



POLITECNICO
DI TORINO

Dipartimento di
Architettura e
Design

Master in Architecture for
Sustainability
A.Y. 2024 - 2025

Thesis Title

**Gardella's Lost Legacy:
The Church of Alessandria.**

Study, 3D documentation and
Analysis

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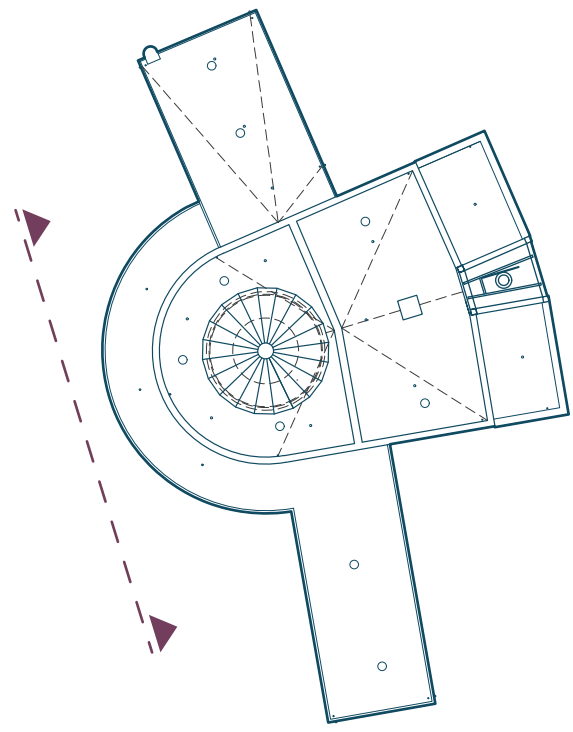
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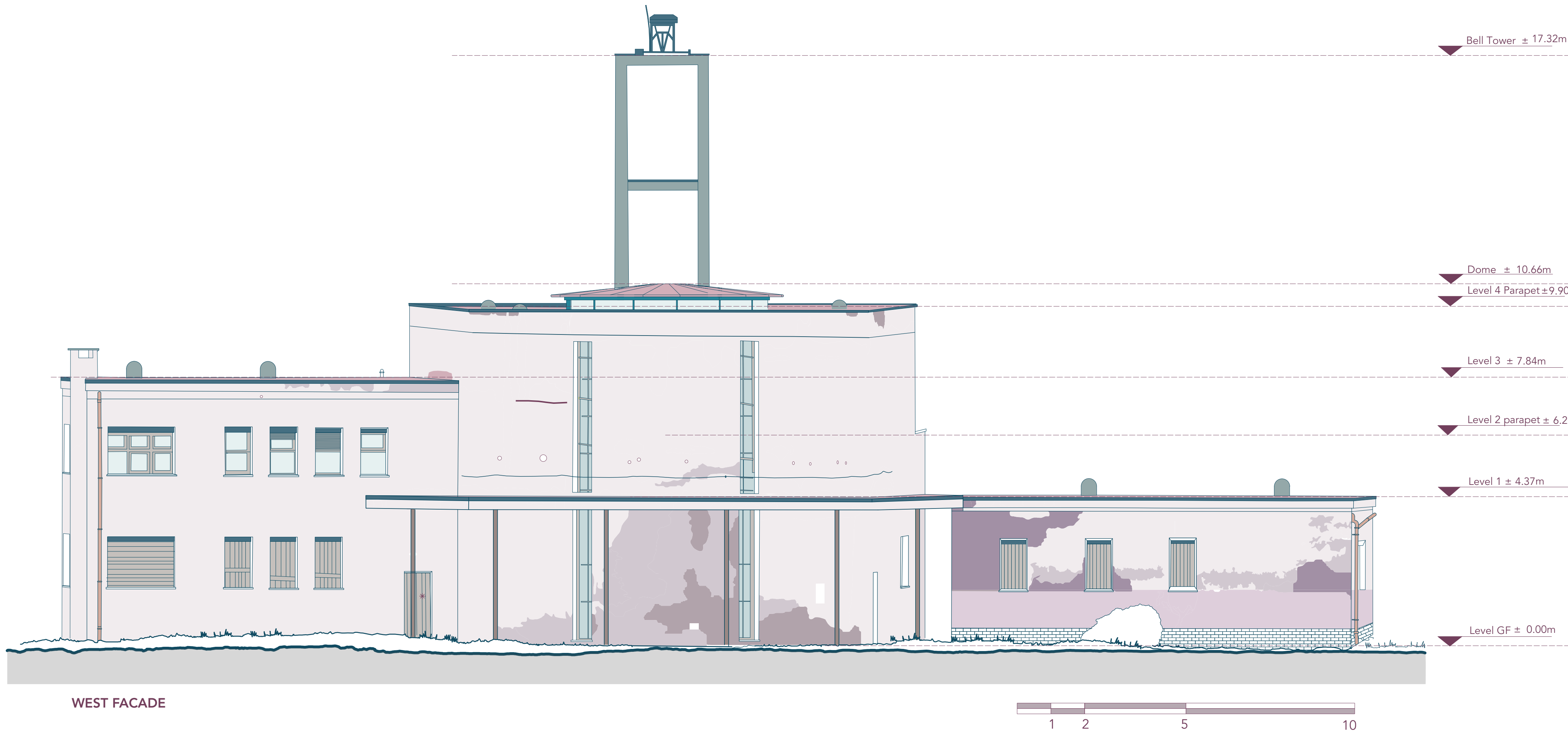
Board No. 08

- TERRITORIAL CONTEXT
- GEOMATICS SURVEY
- 2D DOCUMENTATION
- HBIM DOCUMENTATION
- MATERIAL ANALYSIS
- CURRENT STATE OF
CONSERVATION ANALYSIS
AND SOLUTIONS
- THE PROPOSAL

The Church Building



Key Plan
Scale: 1:400



Load Bearing Elements	
Cross weave bond Four headed	Gothic bond Two headed
<p>This hypothesis is based on the thickness of these walls. The four headed cross weave bond is up to 50cm thick and these walls are from 50cm to 60cm thick. This synthesis proves that these are solid brick walls which support the large open space and ceiling of the altar.</p> <p>The bond however, seems a little irregular at certain places but the overall structure is intact.</p>	<p>The interior of this area was not surveyed but the exposed brick bond allowed to determine the thickness of these walls, which in design documentation is set to 30 cm. The Block weave bond gives a brick wall of 25 cm excluding finishes.</p> <p>Parts of the perimeter walls of this wing has cracks and fissures, indicating structure has been compromised.</p>

Steel & Concrete Elements	
Reinforced Concrete Elements	Steel Columns
<p>Found in Bell Tower, Chimney, and roof anchor elements</p>	<p>6 Steel columns of 5 cm radius supporting roof of Ambulatory</p>
Building Services	
Drainage Pipes	
<p>The drainage pipes on the facade seem to be in plastic, very similar to PVC. Comparing with old photos of the church, these pipes are seemingly original and have not been replaced.</p>	

Wall Finishes			
Paint on Plaster Type 1	Paint on Plaster Type 2	Exposed Plaster Layer	Ceramic Tiles
<p>Typical Paint finish found on the facade. The texture of finish is different from that of Type 2 which is apparent in the photographs of how the paint layer has been detached.</p> <p>For this reason, a differentiation is highlighted which can be due to different types of plasters used.</p> <p>This texture suggests use of cement plaster for these surfaces.</p>	<p>The texture of surface suggests that a different kind of plaster has been used on this surface. The float and scratch coat in the degraded parts suggest a lime based or soft cement based plaster used in this area. The peeling paint layer suggests the issue of rising damp and the structure is in dire need of restoration.</p>	<p>All three layers, that is, the scratch coat, float coat and the finish coat are exposed. Flaking layers of paint can be seen in these areas. Overall the condition of finishes are severely deteriorated causing various forms of detachment and disintegration.</p> <p>From the photographic analysis, the plaster seems to be of Type 1, which is cement based (hypothesis).</p>	<p>At the base of South wing there are ceramic tiles, which seem to have been an addition to form a damp proof course. This addition does not seem to have a greater impact on the rising damp situation as can be seen from the condition of degradation.</p> <p>These tiles do not go with the rest of the design language of the building, hence can be removed with proper solution for damp proofing.</p>

Window Finishes		
Wood	Glass	Metal wire mesh
<p>Wood is used in almost all the windows of this building. All the windows on the ground floor are closed with wooden planks, probably during the restoration attempts from 2020 - 2023. These wooden planks are already showing signs of degradation. The window frames on the upper floors are still intact with great signs of decay and gaps.</p>	<p>Some of the windows in the upper floors still have glass intact, if not fully, parts of broken glass can be seen. Shutter boxes in metal can be seen above the window frames of the windows facing West and South facade. They do not appear in the East Facade. It may have been an intentional design move by the architect Gardella, for the purpose of allowing sunlight from the East.</p>	<p>Some of the windows on the ground floor, and especially the two narrow full height windows behind the naves are closed with the metal wire mesh for safety. In some photo documentations from 2020, the window glass seems to be intact, it may have been damaged and removed after this time during the restoration attempt.</p>

Roof and Other Finishes		
Metals	Metal Frame	Bitumen sheets on roof
<p>Metal has been utilized in various parts of the building, such as, the coping, the structure of bell in the bell tower, the covering of the dome etc.</p> <p>The coping, as shown in the picture, covers all the parapet walls, however, it seems to have been a much later addition. Even with the addition of coping, the parapets show serious forms of degradation linked to dripping water.</p>	<p>The studies of early 20th century architecture suggests that metal window frames began to be used in the first half of 20th century as window frames.</p> <p>With the amount of corrosion seen on these frames, it can be assumed that these frames are of metal and not aluminium.</p> <p>The structure of the dome is very innovative and light weight. The glass in some parts of the frame still seems intact.</p>	<p>Roofs of all three blocks of the church have recently been renovated with the addition of Bitumen layer at the top for water proofing. This addition could have been fruitful for stopping water penetration to the interior of the building, but for the facade, there appears to have been further degradation due to the addition of this layer, especially biological growth.</p>