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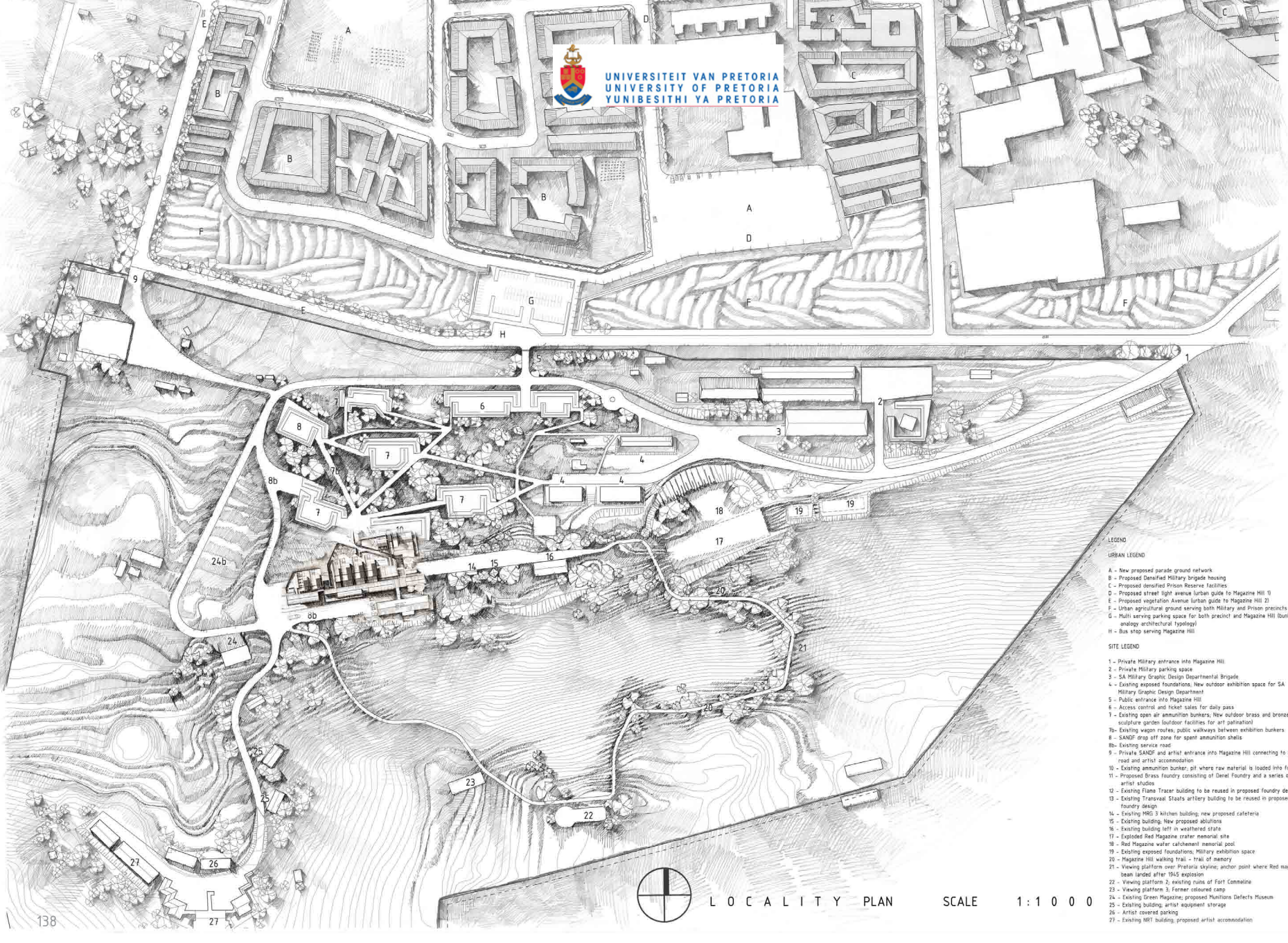
The conclusion includes the final drawings that was presented on 9 November, 2011 during tha final examination



LOCALITY PLAN SCALE 1:1000

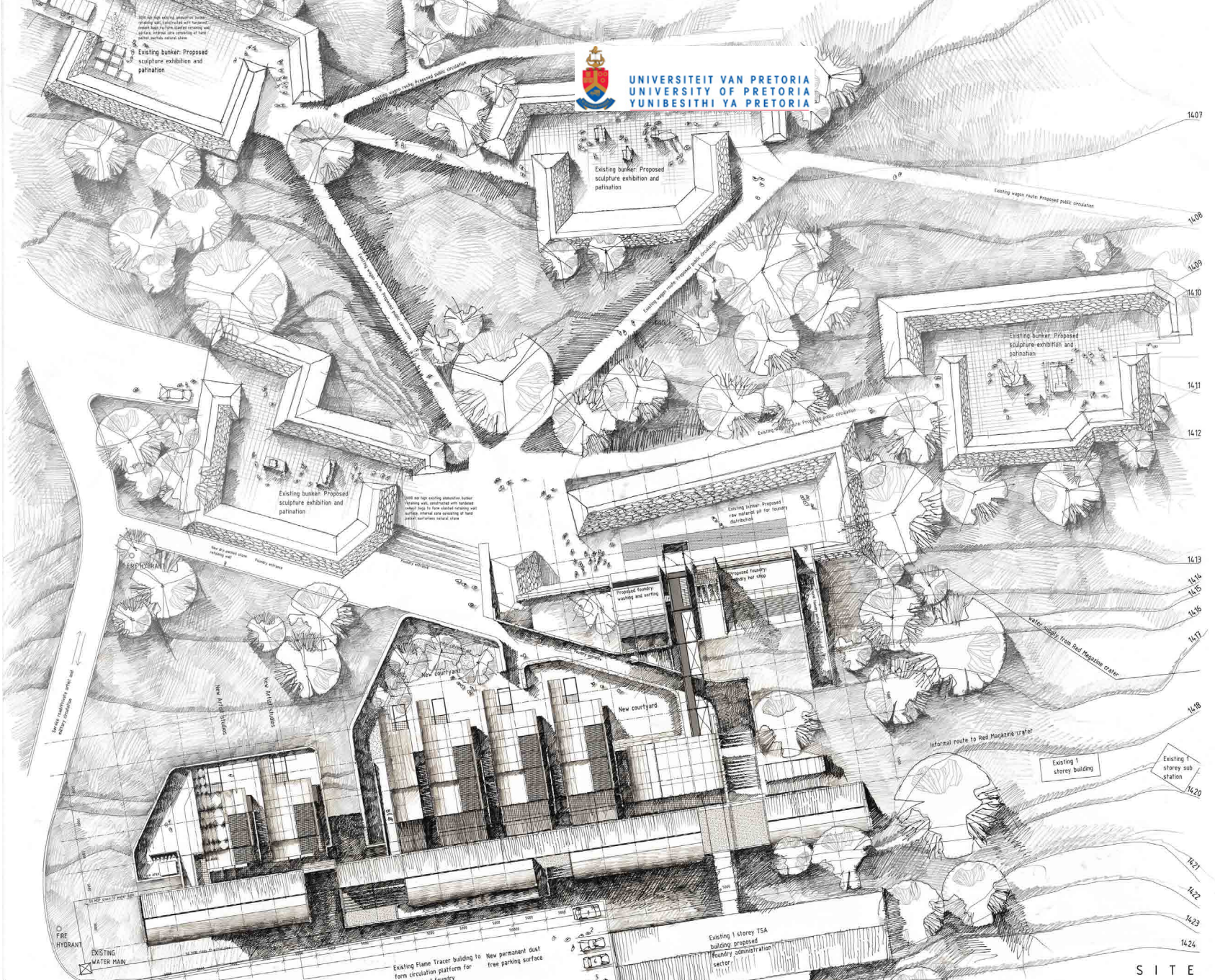
LEGEND

URBAN LEGEND

A – New proposed parade ground network
B – Proposed densified Military brigade housing
C – Proposed densified Prison Reserve facilities
D – Proposed street light avenue (urban guide to Magazine Hill 1)
E – Proposed vegetation Avenue (urban guide to Magazine Hill 2)
F – Urban agricultural ground serving both Military and Prison precincts
G – Multi serving parking space for both precinct and Magazine Hill (bunker analogy architectural typology)
H – Bus stop serving Magazine Hill

SITE LEGEND

1 – Private Military entrance into Magazine Hill
2 – Private Military parking space
3 – SA Military Graphic Design Departmental Brigade
4 – Existing exposed foundations; New outdoor exhibition space for SA Military Graphic Design Department
5 – Public entrance into Magazine Hill
6 – Access control and ticket sales for daily pass
7 – Existing open air ammunition bunkers; New outdoor brass and bronze sculpture garden (outdoor facilities for art patination)
7b- Existing wagon routes; public walkways between exhibition bunkers
8 – SANDF drop off zone for spent ammunition shells
8b- Existing service road
9 – Private SANDF and artist entrance into Magazine Hill connecting to service road and artist accommodation
10 – Existing ammunition bunker; pit where raw material is loaded into foundry
11 – Proposed Brass foundry consisting of Denel Foundry and a series of artist studios
12 – Existing Flame Tracer building to be reused in proposed foundry design
13 – Existing Transvaal Staats artillery building to be reused in proposed foundry design
14 – Existing MRG 3 kitchen building; new proposed cafeteria
15 – Existing building; New proposed ablutions
16 – Existing building left in weathered state
17 – Exploded Red Magazine crater memorial site
18 – Red Magazine water catchement memorial pool
19 – Existing exposed foundations; Military exhibition space
20 – Magazine Hill walking trail – trail of memory
21 – Viewing platform over Pretoria skyline; anchor point where Red magazine Roof bean landed after 1945 explosion
22 – Viewing platform 2; existing ruins of Fort Commeline
23 – Viewing platform 3; Former coloured camp
24 – Existing Green Magazine; proposed Munitions Defects Museum
25 – Existing building; artist equipment storage
26 – Artist covered parking
27 – Existing NRT building; proposed artist accommodation



Site generators

From the initial developmental stage of Magazine Hill (Fort Commeline, 1881) the site had been designed to function as a secretive entity within the natural hilltop landscape. In 1894 when the underground ammunition magazines was constructed on site as part of the second fortification plan for Pretoria, the same concept of veiled architecture concluded a new typology for hidden military infrastructure. The design of the ammunition bunkers with internal production facilities followed the same construction methodology after Magazine Hill was labelled as one of the first sites for military industrialism in the country. This inherent typology of built form on Magazine Hill forms a conceptual platform for space that reveals and space that conceals.

Throughout the design of the route through the site and foundry, this concept of revealing and concealing space is utilised to enrich spatial experience. The old wagon routes that form circulation platforms between the exhibition bunkers define concealing space, while the interiors of the bunkers itself identifies revealed space, revealing exhibited sculptures. The different foundry processes are also experienced to be revealed and concealed along the route through the foundry. This journey through the site strengthens the visitor's interpretation of the hilltop landscape, complying with the third principle of the Ename charter which states that a connection should be established between users and the site for individual interpretation (ICOMOS, 2005)

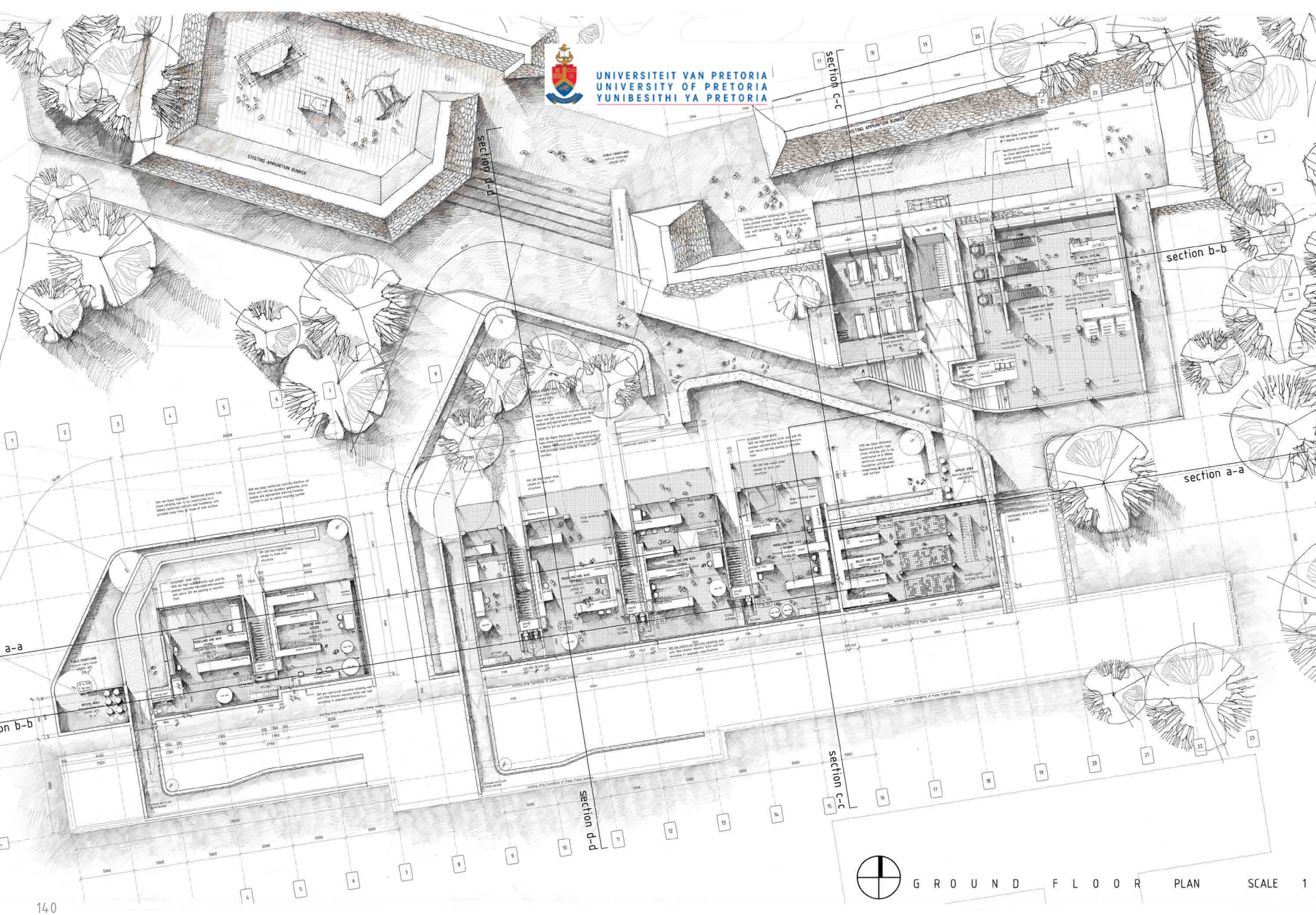
The second site generator comments on the steriotomic and tectonic relationship of the architectural response in relation to the existing fabric on site. All existing structures on Magazine Hill form part of an impervious military aesthetic that is steriotomic of nature. This impenetrable built fabric of existing structures on site consists mainly of hardened sement bags, natural stone retaining walls, concrete bunker walls and vernacular Kirkness brick buildings. The steriotomic character of built fabric thus relates to the existing, that which belongs to the site.

In contrast to the existing steriotomic aesthetic, a tectonic response implies new built form. In the design of the foundry, both aesthetics are utilised to anchor the new proposal within the historical arena of Magazine Hill. The furnace tower forms part of the steriotomic design elements while sorting , washing and hot shop space start to integrate/weave the steriotomic with the tectonic, capitalising on the advantages of both systems, while creating the illusion that the furnace tower grows from the existing bunker space.

An additional series of bunkers is added to the existing labyrinth of submerged space that forms exhibition courtyards for sculpture works in the artist studios. This design addendum is constructed as an analogy of the existing bunker space, thus steriotomic in nature, connecting the existing military aesthetic with contemporary architecture (in compliance with Venice charter, Article 13). New tectonic artist studios project over the new bunkers, forming a concealed courtyard typology.

Building on the conceptual premise that the site heals itself from impurities (rain season exposes mortar shells and ammunition cartridges that is imbedded in the soil after the explosion of 1945), the foundry design uses the landscape to harvest and purifies grey water for foundry use.

SITE PLAN 1:200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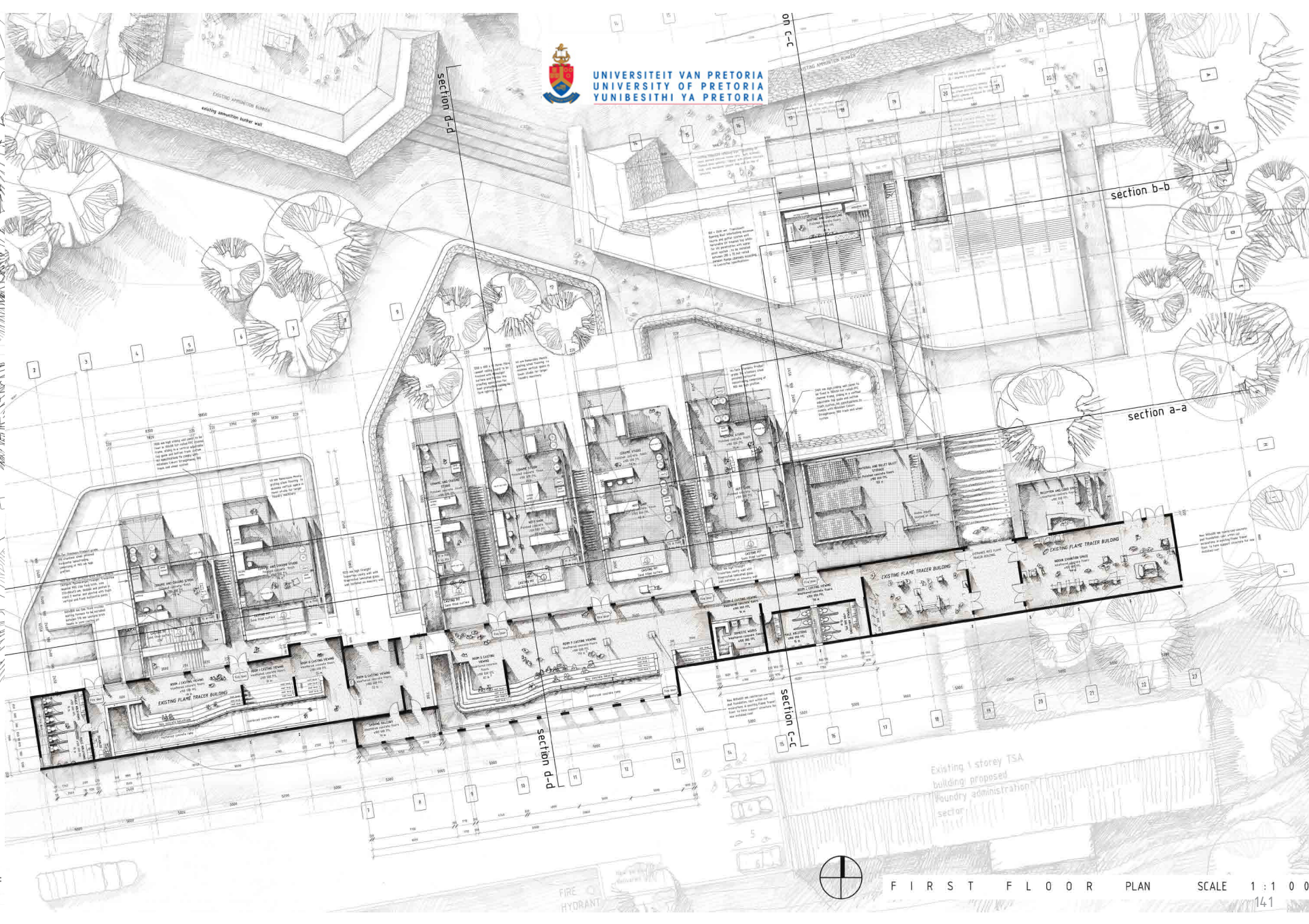
EXISTING AMMUNITION BUNKER
section a-a
section b-b
section c-c
section d-d
GROUND FLOOR PLAN SCALE 1



FIRST FLOOR PLAN SCALE 1:100

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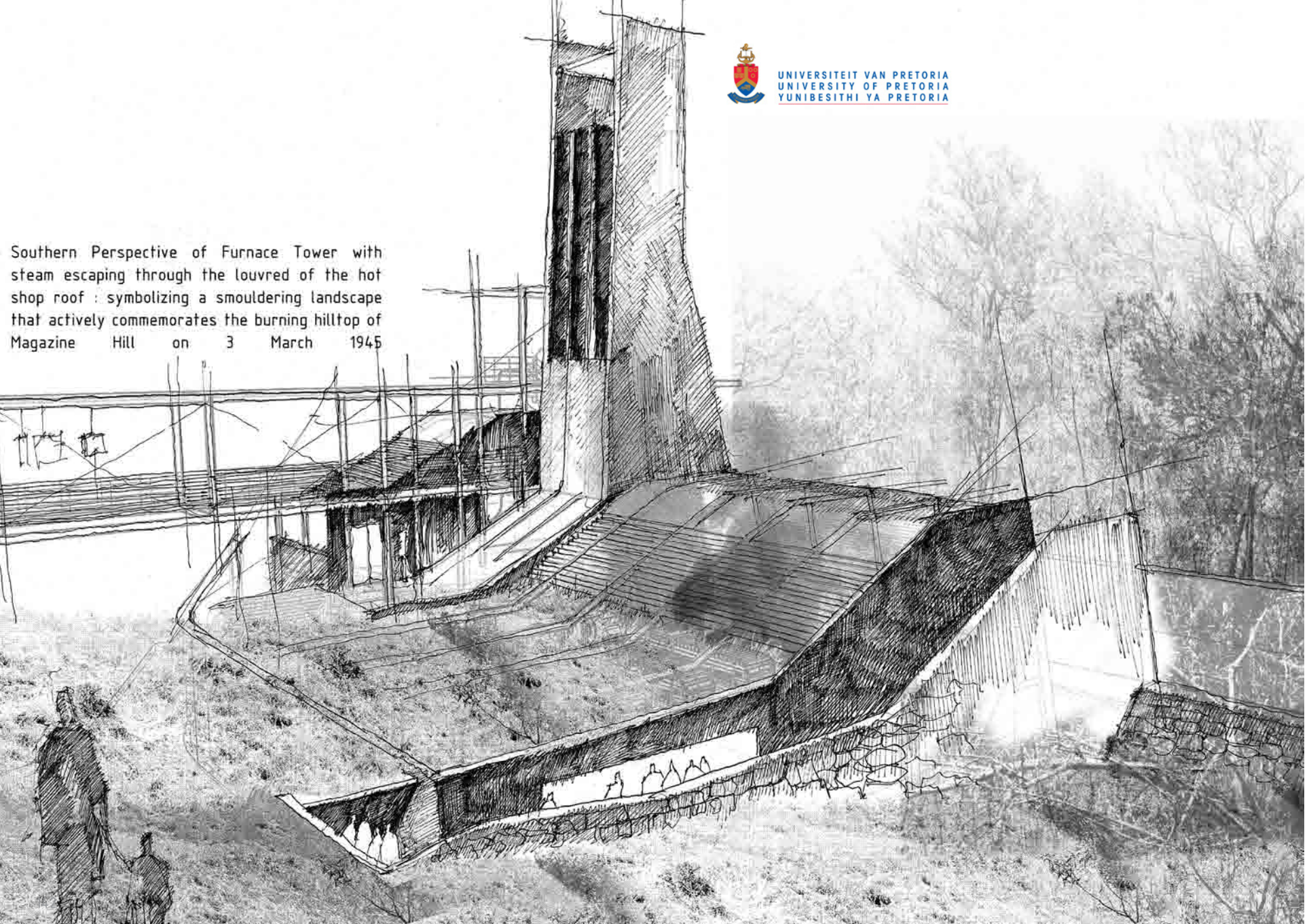
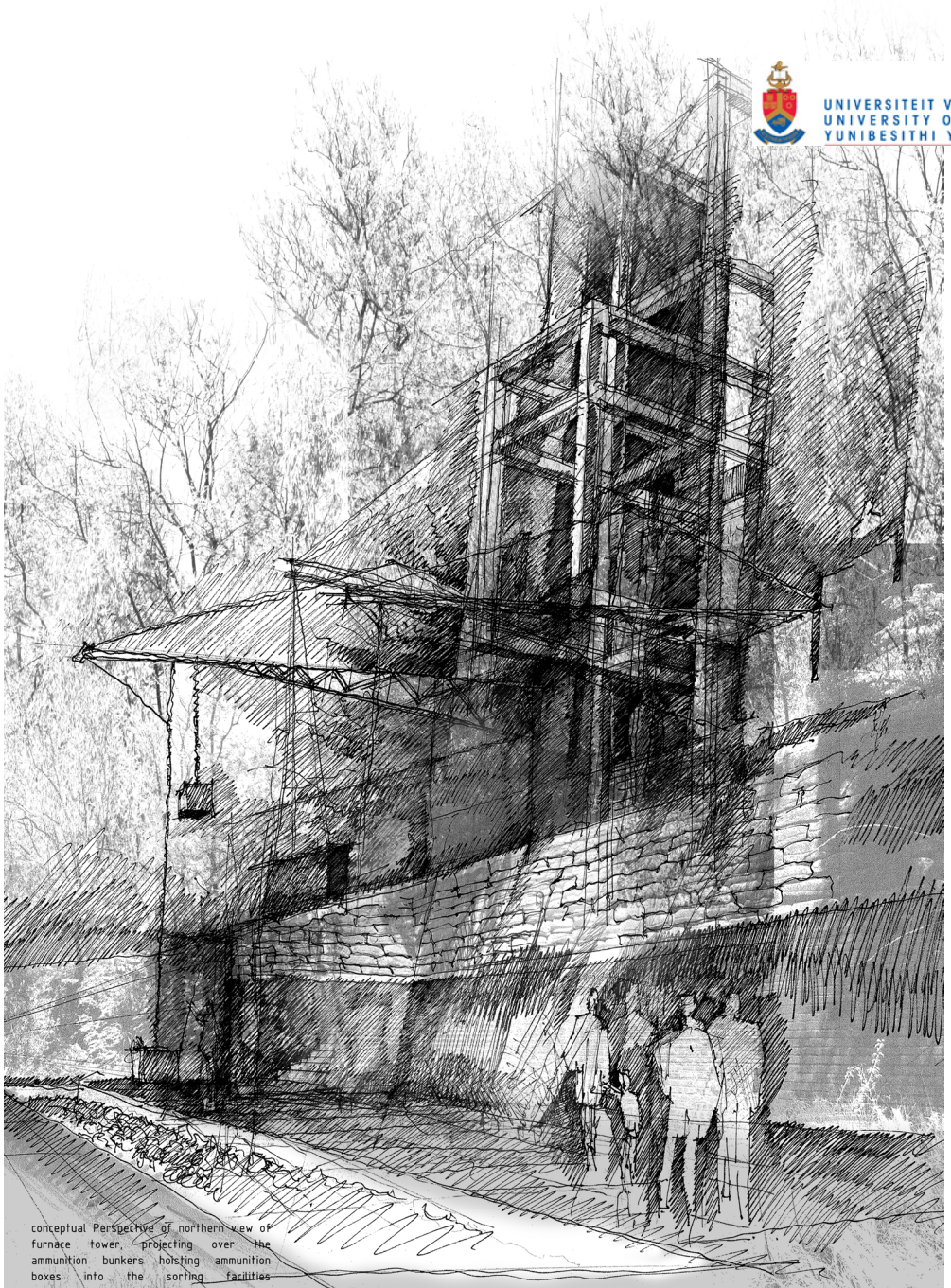
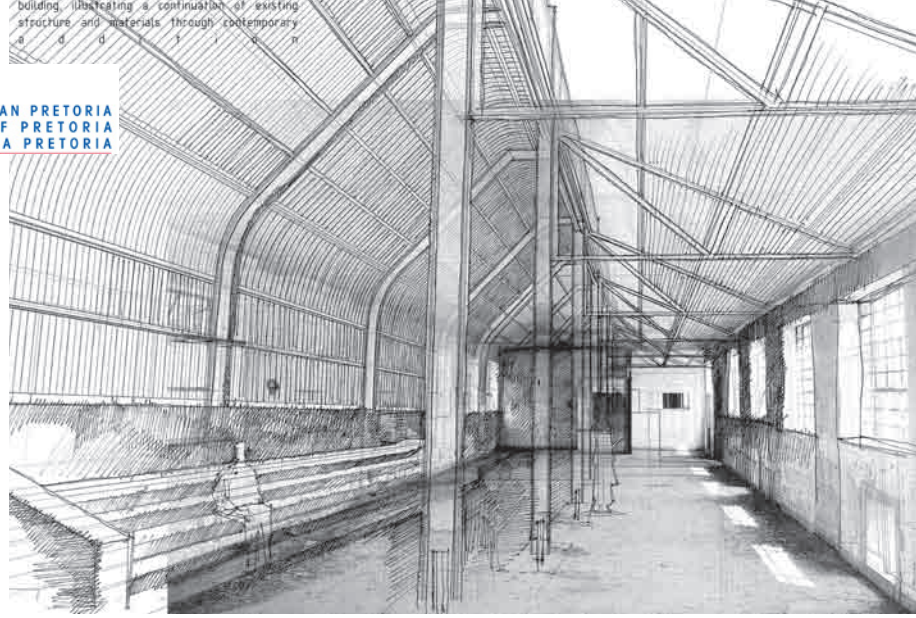
Southern Perspective of Furnace Tower with steam escaping through the louvred of the hot shop roof : symbolizing a smouldering landscape that actively commemorates the burning hilltop of Magazine Hill on 3 March 1945

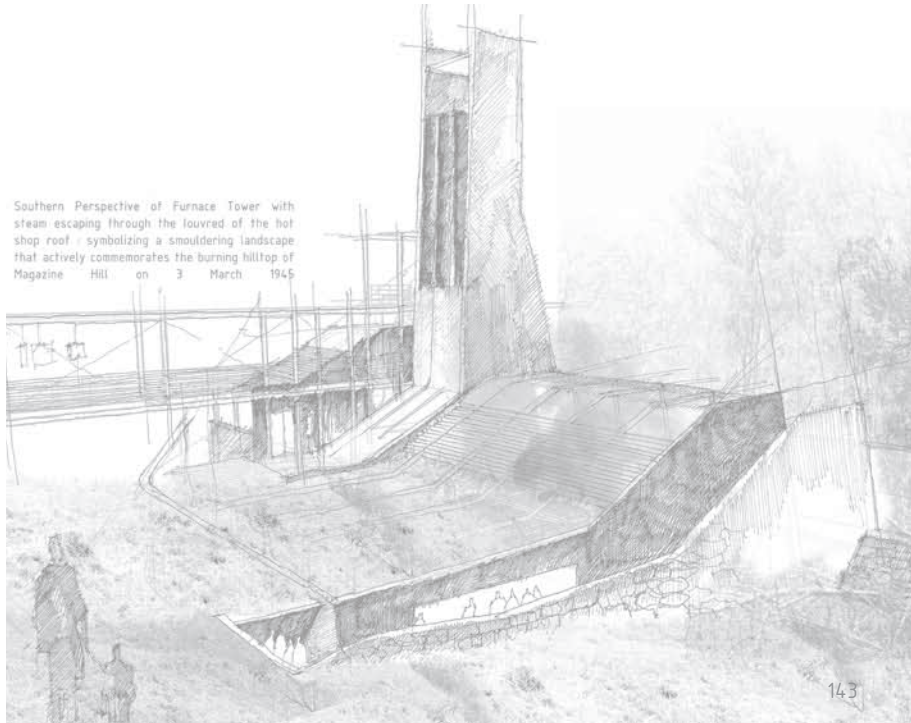




conceptual Perspective of northern view of furnace tower, projecting over the ammunition bunkers hoisting ammunition boxes into the sorting facilities



building illustrating a continuation of existing structure and materials through contemporary addition



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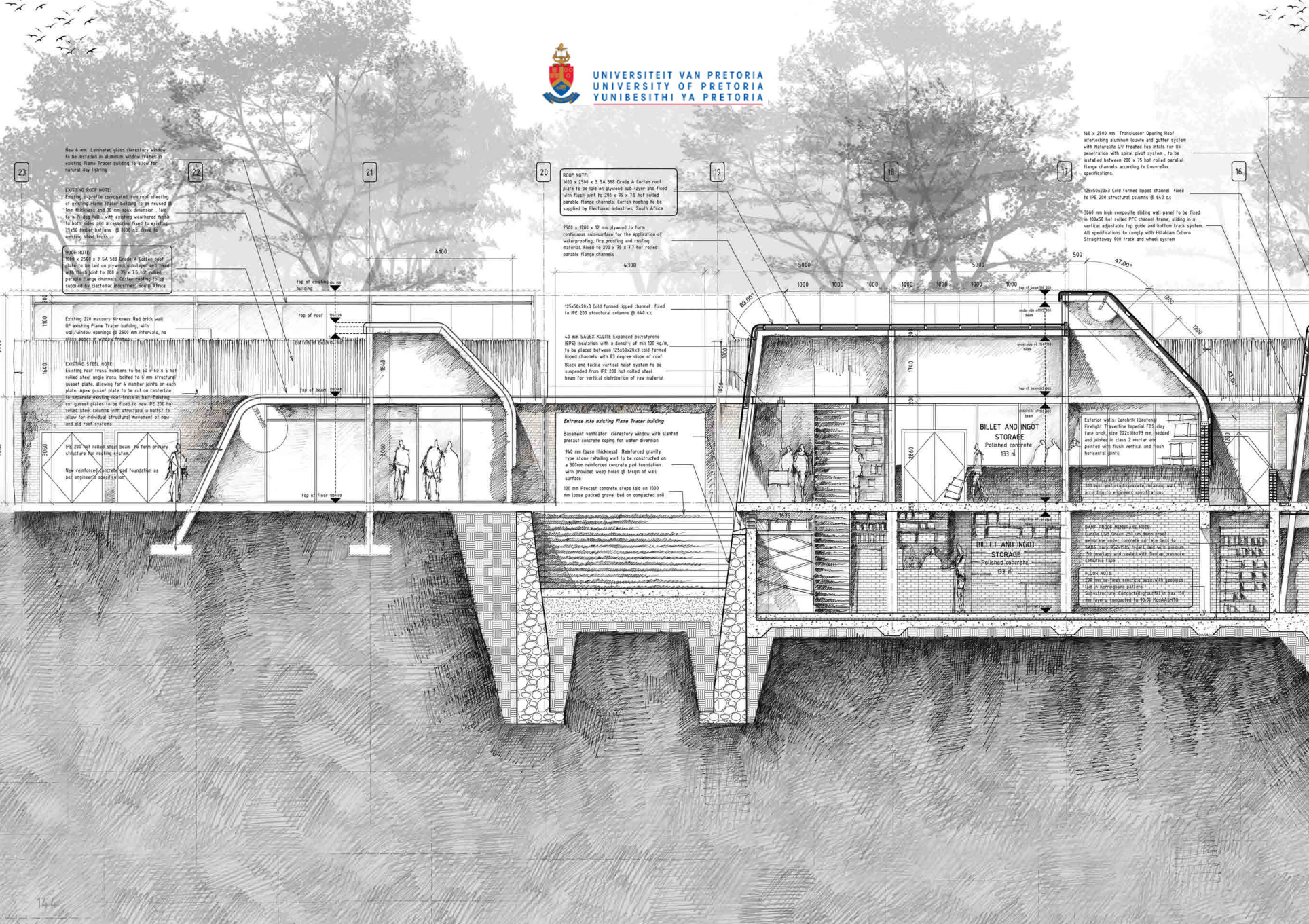

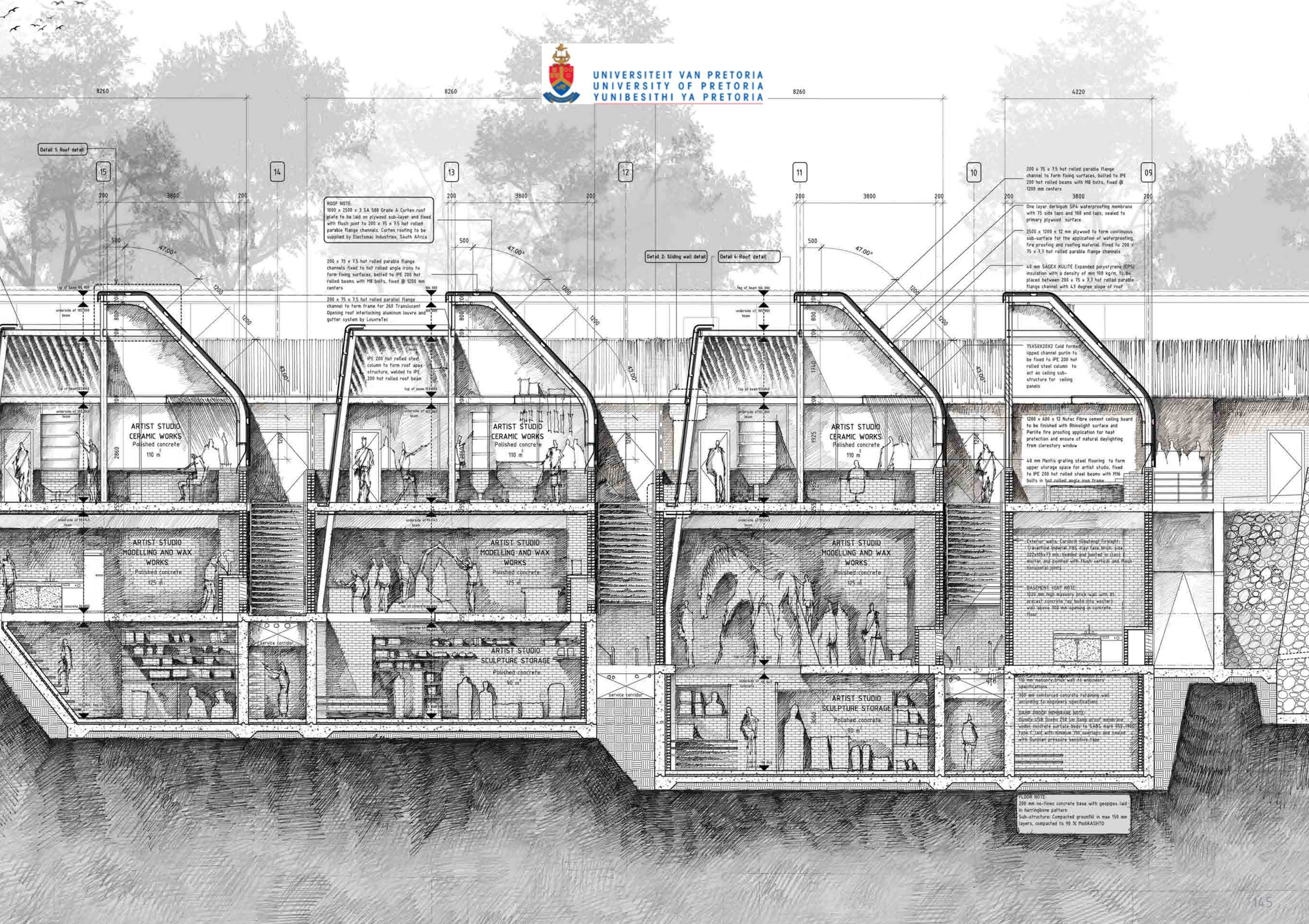
Detail 1: Roof detail
Detail 2: Sliding wall detail
Detail 4: Roof detail
ROOF NOTE
1000 x 2500 x 3 SA 588 Grade A Corten roof plate to be laid on plywood sub-layer and fixed with flush joint to 200 x 75 x 7.5 hot rolled parable flange channels. Corten roofing to be supplied by Electomac Industries, South Africa
200 x 75 x 7.5 hot rolled parable flange channels fixed to hot rolled angle irons to form fixing surfaces, bolted to IPE 200 hot rolled beams with M8 bolts, fixed @ 1200 mm centers
200 x 75 x 7,5 hot rolled parallel flange channel to form frame for 260 Translucent Opening roof interlocking aluminum louvre and gutter system by LouvreTec
IPE 200 Hot rolled steel column to form roof apex structure, welded to IPE 200 hot rolled roof beam
200 x 75 x 7.5 hot rolled parable flange channel to form fixing surfaces, bolted to IPE 200 hot rolled beams with M8 bolts, fixed @ 1200 mm centers
One layer derbigum SP4 waterproofing membrane with 75 side laps and 100 end laps, sealed to primary plywood surface
2500 x 1200 x 12 mm plywood to form continuous sub-surface for the application of waterproofing, fire proofing and roofing material. Fixed to 200 x 75 x 7,7 hot rolled parable flange channels
40 mm SAGEX KULITE Expanded polystyrene (EPS) insulation with a density of min 100 kg/m, to be placed between 200 x 75 x 7,7 hot rolled parable flange channel with 43 degree slope of roof
75X50X20X2 Cold formed lipped channel purlin to be fixed to IPE 200 hot rolled steel column to act as ceiling sub-structure for ceiling panels
1200 x 600 x 12 Nutec Fibre cement ceiling board to be finished with Rhinolight surface and Perlite fire proofing application for heat protection and ensure of natural daylighting from clerestory window
40 mm Mentis grating steel flooring to form upper storage space for artist studio, fixed to IPE 200 hot rolled steel beams with M16 bolts in hot rolled angle iron frame
ARTIST STUDIO
CERAMIC WORKS
Polished concrete
110 m²
ARTIST STUDIO
MODELLING AND WAX
WORKS
Polished concrete
125 m²
ARTIST STUDIO
SCULPTURE STORAGE
Polished concrete
90 m²
service corridor
FLOOR NOTE
200 mm no-fines concrete base with geopipes laid in herringbone pattern
Sub-structure: Compacted groundfill in max 150 mm layers, compacted to 90 % ModAASHTO
8260
8260
8260
4220
15
14
13
12
11
10
09
200
3800
500
47,00°
43,00°
1200

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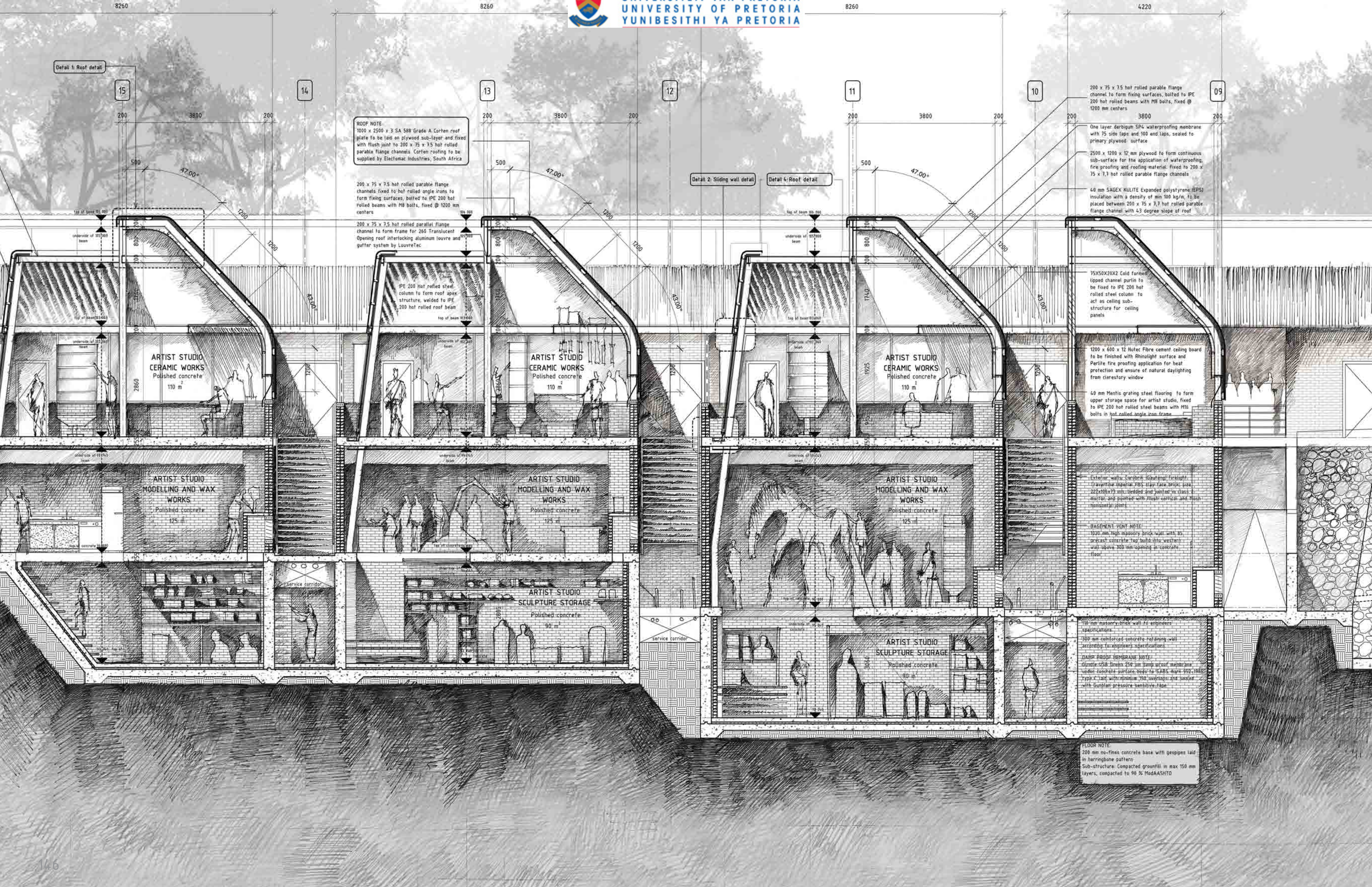

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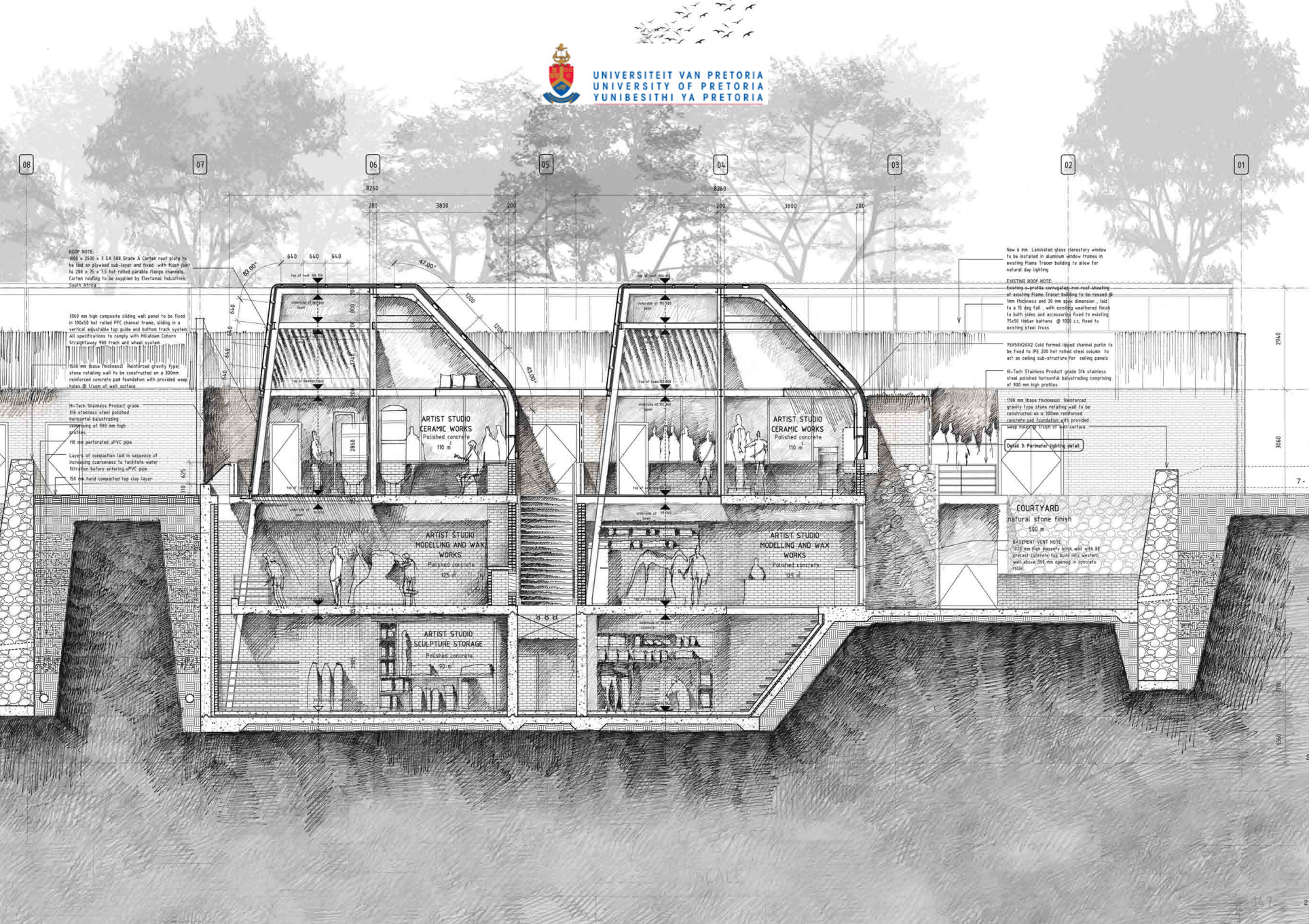
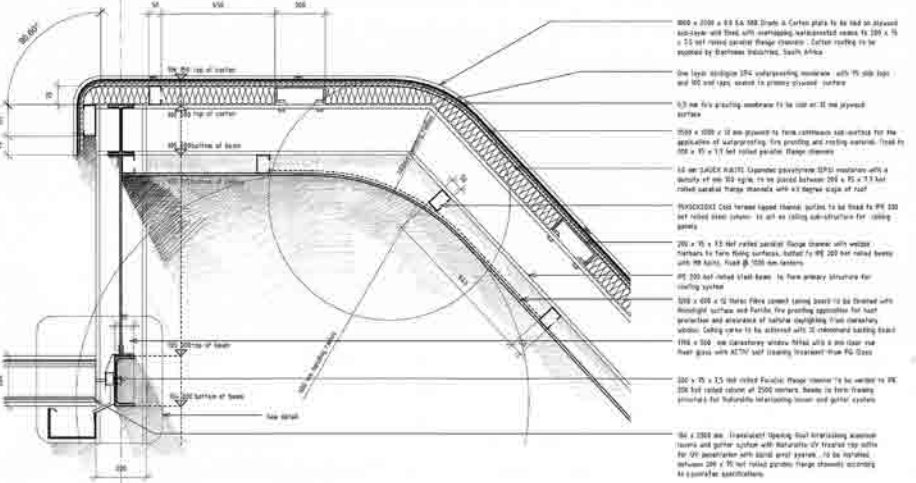
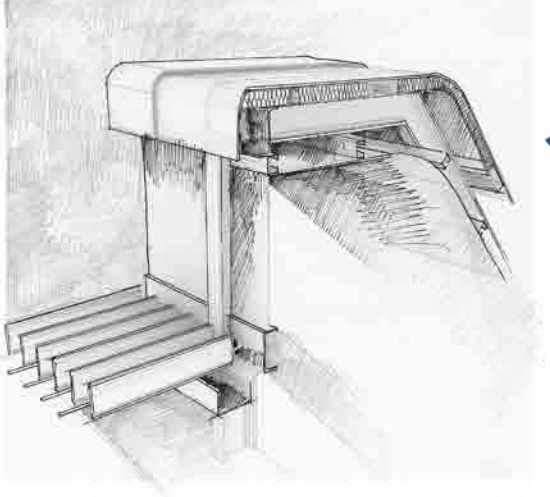
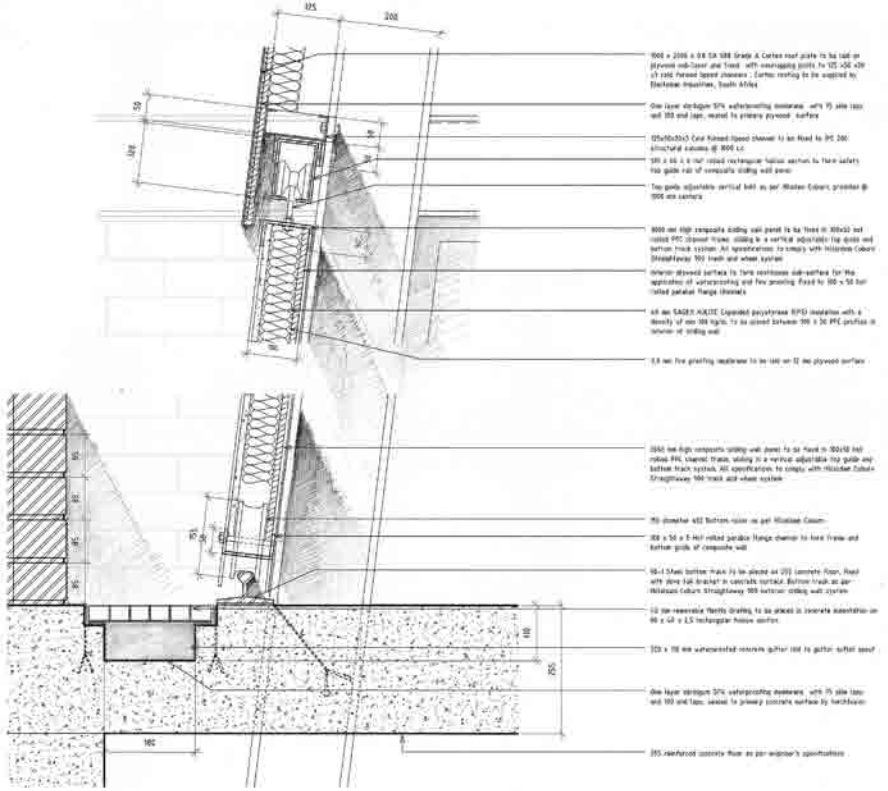
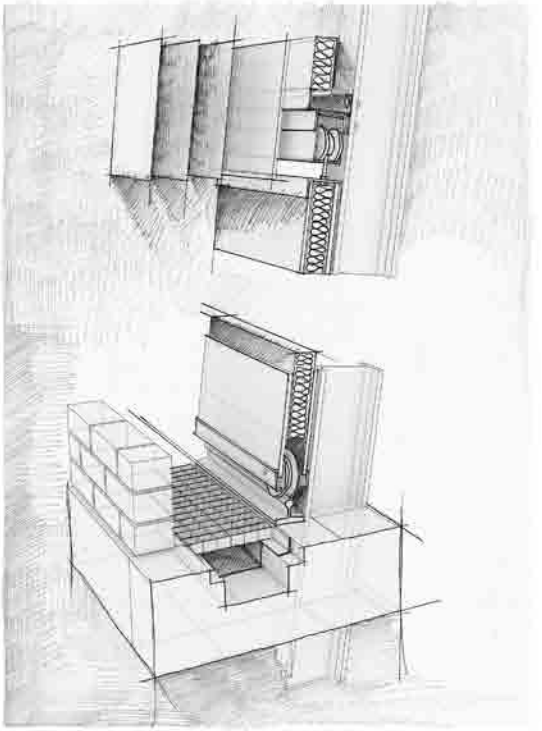




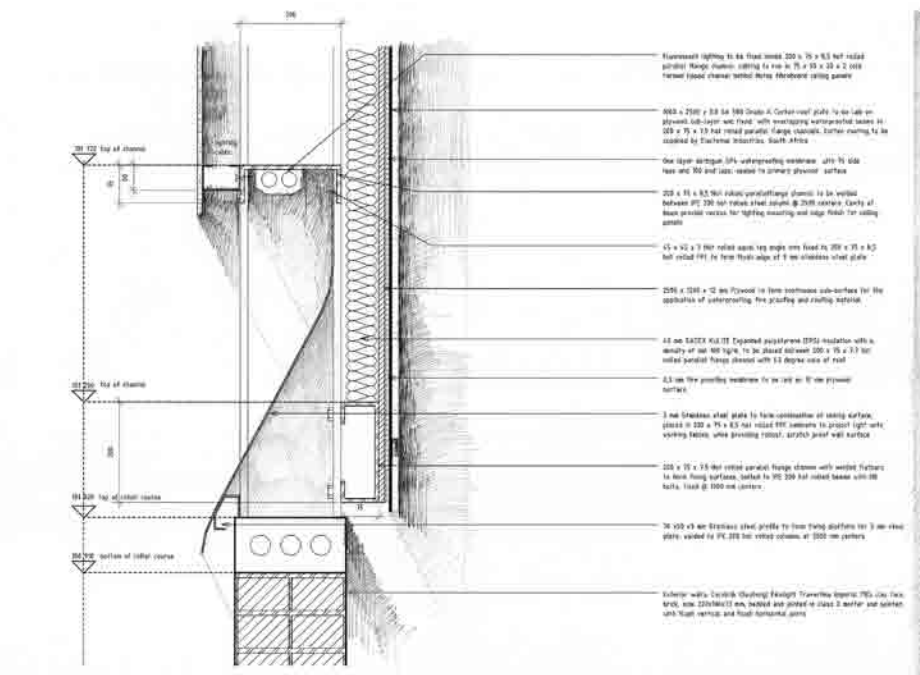


D E T A I L 1 : ROOF DETAIL SCALE: 1 : 10

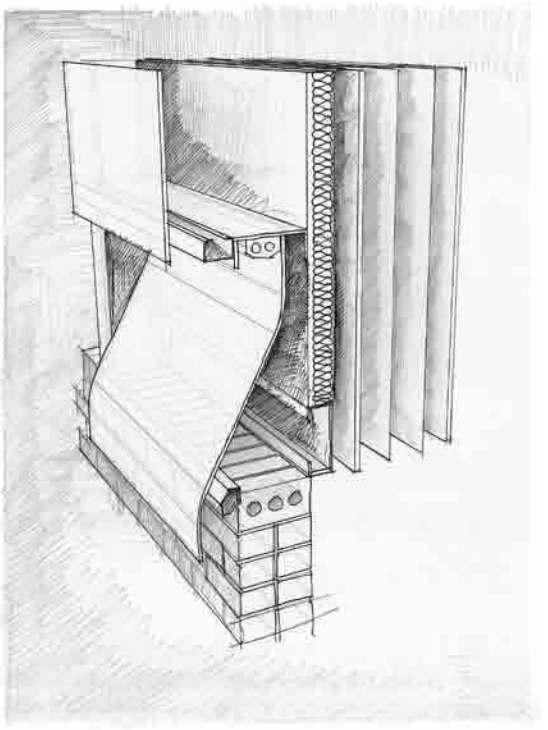


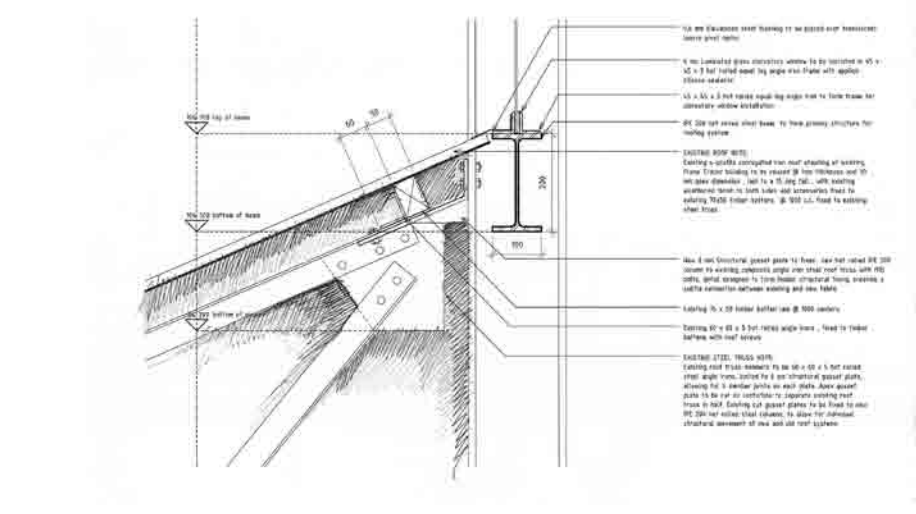


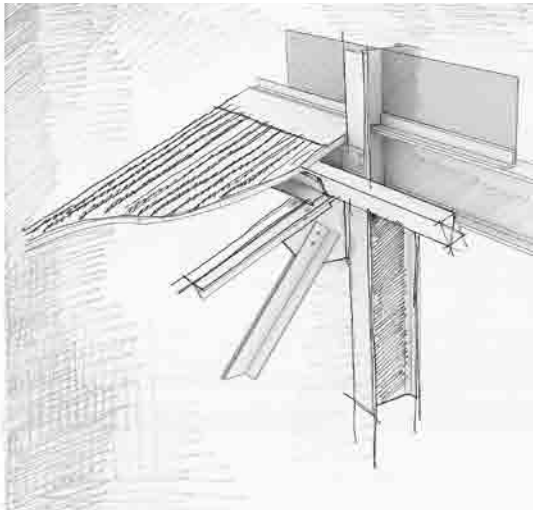
D E T A I L 2 : SLIDING WALL DETAIL SCALE: 1 : 5

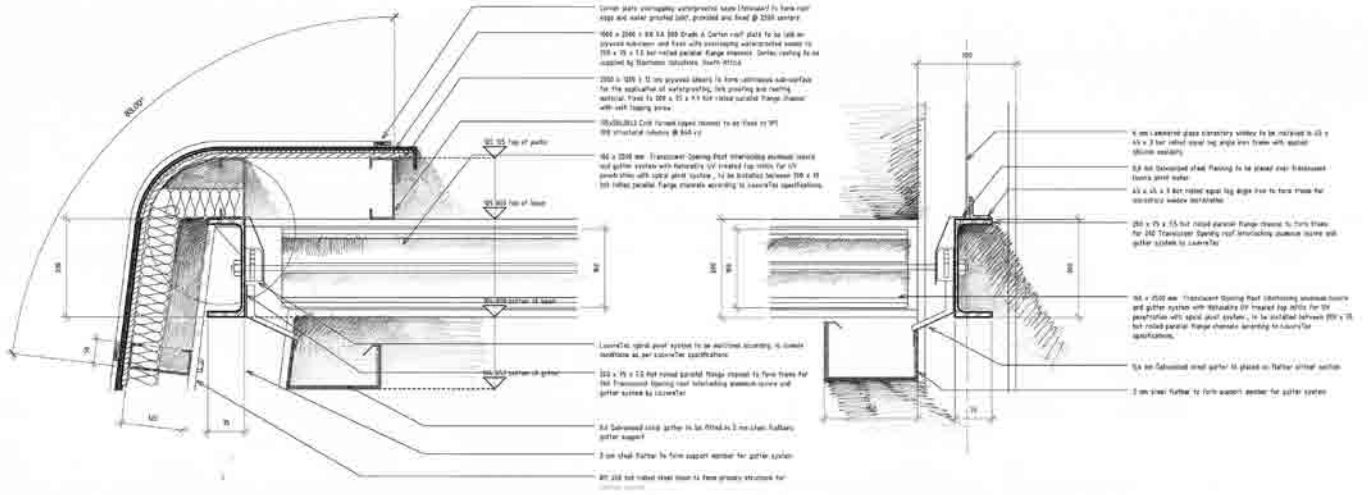


DETAIL 3: PERIMETER LIGHTING DETAIL SCALE: 1 : 5

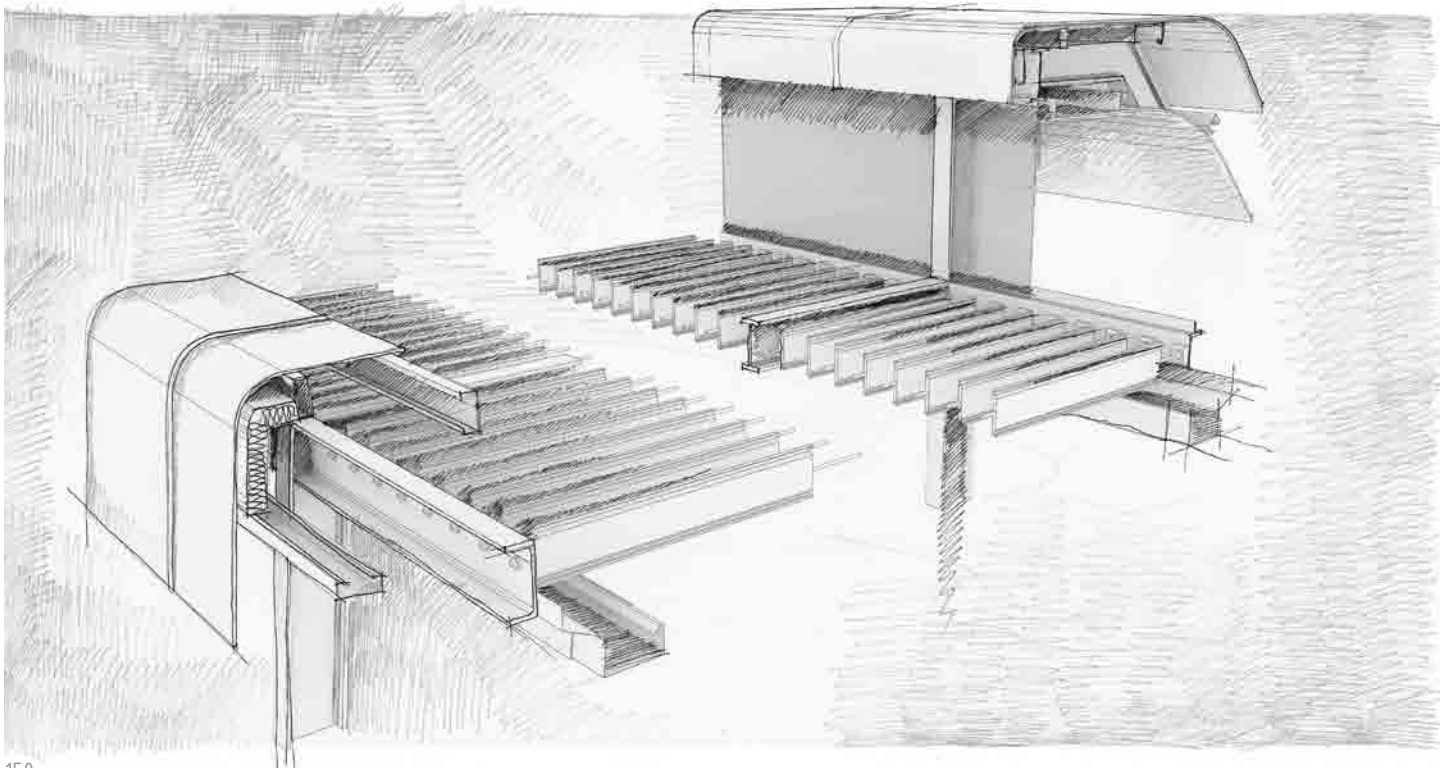




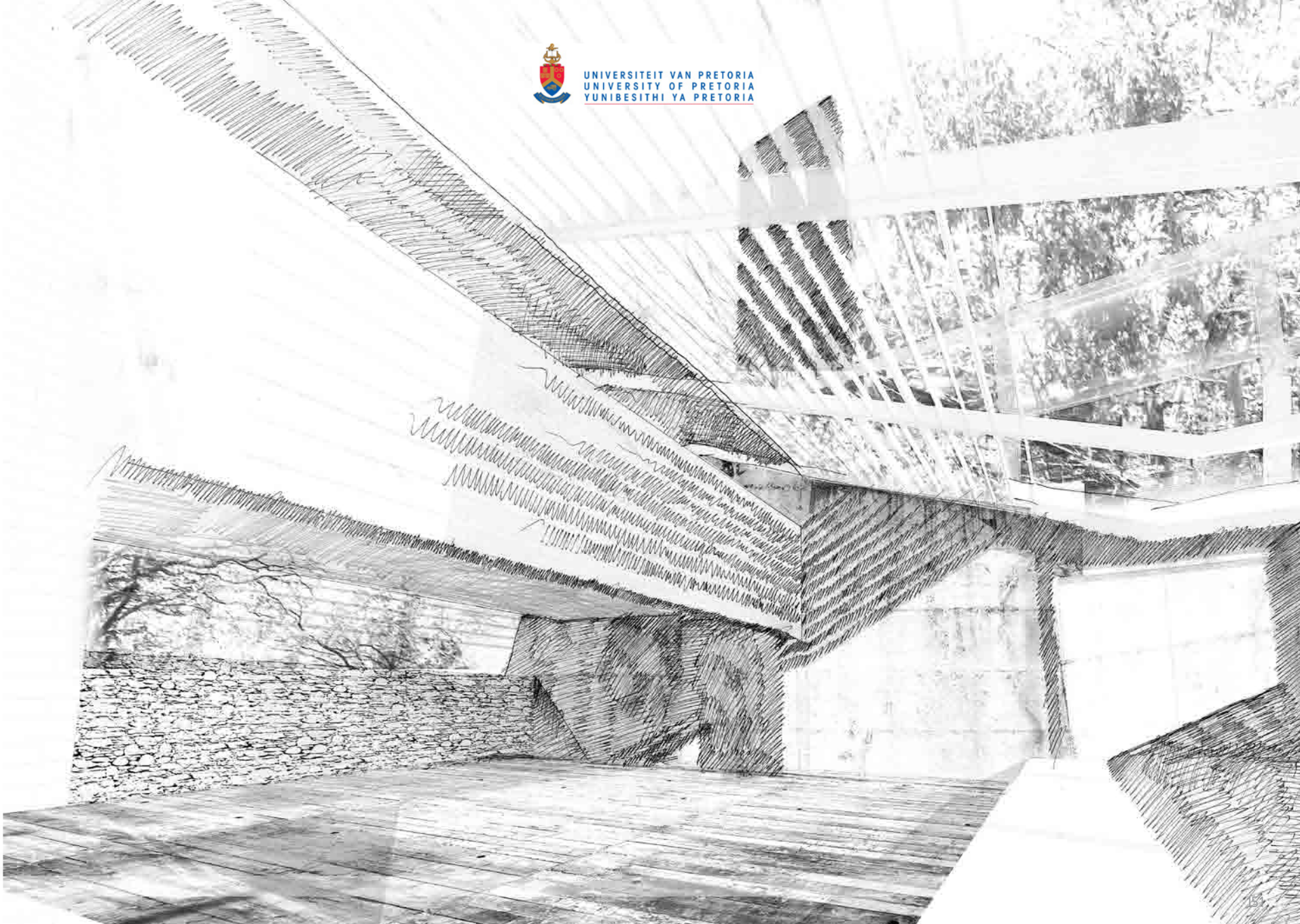




D E T A I L 4 : ROOF DETAIL SCALE: 1 : 5



D E T A I L 4 : ROOF AXONOMETRIC DETAIL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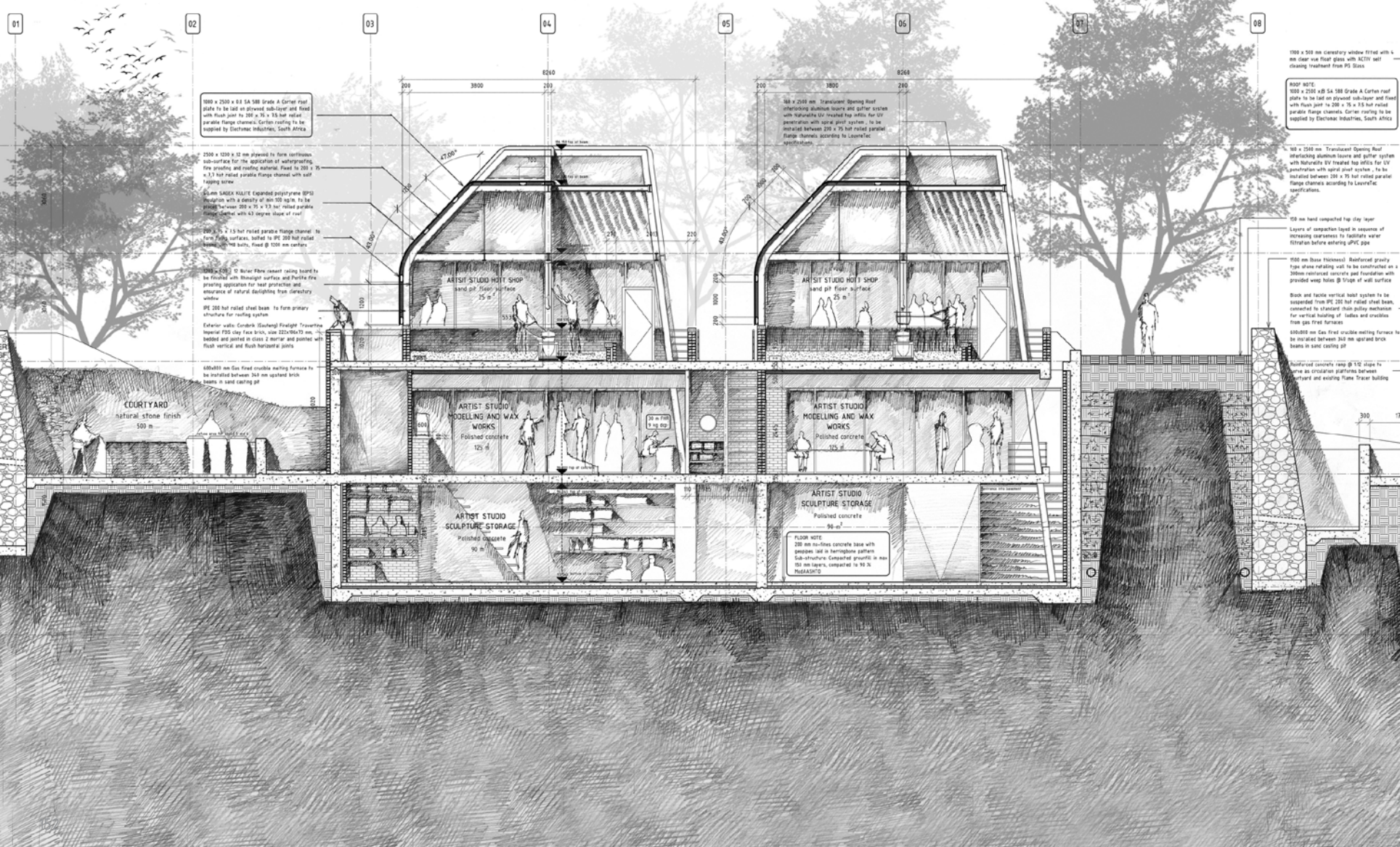

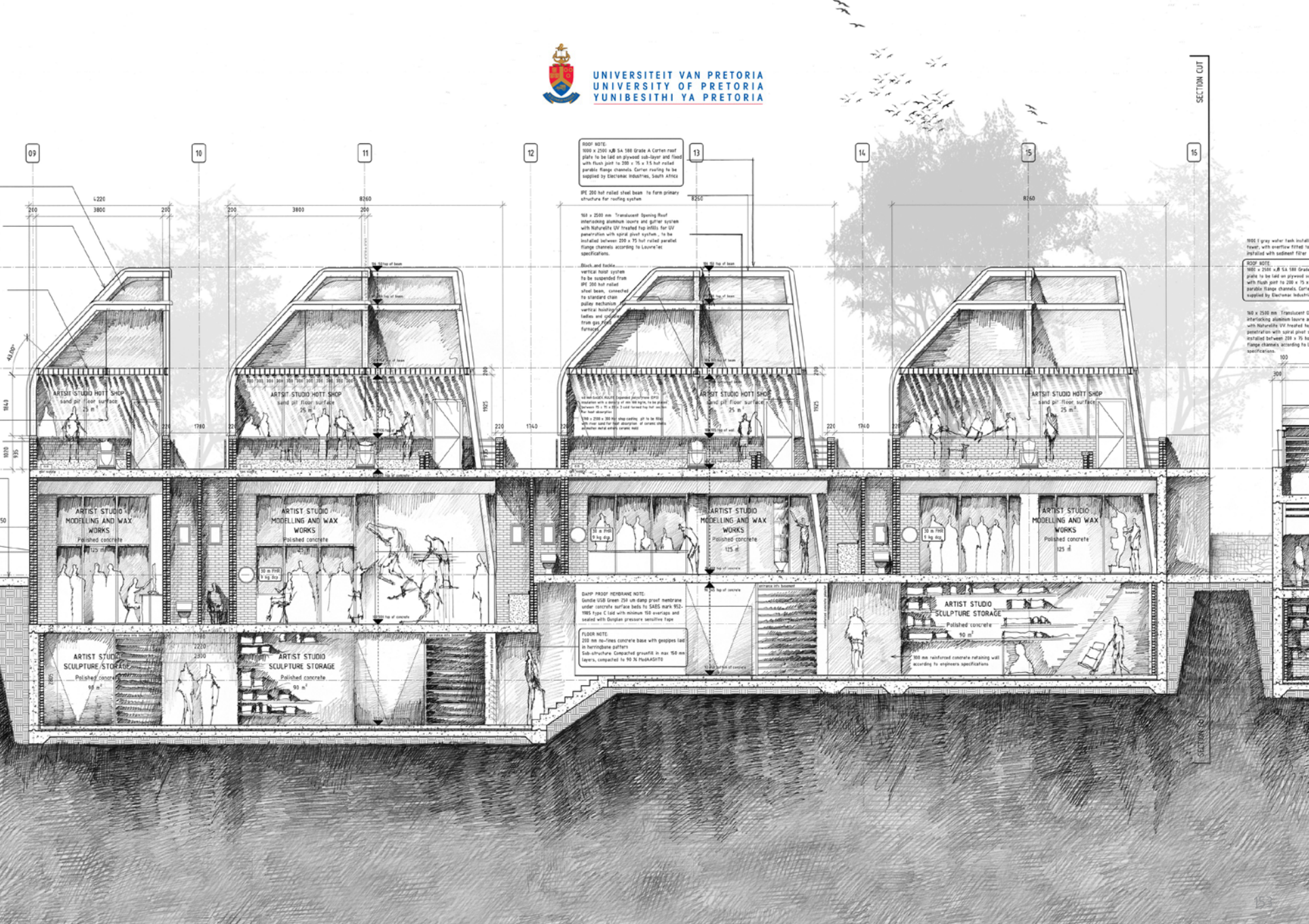
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SECTION CUT
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ROOF NOTE:
1600 x 2500 x,8 SA 588 Grade A Corten roof plate to be laid on plywood sub-layer and fixed with flush joint to 200 x 76 x 3.5 hot rolled parable flange channels. Corten roofing to be supplied by Electomac Industries, South Africa
IPE 200 hot rolled steel beam to form primary structure for roofing system
160 x 2500 mm Translucent Opening Roof interlocking aluminium louvre and gutter system with Naturelite UV treated top infills for UV penetration with spiral pivot system , to be installed between 200 x 75 hot rolled parallel flange channels according to Louvrelec specifications.
Block and tackle..... vertical hoist system to be suspended from IPE 200 hot rolled steel beam, connected to standard chain pulley mechanism vertical hoistrope with ladles and counterweight from gas fired furnaces
ARTIST STUDIO HOTT SHOP
sand pit floor surface
25 m²
ARTIST STUDIO MODELLING AND WAX WORKS
Polished concrete
125 m²
ARTIST STUDIO SCULPTURE STORAGE
Polished concrete
90 m²
DAMP PROOF MEMBRANE NOTE:
Gundle USB Green 250 um damp proof membrane. under concrete surface beds to SABS mark 952-1985 type C laid with minimum 150 overlaps and sealed with Gunplan pressure sensitive tape
FLOOR NOTE:
200 mm no-fines concrete base with geogrpes laid in herringbone pattern
Sub-structure Compacted grounfill in max 150 mm layers, compacted to 90 % ModAASHTO
300 mm reinforced concrete retaining wall according to engineers specifications
SECTION CUT

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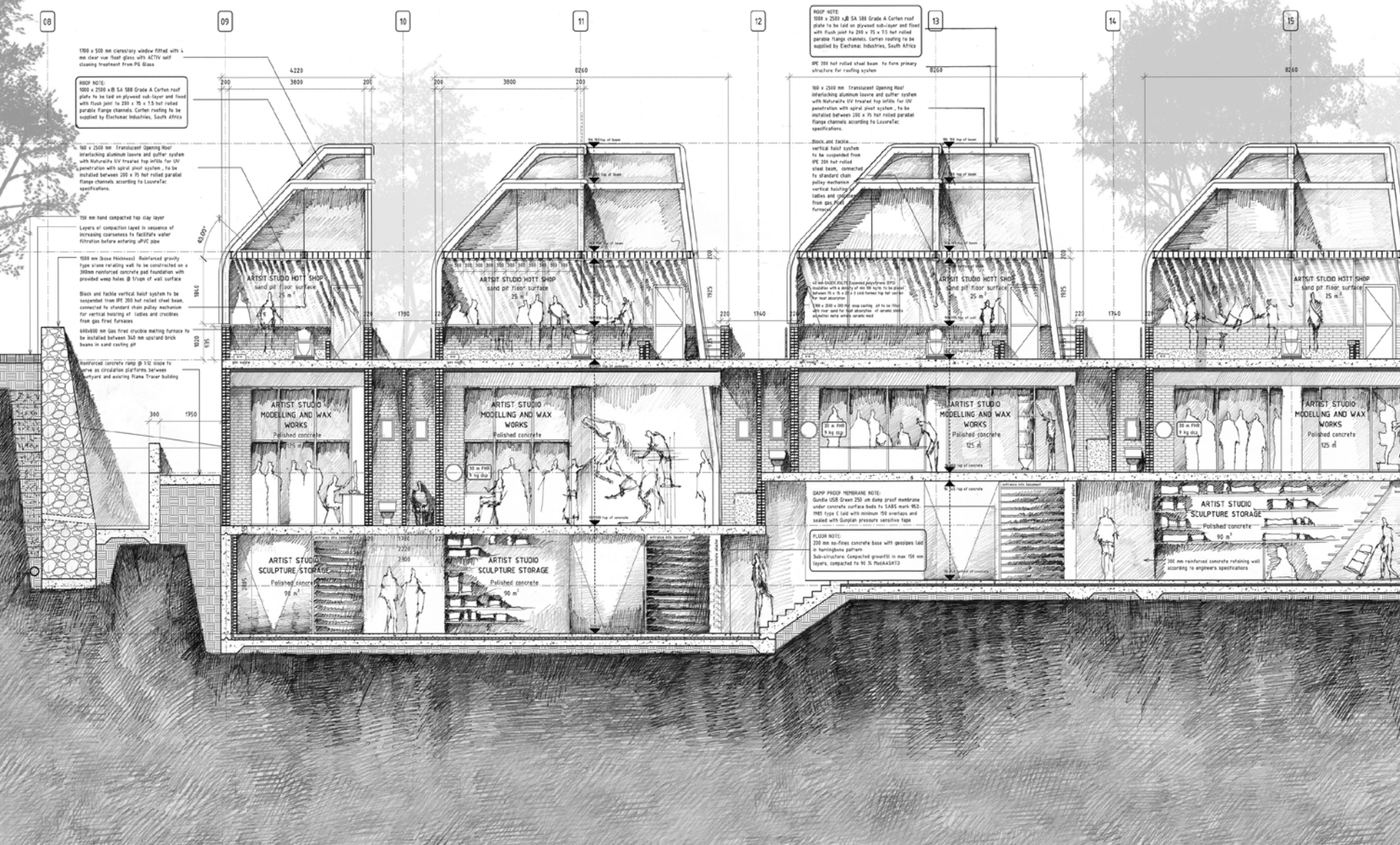

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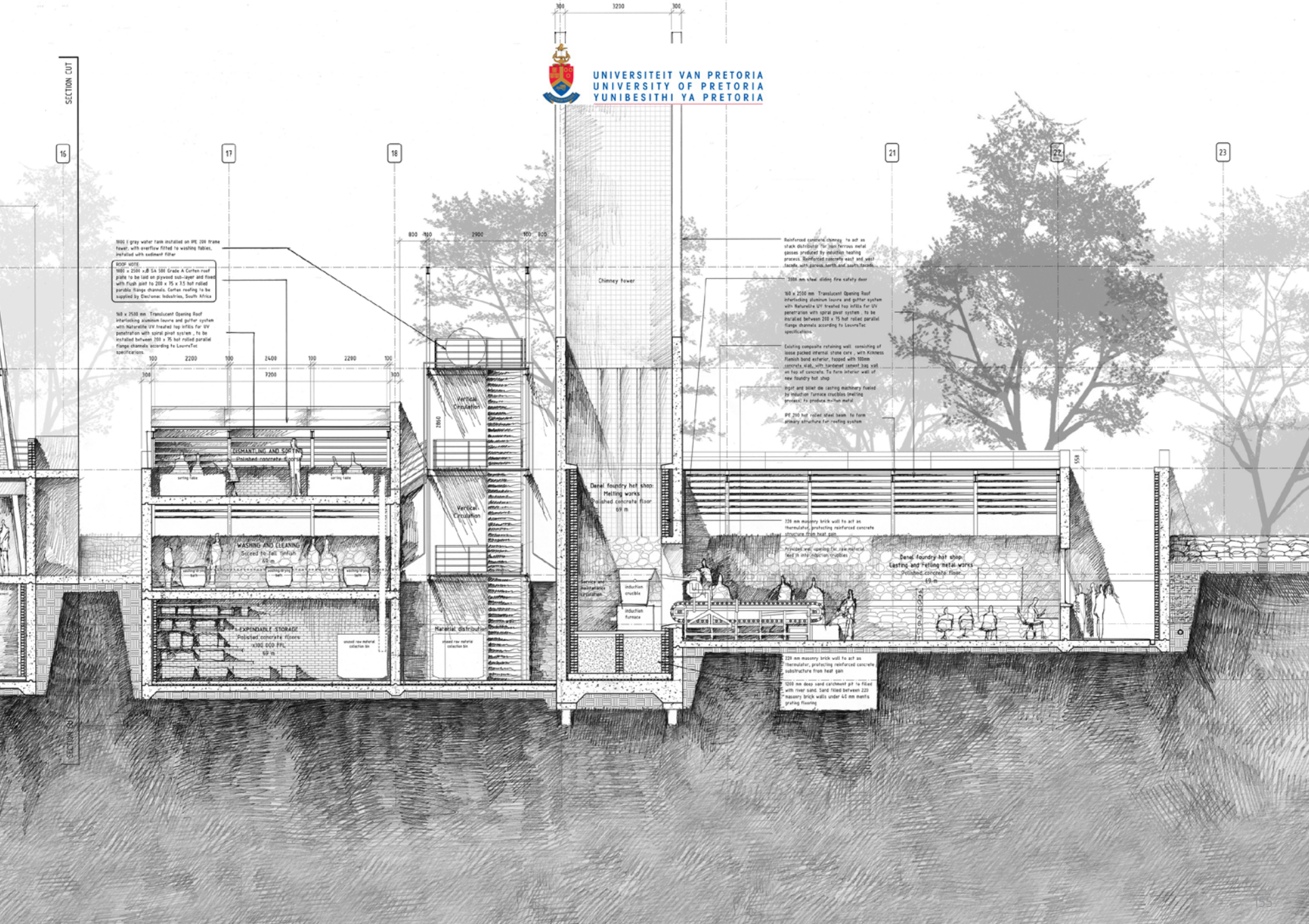

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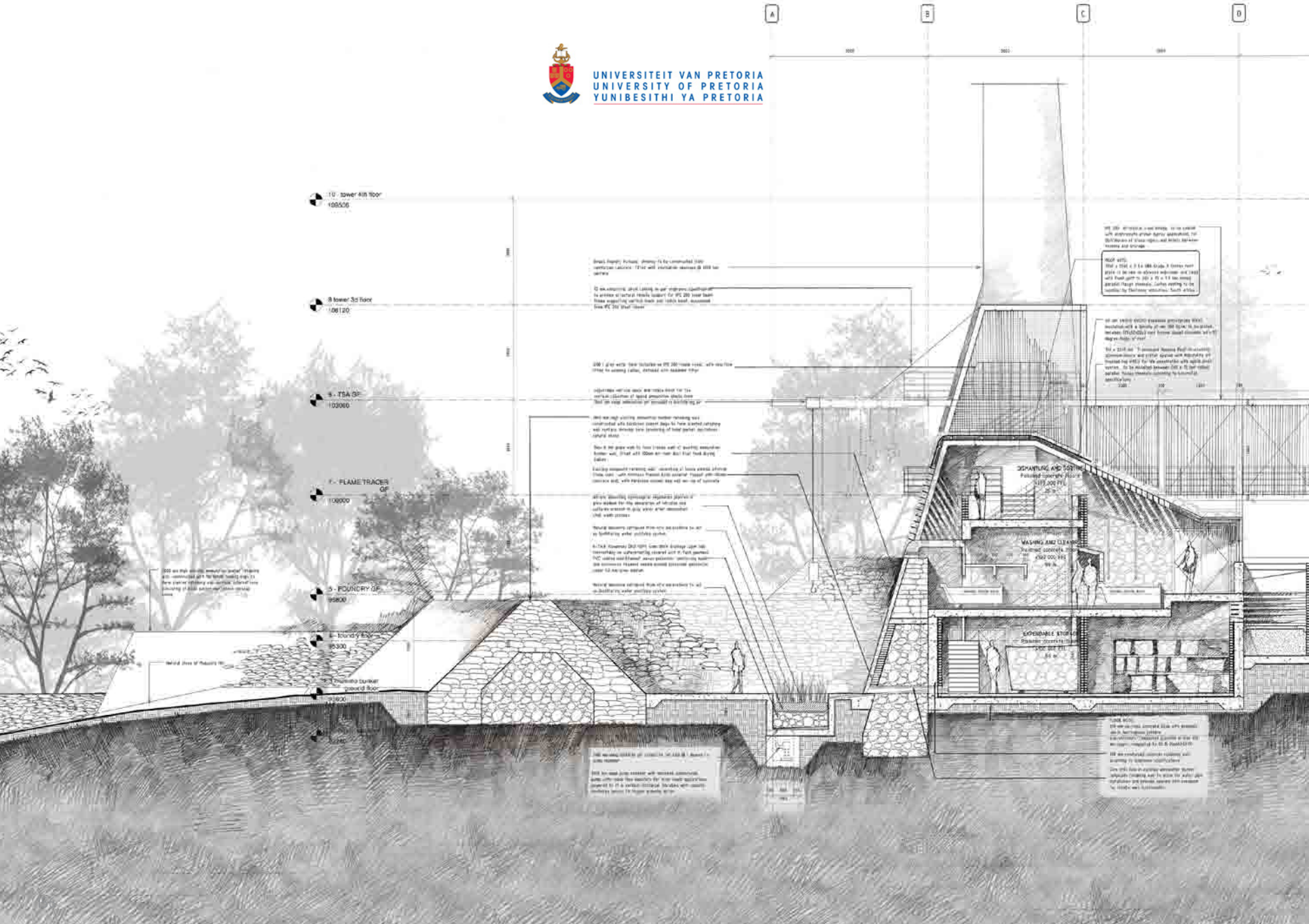

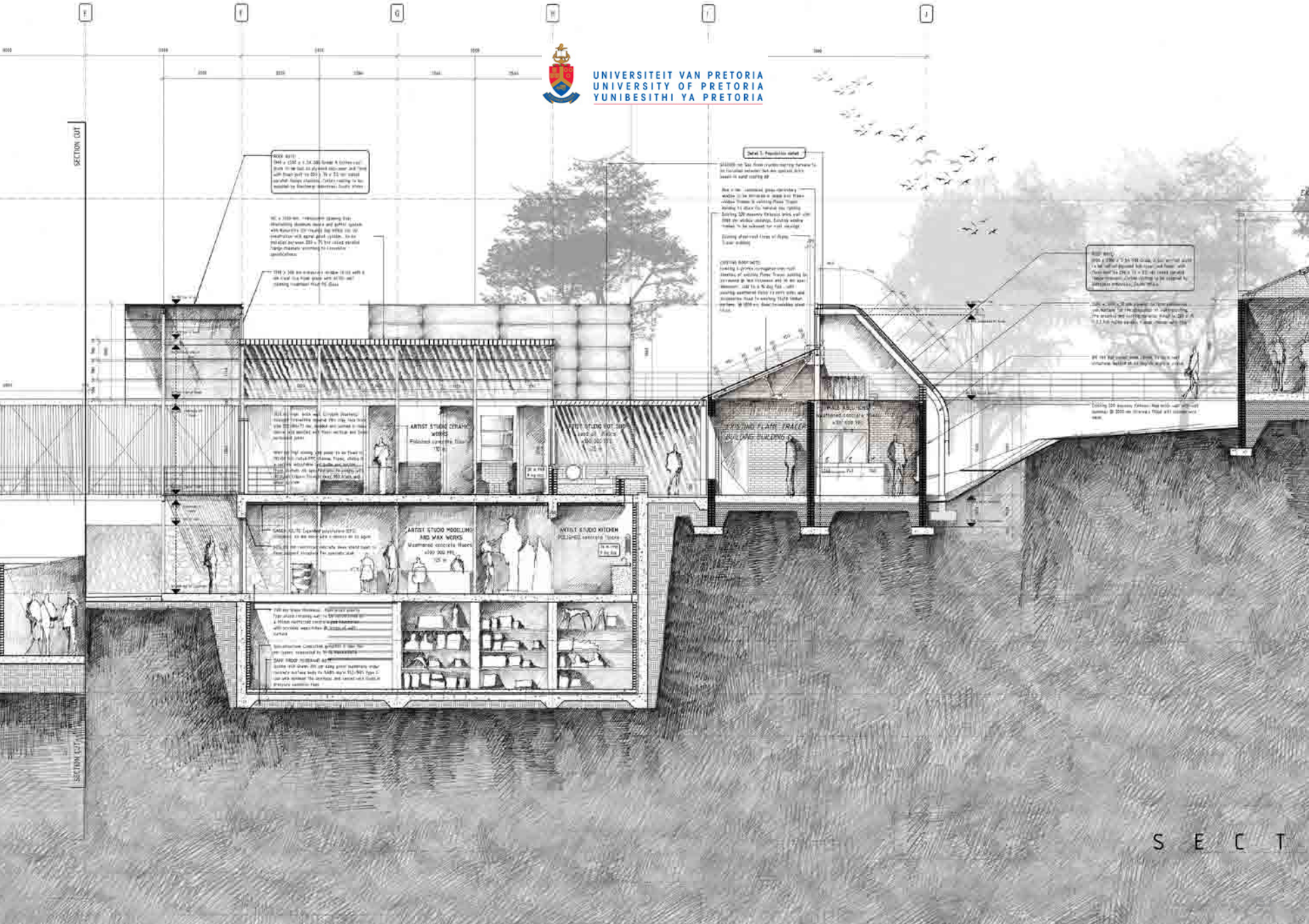
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YUNIBESITHI YA PRETORIA
SECTION CUT
SECTION CUT
ARTIST STUDIO CERAMIC WORKS
ARTIST STUDIO MODELLING AND WAX WORKS
ARTIST STUDIO KILN SHED
ARTIST STUDIO KITCHEN
EXISTING FLARE TRACEY BUILDING BUILDING
S E C T

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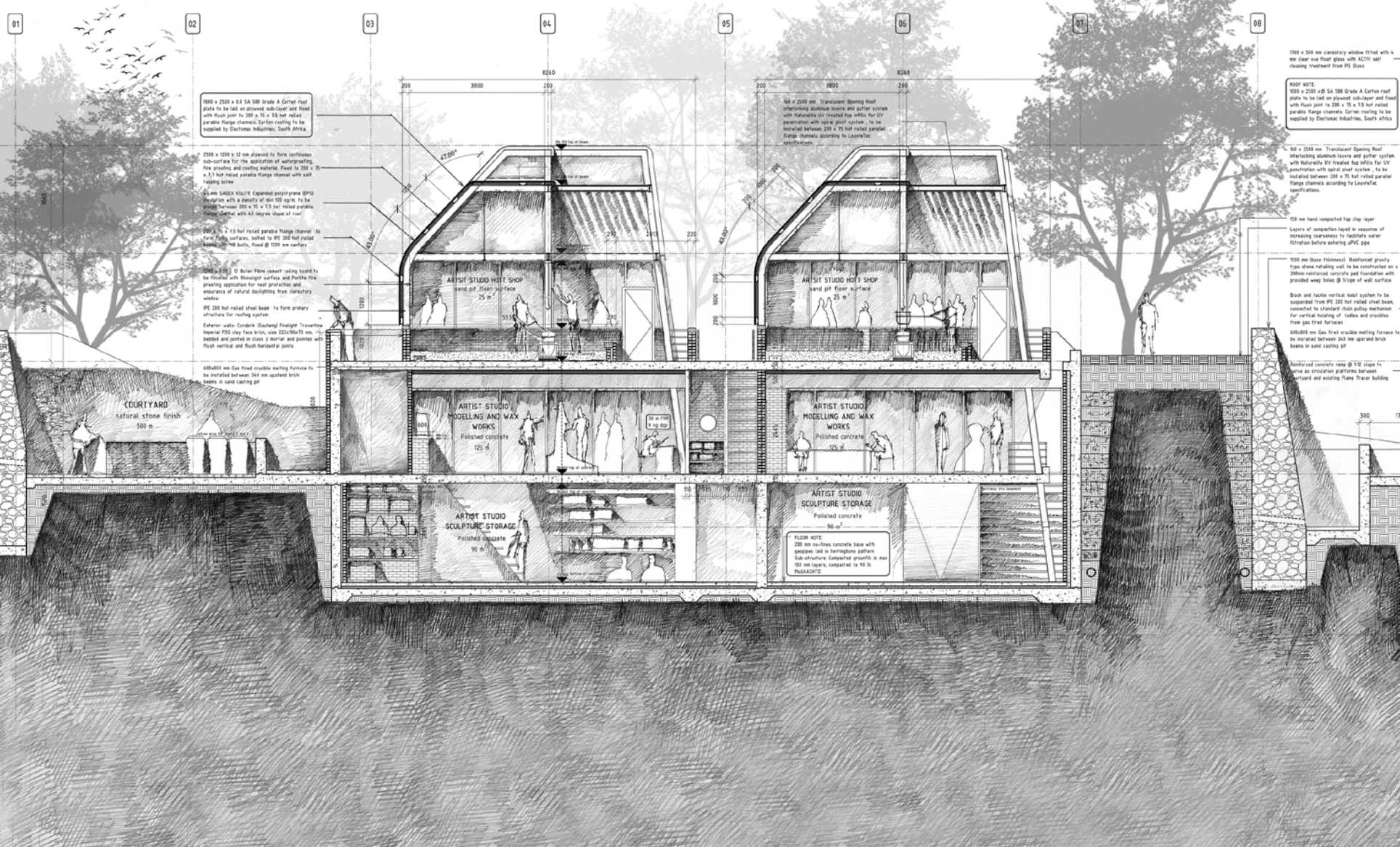

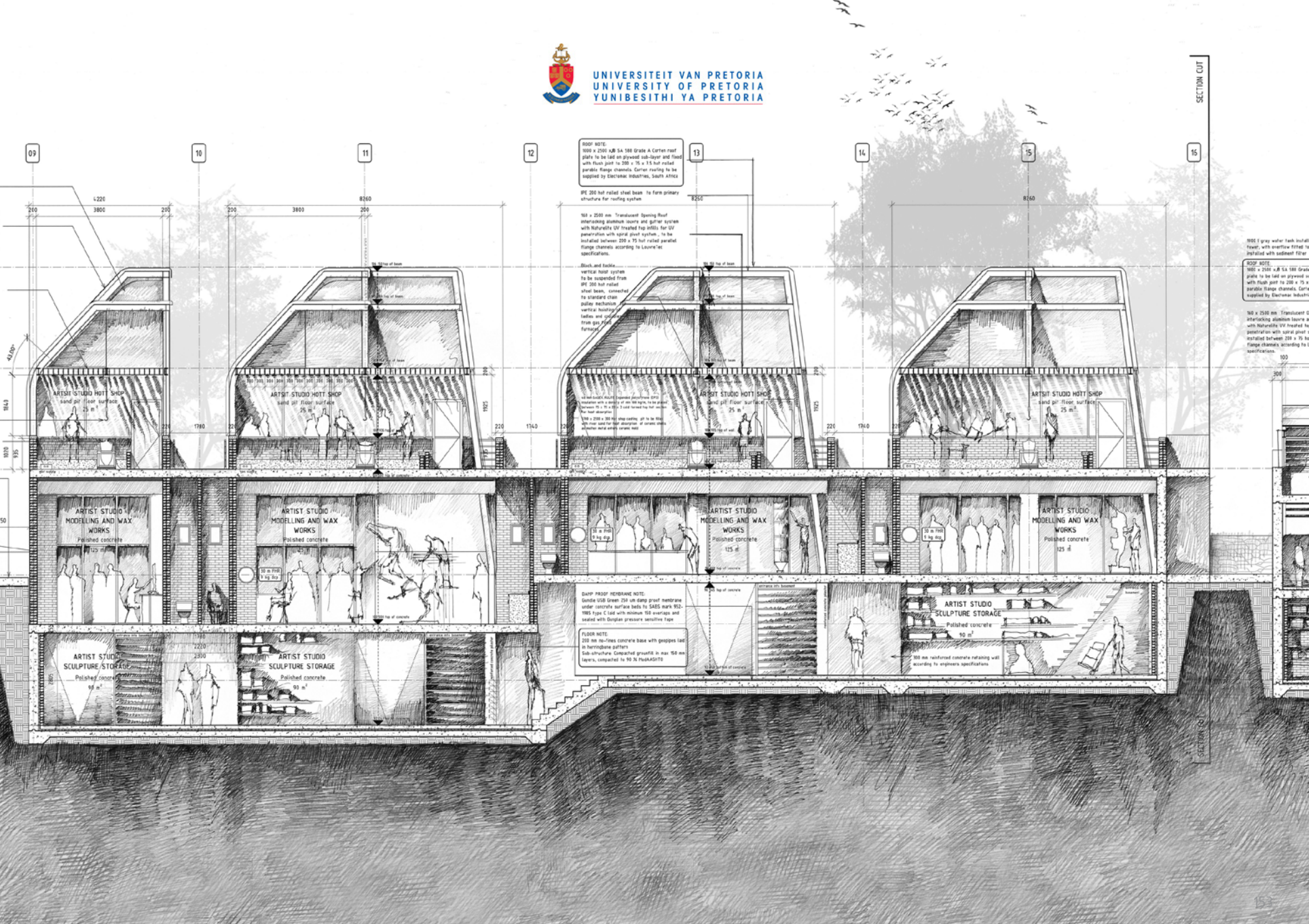
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SECTION CUT
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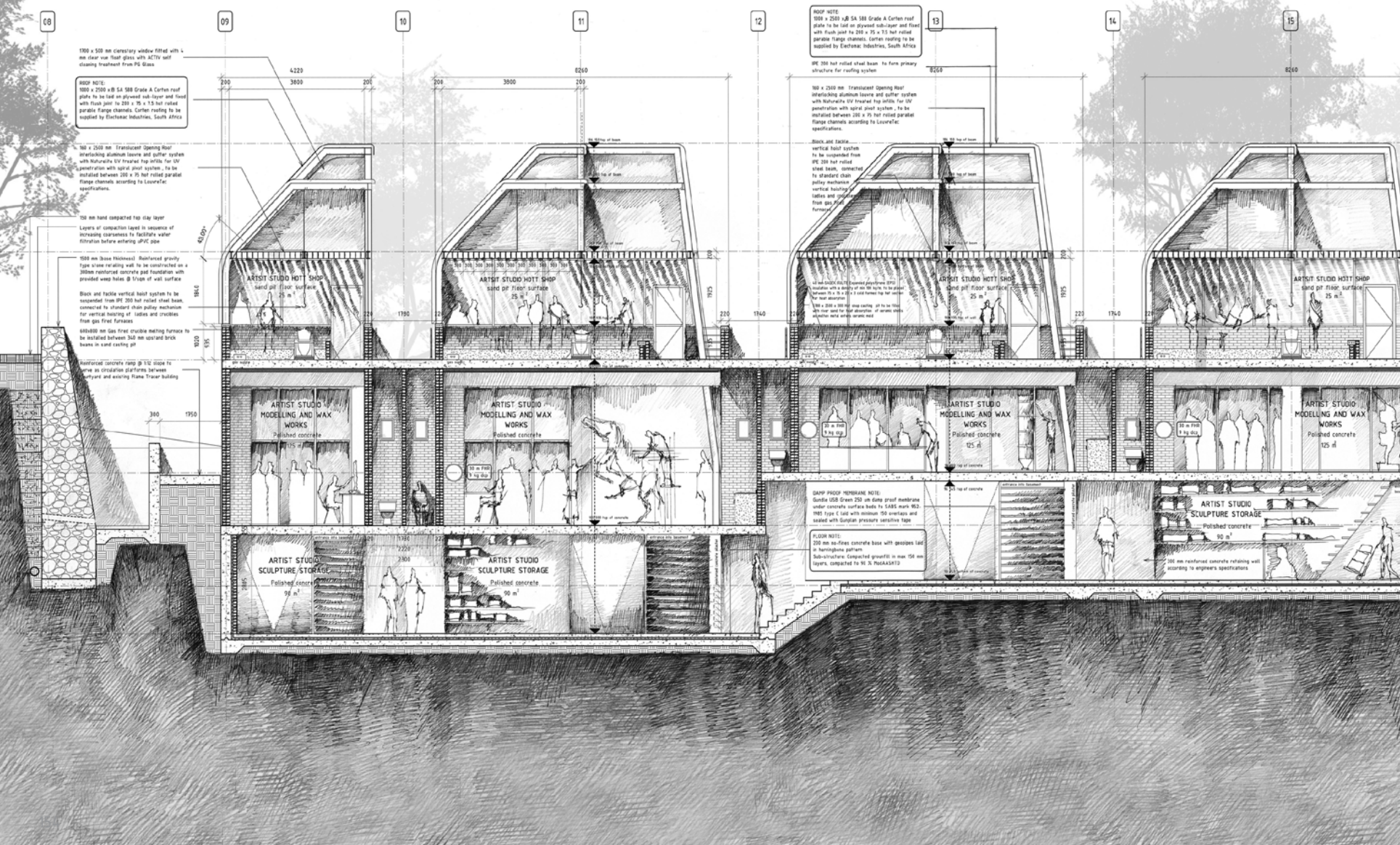

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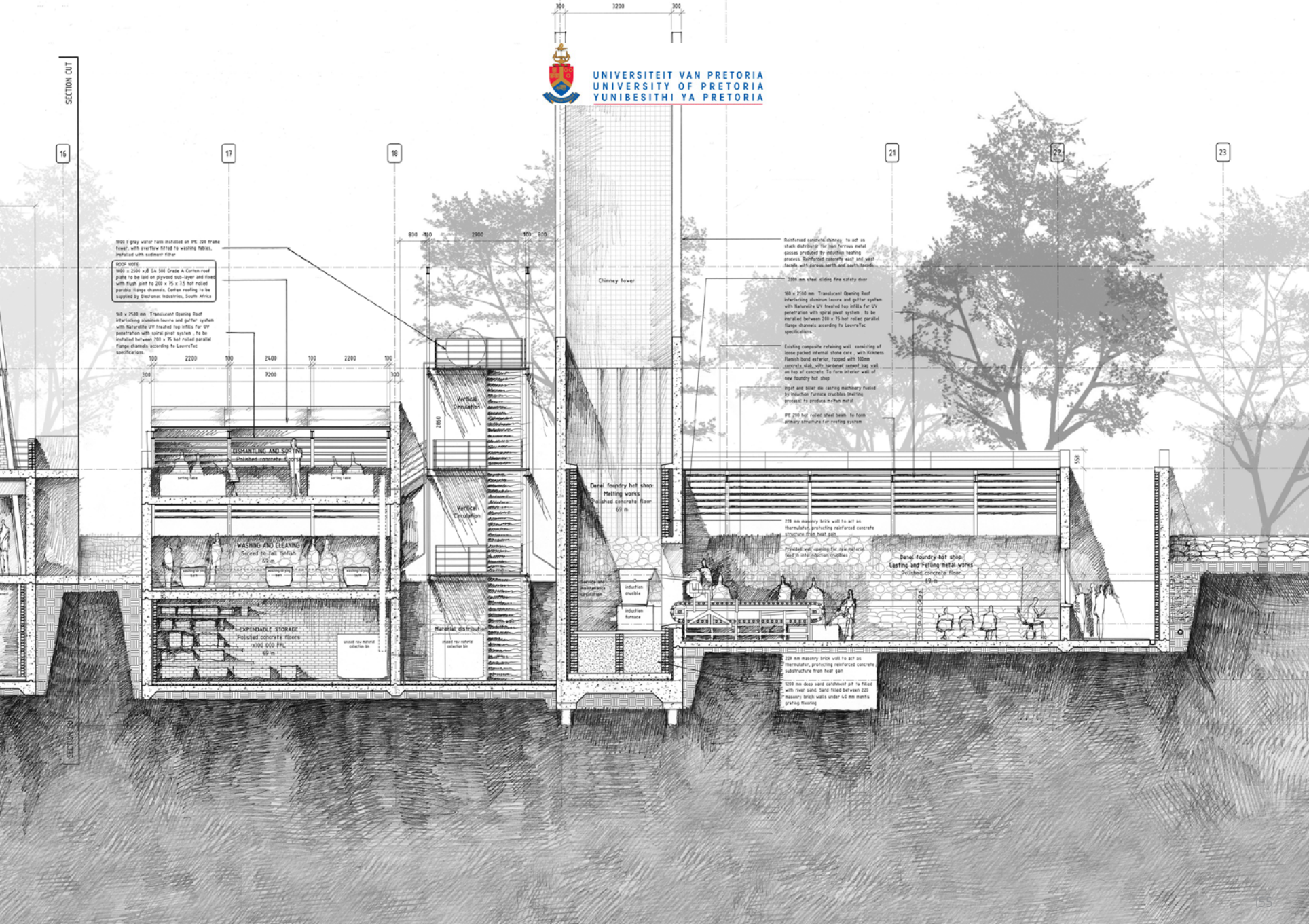

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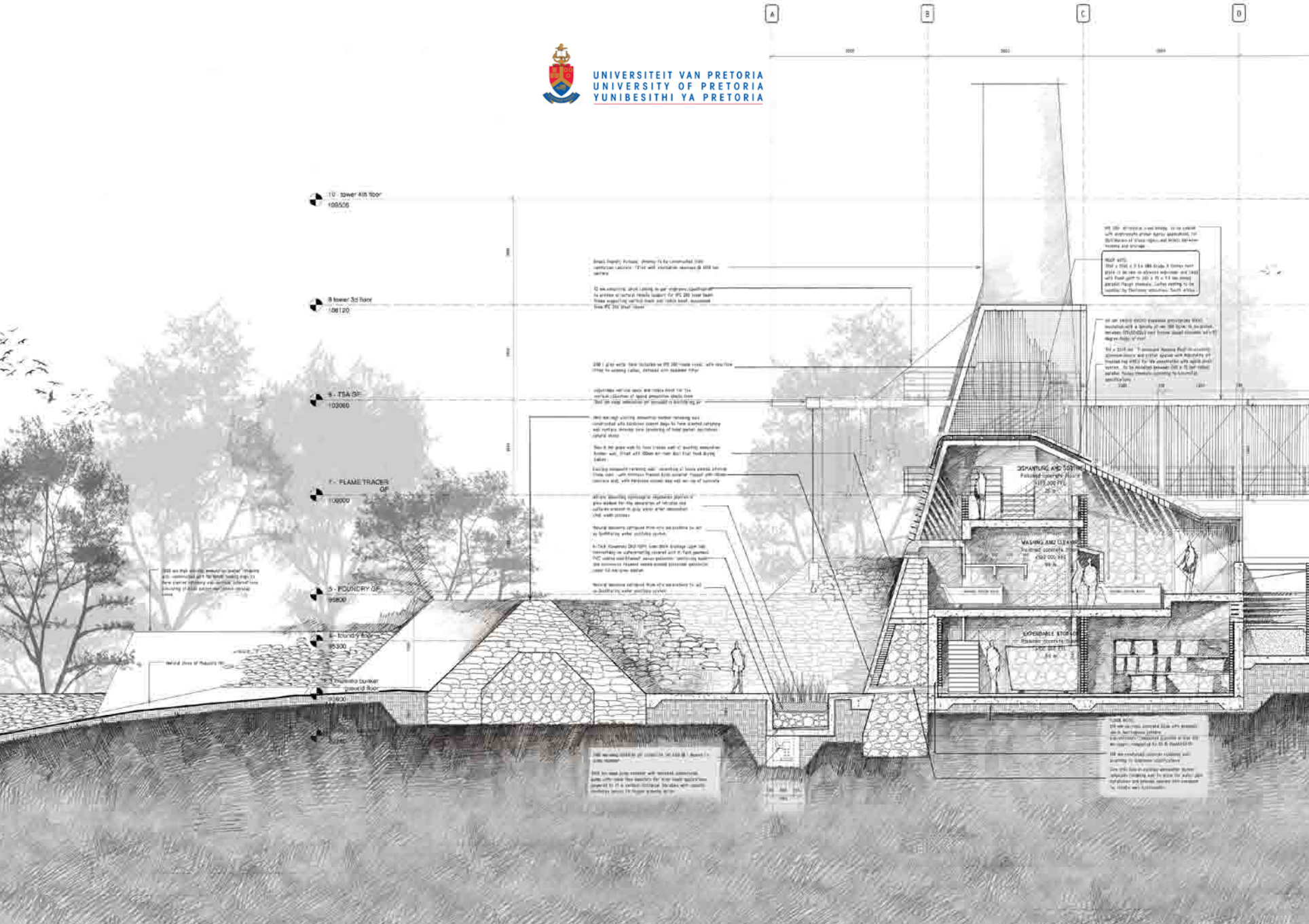

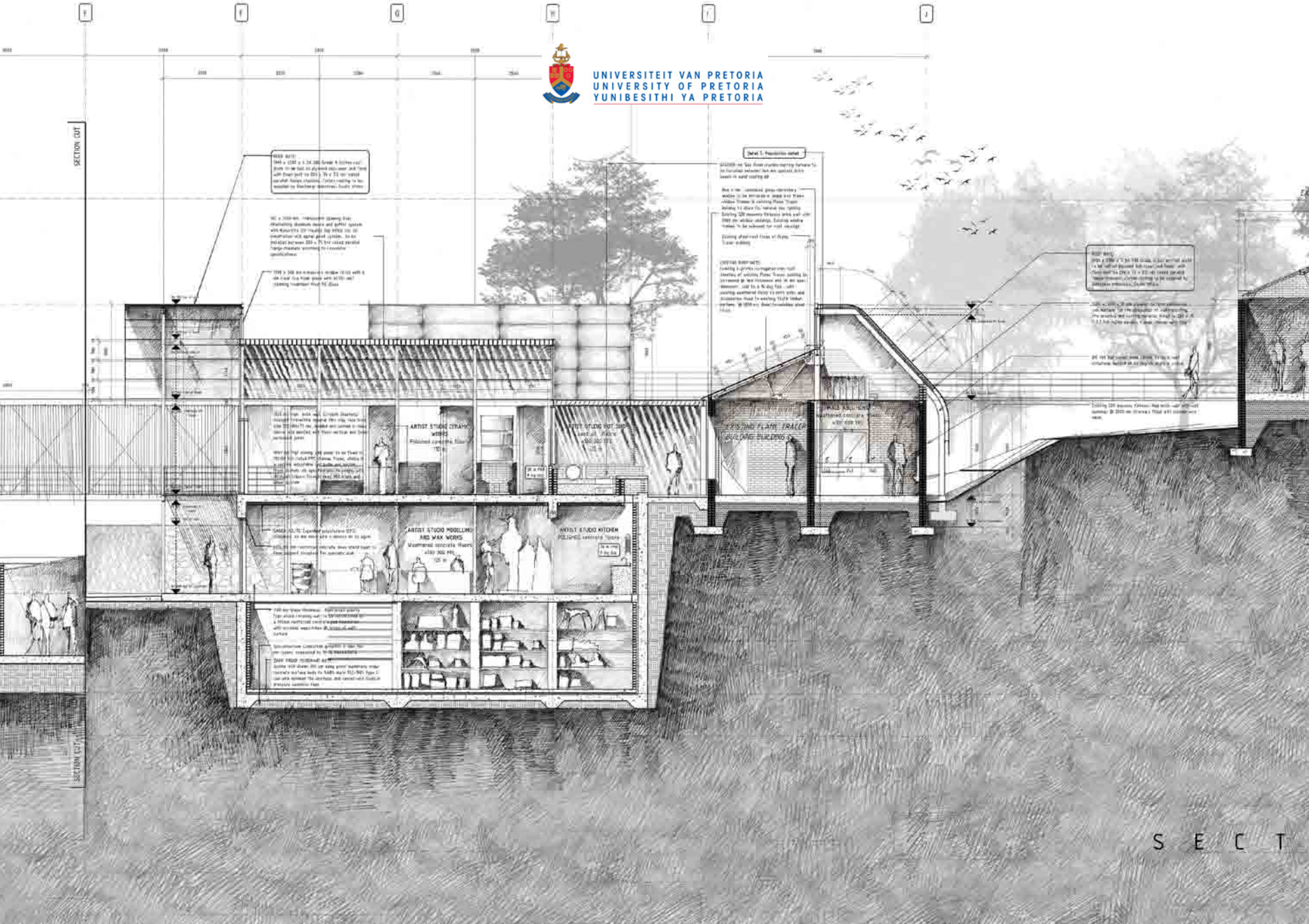
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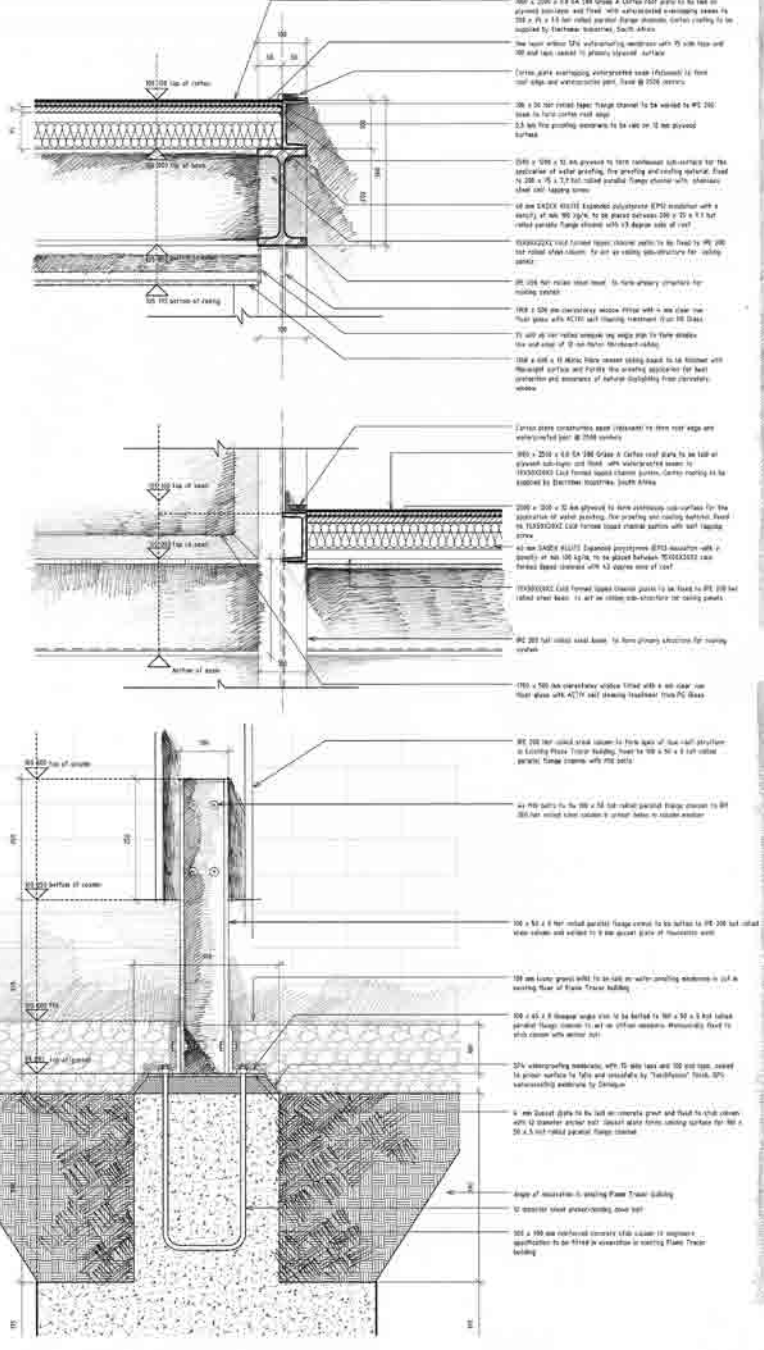
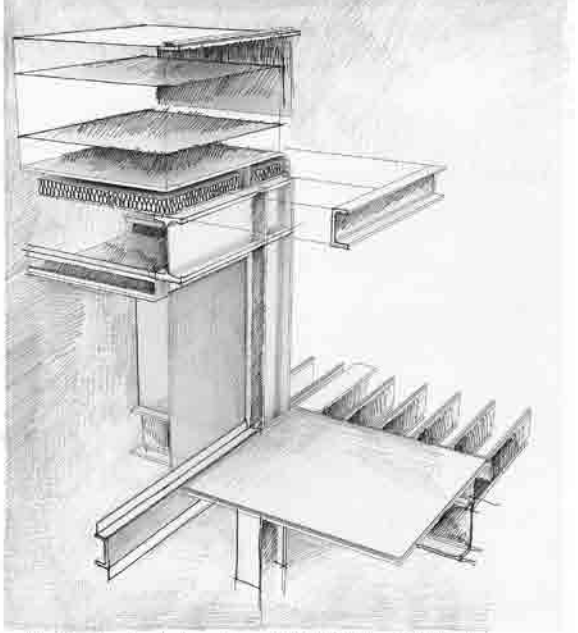
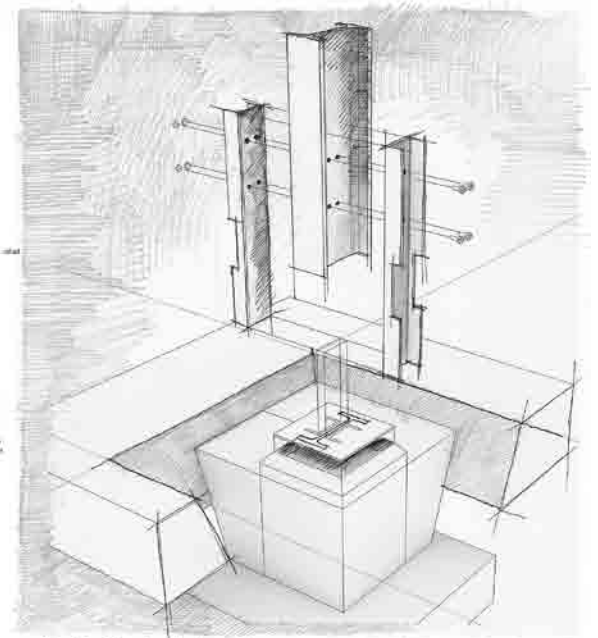
SECTION CUT
SECTION CUT
ARTIST STUDIO CERAMIC WORKS
ARTIST STUDIO MODELLING AND WAX WORKS
ARTIST STUDIO KILN SHED
ARTIST STUDIO KITCHEN
EXISTING FLARE TRACEY BUILDING BUILDING
S E C T

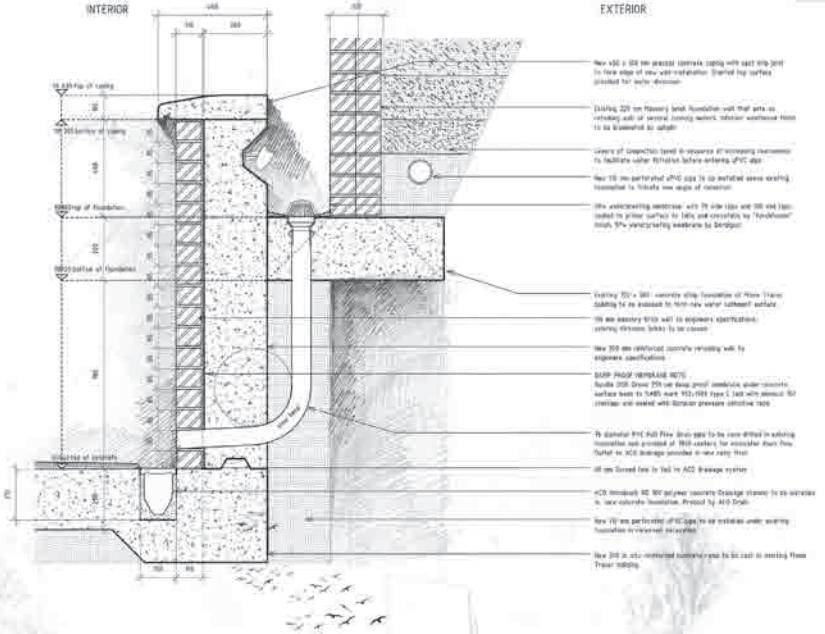


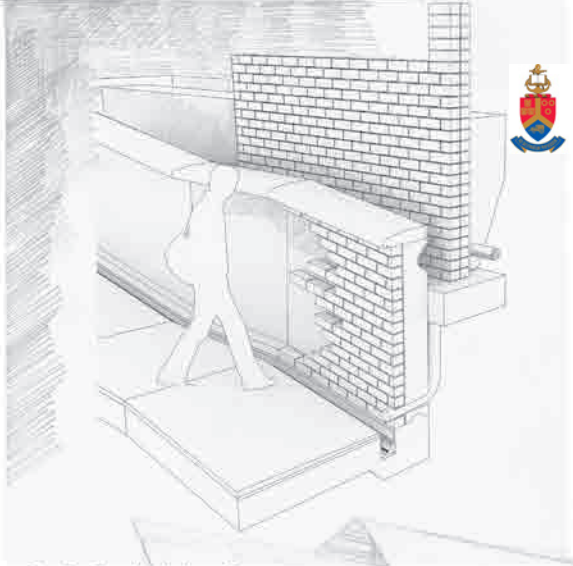


D E T A I L 6 : ROOF DETAIL SCALE: 1 : 5



D E T A I L 7 : FOUNDATION DETAIL SCALE: 1 : 5





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D E T A I L 8 : FOUNDATION DETAIL SCALE: 1 : 5

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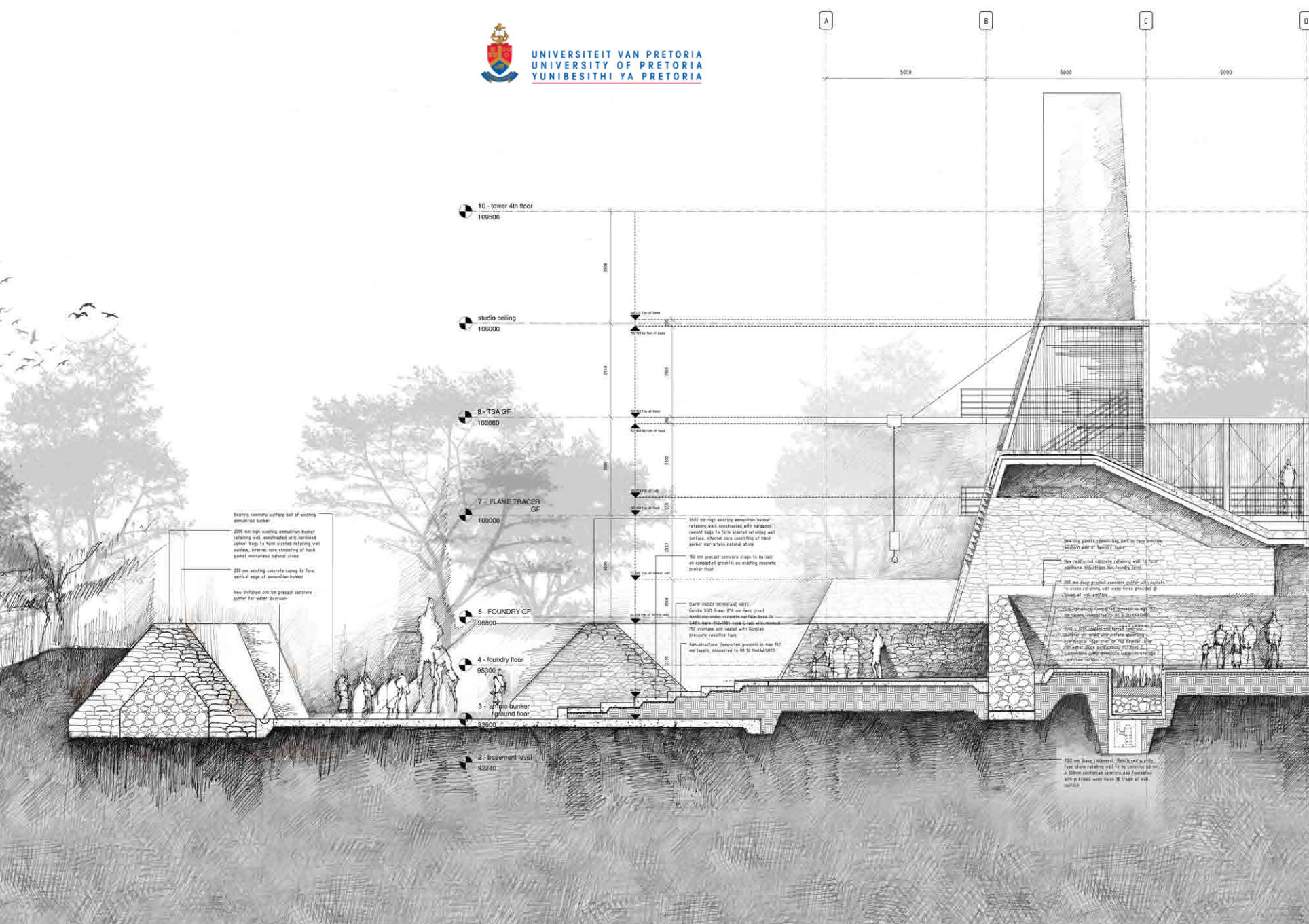

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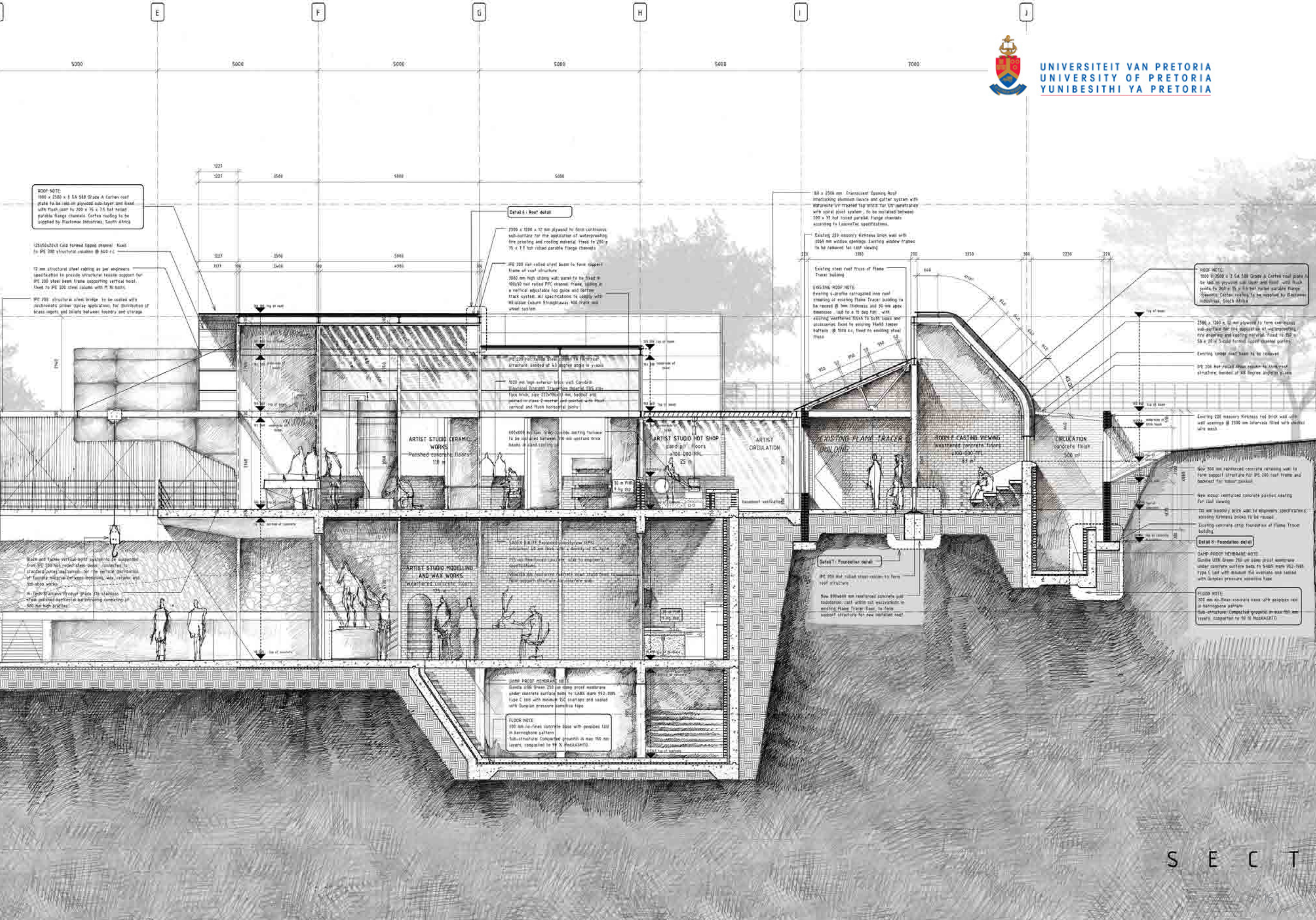
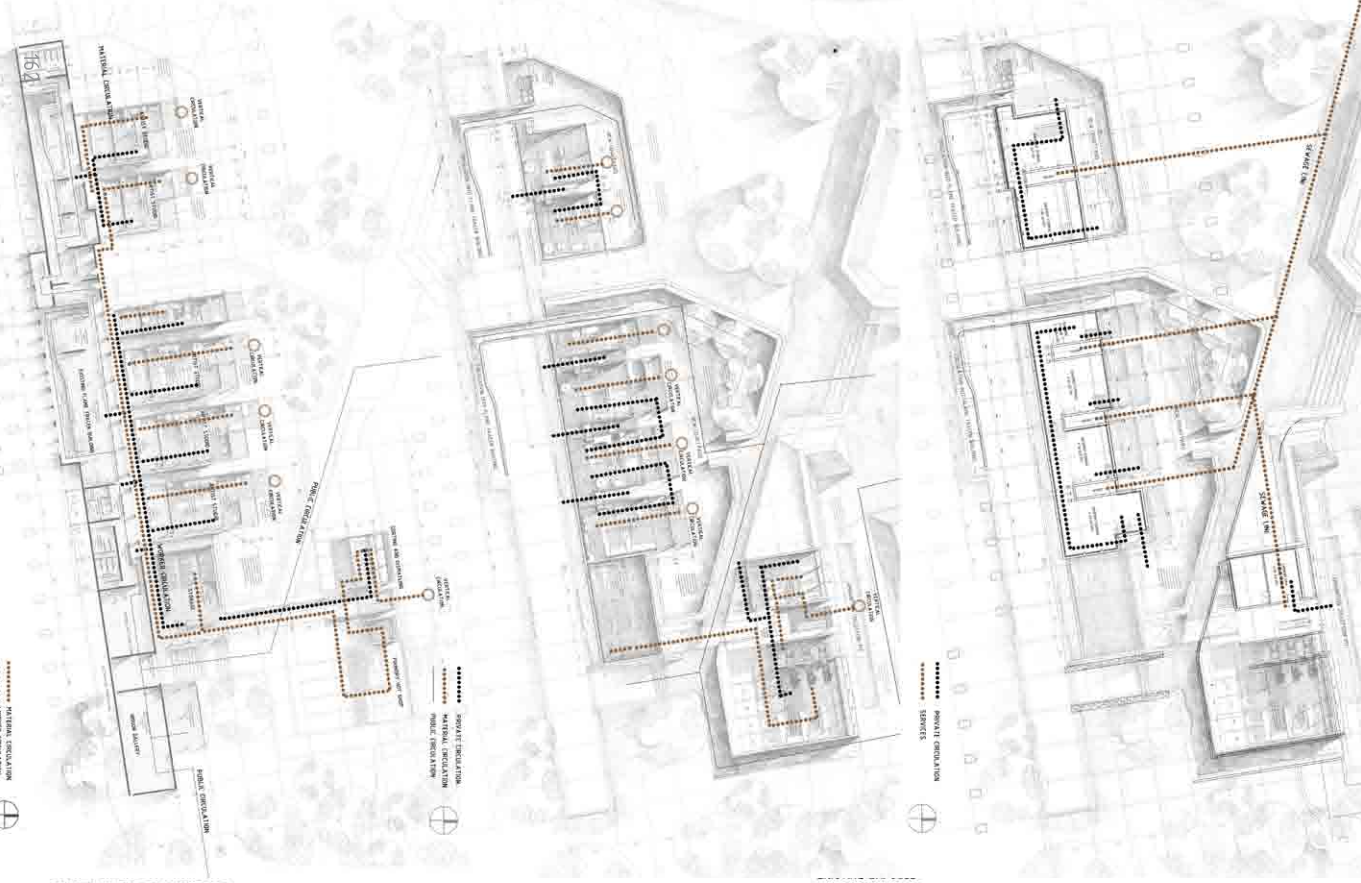
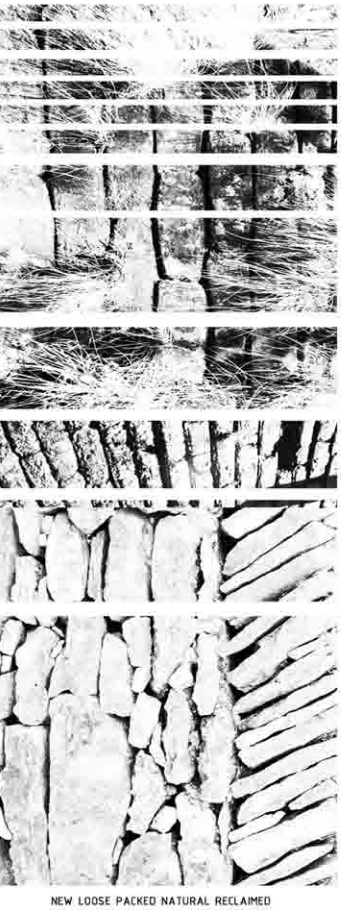


S E C T

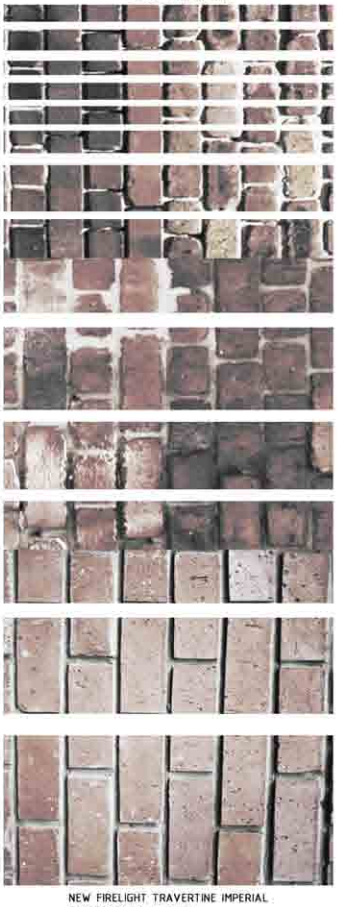


EXISTING HARDENED CEMENT BAG (PETRIFICATION PROCESS) TO FORM SUBMERGED STONE WALLS



NEW LOOSE PACKED NATURAL RECLAIMED STONE RETAINING WALLS

EXISTING KIRKNESS AND RED BRICK STRUCTURAL WORKS

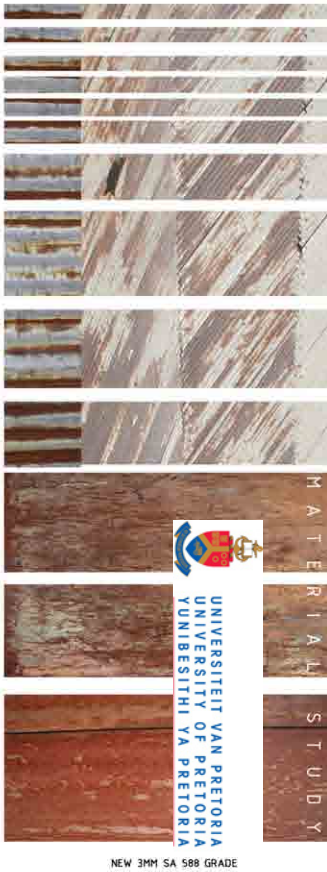


NEW FIRELIGHT TRAVERTINE IMPERIAL FBX BRICK BY COROBRIK

ROOF TRUSSES AND MILITARY SHADING DEVICES

NEW TRANSLUCENT OPENING ROOF INTERLOCKING ALUMINIUM LOUVRE AND GUTTER SYSTEM WITH NATURELITE UV TREATED TOP INFILLS

EXISTING WEATHERED CORRUGATED IRON ROOF SHEETING



NEW 3MM SA 588 GRADE A CORTEN STEEL

MATERIAL STUDY

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IMPLEMENTED BUILDING SYSTEMS

WATER MANAGEMENT

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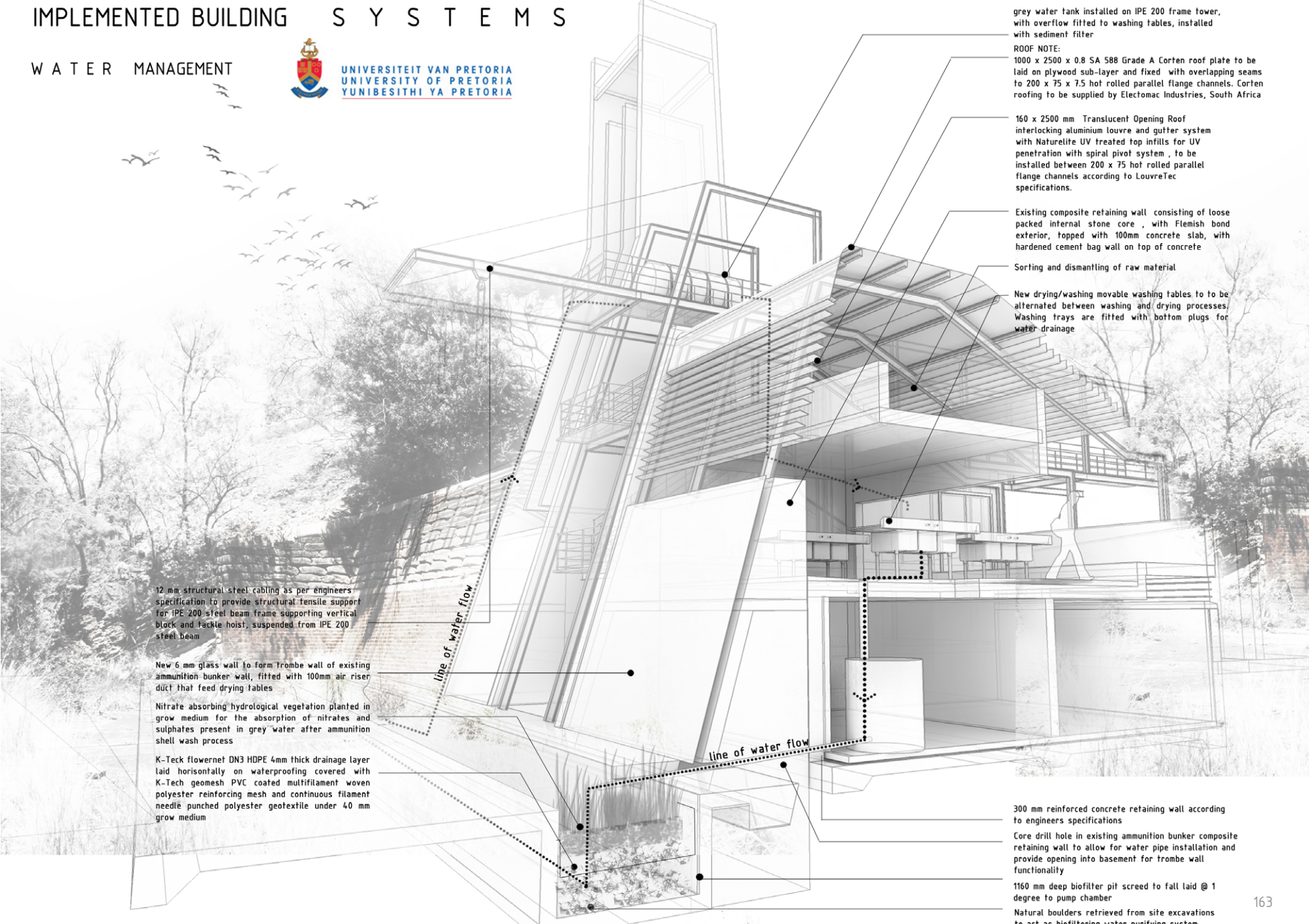

S T R U C T U R A L EXPLOSED VIEW OF ARTIST STUDIO

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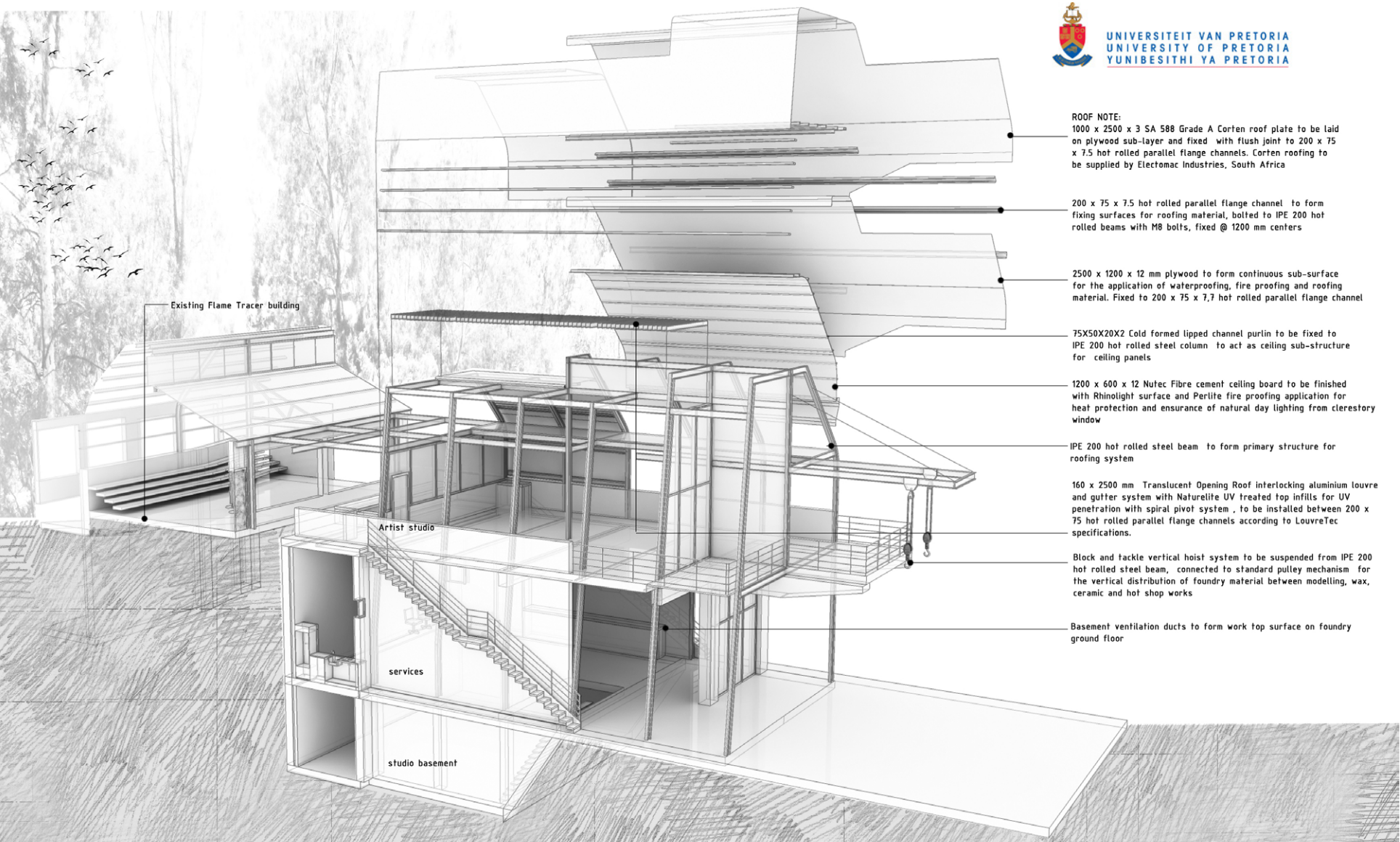


ROOF NOTE:
1000 x 2500 x 3 SA 588 Grade A Corten roof plate to be laid on plywood sub-layer and fixed with flush joint to 200 x 75 x 7.5 hot rolled parallel flange channels. Corten roofing to be supplied by Electomac Industries, South Africa

200 x 75 x 7.5 hot rolled parallel flange channel to form fixing surfaces for roofing material, bolted to IPE 200 hot rolled beams with M8 bolts, fixed @ 1200 mm centers

2500 x 1200 x 12 mm plywood to form continuous sub-surface for the application of waterproofing, fire proofing and roofing material. Fixed to 200 x 75 x 7,7 hot rolled parallel flange channel

75X50X20X2 Cold formed lipped channel purlin to be fixed to IPE 200 hot rolled steel column to act as ceiling sub-structure for ceiling panels

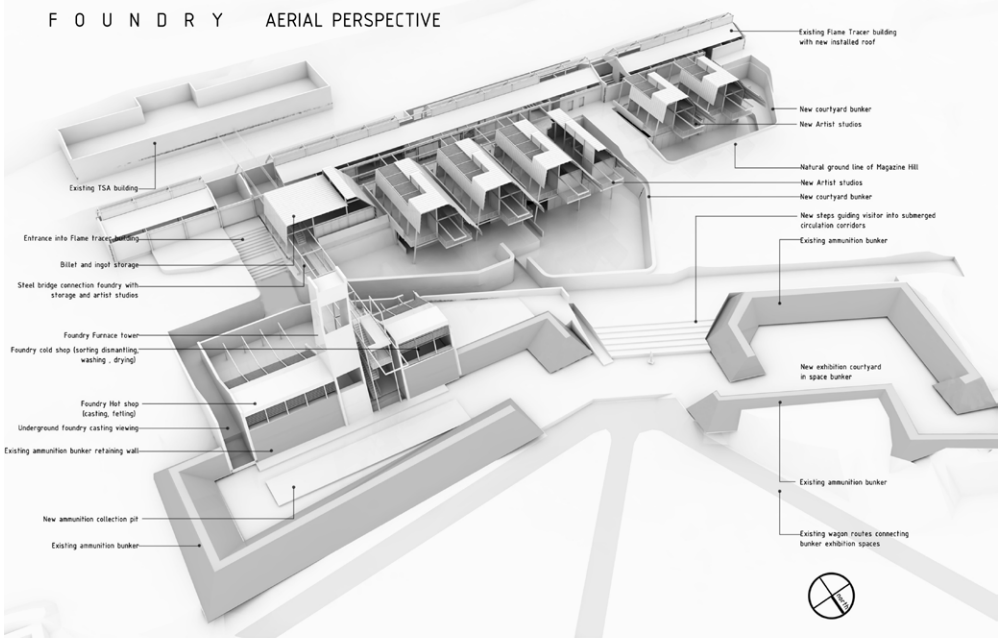
1200 x 600 x 12 Nutec Fibre cement ceiling board to be finished with Rhinolight surface and Perlite fire proofing application for heat protection and ensurance of natural day lighting from clerestory window

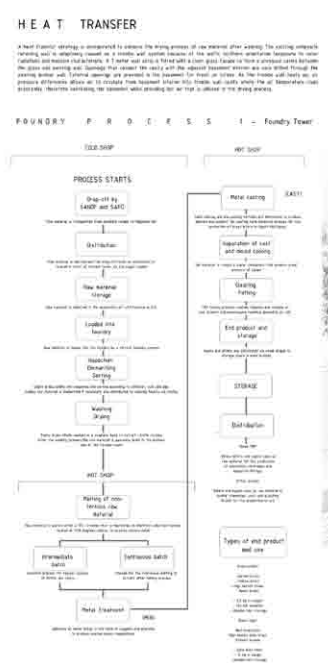
IPE 200 hot rolled steel beam to form primary structure for roofing system

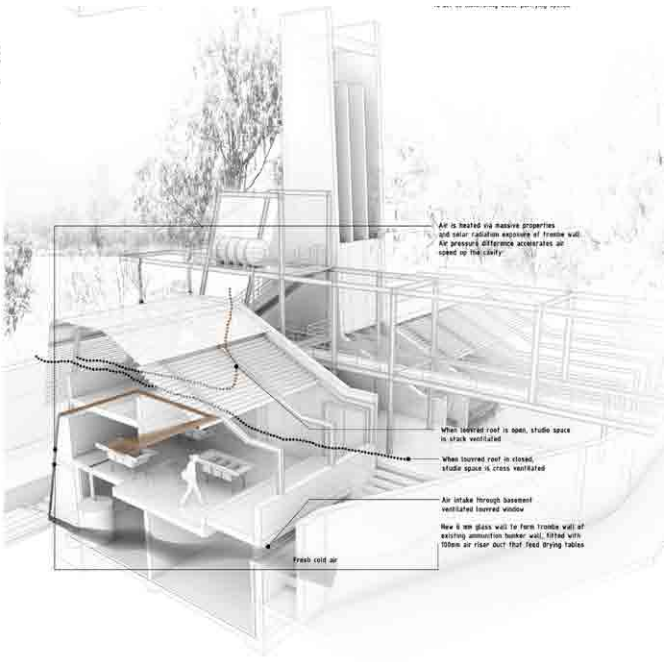
160 x 2500 mm Translucent Opening Roof interlocking aluminium louvre and gutter system with Naturelite UV treated top infills for UV penetration with spiral pivot system , to be installed between 200 x 75 hot rolled parallel flange channels according to LouvreTec specifications.

Block and tackle vertical hoist system to be suspended from IPE 200 hot rolled steel beam, connected to standard pulley mechanism for the vertical distribution of foundry material between modelling, wax, ceramic and hot shop works

Basement ventilation ducts to form work top surface on foundry ground floor


F O U N D R Y AERIAL PERSPECTIVE
Existing Flame Tracer building with new installed roof
New courtyard bunker
New Artist studios
Natural ground line of Magazine Hill
New Artist studios
New courtyard bunker
New steps guiding visitor into submerged circulation corridors
Existing ammunition bunker
Existing TSA building
Entrance into Flame tracer building
Billet and ingot storage
Steel bridge connection foundry with storage and artist studios
Foundry Furnace tower
Foundry cold shop (sorting dismantling, washing , drying)
Foundry Hot shop (casting, fetting)
Underground foundry casting viewing
Existing ammunition bunker retaining wall
New exhibition courtyard in space bunker
Existing ammunition bunker
New ammunition collection pit
Existing ammunition bunker
Existing wagon routes connecting bunker exhibition spaces


H E A T TRANSFER
F O U N D R Y P R O C E S S 1 – Foundry Tower
COLD SHOP
HOT SHOP
PROCESS STARTS
Drop-off by SAMDF and SAFC
Distribution
Raw material storage
Loaded into foundry
Dismantling Sorting
Washing Drying
HOT SHOP
Melting of non-ferrous raw material
Intermittent batch
Metal treatment
Metal casting
CASTI
Separation of cast and mould cooling
Cleaning Fettling
End product and storage
STORAGE
Distribution
Types of end product and use


Air is heated via massive properties and solar radiation exposure of trombe wall. Air pressure difference accelerates air speed up the cavity.
When louvred roof is open, studio space is stack ventilated
When louvred roof is closed, studio space is cross ventilated
Air intake through basement ventilated louvred window
New 6 mm glass wall to form trombe wall of existing ammunition bunker wall, fitted with 100mm air riser duct that feed drying tables
Fresh cold air

This appendix illustrates photographs of the final architectural model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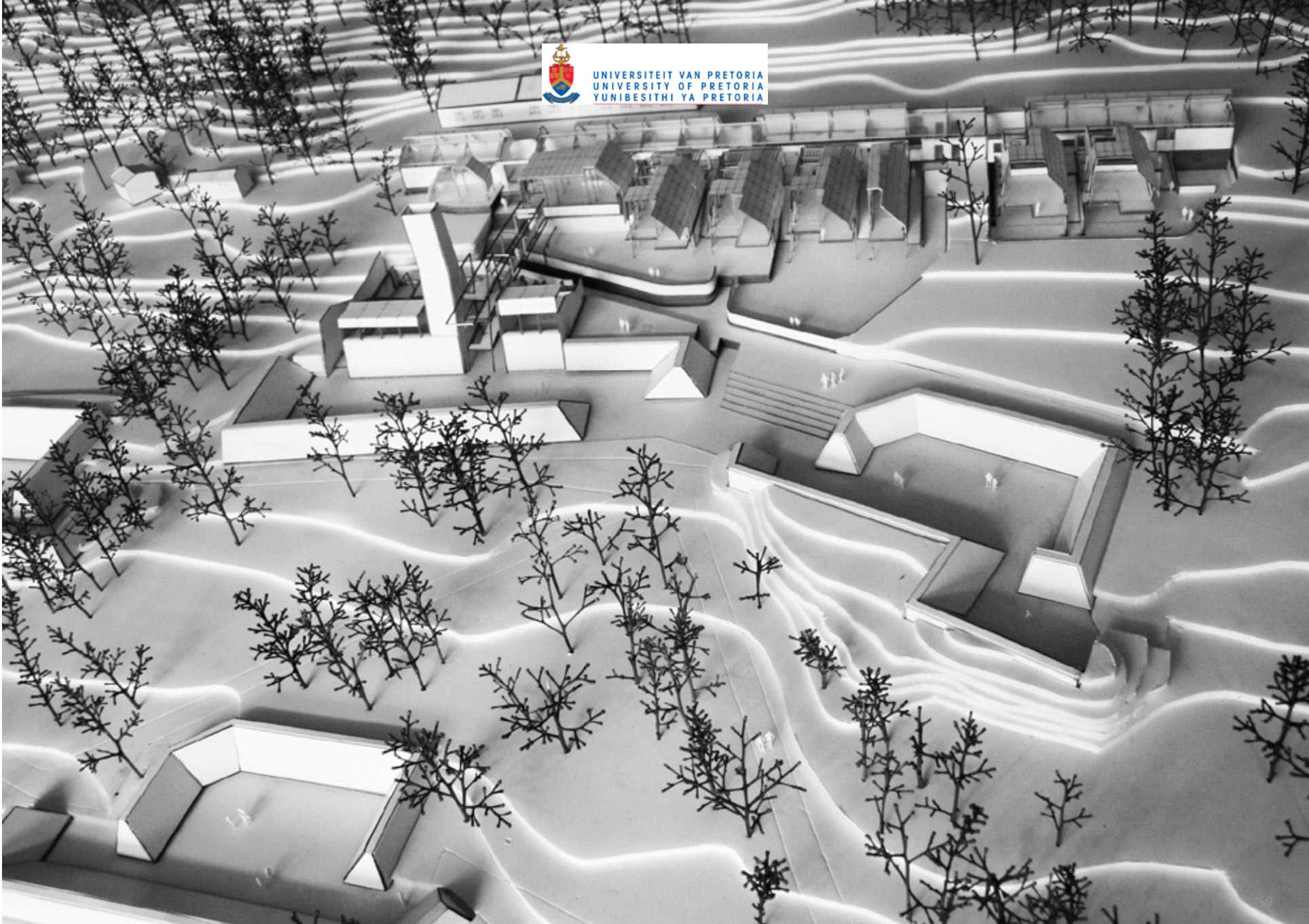
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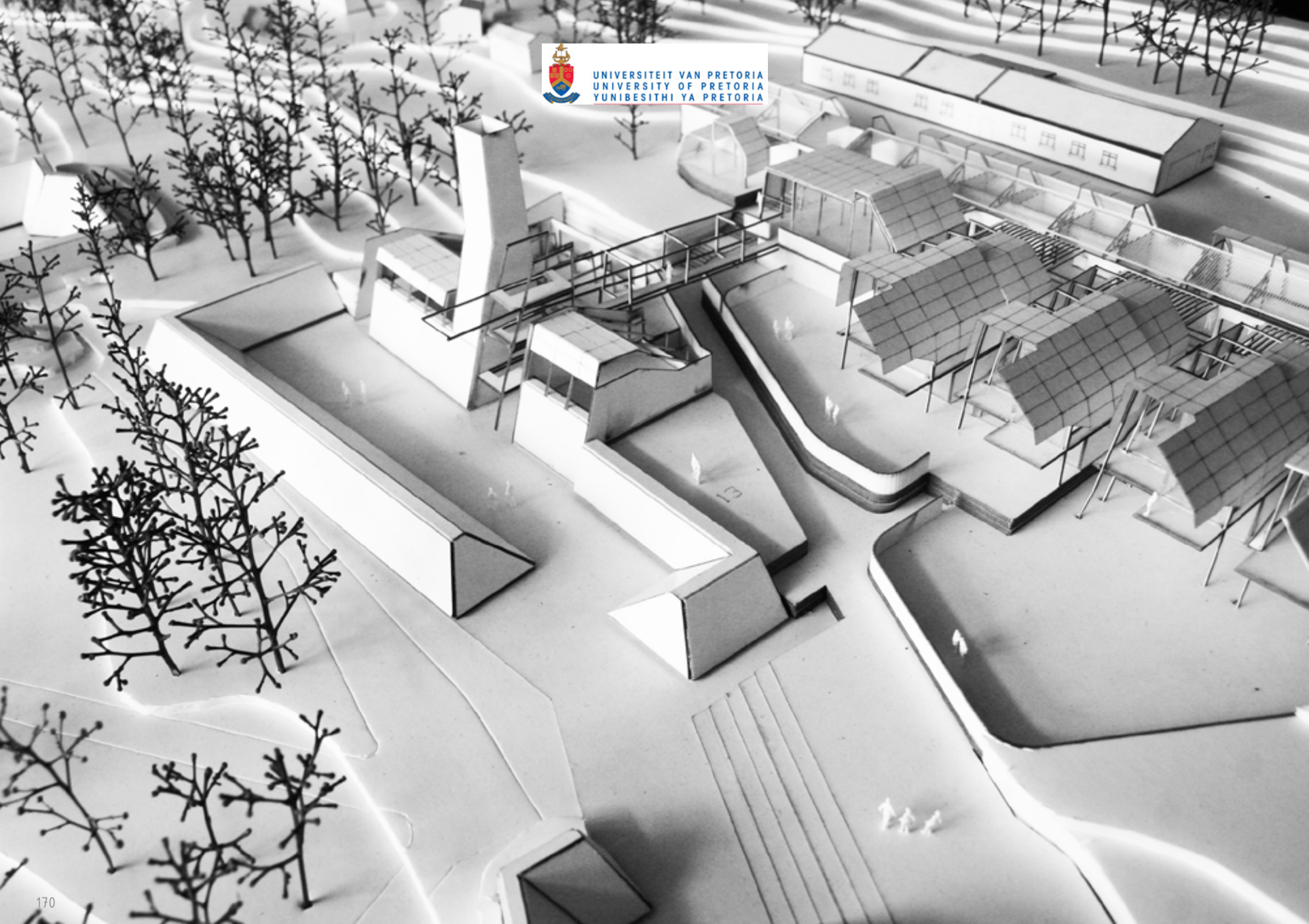
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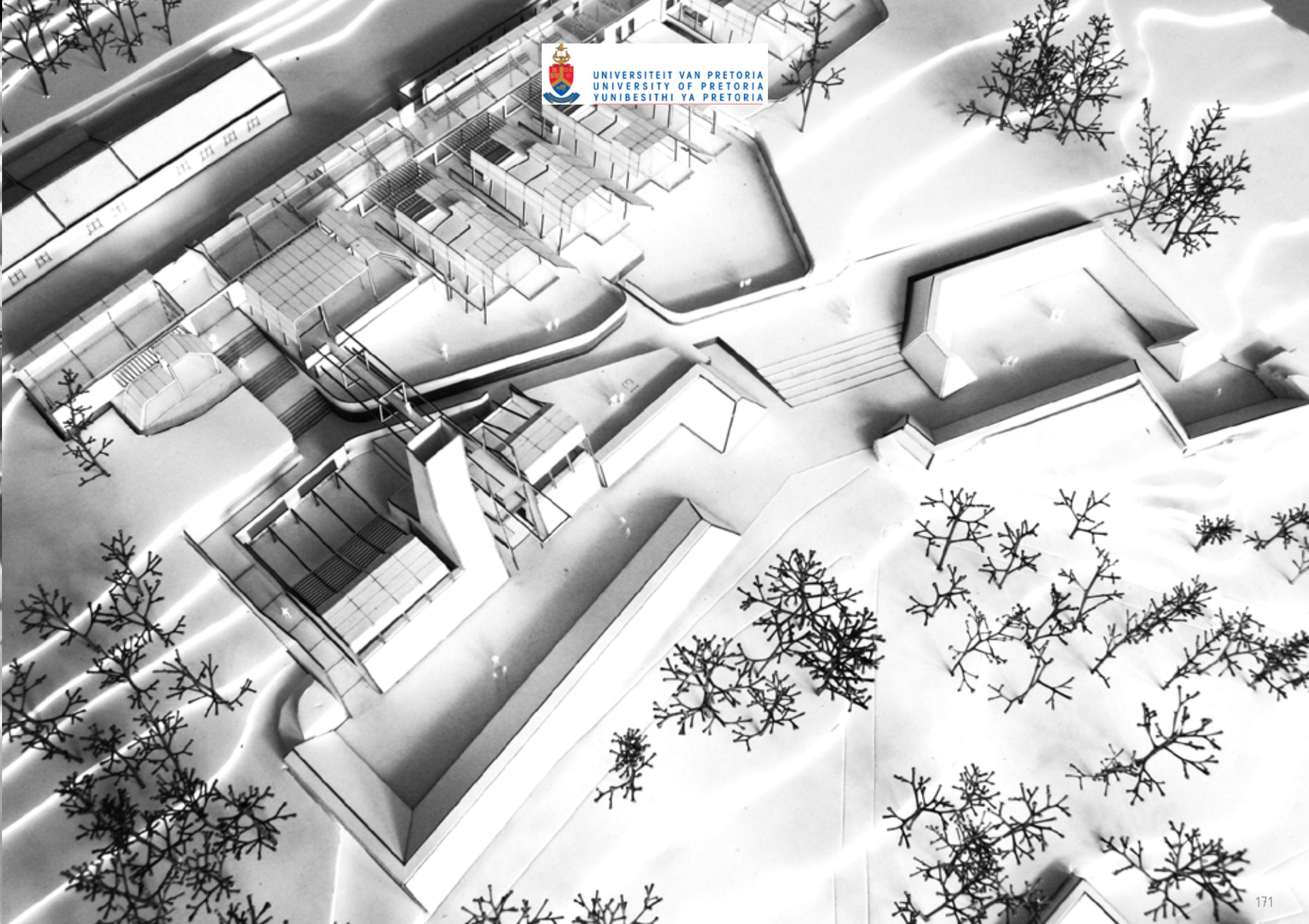
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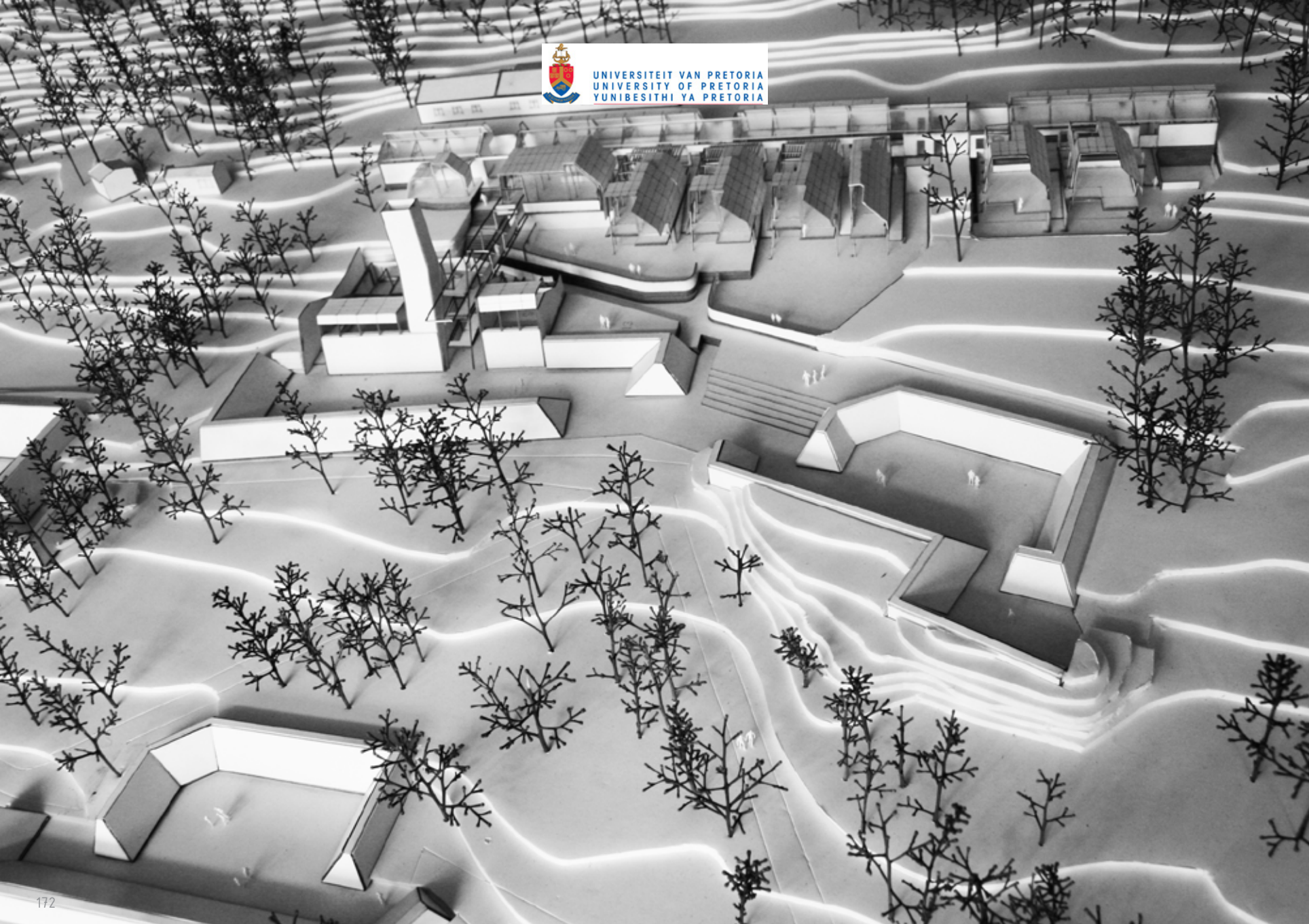
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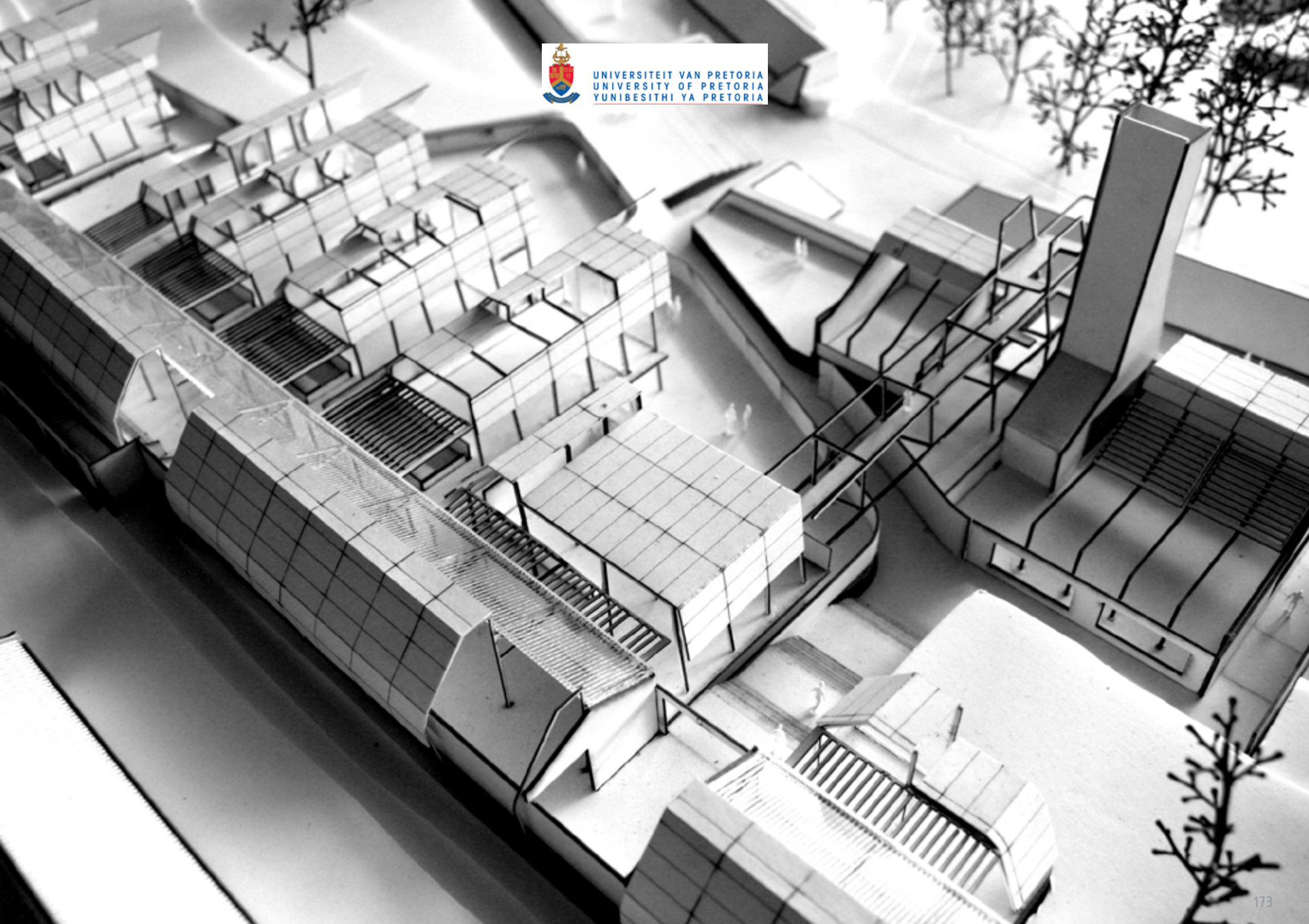
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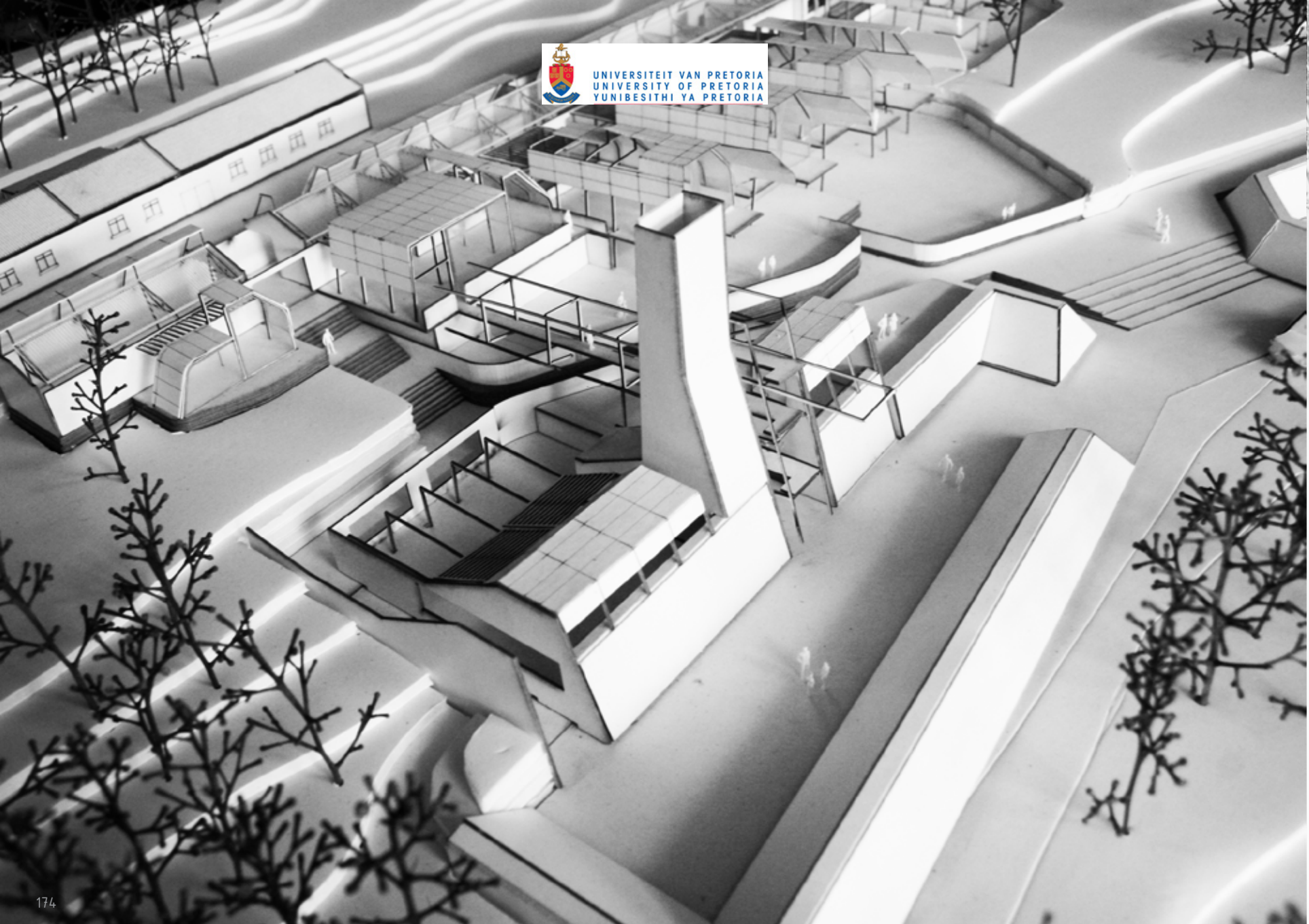
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