Tectonic Resolution

The beauty of architecture lies in its detailed resolution as it is at this scale that the user comes into physical contact with the building.

The following chapter explores the tectonic resolution of the proposed building.

Introduction

In essence, the building is a block of solid mass that has been carved into creating voids that direct the user's attention to the surrounding context while simultaneously exposing activity within the building. This reflects the process of deriving a form for the selected site. The focus of this dissertation is on the activation of the site in order to bring about urban regeneration while allowing the introduction of public art to change the public's perception of the site. For this reason, the circulation bridges that form the most active part of the building are dramatically exposed.

Concrete Entrance Box

The main entrance to the building is situated directly on the north-south visual axis located on the western edge of the site, parallel to the proposed predestrianised section of Paul Kruger Street. The off-shutter concrete 'entrance box' frames the view of the onion dome of the synagogue when approaching the building from the north. The concrete 'frame' does not limit physical nor visual accessibility. The entrance and its framed view is emphasised in contrast to the building heights on either side of it. Entrance to the building is in line with the north-south visual axis while movement between destinations within the building is perpendicular to it.

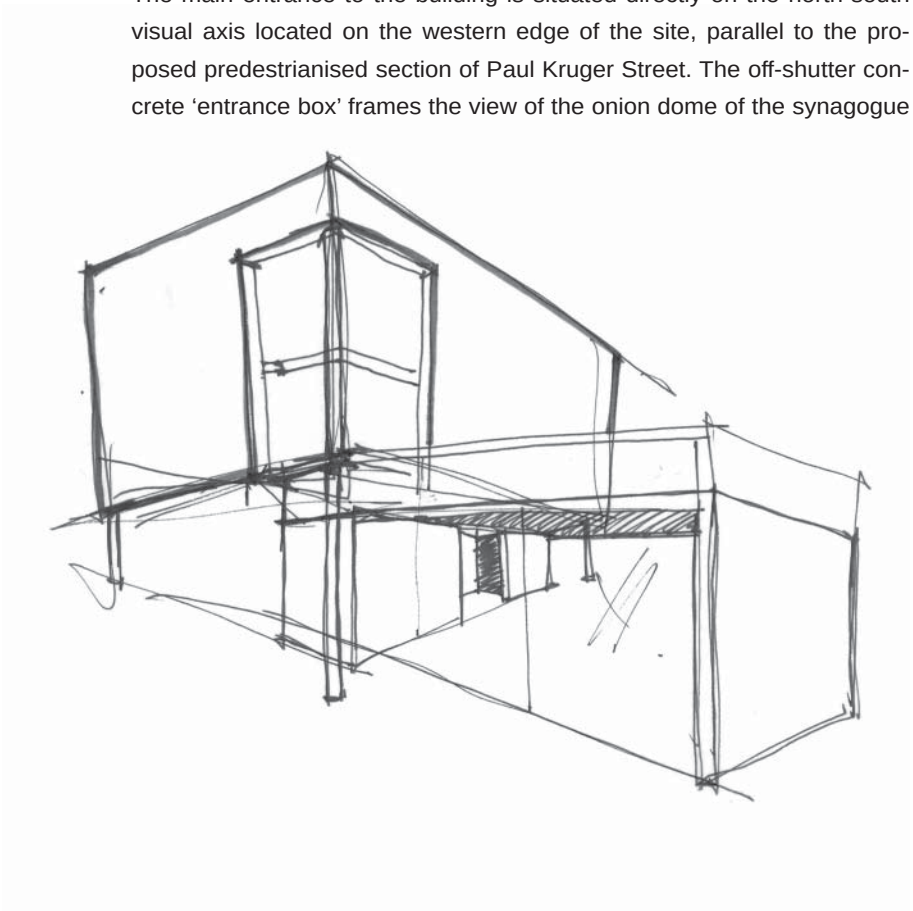


Figure 12.01 Concrete 'Entrance Box'

Positions for Pause

The objective to expose movement within the building informed a strategy to determine the location of 'positions of pause' within the building. A pre-cast concrete balustrade indicates such positions. In each case, they allow the user to focus his attention on the immediate context. The most prominent 'pausing position' is the extended landing of the main staircase on the first floor. It is from this viewing balcony that the user is able to observe activities from the proposed public square located directly behind the synagogue right through to those on Paul Kruger Street.

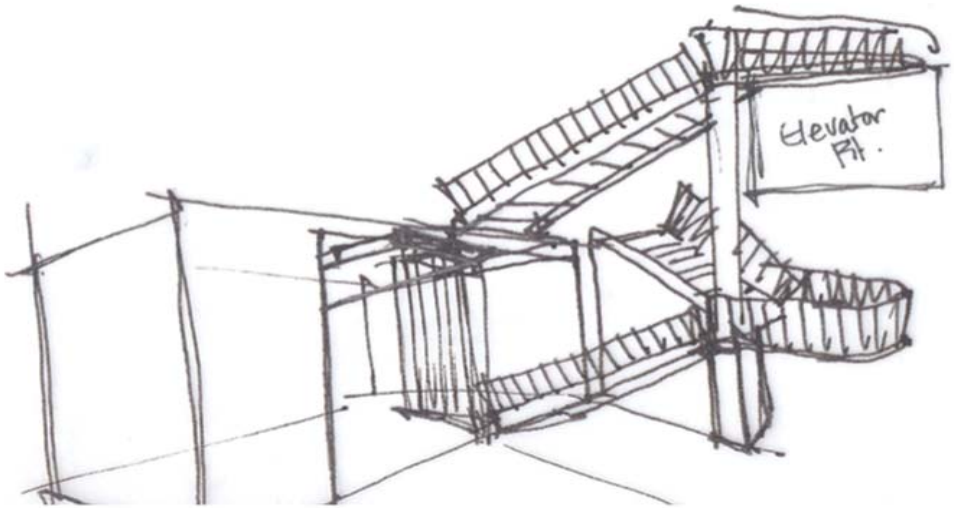


Figure 12.02 Sketch of Main Staircase and Viewing Balcony

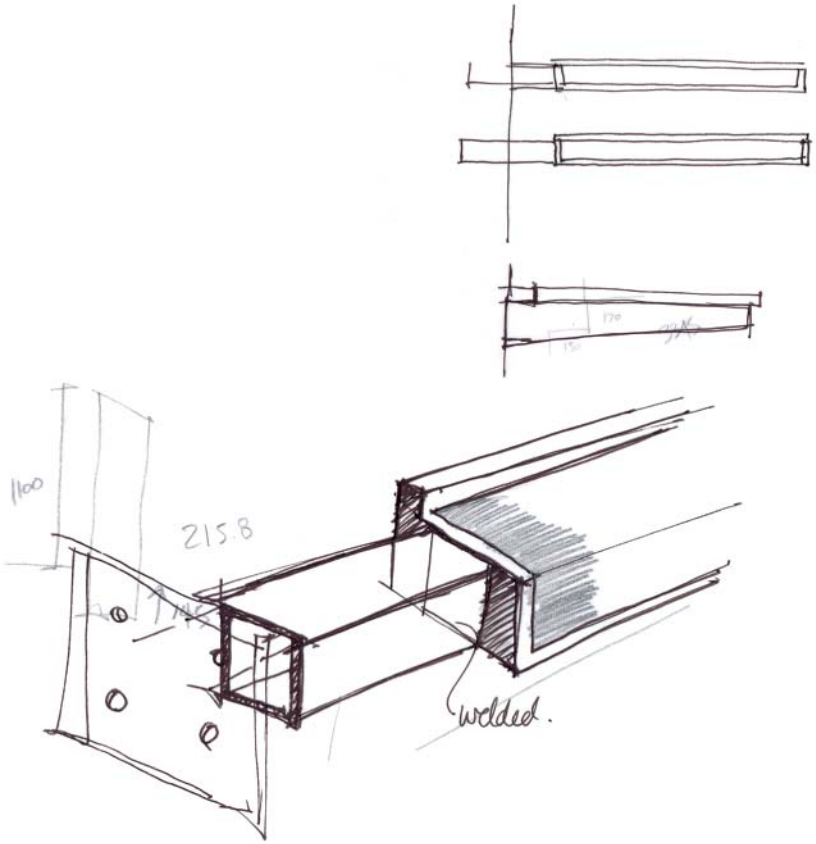


Figure 12.03

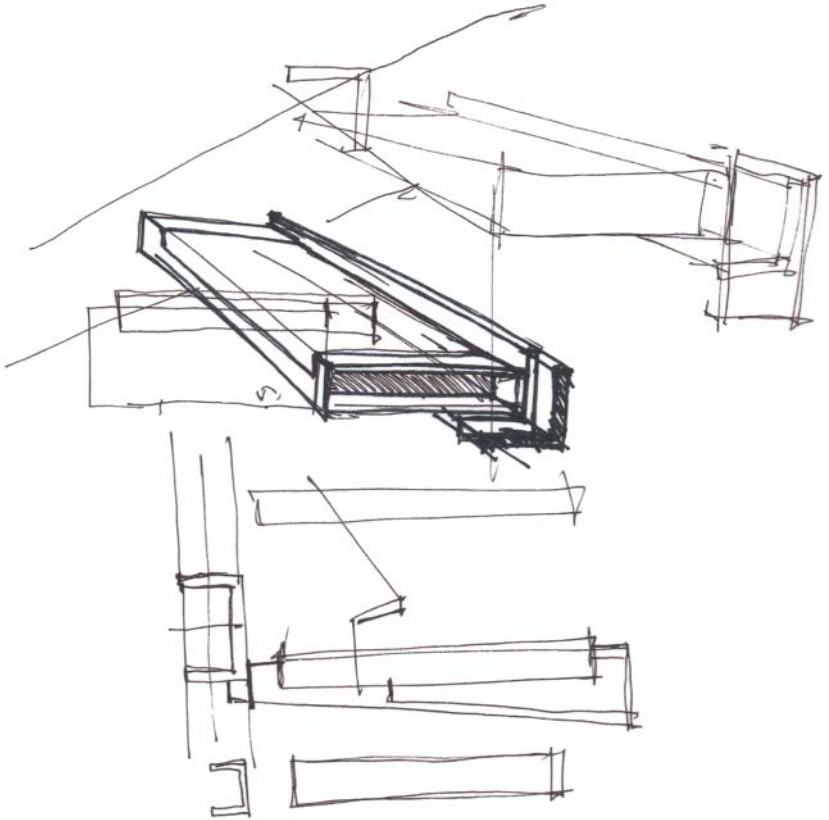


Figure 12.04

Balustrade

An important consideration was to accomodate a continuous handrail on all circulation routes in order to ensure the user's sense of safety on the open and exposed circulation bridges. For this reason the continuous stainless steel handrail is integral to the solid concrete balustrade. Together with a change of floor finish and colour of the solid balustrade, each floor of the building can be identified. This aids the vertical orientation within the building.

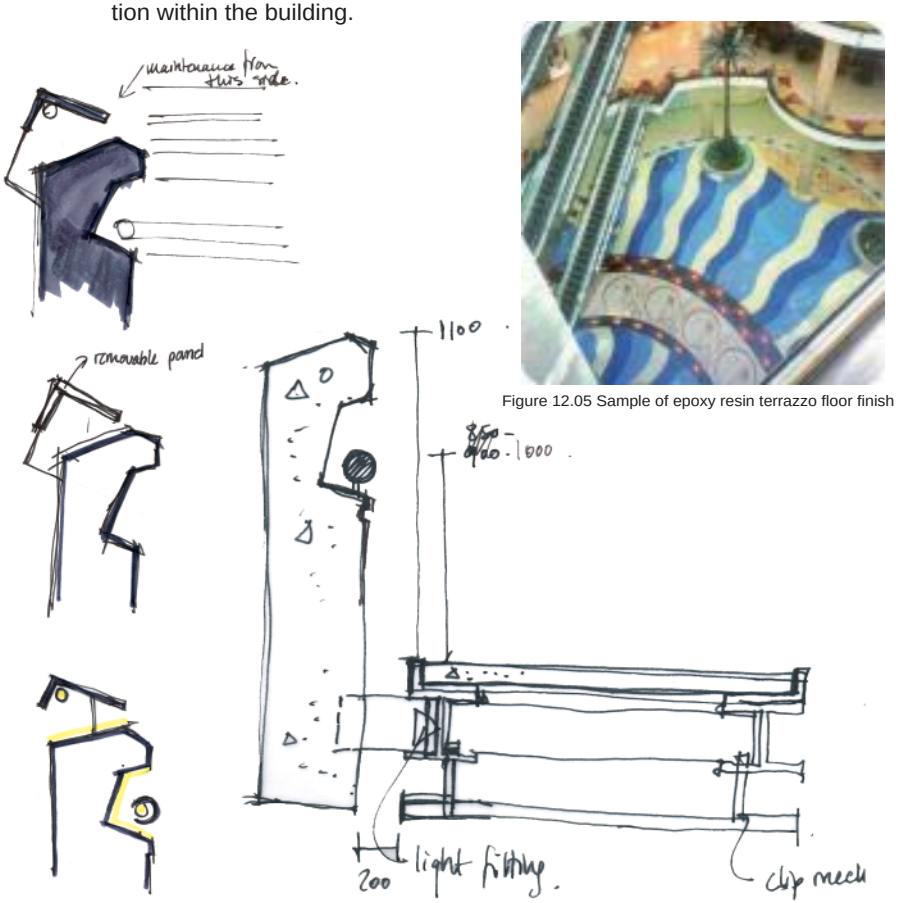


Figure 12.05 Sample of epoxy resin terrazzo floor finish

Figure 12.06 Concept development of balustrade detail with tactile display panel (left)

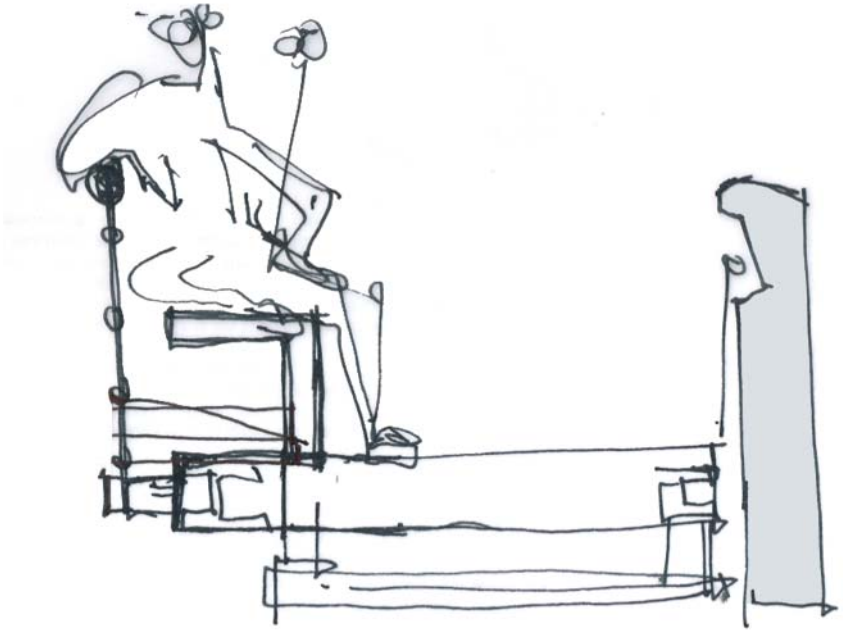


Figure 12.07 Sketch of 'Position of Pause'

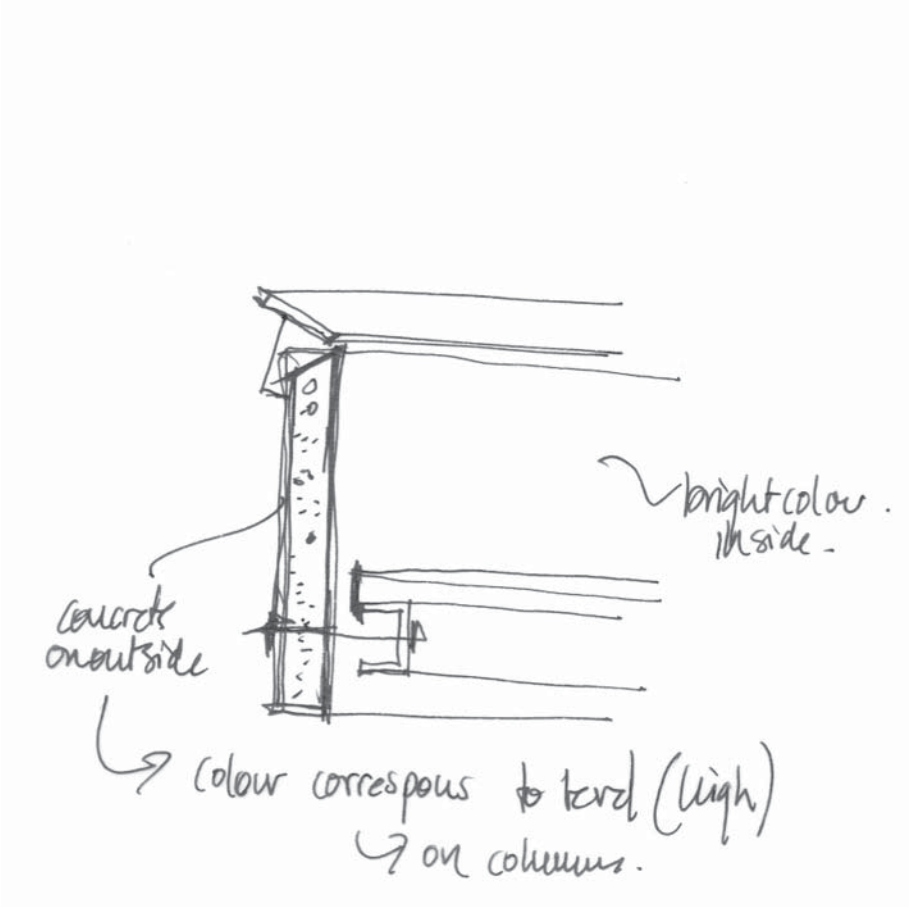


Figure 12.08 Balustrade detail

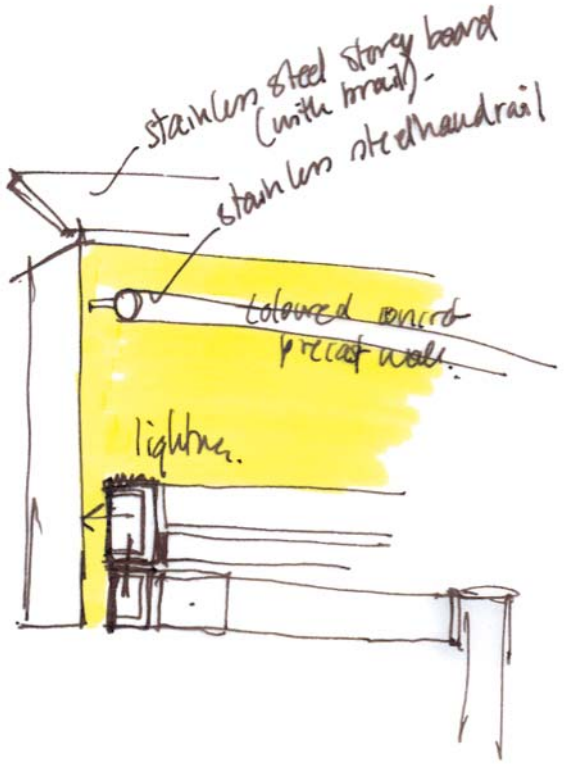
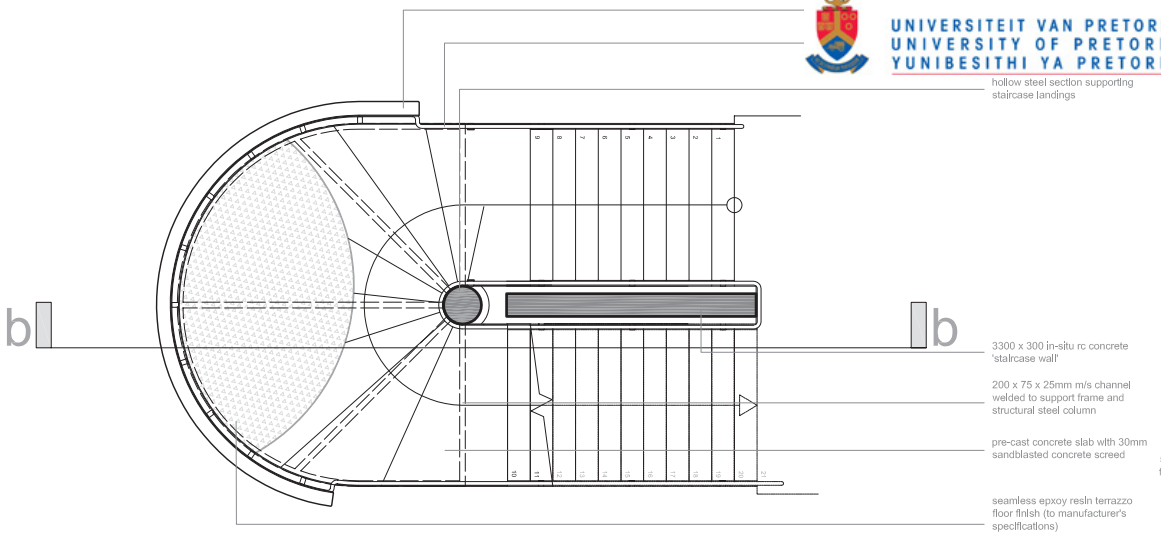
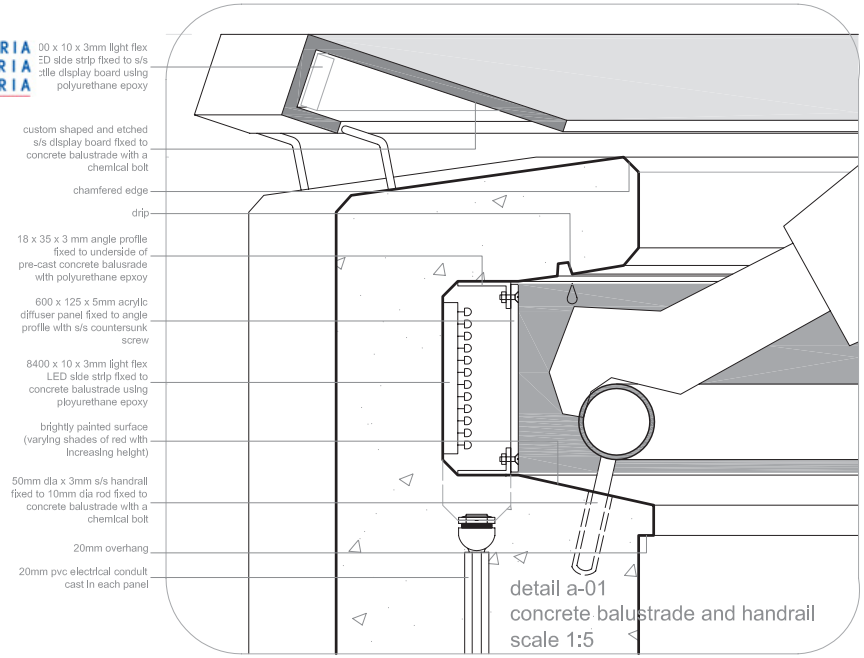


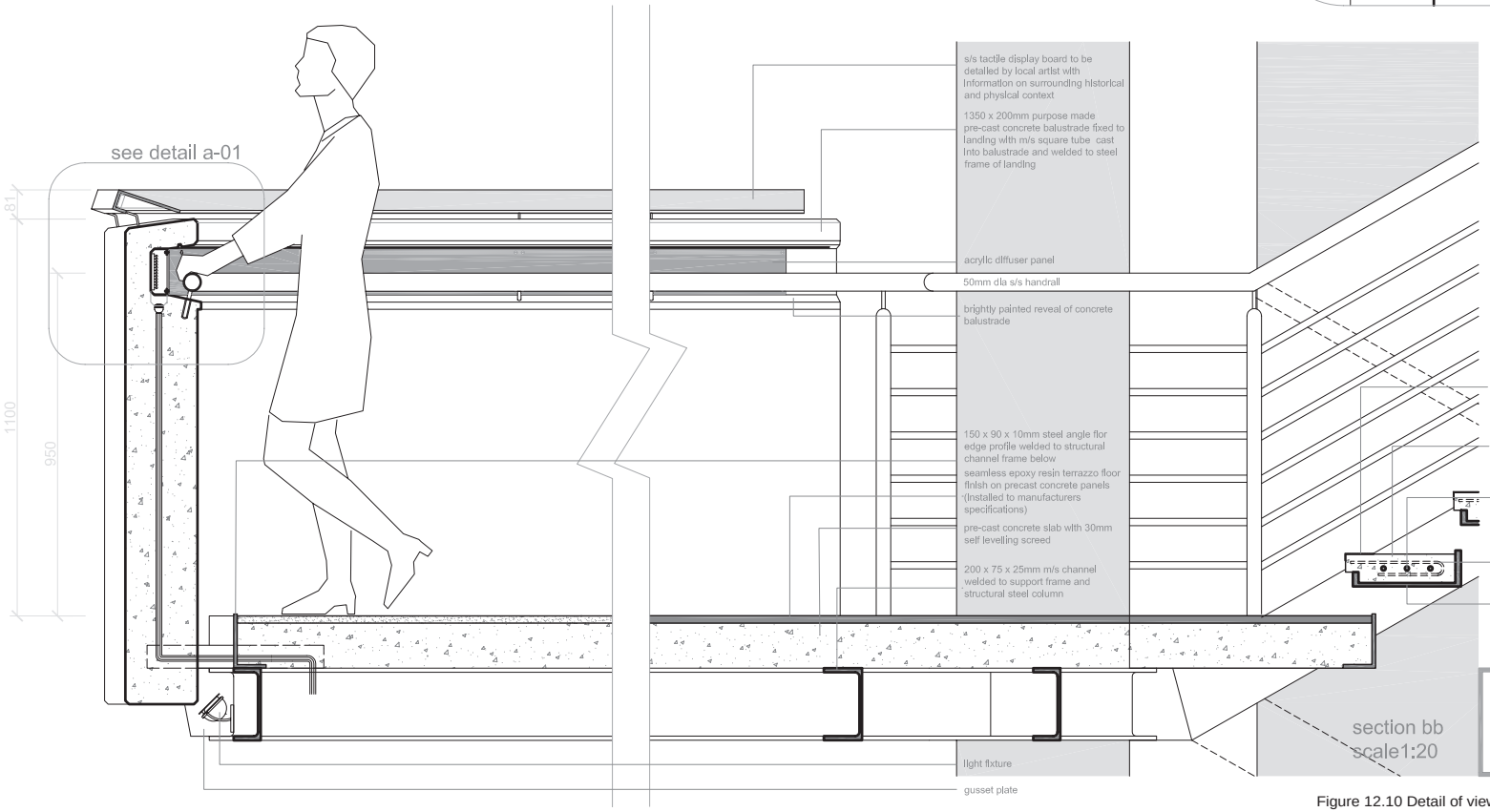
Figure 12.09 Colour usage on pre-cast concrete balustrade



plan of viewing balcony of main staircase
scale 1:100



detail a-01
concrete balustrade and handrail
scale 1:5



section bb
scale1:20

detail a
detail of viewing balcony of main staircase

Figure 12.10 Detail of viewing balcony of main staircase

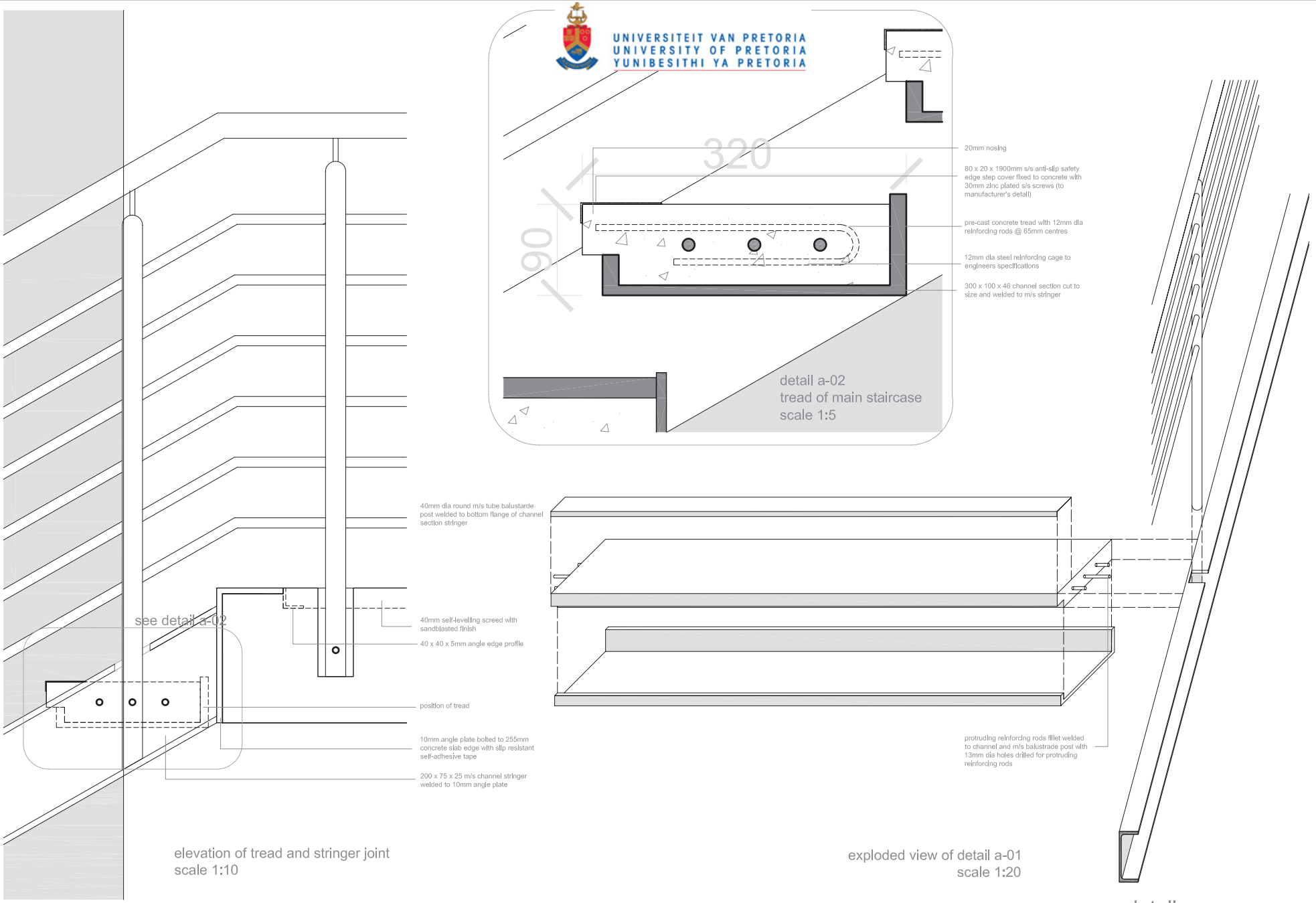


Figure 12.11 Main staircase detail

Void

The position of a large multiple-volume void in the northern portion of the building[1] was determined by means of a solar investigation to allow direct natural light to penetrate through to the courtyard located on the southern side of the building. The void created the opportunity to group and expose activities within the building.

Private balconies were extended into the void while 'positions for pause' were located on the circulation routes in line with the void. This position is indicated by a change in floor finish, a solid balustrade and a concrete bench. It allows the user to observe activities both north and south of the building. On a pedestrian level the void as perceived from Struben Street, alludes to something significant located south of the building.

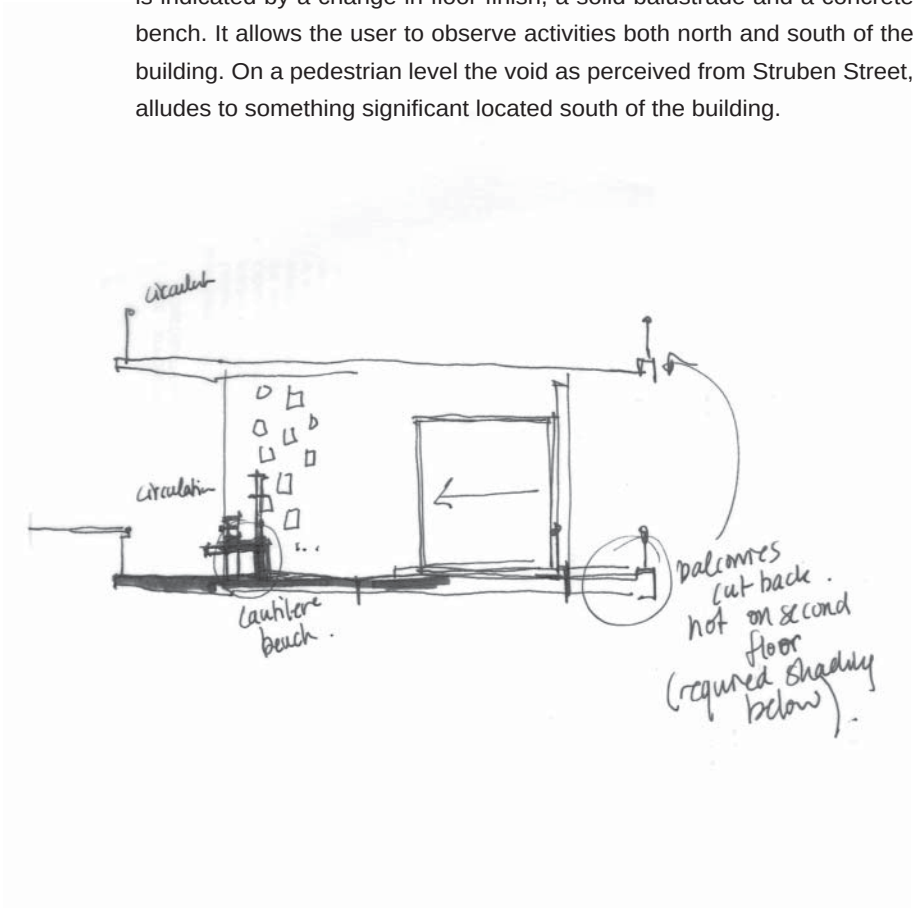


Figure 12.12 Sections through void

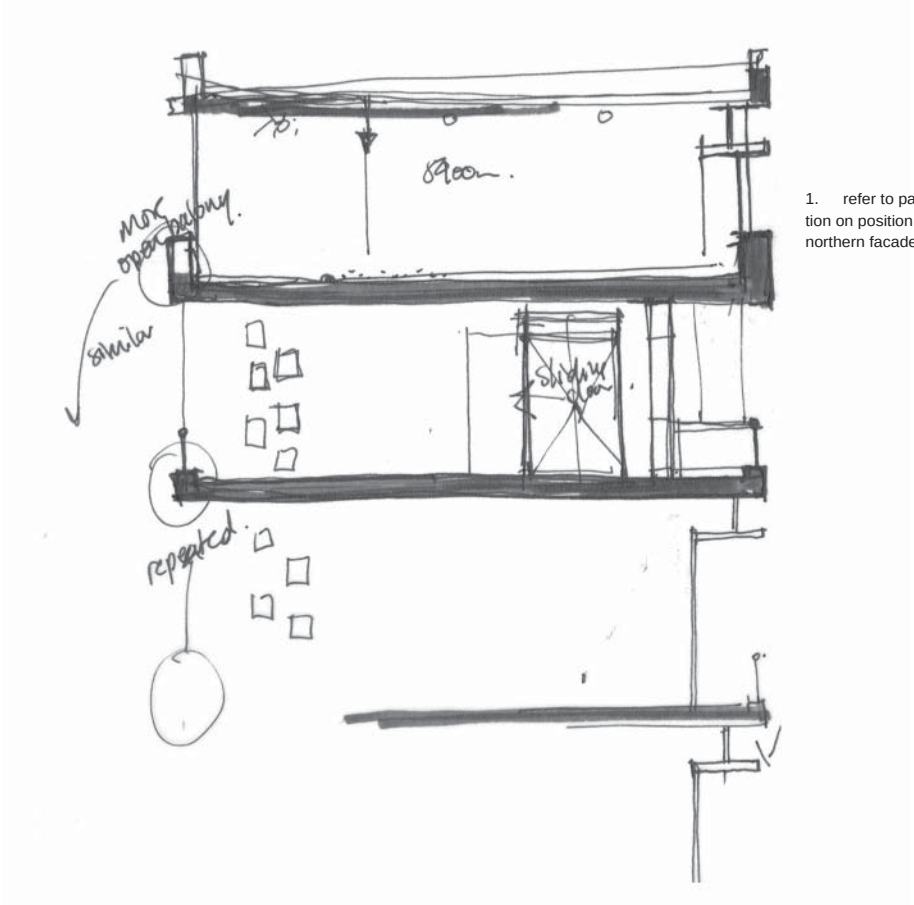


Figure 12.13 Section through void

1. refer to page 94 for information on position of void in the northern facade of the bu ilding

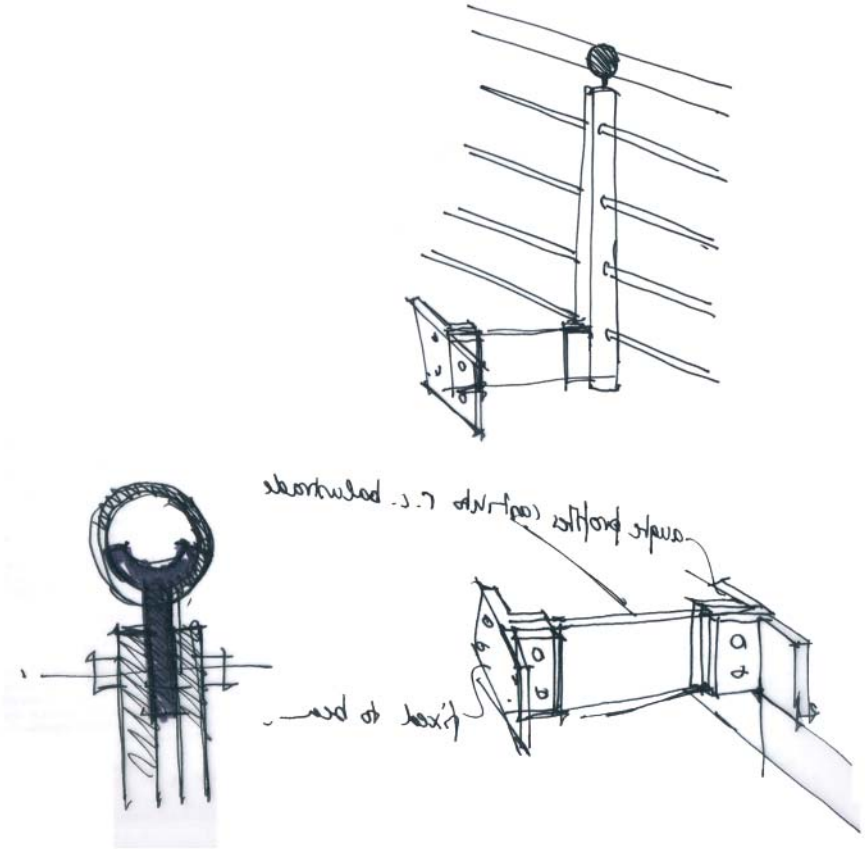


Figure 12.14

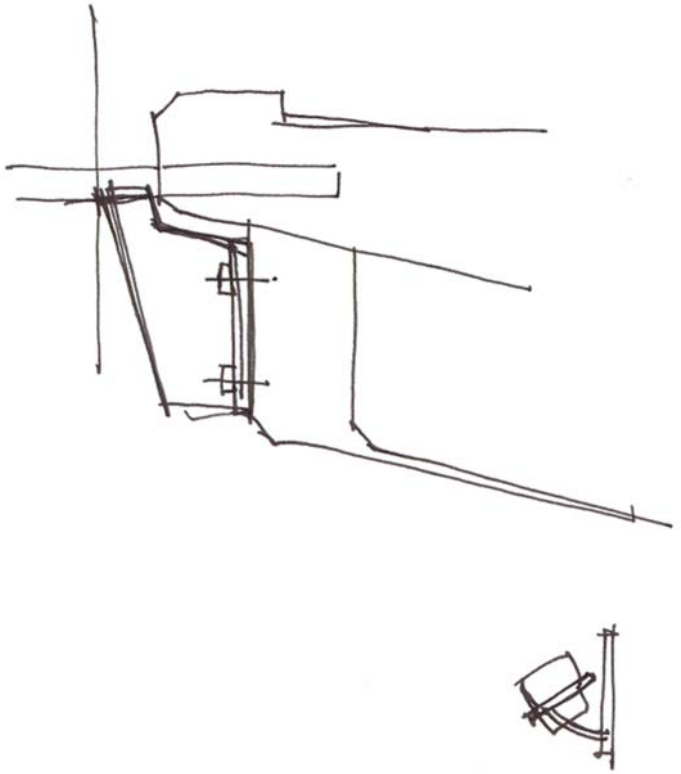


Figure 12.15

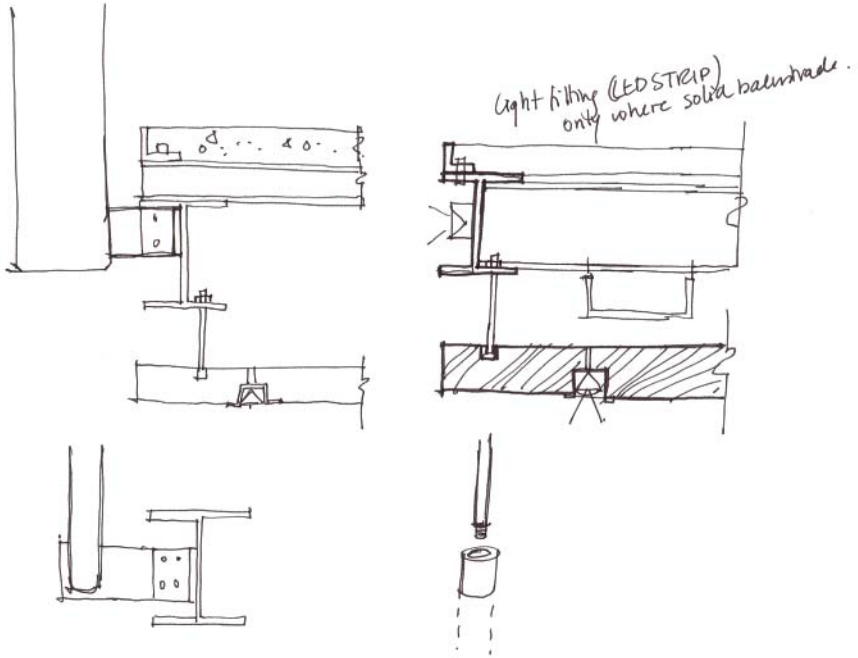


Figure 12.16

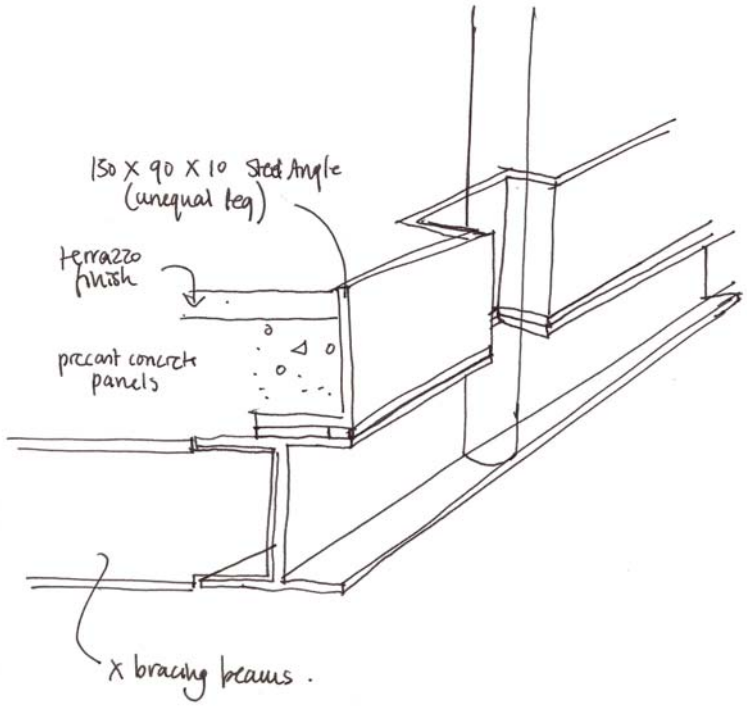


Figure 12.17 Detail sketch of base of baulstrade

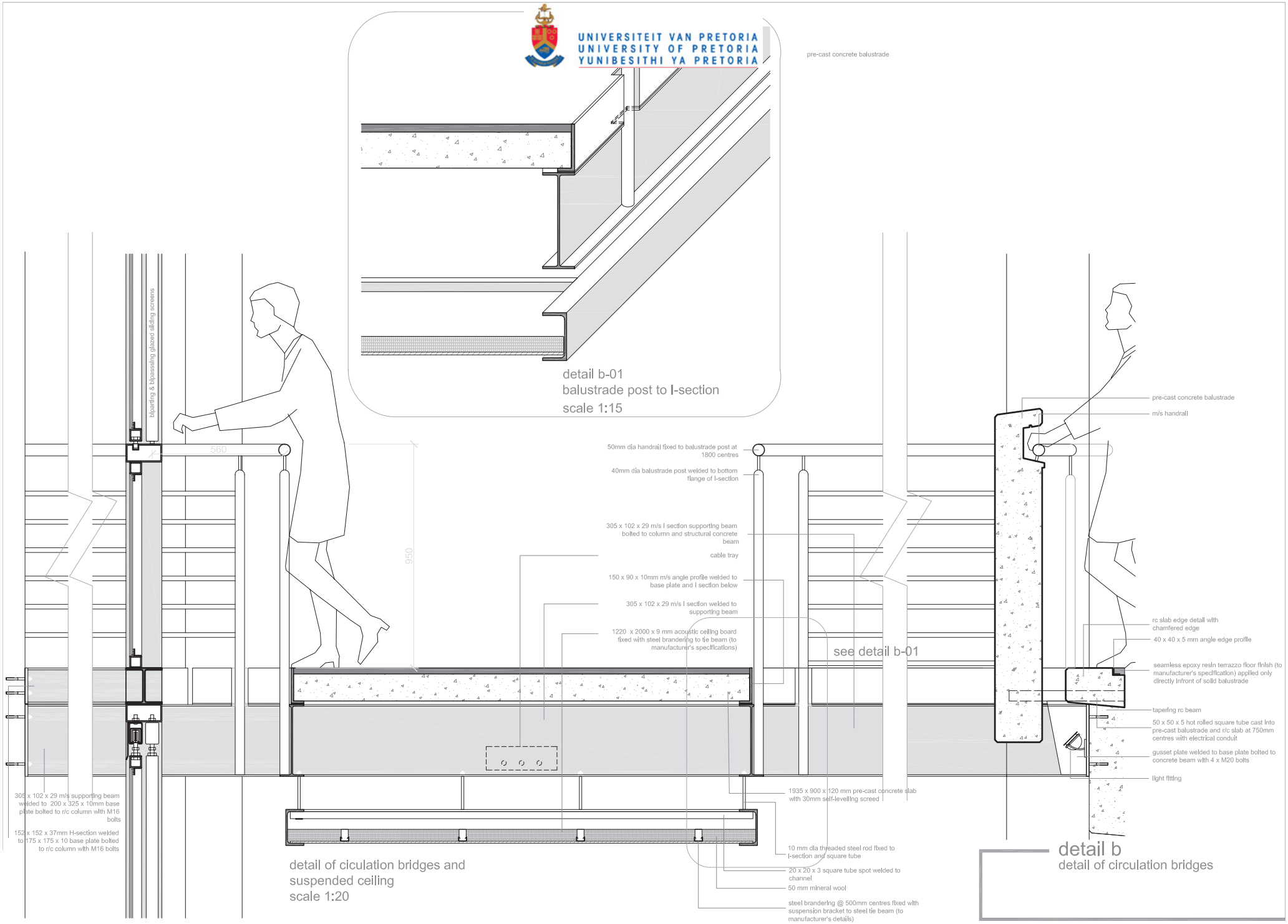


Figure 12.18 Detail of circulation bridges

Roof

The light roof structure above the central atrium merely provides the minimal shelter for practical functionality. Louvered fins on both the northern and southern edges of the roof allow winter sunlight to penetrate deeper into the courtyard and atrium spaces below. In the same manner that the building responds to the historical context, it is important for the user to experience the diurnally changing climatic conditions as these too form part of the surrounding context. The roof structure supported by the large concrete columns rises above the entire building. At no point does the glazed skin of the atrium touch the roof allowing for ample natural ventilation.

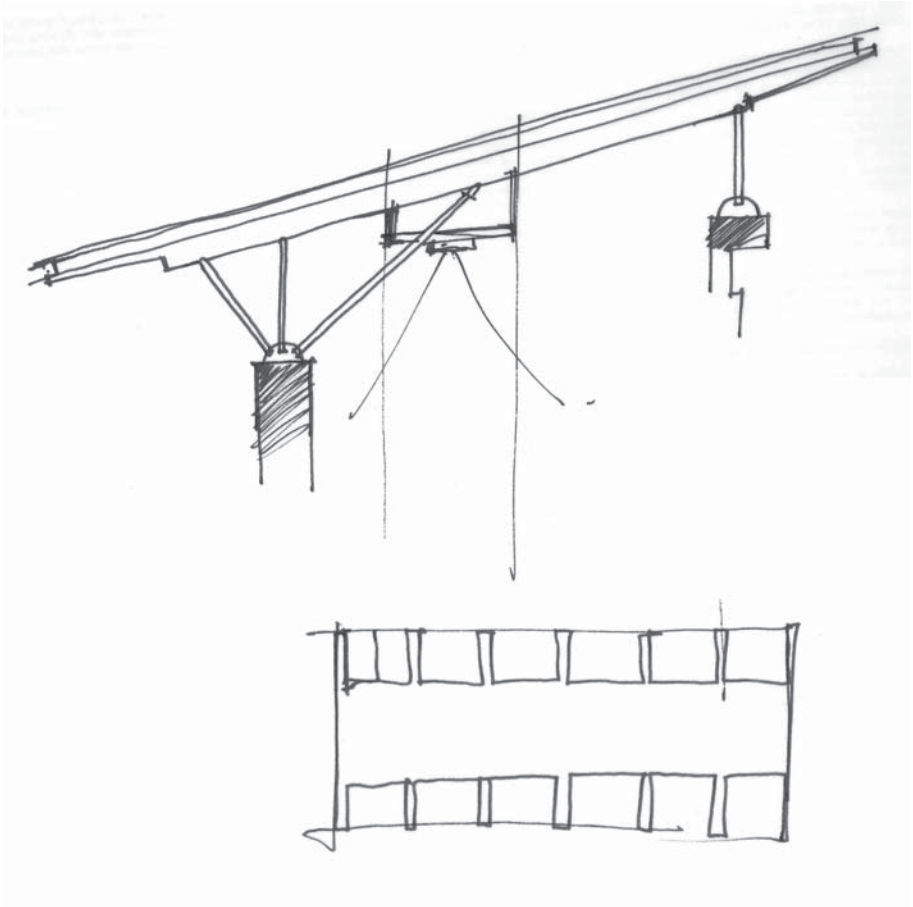


Figure 12.19

Figure 12.20

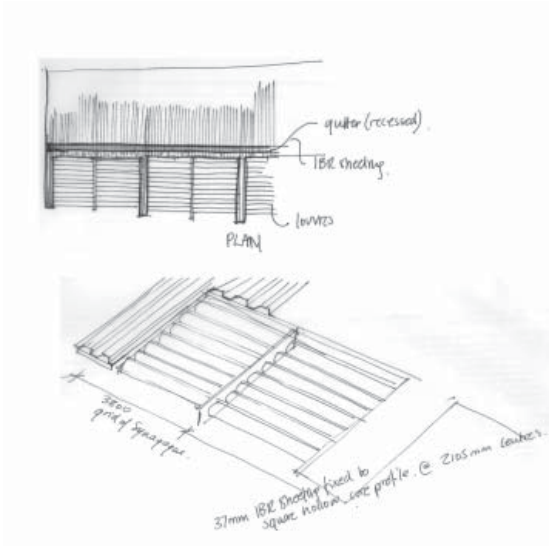


Figure 12.21 Sketch of shading fins

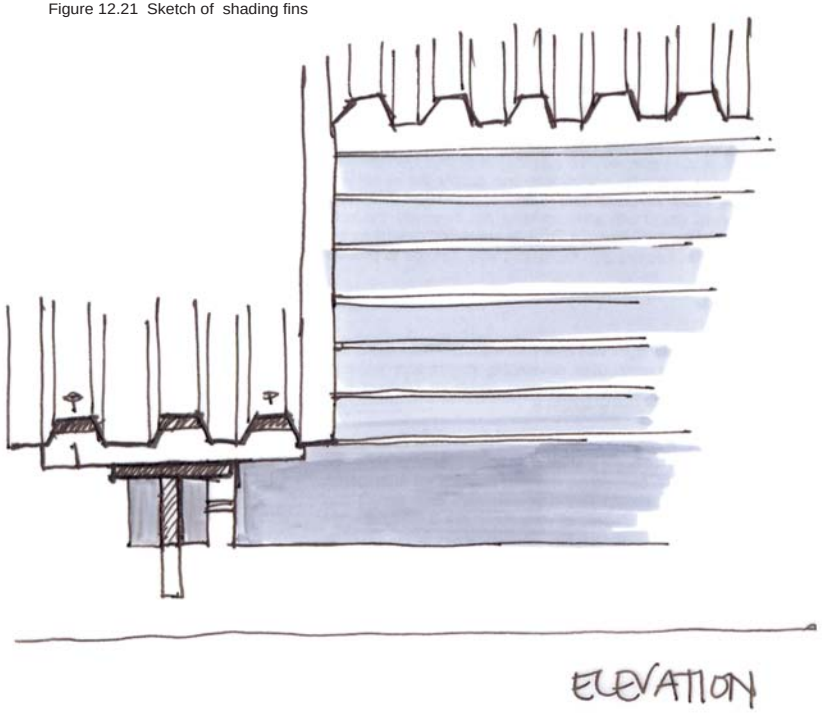


Figure 12.22

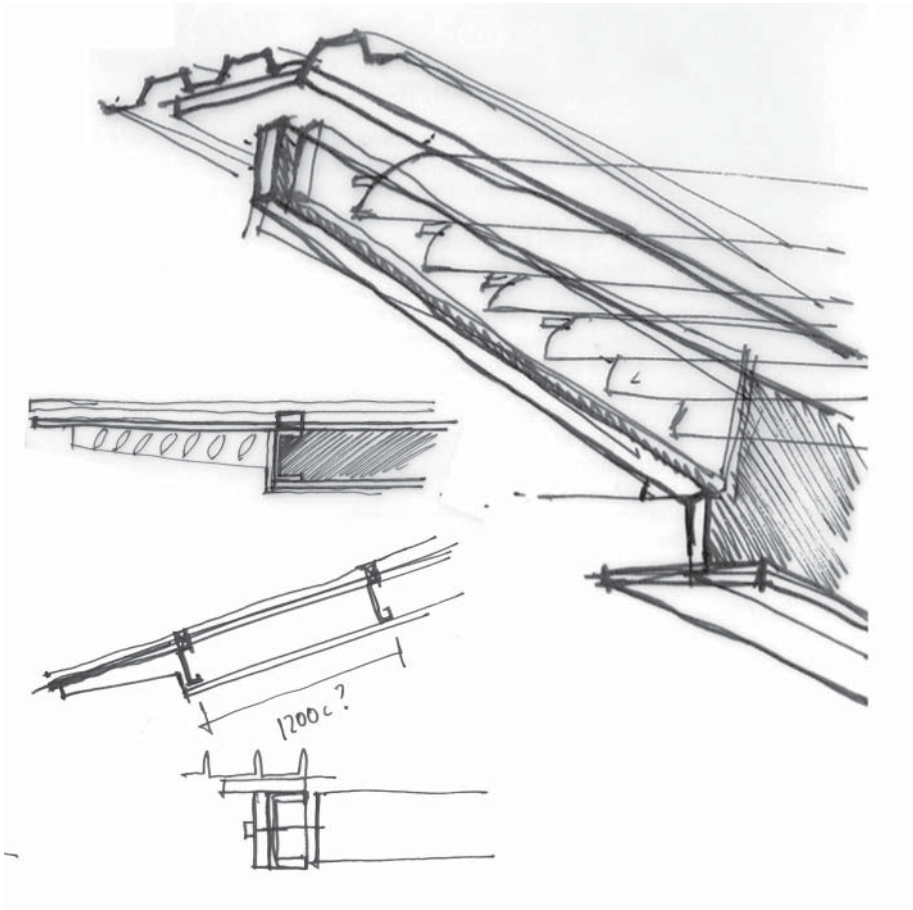


Figure 12.23

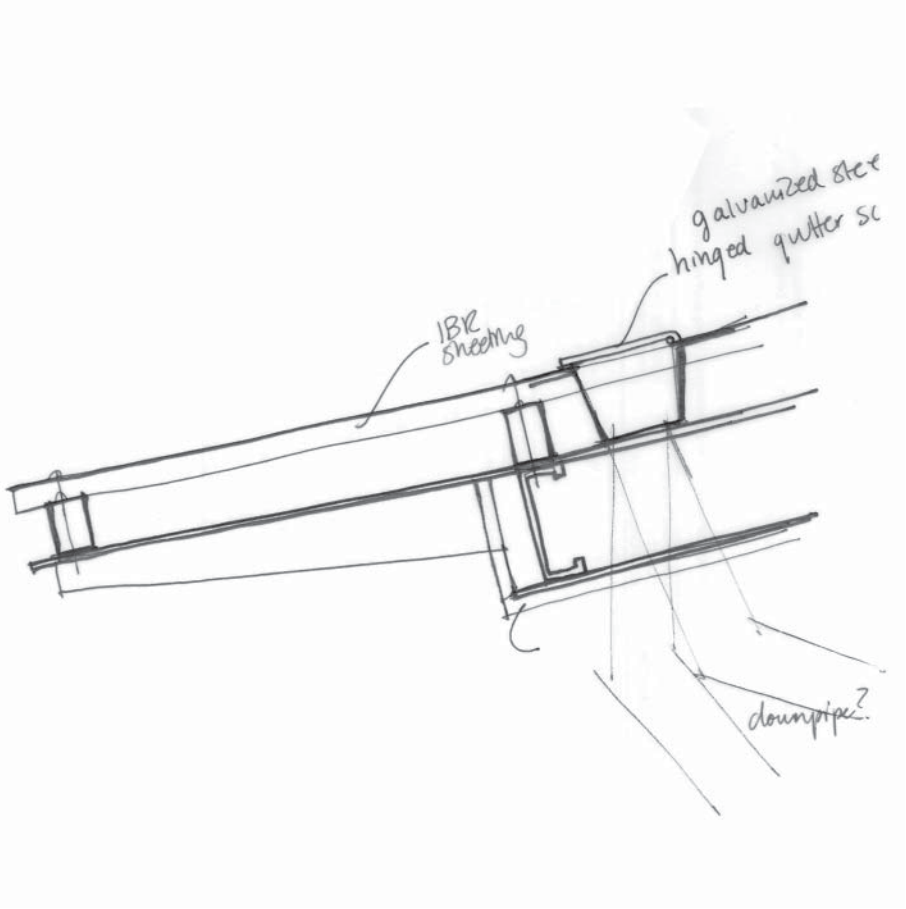


Figure 12.24

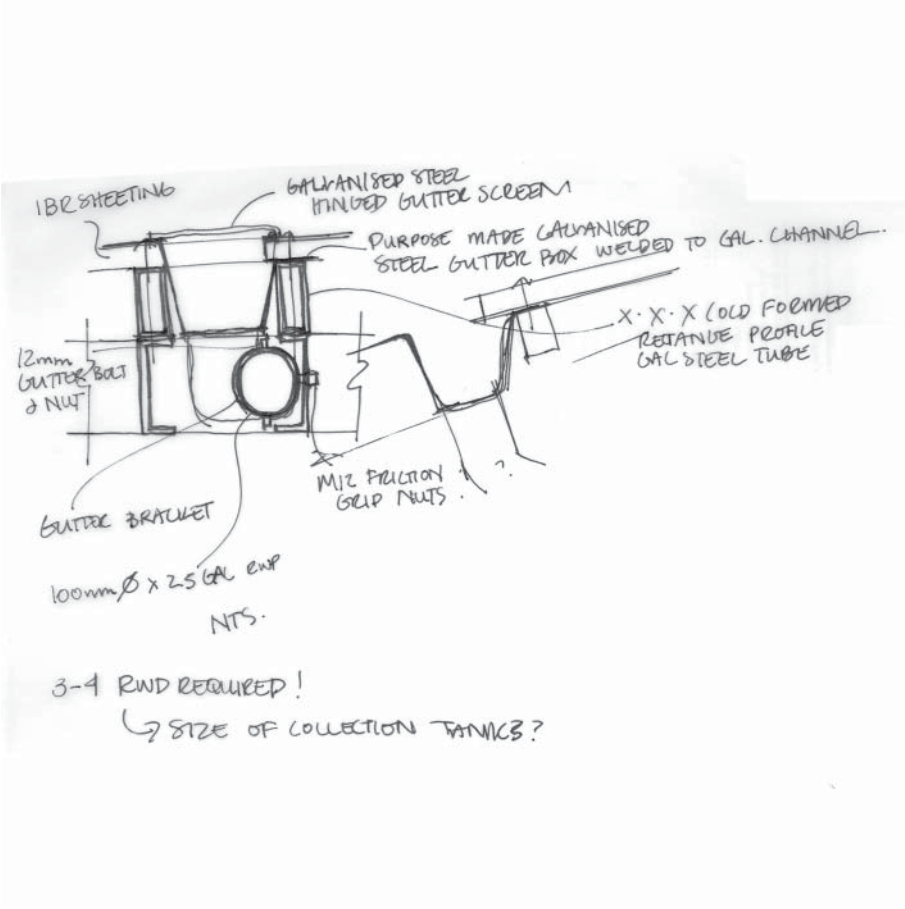
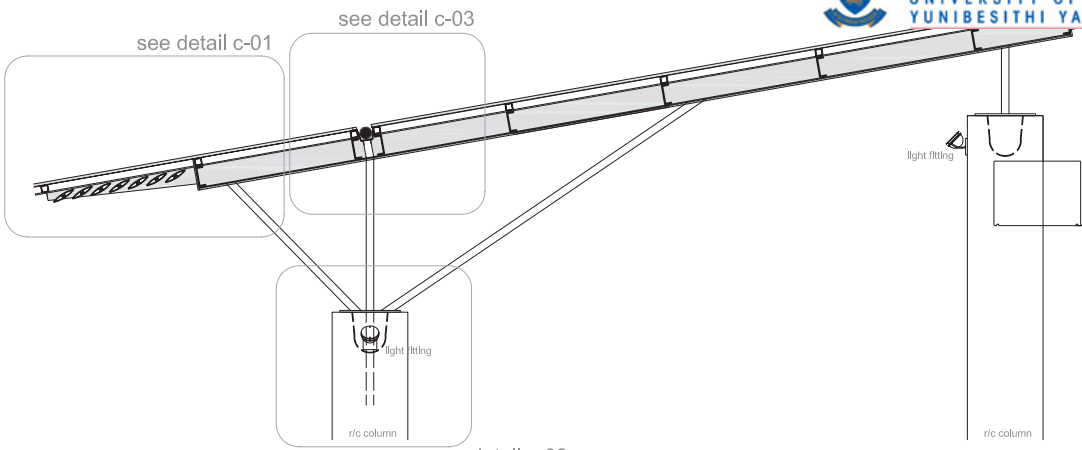
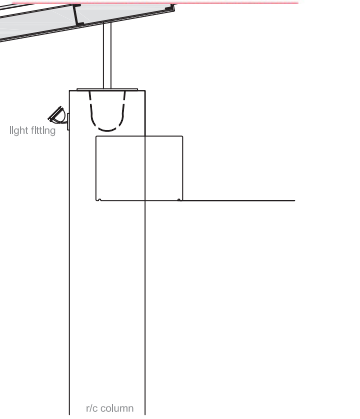
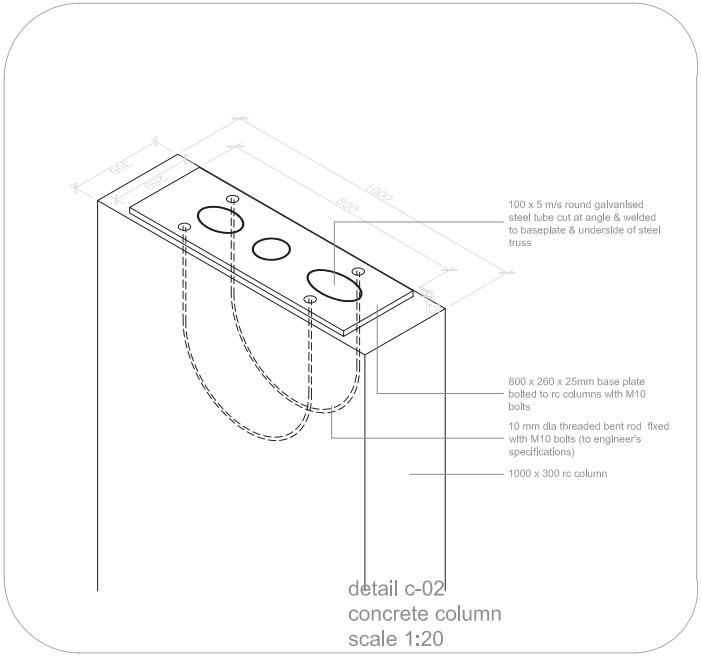


Figure 12.25 Gutter detail sketch

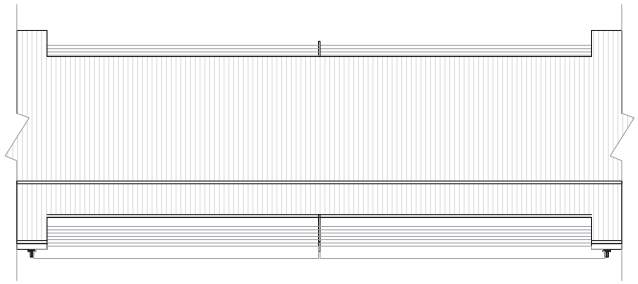




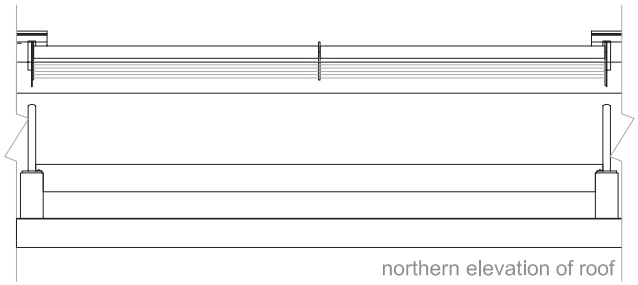
section through roof structure
scale 1:100



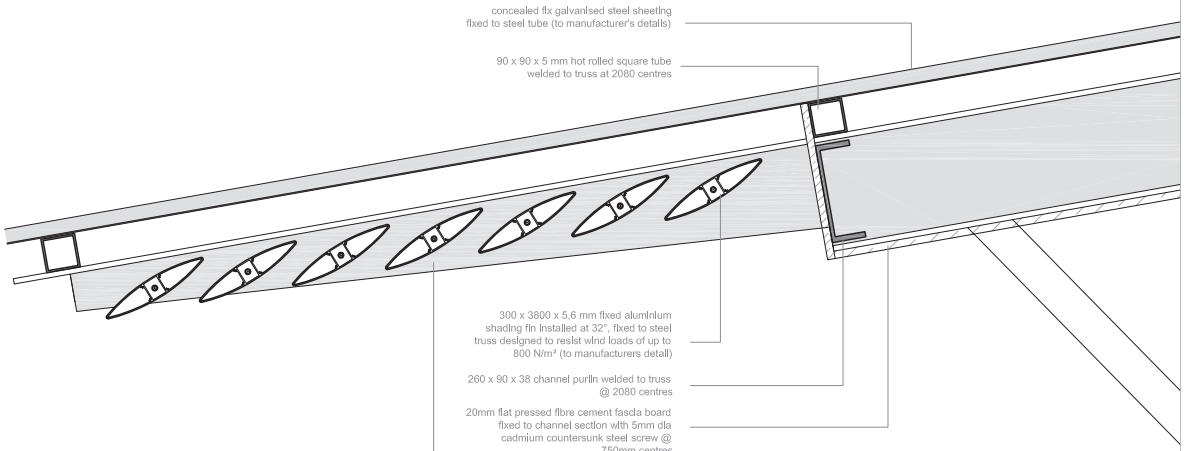
detail c-02
concrete column
scale 1:20



southern elevation of roof
scale 1:100



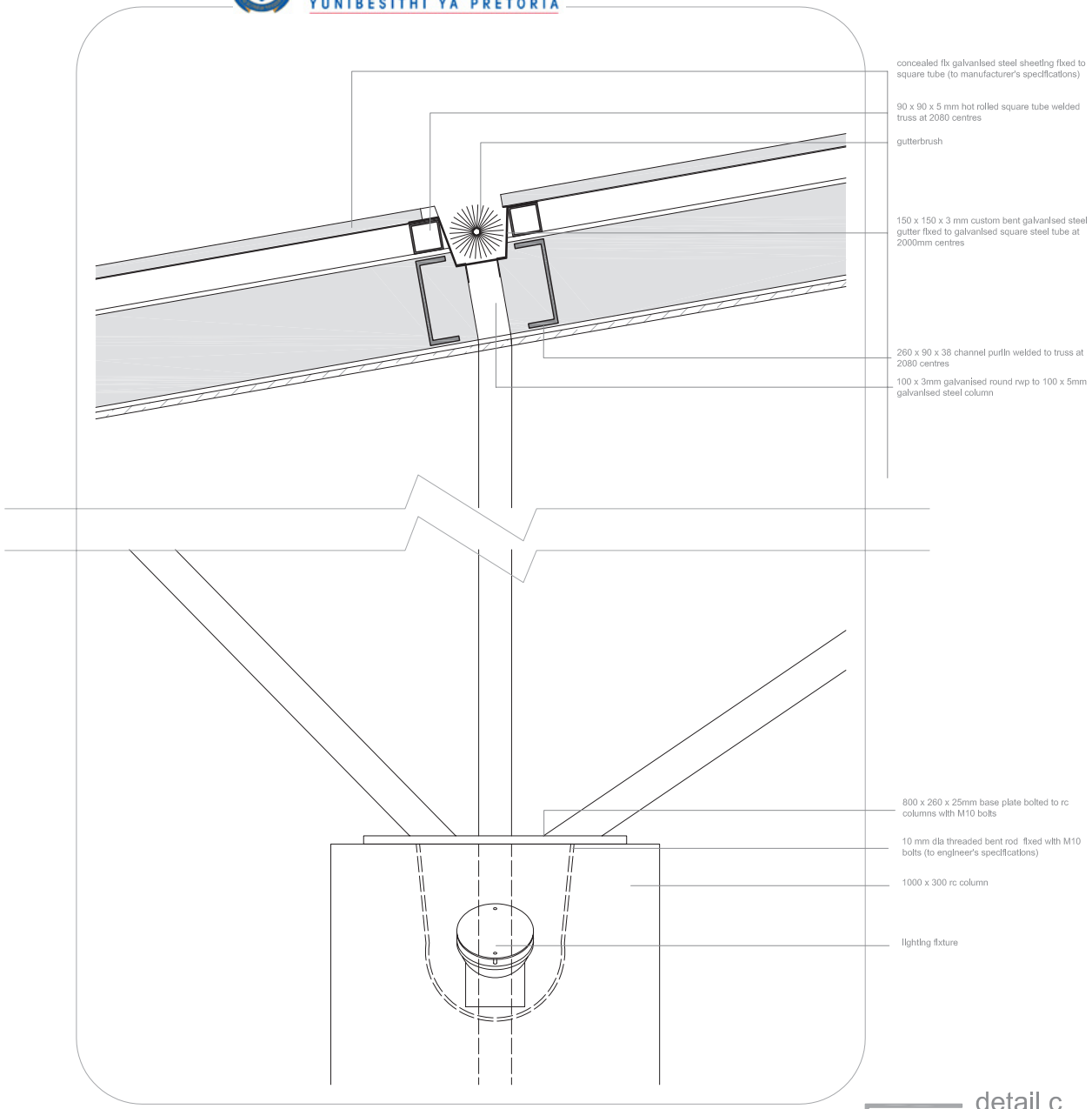
northern elevation of roof
scale 1:100



detail c-01
southern roof edge detail
scale 1:20

detail c
detail of main roof structure

Figure 12.26 Detail of main roof structure



detail c
gutter detail
scale 1:20

Figure 12.27 Detail of main roof structure

Skin

The glazed skin of the atrium provides shelter from the prevailing south-western winter winds and rain. A steel frame box supported by the concrete columns protrudes into the atrium space and consists of a series of sliding screens that are within reach of the user from the main circulation bridge within the atrium. This allows the user to control the interior environment while the multiple sliding screens reflect the changing interior thermal environment.

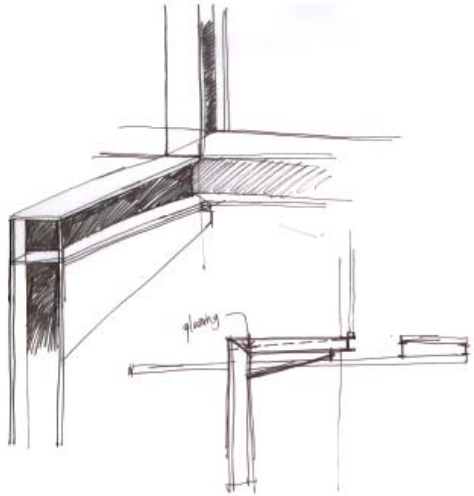


Figure 12.28 Sketch of structural support of protruding glazed sliding screen facade

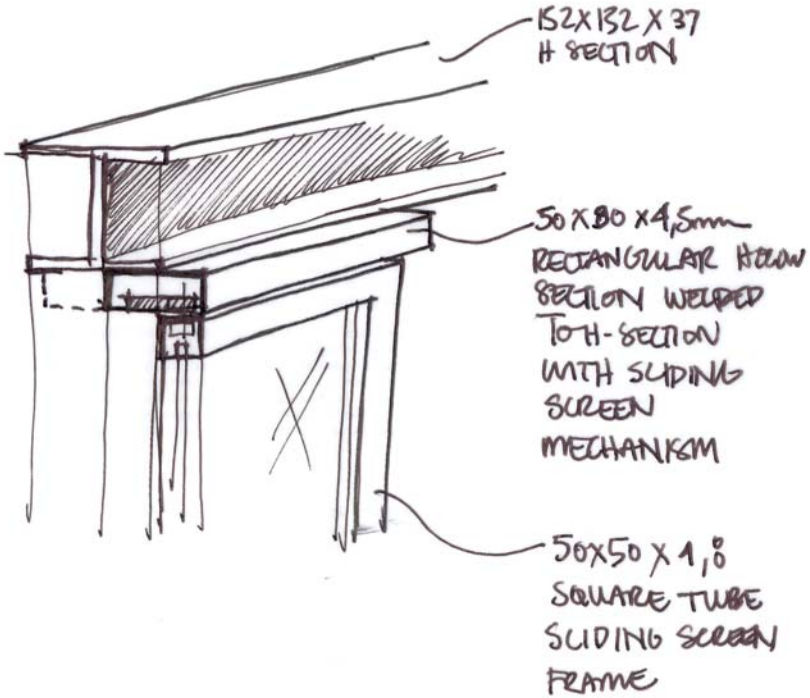


Figure 12.29 Sketch of sliding screen detail

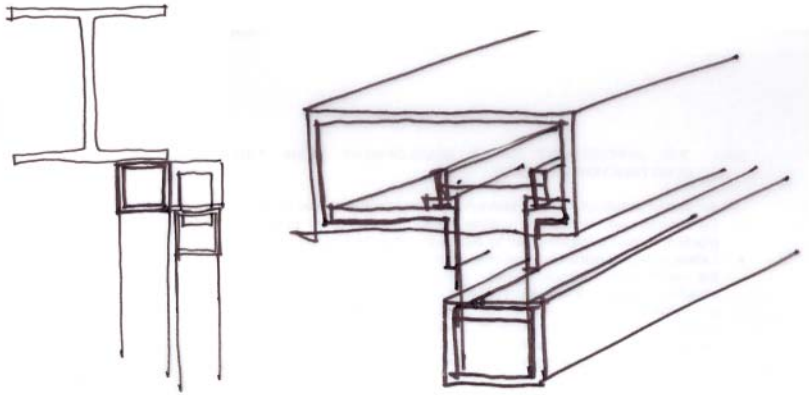


Figure 12.30 Sketch of sliding screen detail

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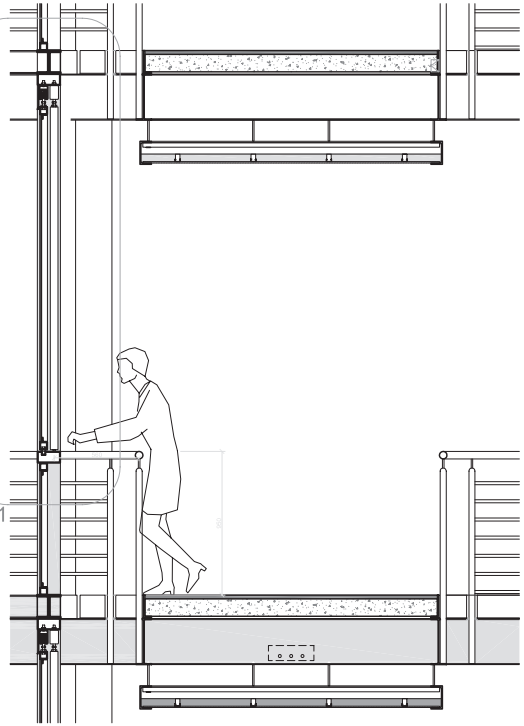
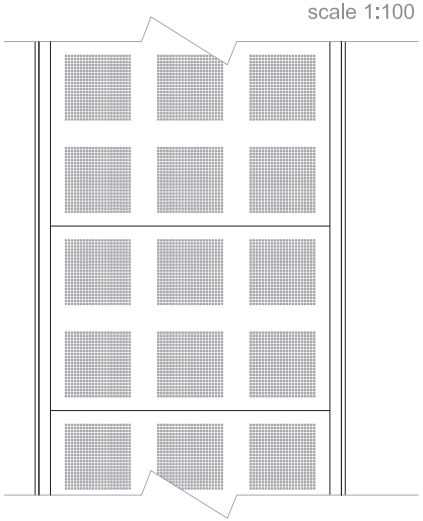
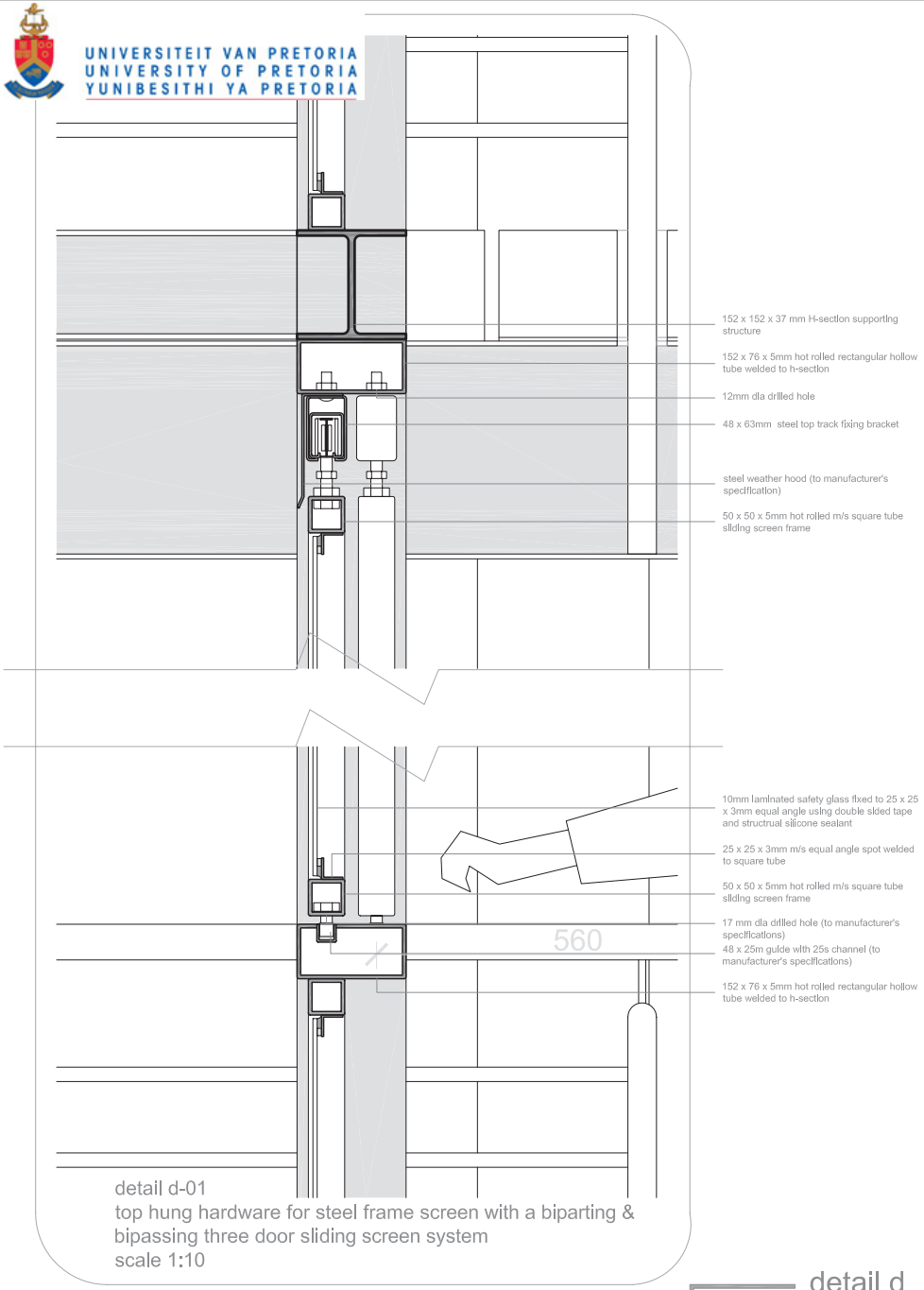


section through circulation bridge
and glazed sliding screen facade
of interior atrium
scale 1:100



plan view of suspended acoustic
ceiling boards
scale 1:100



detail d-01
top hung hardware for steel frame screen with a biparting &
bipassing three door sliding screen system
scale 1:10

detail d
circulation bridge & glazed sliding
screen facade of interior atrium

Figure 12.31 Detail of circulation bridge and sliding screen facade

Threshold

The spaces within the building blur the line between what is considered interior and exterior space to exploit the ideal climatic conditions of the Highveld. A light-weight steel framed roof structure that extends from the interior atrium into the exterior public courtyard well beyond the structural columns of the building not only blurs this threshold but also suggests layers of progression. This is achieved by gradually increasing the opacity and leaf-patterning of the glazed roof structure above. This is further emphasised by the large deciduous Paperbark Thorn tree situated within the courtyard. During the day movement from exterior to interior space is a gradual progression from light to dark while at night this transition is reversed.

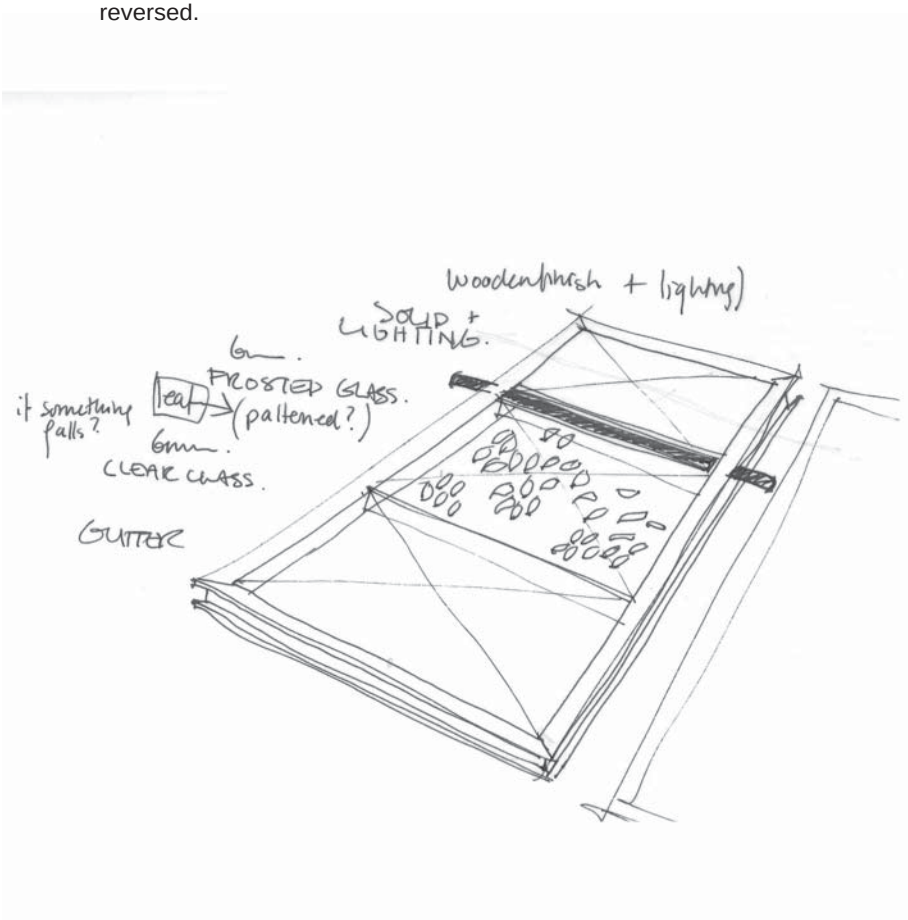


Figure 12.33 Sketch of glazed 'threshold' roof

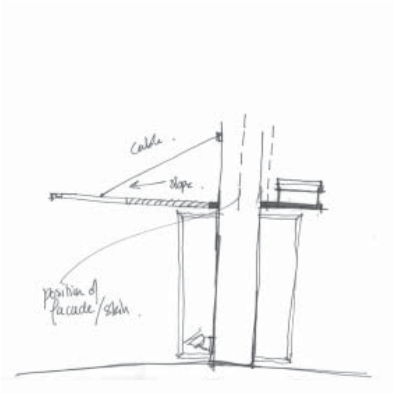


Figure 12.32 Sketch of glazed 'threshold' roof

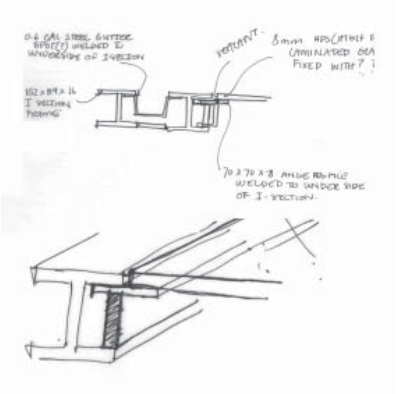


Figure 12.34 Detail exploration

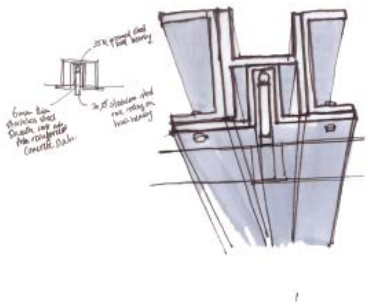
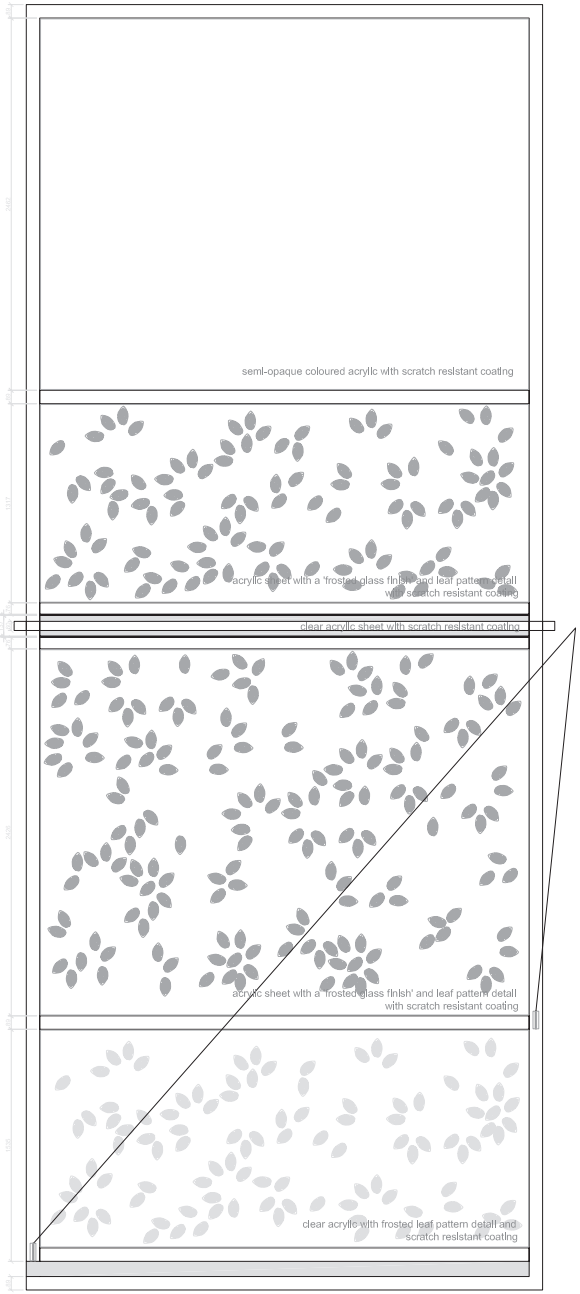
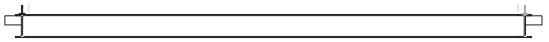


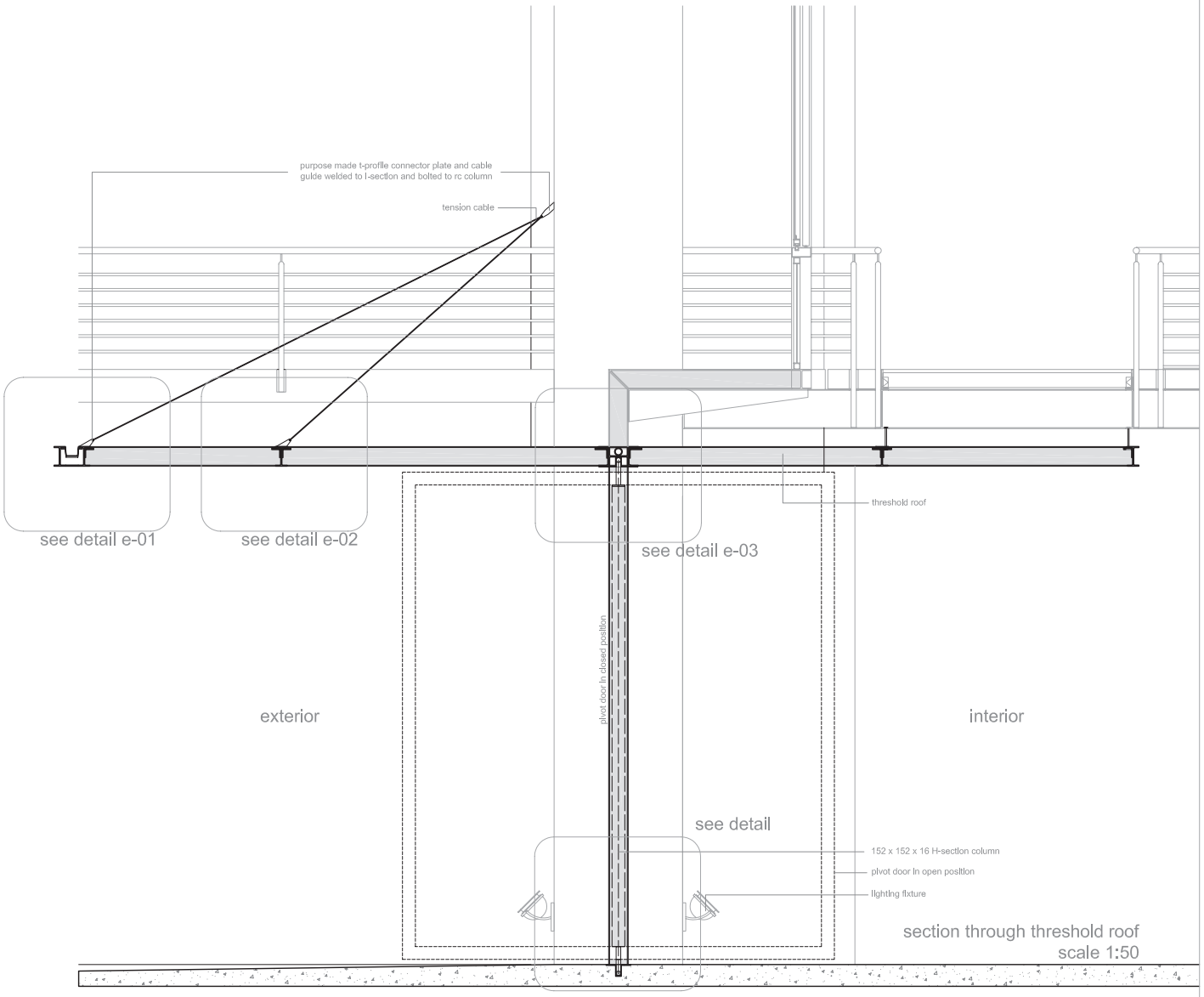
Figure 12.35 Detail exploration



plan of threshold roof and leaf pattern detail
scale 1:50



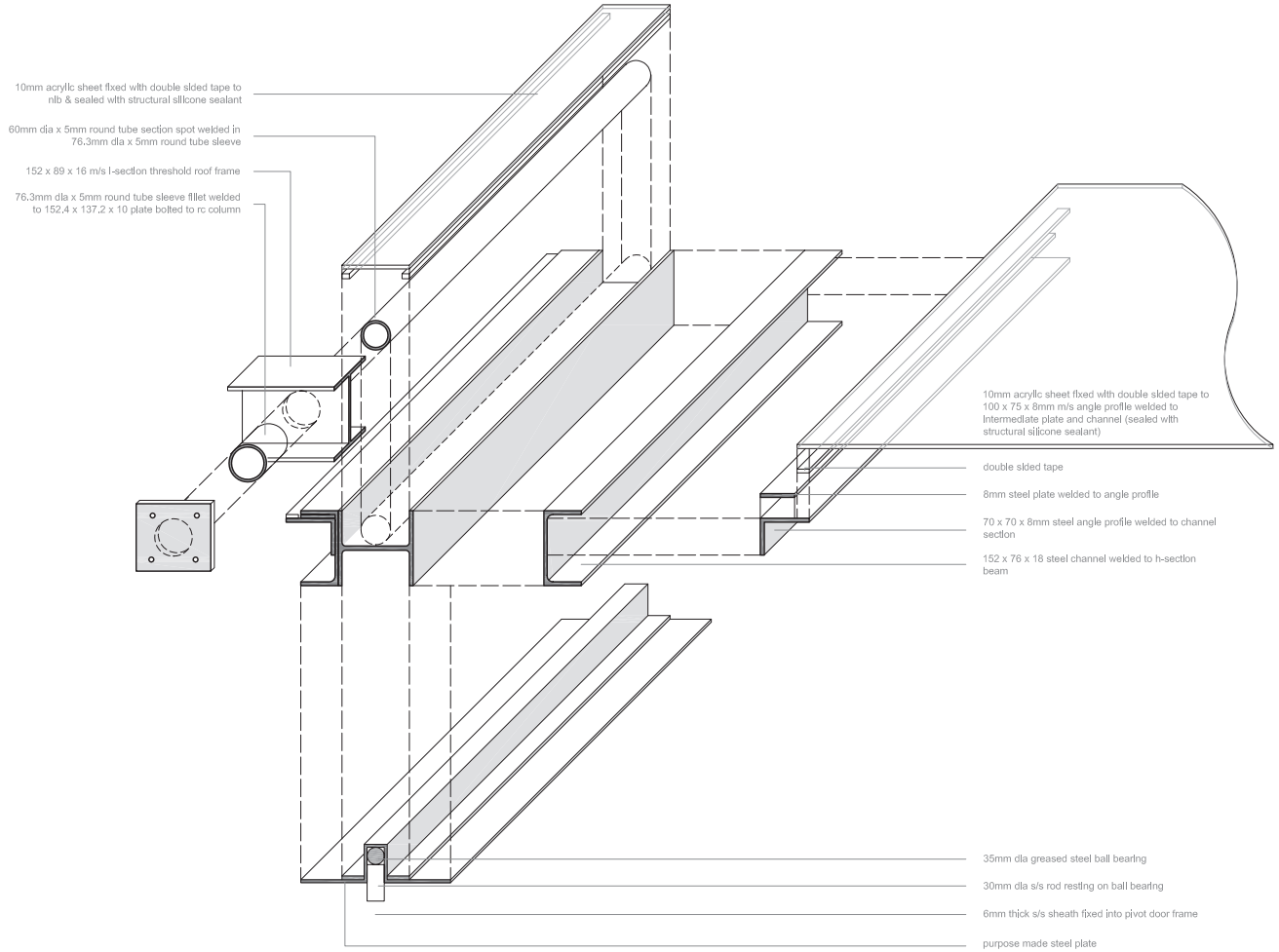
elevation of threshold roof
scale 1:50



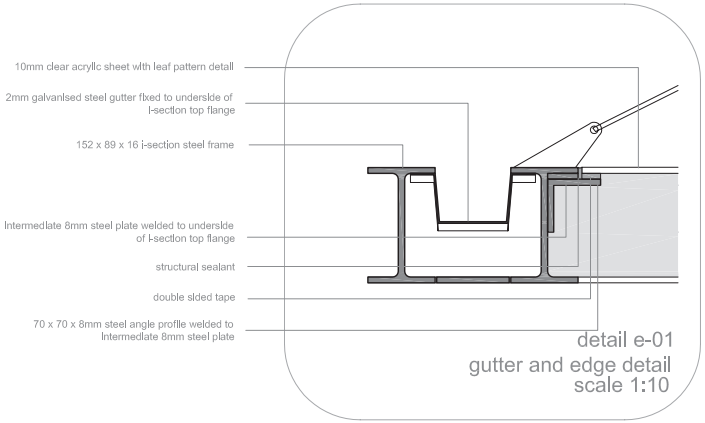
section through threshold roof
scale 1:50

detail e
threshold roof

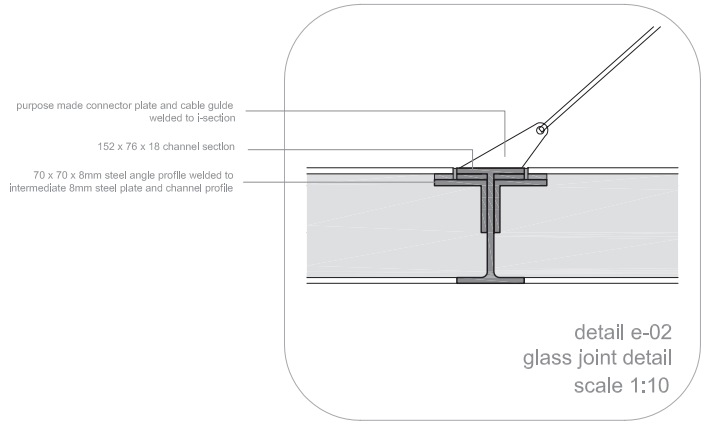
Figure 12.36 Detail of threshold roof



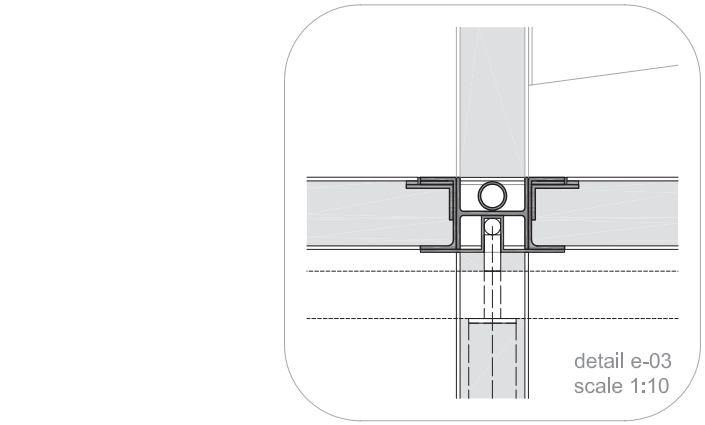
exploded view of detail e-03
scale 1:10



detail e-01
gutter and edge detail
scale 1:10



detail e-02
glass joint detail
scale 1:10



detail e-03
scale 1:10

detail e
threshold roof

Figure 12.37 Detail of threshold roof

Staircase Wall

The main staircase wall is the most southern point of the building and thus is the portion of the building that is in closest proximity to the synagogue. The textured off-shutter concrete finish of the staircase wall reflects the horizontal layers of the original brickwork layering of the western facade of the Old Synagogue. While the western facade of the wall tracks the user's height in the building in relative to that of the synagogue, the eastern facade tells of the history of the site and the historical events that took place within the synagogue. In this way the history of the site is used to generate an the public's interest while engaging the user that would otherwise not have access to this information.

Figure 12.38 Textured off-shutter concrete of the Millowners Association Building, 1955, Le Corbusier

Figure 12.39 Textured off-shutter concrete finish of the Satillite City Towers ,1957, Mexico City

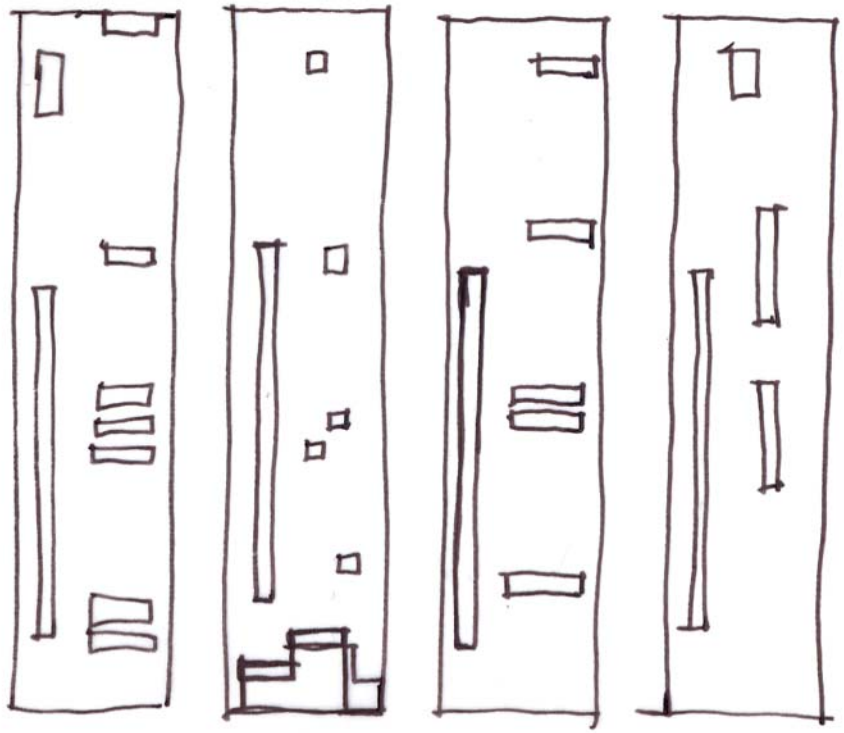


Figure 12.40 Elevation options for main staircase wall

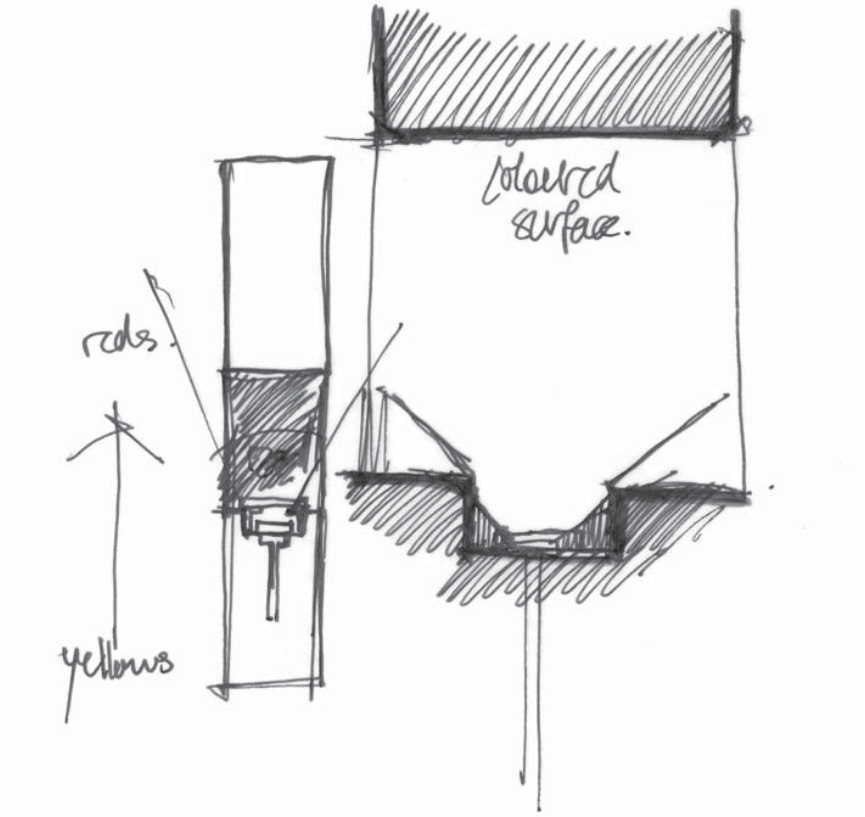
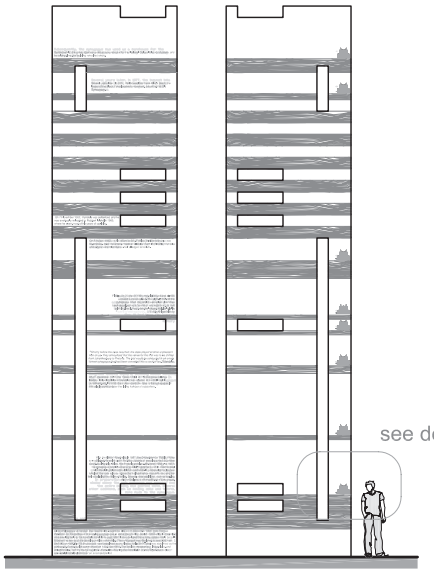
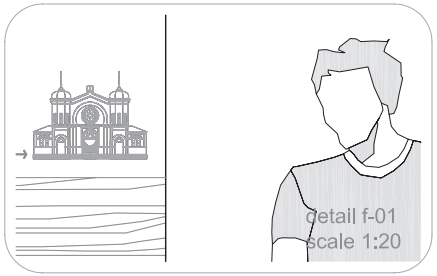


Figure 12.41 Section through main staircase wall

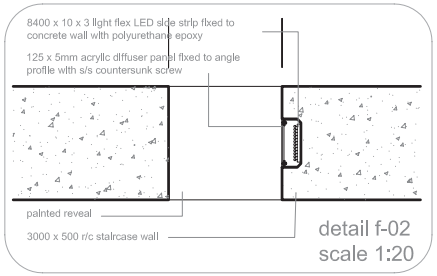


see detail f-01

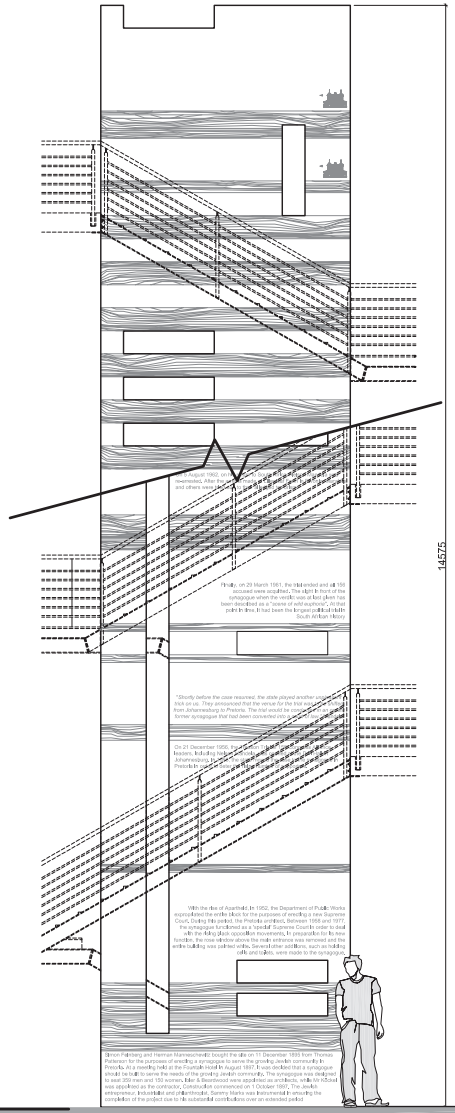
eastern & western elevation of staircase wall
scale 1:200

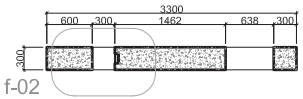


detail f-01
scale 1:20



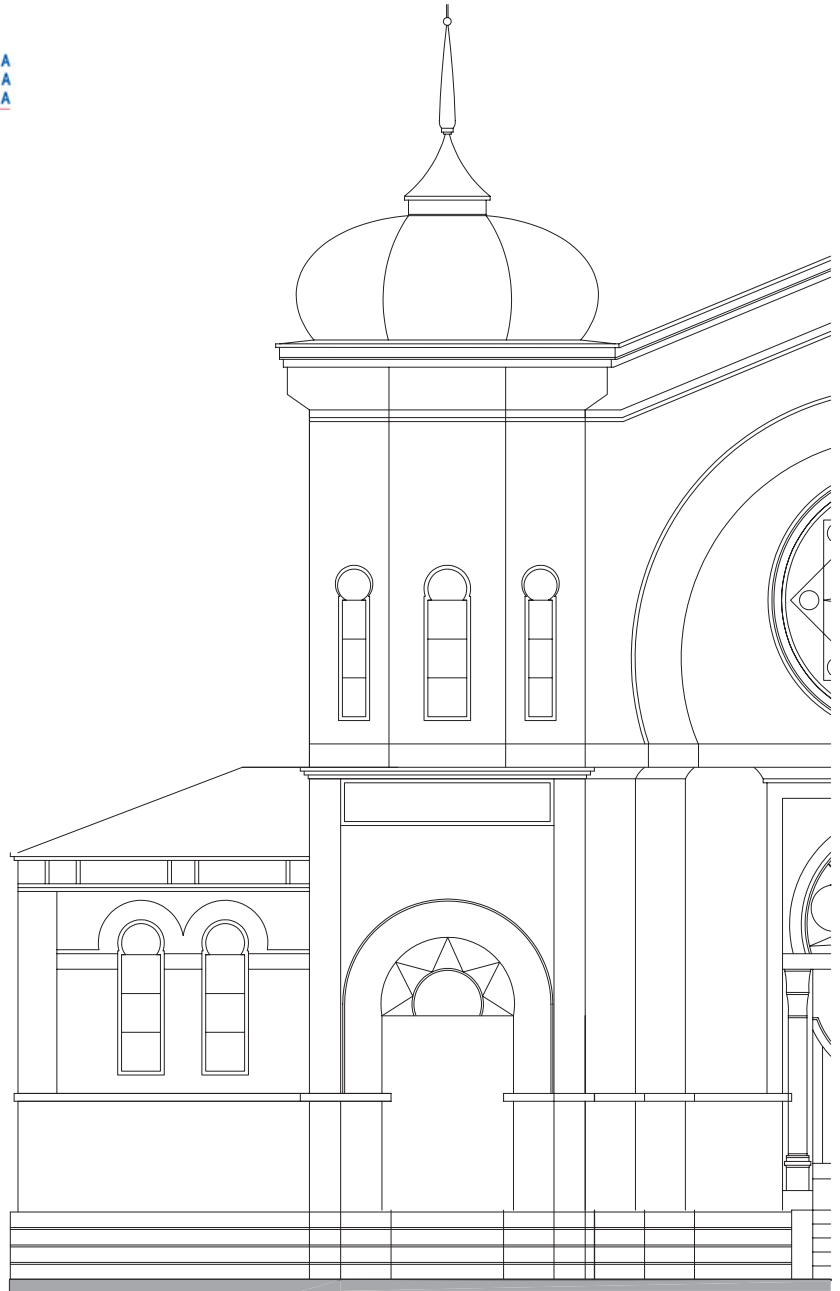
detail f-02
scale 1:20





see detail f-02

plan of staircase wall
scale 1:100



staircase wall in context
scale 1:100

detail f
detail of main staircase wall

Figure 12.42 Detail of main staircase wall

Figure 12.43

Figure 12.44

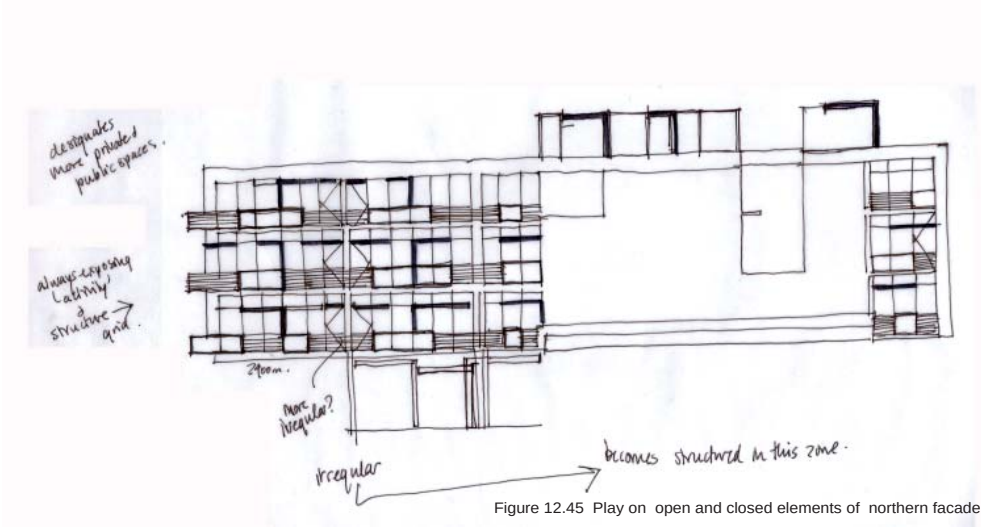


Figure 12.45 Play on open and closed elements of northern facade

The Northern Facade

By investigating a series of facade options for the northern facacde of the building an irregular pattern-like strategy was decided on. The strategy emerged from a set of design parameters based on achieving a good interior light quality in addition to the heights of the balustrade and doors throughout the building. Together these parameters, in addition to keeping with the concept of exposing movement in the building, contrast and highlight the open and closed elements of the facade. This is achieved by introducing solid and open panels that form the balustrade in addition to a second layer of glazing that forms the skin of the building. Here the pattern is achieved by introducing both clear and frosted glass panels that once again play on the open and closed sections of the facade.