

technical

8.1. Concept_

The furniture showrooms design attempted to contrast with the heritage as much as possible. Juxtaposing as mentioned in chapter 6 is the positioning of two or more contrasting elements, forms, or spaces, it heightens interest and induces emotional suspense. The existing Boiler House speaks a language of honest 20th century industrial architecture. Its column and beam structure is exposed and presents the buildings' form, the brick infill is set back. The new intervention firstly acknowledge the heritage by also implementing a column and beam structure, but then counteract it. As the showroom needed

to be as transparent as possible, the column and beam structure was set back and the infill pushed forward. The materials that are found in the existing structures, brick, concrete and glass, are also used in the new structure, but it is reinterpreted to create a contrasting structure that emphasizes the robust industrial nature of the heritage. Where different materials touch, the plains shift, and shadow lines are created. It reads as a push-pull architecture, one element moves out of another and into the landscape.

The new intervention inside the existing structure partially mimics the materiality of the building, as the building once again houses

a industrial process, the building called for a robust material. A concrete column and beam structure is added to the inside, but where ever the new structure touches the old the poignancy of the moment is captured by a kiss. Elements come deliberately close to one another , but newer quite touches. Before the point of impact the material changes and subtly connects with the old.

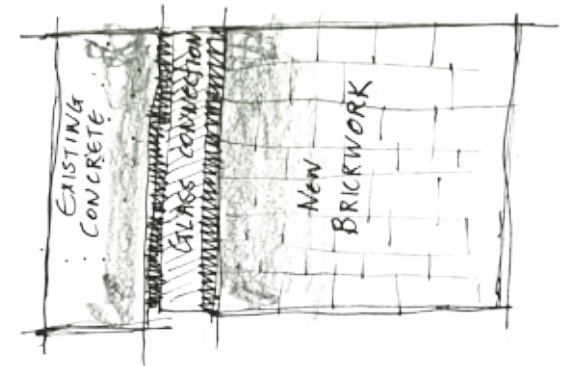
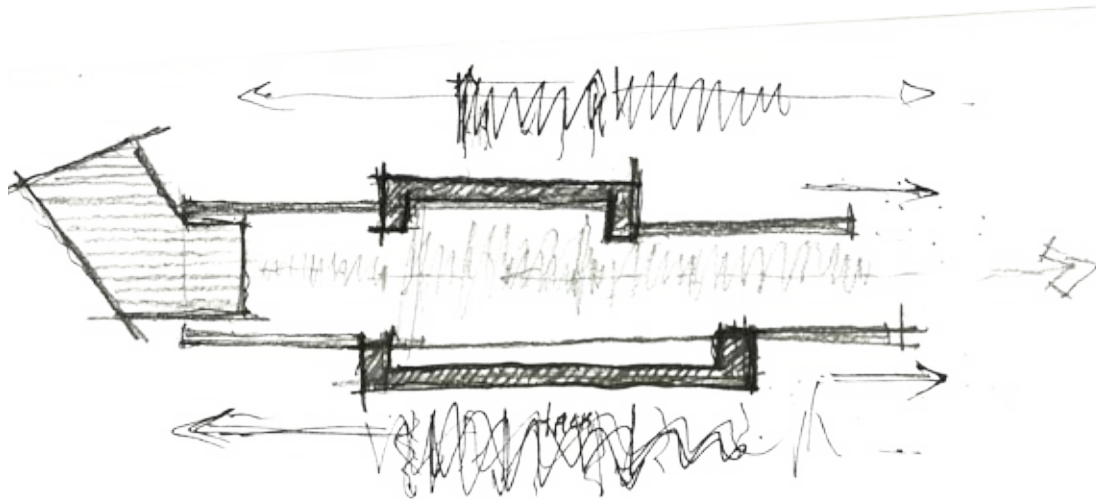


fig. 146_ Diagram illustrating the idea of push-pull architecture

fig. 147_ Contrasting materials can focus the attention on the connection between old and new

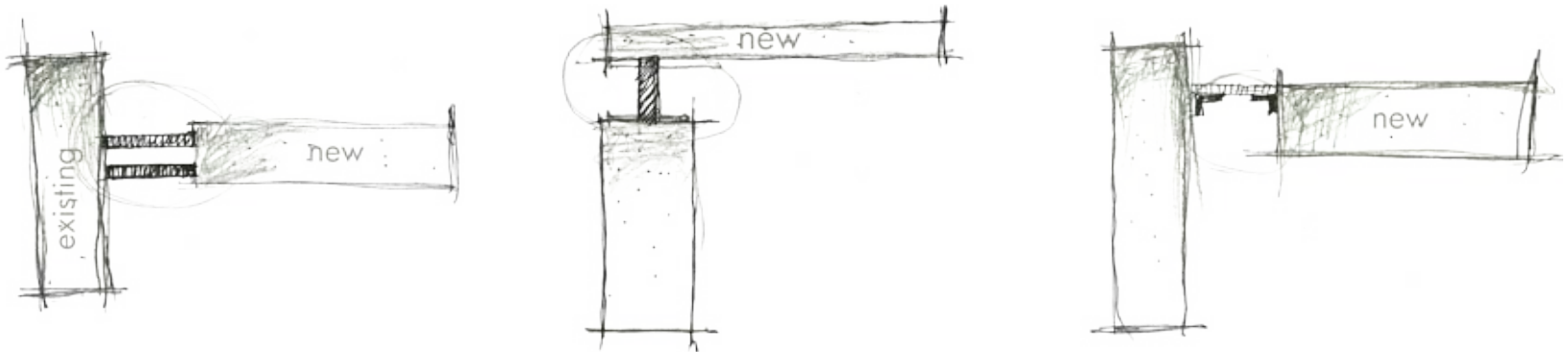


fig. 148_ Sketches illustrating possible connections between old and new that can capture the poignancy of the moment

8.2. Material choice_ Whitewashed brickwork_

The 1935 Boiler House situated North of the 1940 Boiler House, was declared unsafe. Brick work is falling from the structure, the framework determined that the steel structure will be retained but the brick work removed. The open steel canopy, will define the new public square.

A study was conducted to determine a colour pallet for the showroom. The new material had to draw attention to the timber furniture as well as the boiler house. Creating a more clinical atmosphere or a blank canvas to the interior and the exterior, warmer elements like varnished timber or clay brickwork are

emphasized. Whitewashed common bond brickwork not only corresponds with the heritage but it also creates an atmospherically tension between old and new, therefore acknowledging the heritage but stressing its existence by contrasting colours and shapes.

WALLS: Brick work will be reused for paving as well as to construct part of the showroom. The brick work will be reused in the same common bond style, as it was before, and whitewashed to generate a architecture that is in contrast to the existing, robust, industrial heritage.

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fig. 149_ The brick work of the dilapidated 1935 Boiler House will be reused to construct part of the showroom

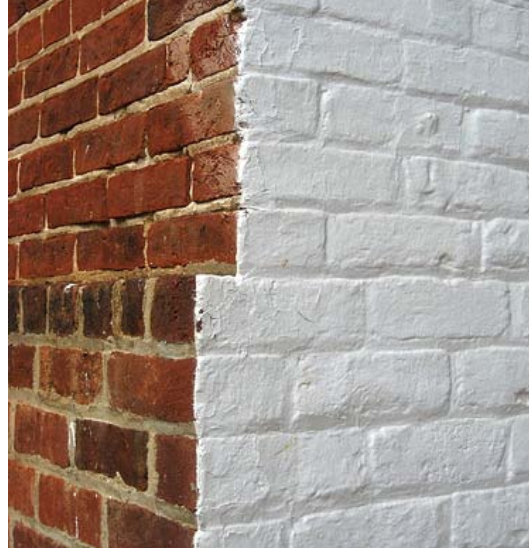


fig. 150_ Contrast created between whitewashed brickwork and natural brickwork



fig. 151_ Brickwork as a backdrop for exhibiting timber furniture: timber is not accentuated



fig. 152_ Wood as a backdrop for exhibiting timber furniture: furniture blends in with the panels



fig. 153_ Whitewashed brickwork as a backdrop: timber is accentuated the most when it is placed in front of a white service



fig. 154_ Concrete brickwork as a backdrop: timber is accentuated in front of grey services as well

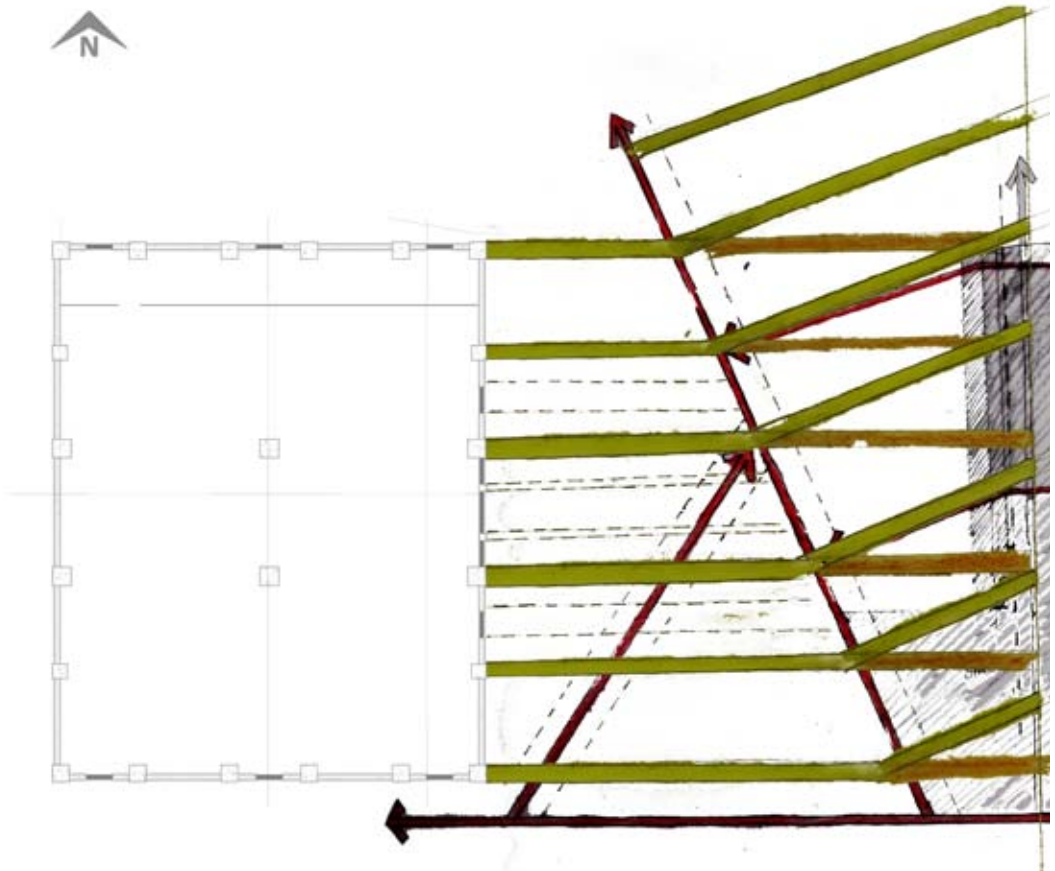
8.3. Structure_



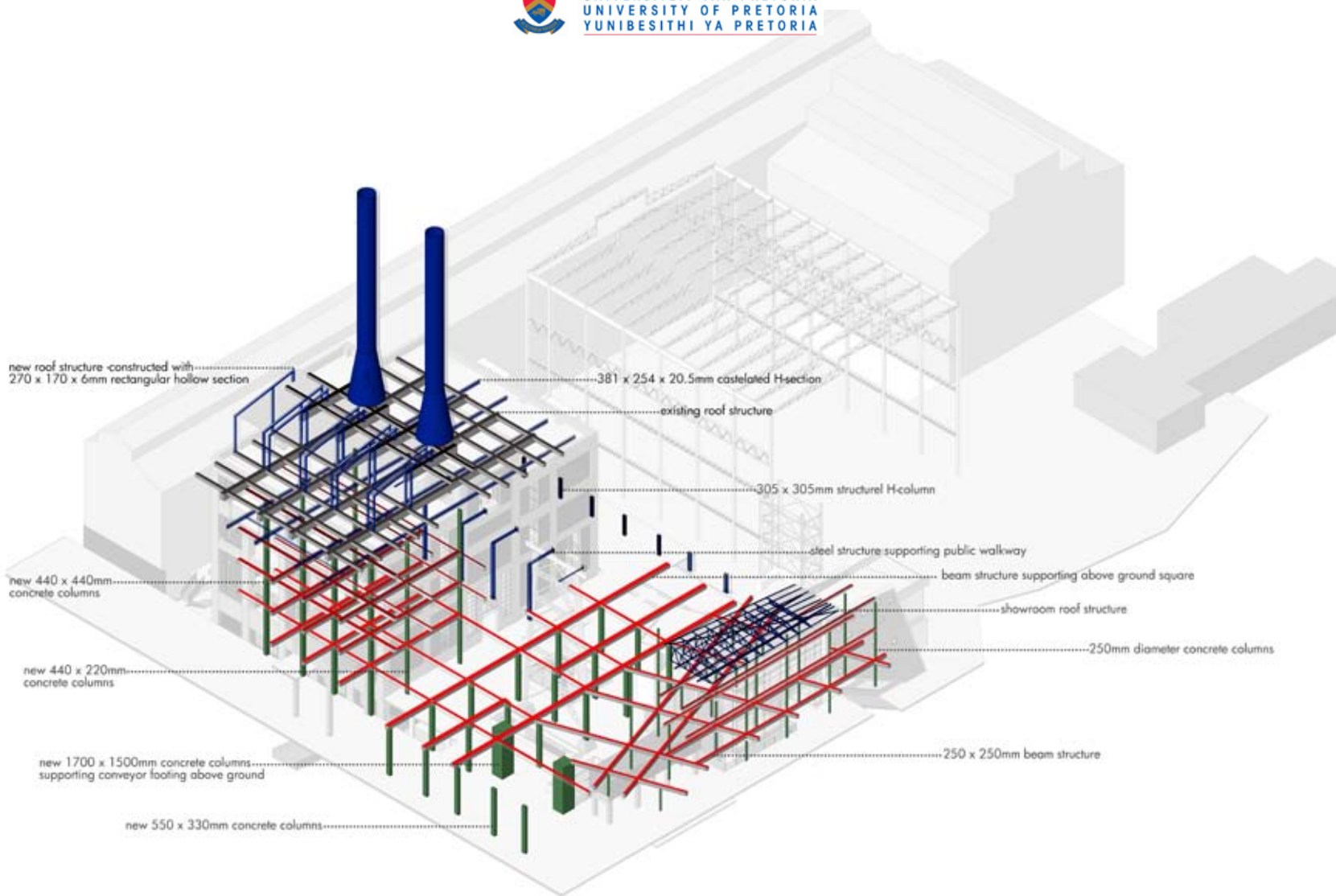
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The new furniture showroom's structure is set at the same grid as the Boiler House's, the change in direction is caused by a pedestrian walkway that crosses over the site. The columns in the showroom is set back, round columns are used to contrast the existing building's square columns. Round columns also indicate high intensity movement spaces.

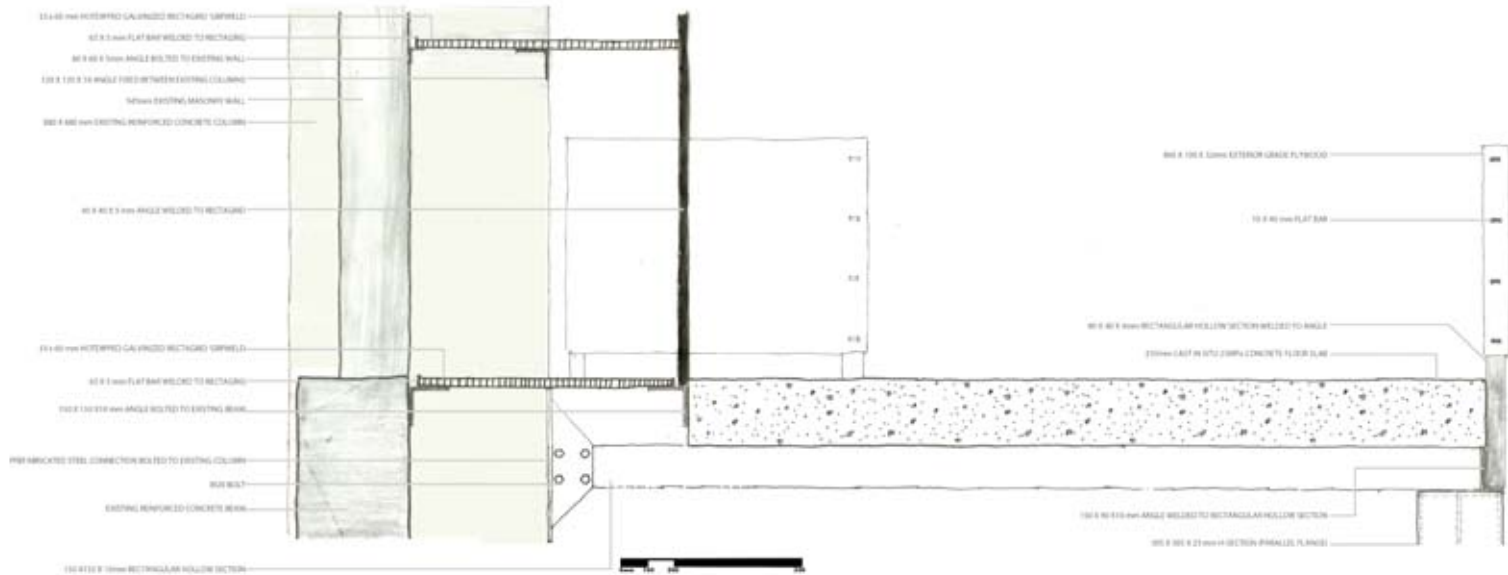
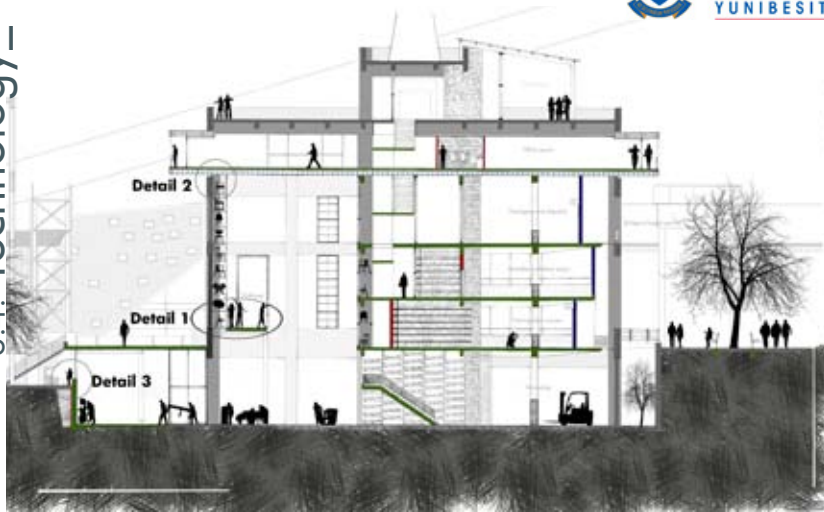
The shape of columns change as activity changes. The new addition to the existing structure has industrial spaces, that require thicker square columns. Vertical and horizontal movement is indicated by rectangular columns.





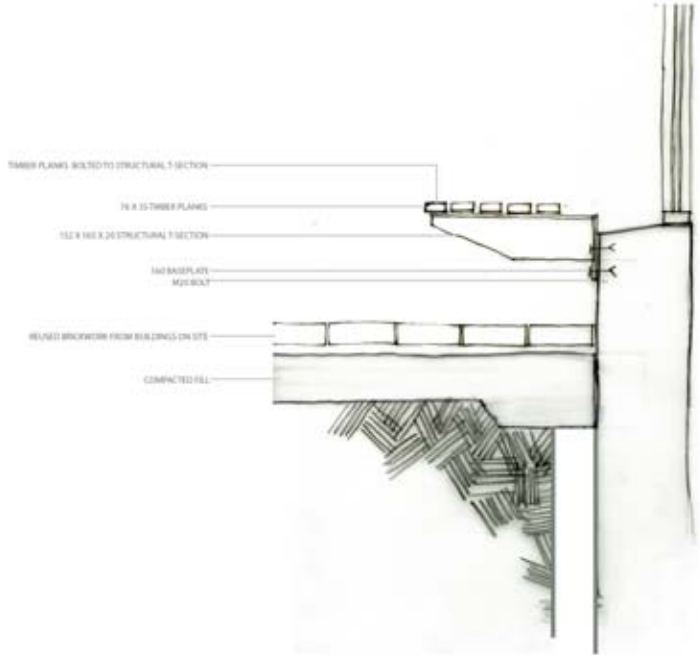
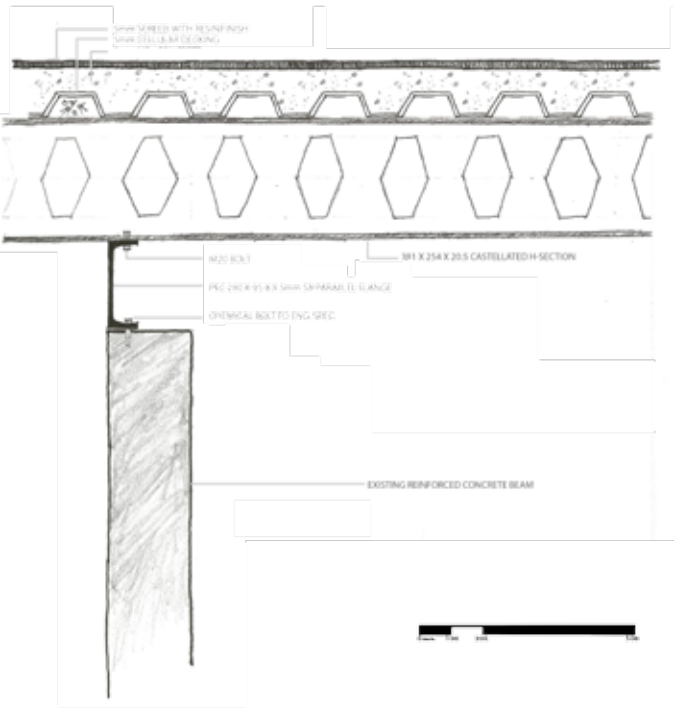


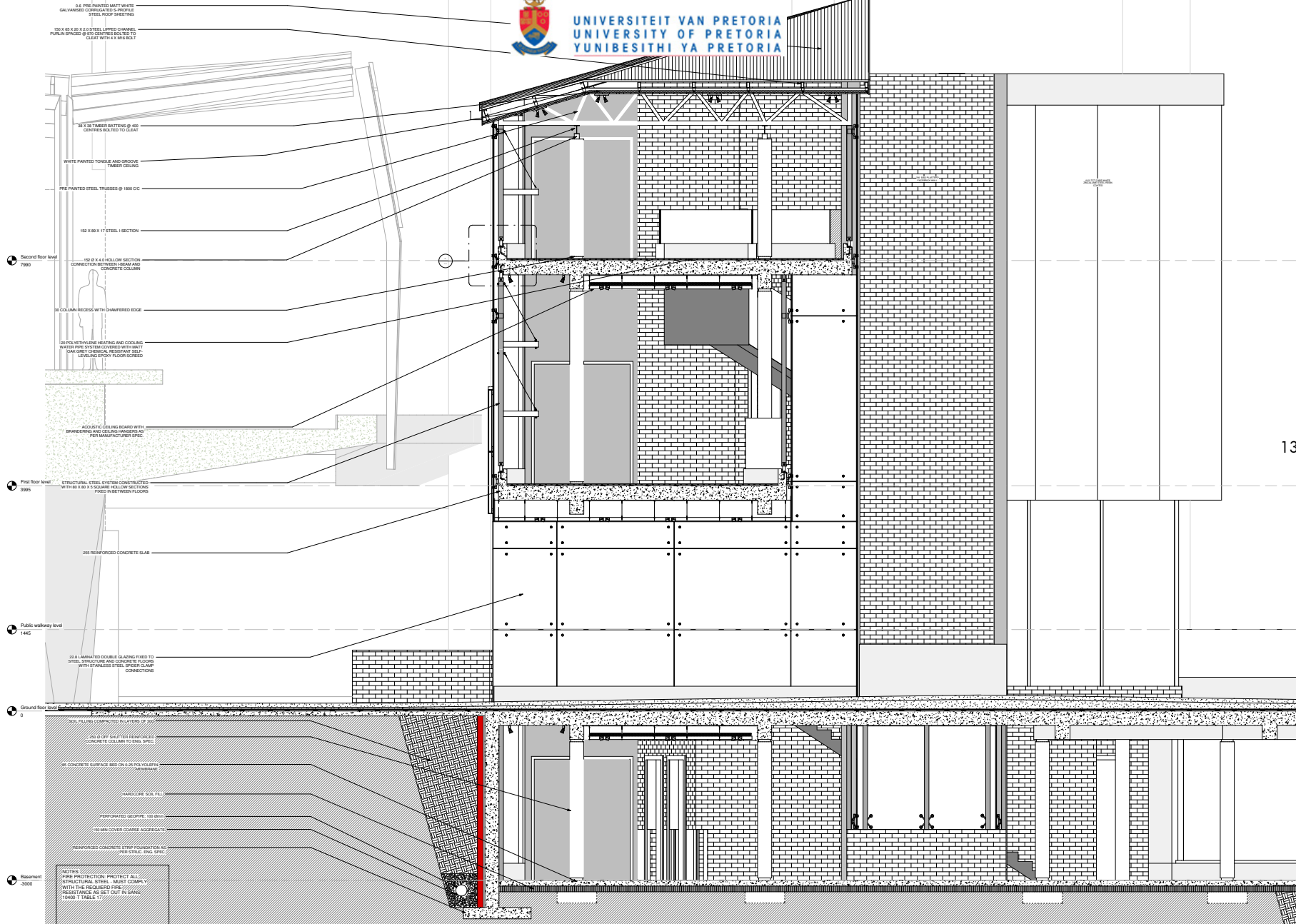
8.4. Technology –

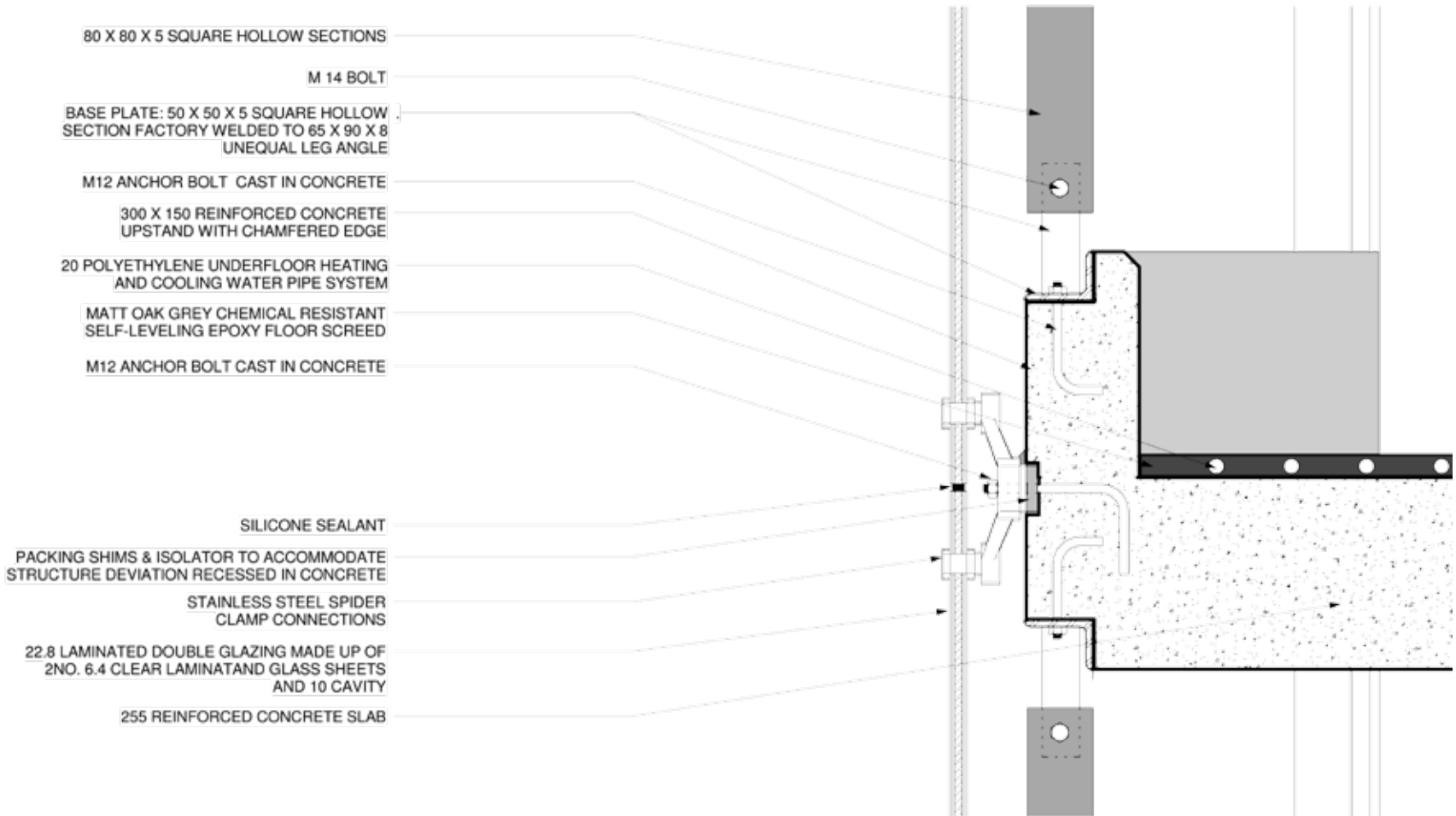




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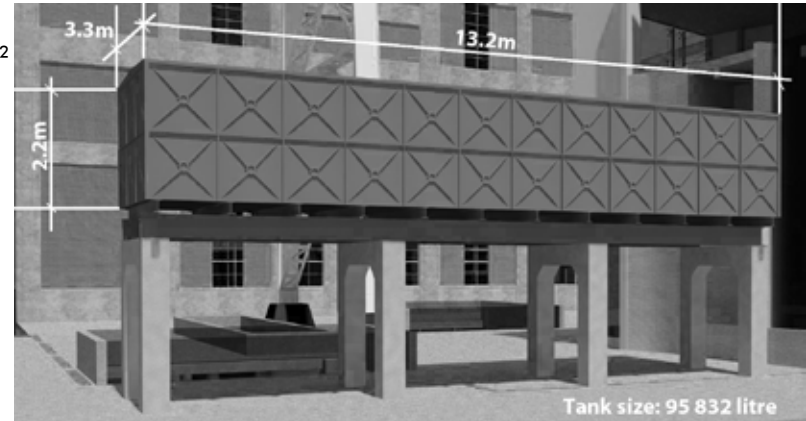
8.5. Sustainable systems_ Water Harvesting_

The showroom and Boiler House has separate water harvesting tanks. Water harvested will be used as non-potable water for flushing toilets.

SHOWROOM:

The runoff from the roof area and hard surface areas, on the square between the Boiler House and showroom, will be collected and stored. Oil tanks on site will be retrofitted to store water, the tank that stores water for the showroom has a capacity of 95 832 liter.

- Showroom roof area 242.57 m² + hard surface area 590 m² = 832.57 m²
- Water consumption per month (only toilets) : 20 088 liter



Month	Rainfall in Pretoria (mm)	Actual Rainfall Harvesting Capacity (L)
January	82	61 443.67
February	60	44 958.78
March	52	38 964.28
April	33	24 727.33
May	11	8 242.44
June	5	3 746.56
July	3	2 247.93
August	6	4 495.87
September	17	12 738.32
October	43	32 220.46
November	85	63 691.61
December	81	60 694.35
Totals	478	358 171.6

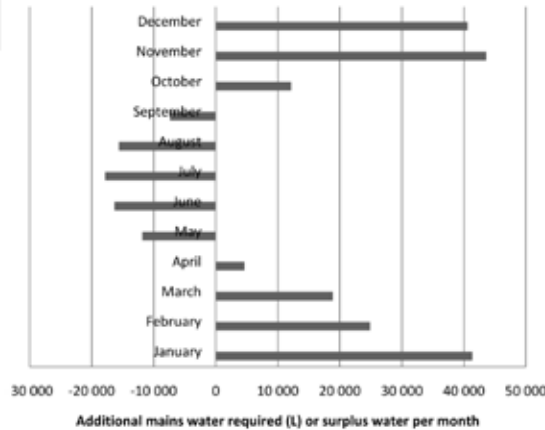


By only using a 20 088 liter tank the building is nearly self sufficient in water for 8 months of the year (Jan, Feb , Mar, Apr, Oct, Nov, Dec). The building can thus be completely self sufficient , when the monthly consumption and additional water required for low rainfall months are calculated.
20088 + 68969 = 89 057 liter tank will be needed.

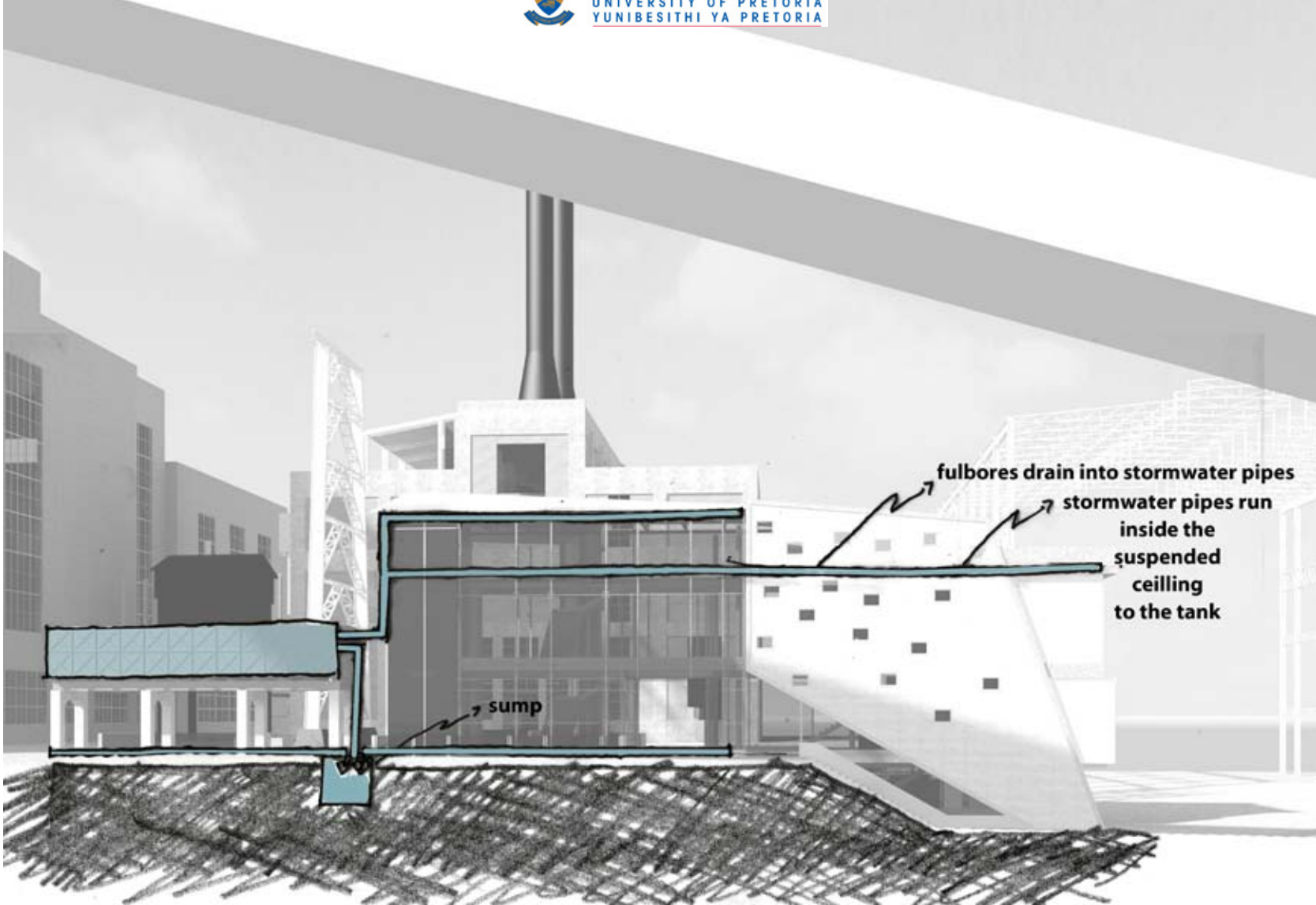
Rain water harvesting tanks

Number of months with low or no rainfall	Consumption (L)	Required capacity (L)
4	20 088	80 352

Month	Rainfall (mm)	Actual Rainfall Harvesting Capacity (L)	Monthly consumption (L)	Additional mains water required (L) or surplus water
January	82	61443.67	20 088	41 356
February	60	44958.78	20 088	24 871
March	52	38964.28	20 088	18 876
April	33	24727.33	20 088	4 639
May	11	8242.443	20 088	-11 846
June	5	3746.565	20 088	-16 341
July	3	2247.939	20 088	-17 840
August	6	4495.878	20 088	-15 592
September	17	12738.32	20 088	-7 350
October	43	32220.46	20 088	12 132
November	85	63691.61	20 088	43 604
December	81	60694.35	20 088	40 606
Totals	478	358 171.6	241 056	117 116

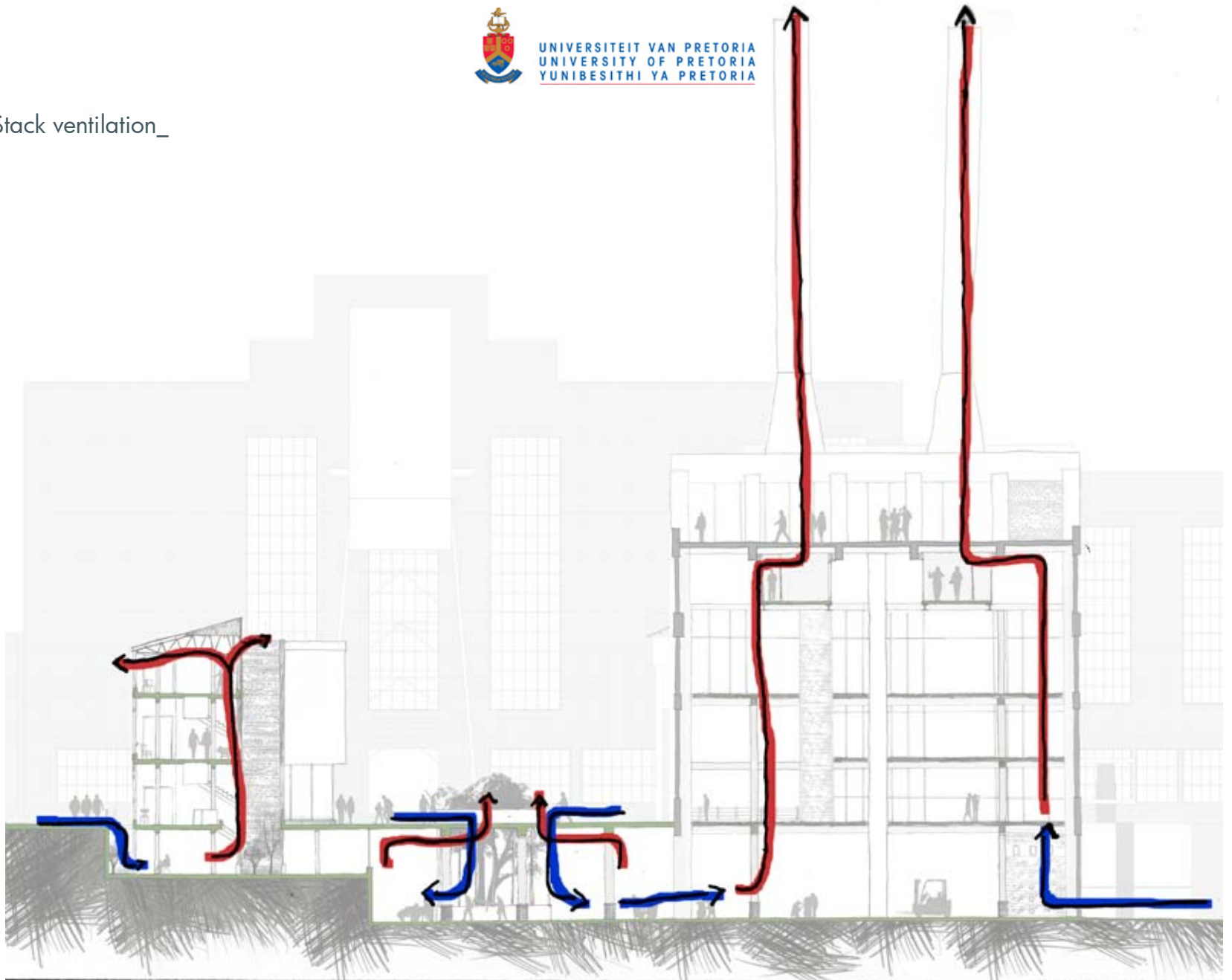


	Surplus water	Additional water required
January	41 356	
February	24 871	
March	18 876	
April	4 639	
May		-11 846
June		-16 341
July		-17 840
August		-15 592
September		-7 350
October	12 132	
November	43 604	
December	40 606	
Total:	186 084	-68 969

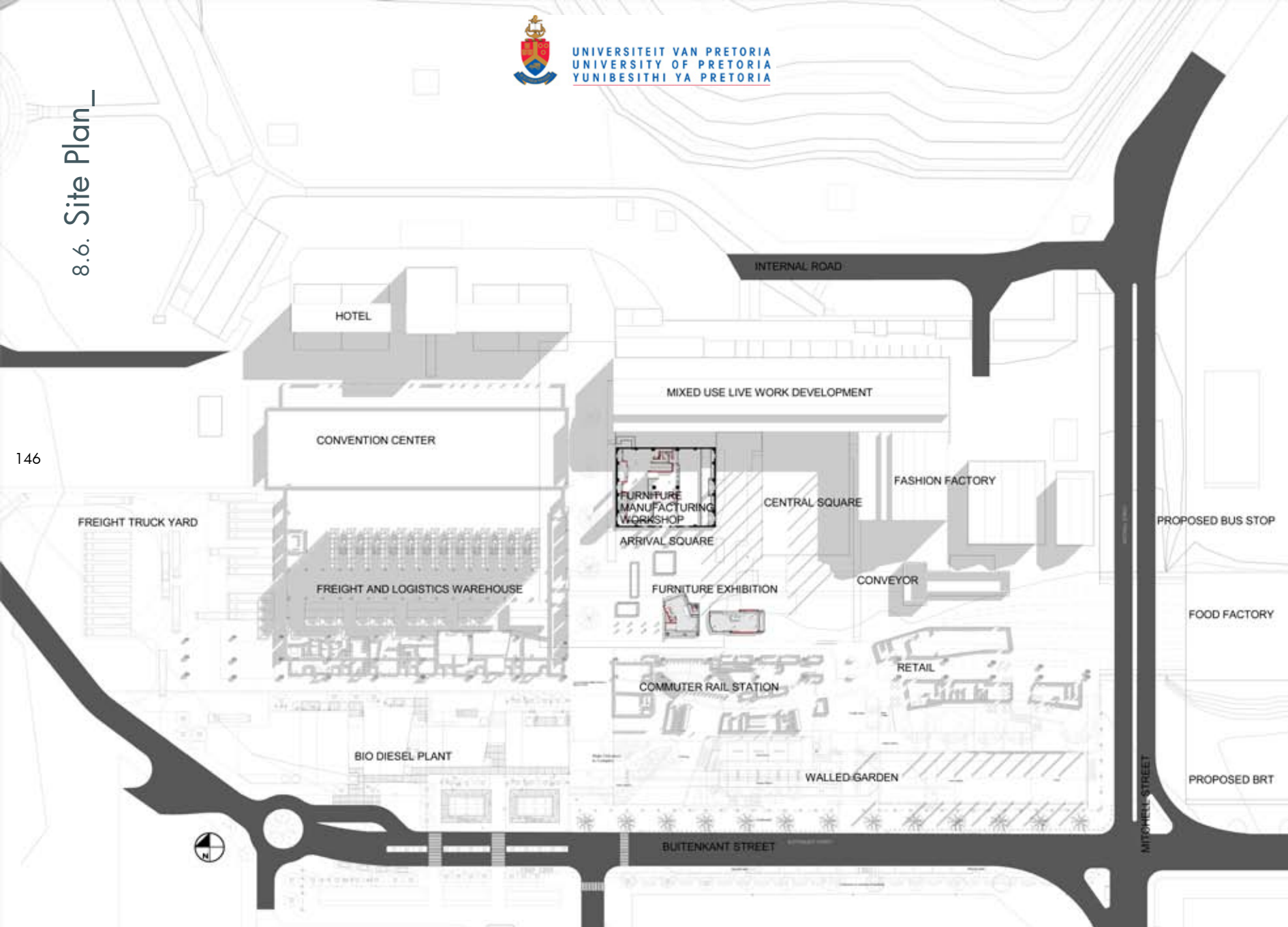




Stack ventilation_



8.6. Site Plan



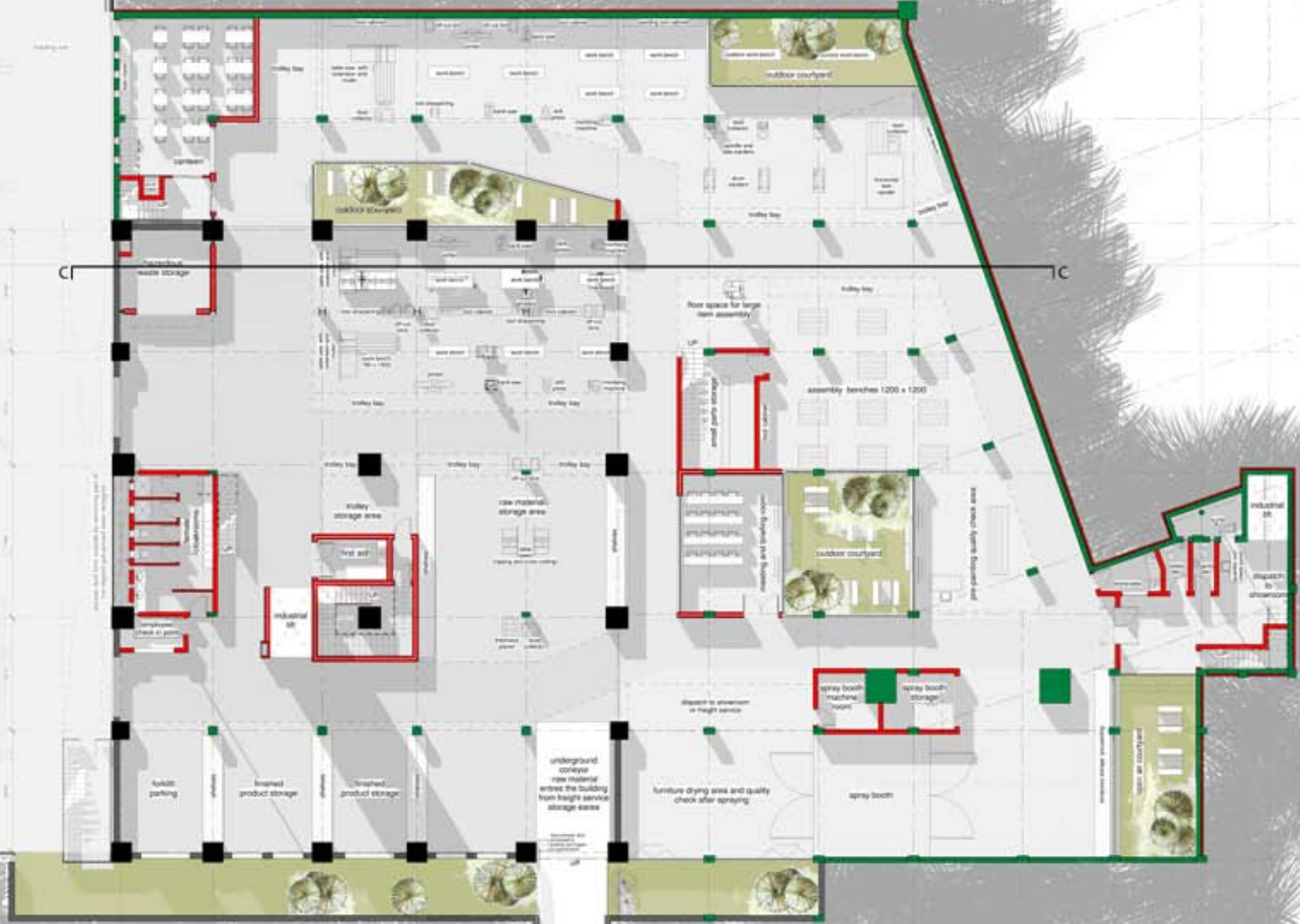
basement floor plan -6000 mm

8.7. Plans_



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proposed
basement parking



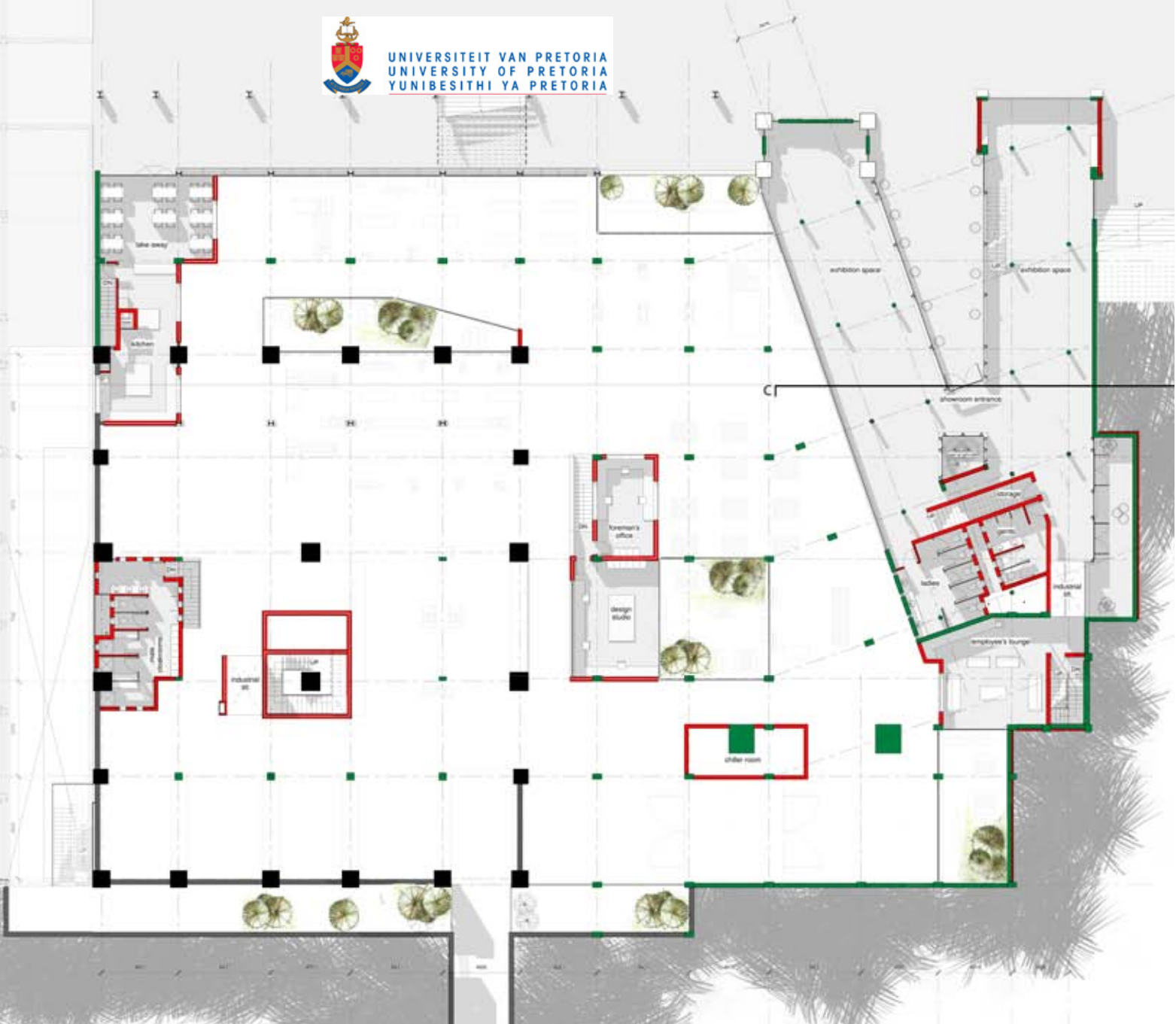
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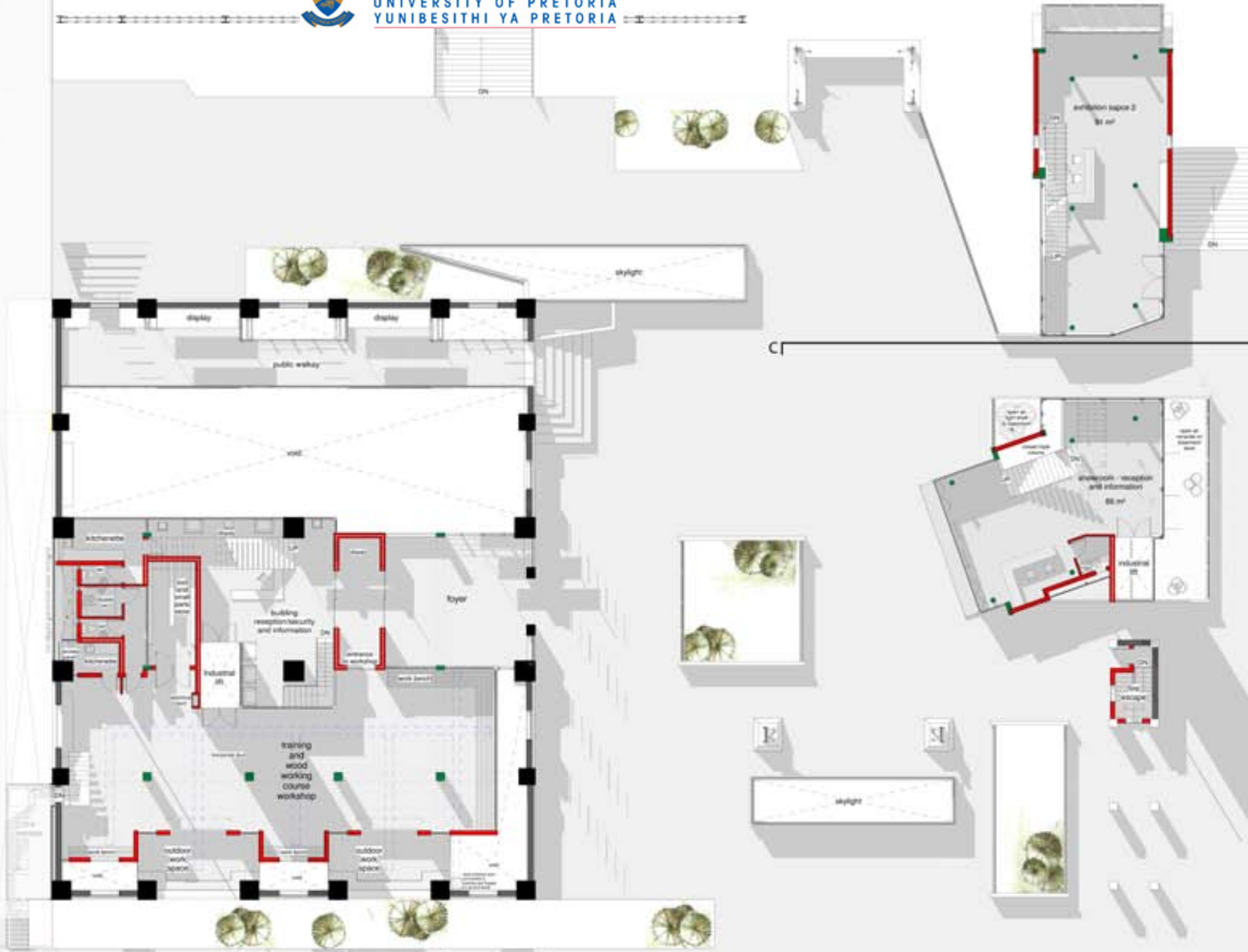
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basement floor plan -3000 mm





ground floor plan





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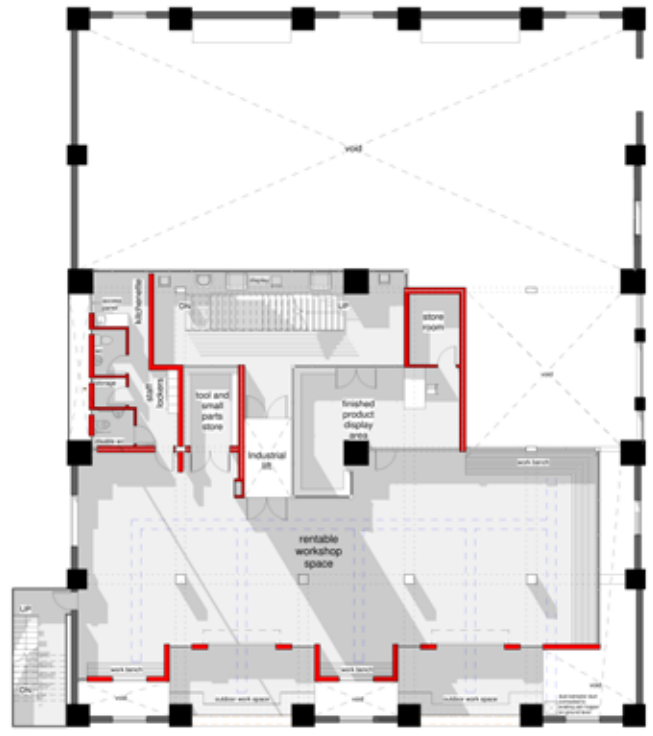


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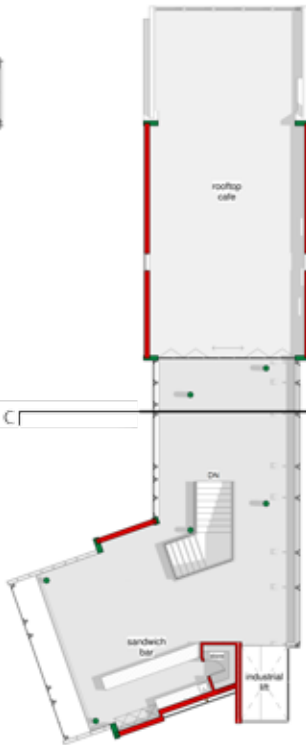
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first floor plan

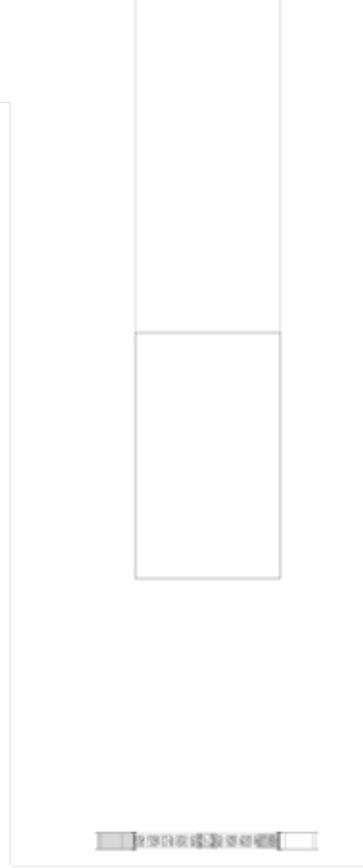




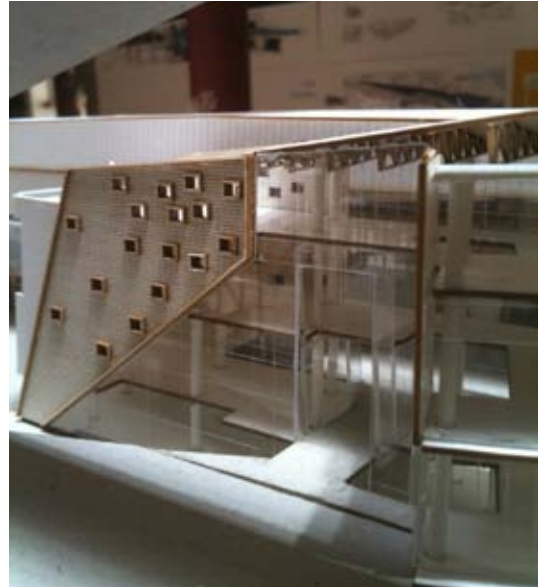
second floor plan







8.8. Photographs of Model_





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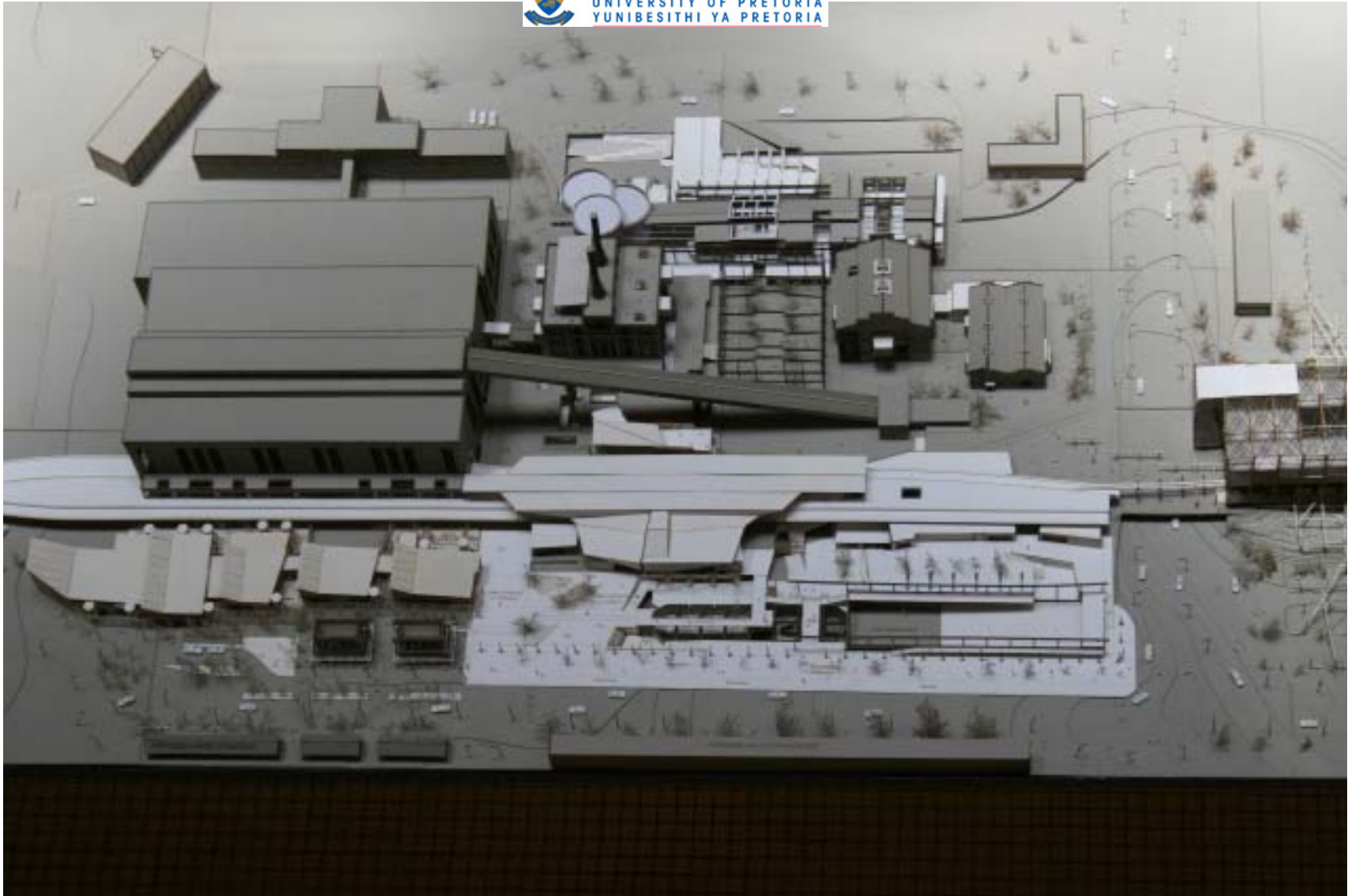














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The dissertation has investigated the principles of adapting and reusing industrial heritage buildings in order to find a solution to create socially responsive industries. The study focused on a 1940 Boiler House situated at the Pretoria West Power Station. Nationally and internationally the architectural approach to heritage buildings and how they should or should not be preserved are widely discussed and considered. The author used the Burra charter as guideline for the design, which states: as much as necessary and as little as possible. The majestic nature of the site rests in the structures and the spaces formed between them. Very early in the design process the author conducted a phenomenological assessment on the significance of the building structures on site their character, and how it should be conserved. These considerations

were prime within the design process and decisions.

The research further revealed that despite the fact that industrial society stresses the significance of sustainable industries, that social sustainability is neglected. Industrial buildings do not interact to the outside world and interior working conditions are not always favorable. Sustainability means to be aware of the environment and to strive for better working and living conditions. It is not only about, keeping the user of a space in mind, but also the passer by. This aspect was specifically addressed in the design resolution.

The result is a new contrasting architecture of a furniture showroom that accentuates the heritage of the boiler house, it stands back

from the old structure respecting its story and acknowledging its future. The connection with the old mostly occurs underground and internally, keeping the form and character of the existing structure in place. Creating an environment, that prickles the senses. The design has proved a possible solution to the improvement of industrial buildings, to be more socially responsive. The furniture production process is physically and visually revealed as an attempt to create an industrial building that interacts with the public. The public can buy furniture and is simultaneously made aware of the production process. People are therefore exposed to a production process and a direct connection can be made between furniture maker and buyer.