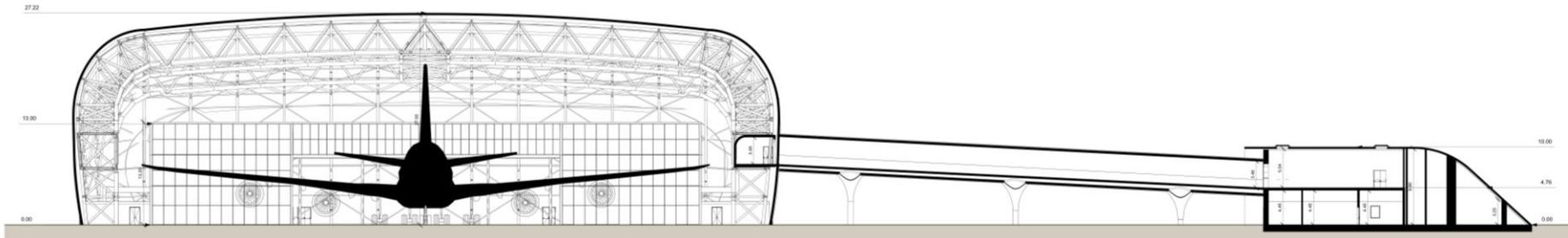


8. Hangar Focus

The Hangar is designed with a spatial truss structure consisting in six portals, placed at constant spacing of 13.52 m, with a span of internal width of 78.72 m and height of 26.25 m.



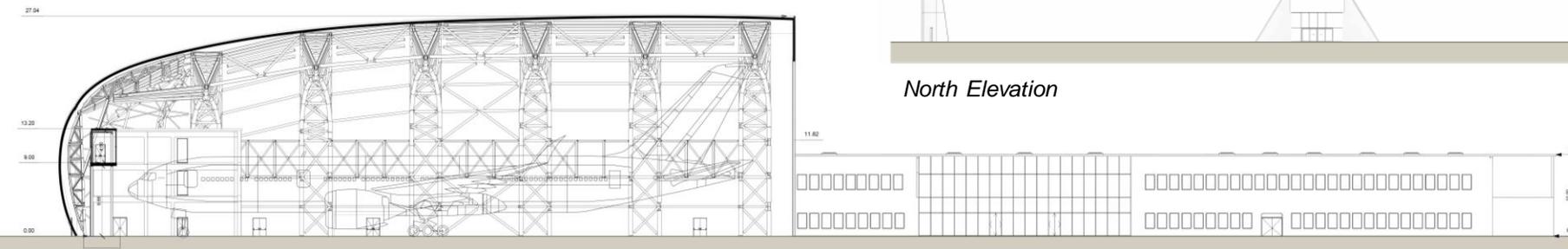
East Elevation



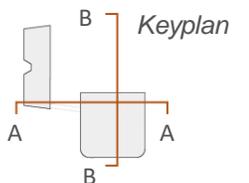
A-A architectural section

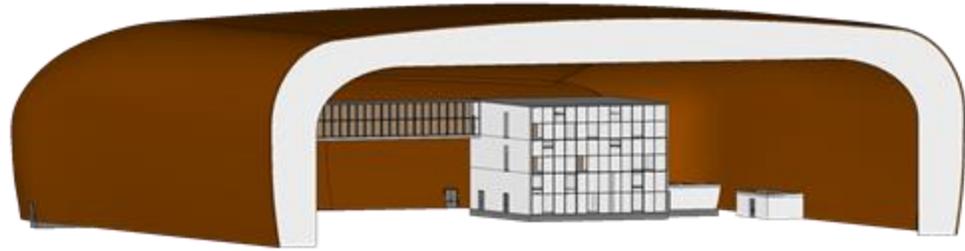


North Elevation

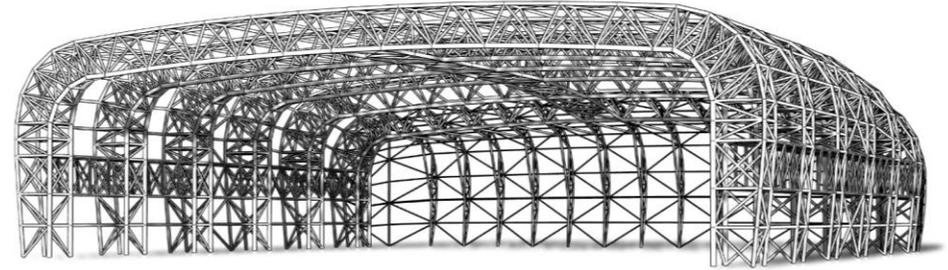


B-B architectural section





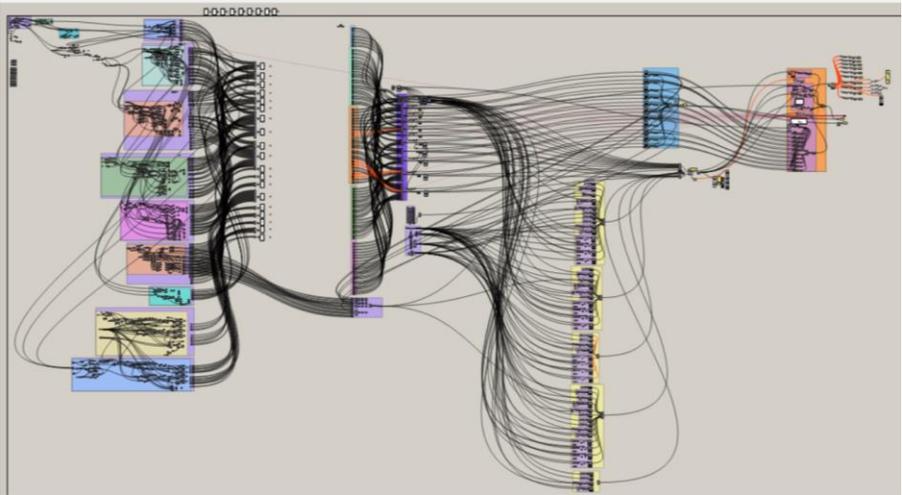
Architectural BIM modelling



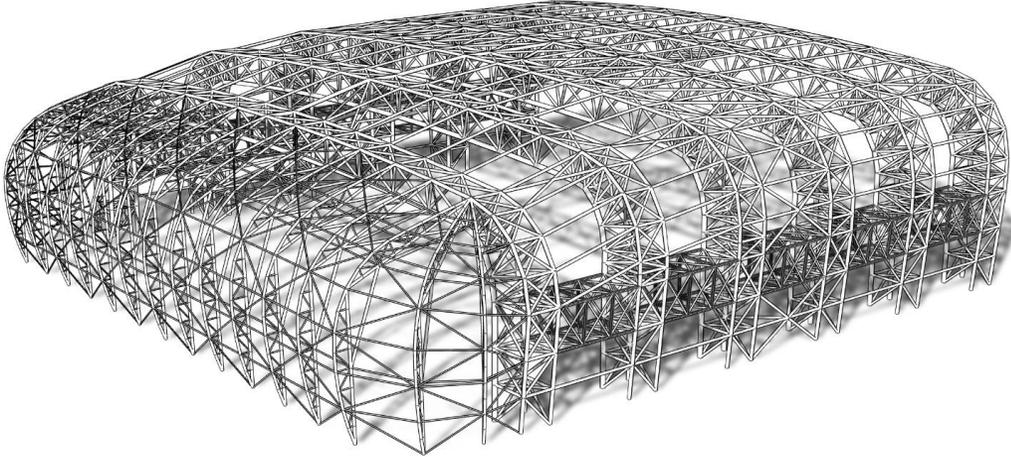
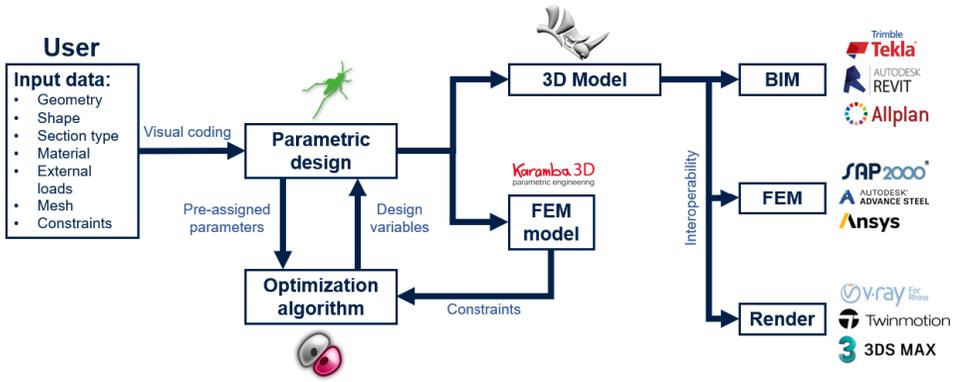
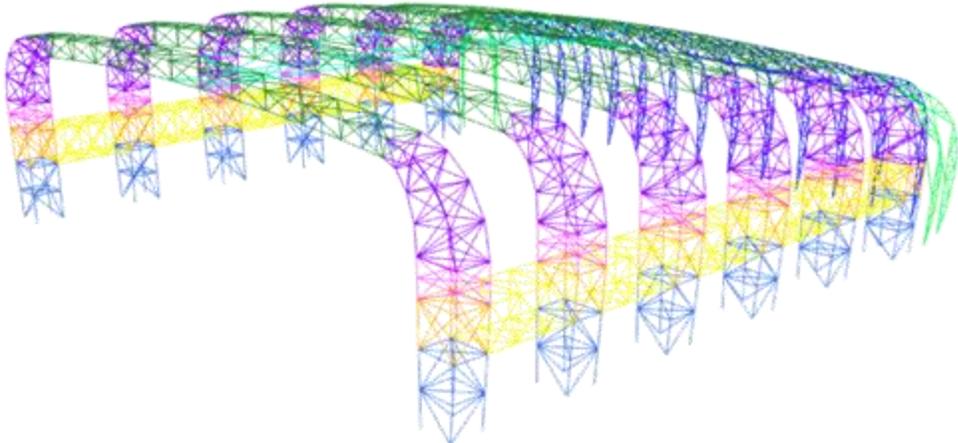
Structural BIM modelling



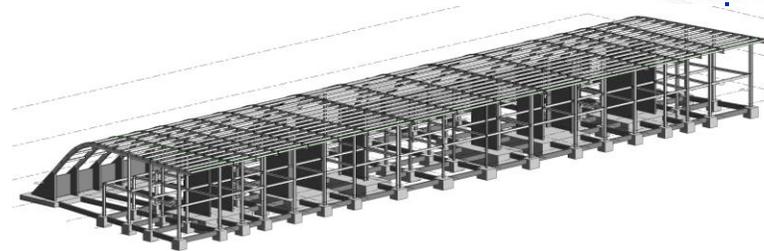
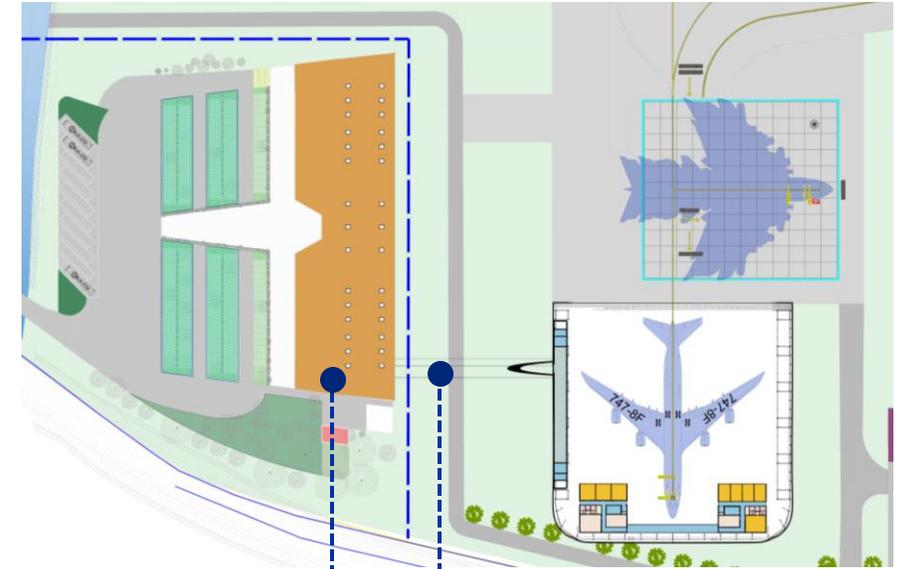
9. Parametric and Digital Design



According to the complexity of the work, parametric design was chosen to better manage formal and dimensional changes even in the most advanced stage of design, also to identify the optimal configuration and a modular-type structure, easier to manage during construction phase.



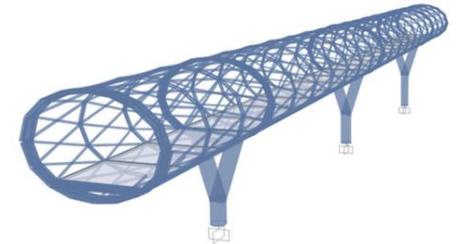
10. Training Center Multifunctional Building and Mezzanine Walkway

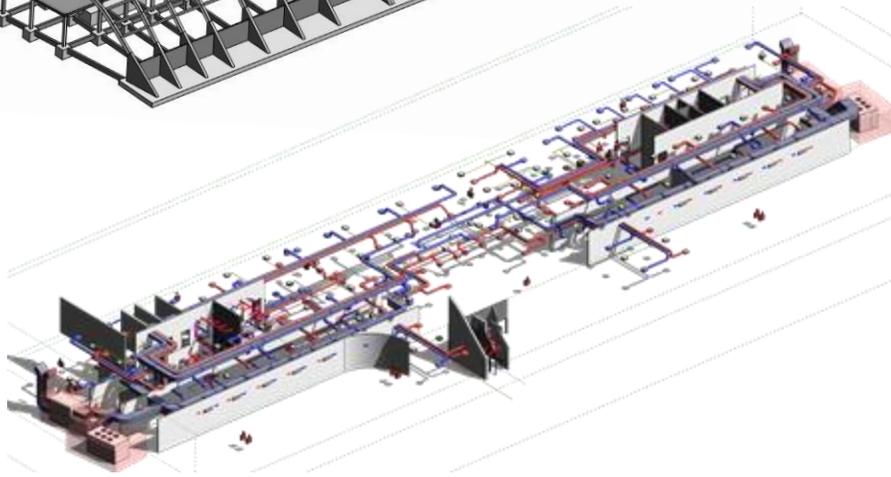
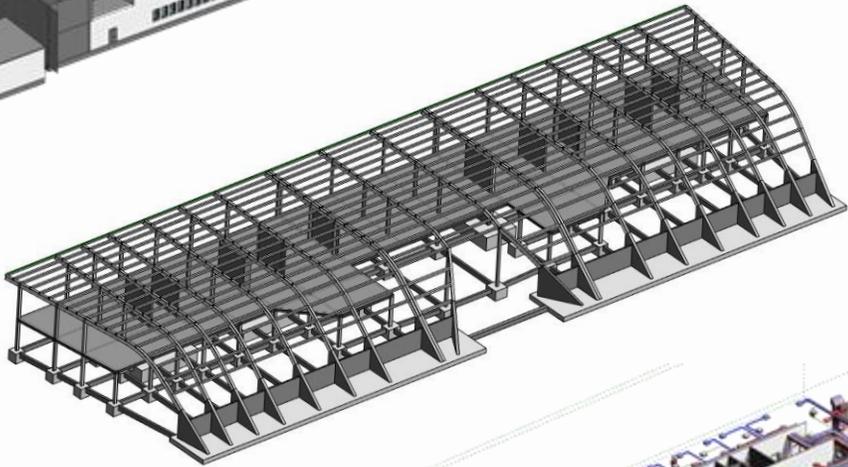
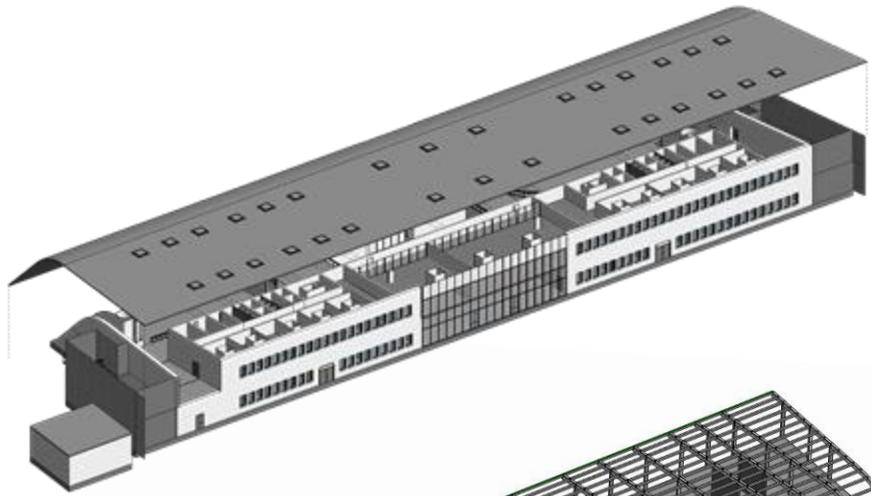


Two-level building extended for 120 m to 35 m.
Multifunctional Building:

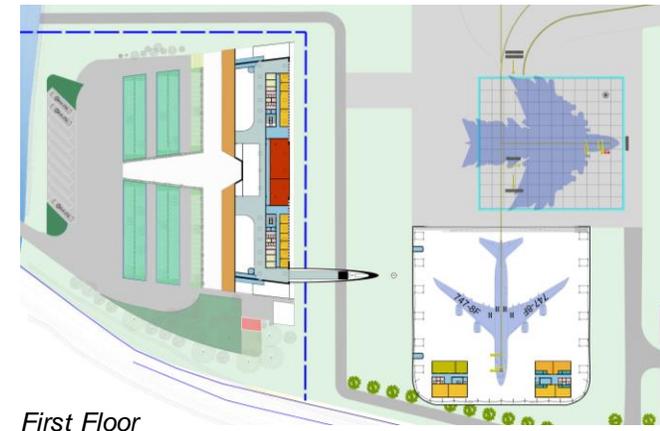
- Training Center;
- Museum;
- Innovation Incubator

Structural grid shell framework with an ellipsoidal section, with a length of 60 meters.

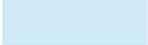




Ground Floor



First Floor

- | | | | |
|---|------------------------|---|-----------------------------|
|  | Training Center |  | Mission Control Room |
|  | Museum |  | Restaurant |
|  | Meeting Room |  | Offices - Labs |



Interdisciplinary modelling – Architectural , Structural, Systems

Credits



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