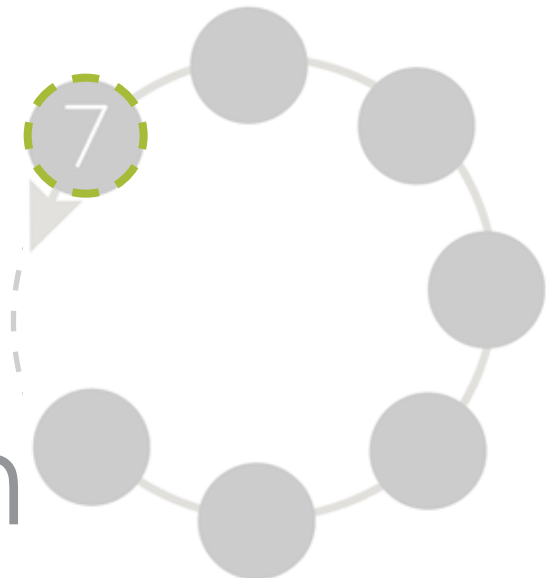
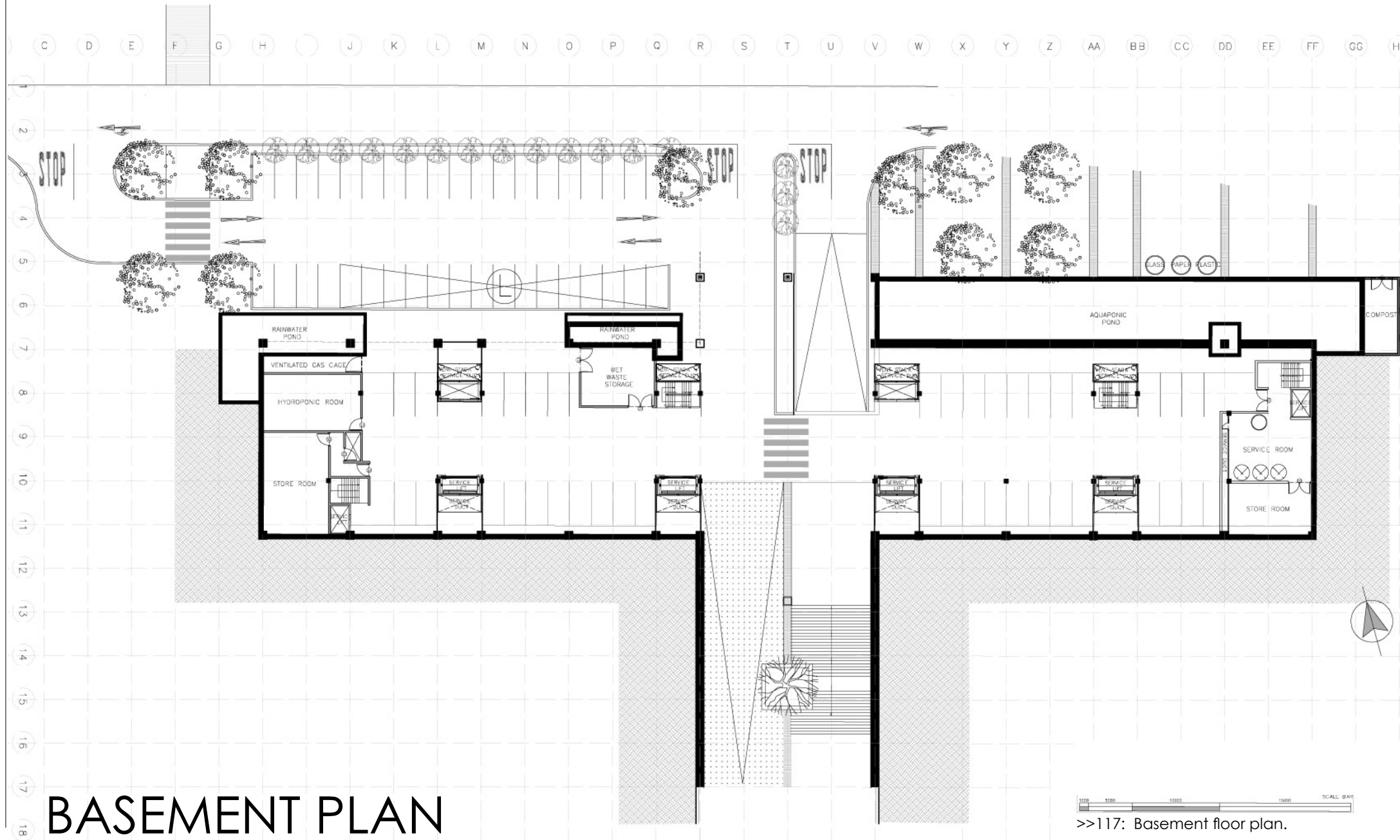




In this chapter, a complete visual technical investigation is done to cast light on the detailed design of the market building and it's components. The essence of the design lies in it's detailed connections.

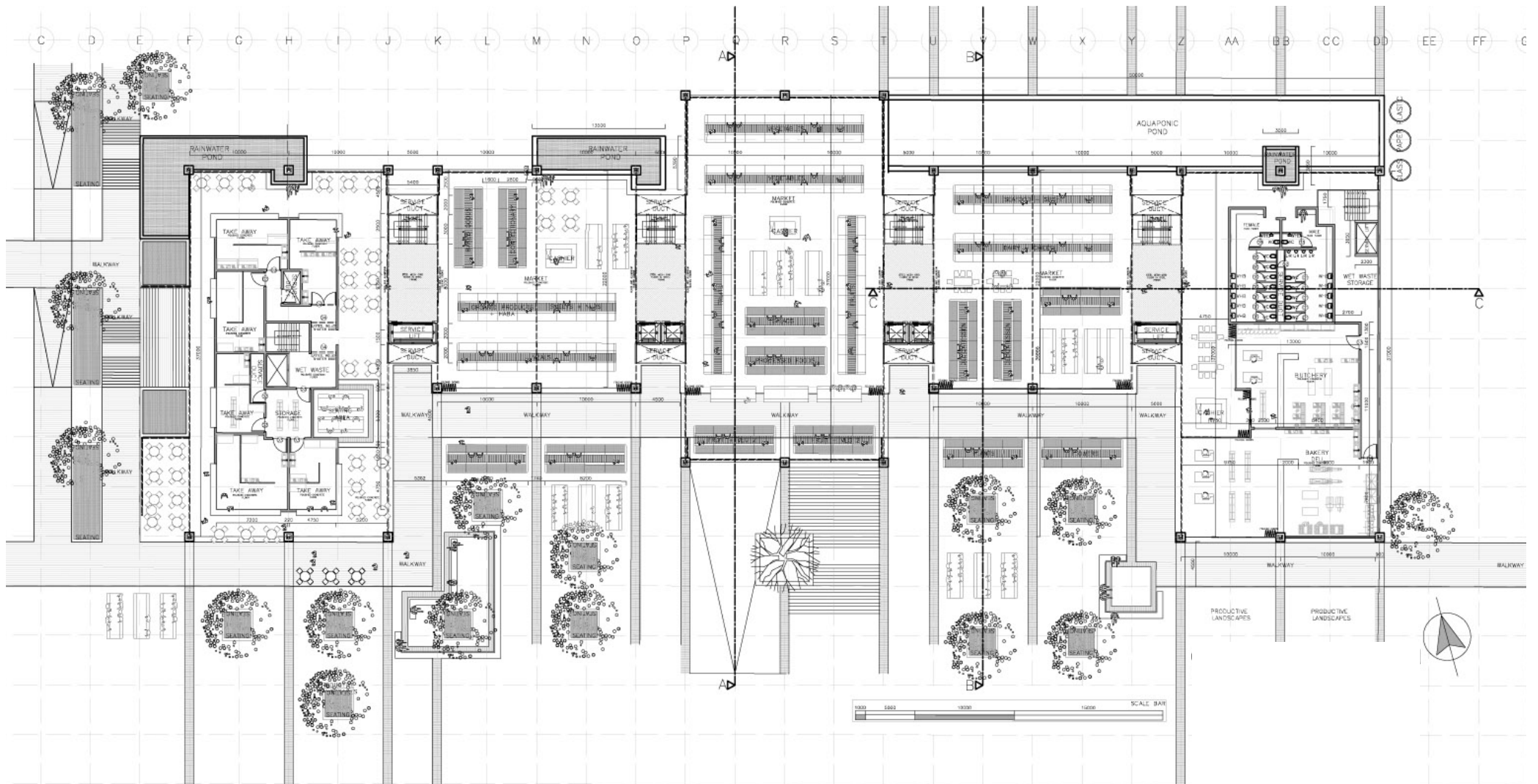
Technical Resolution





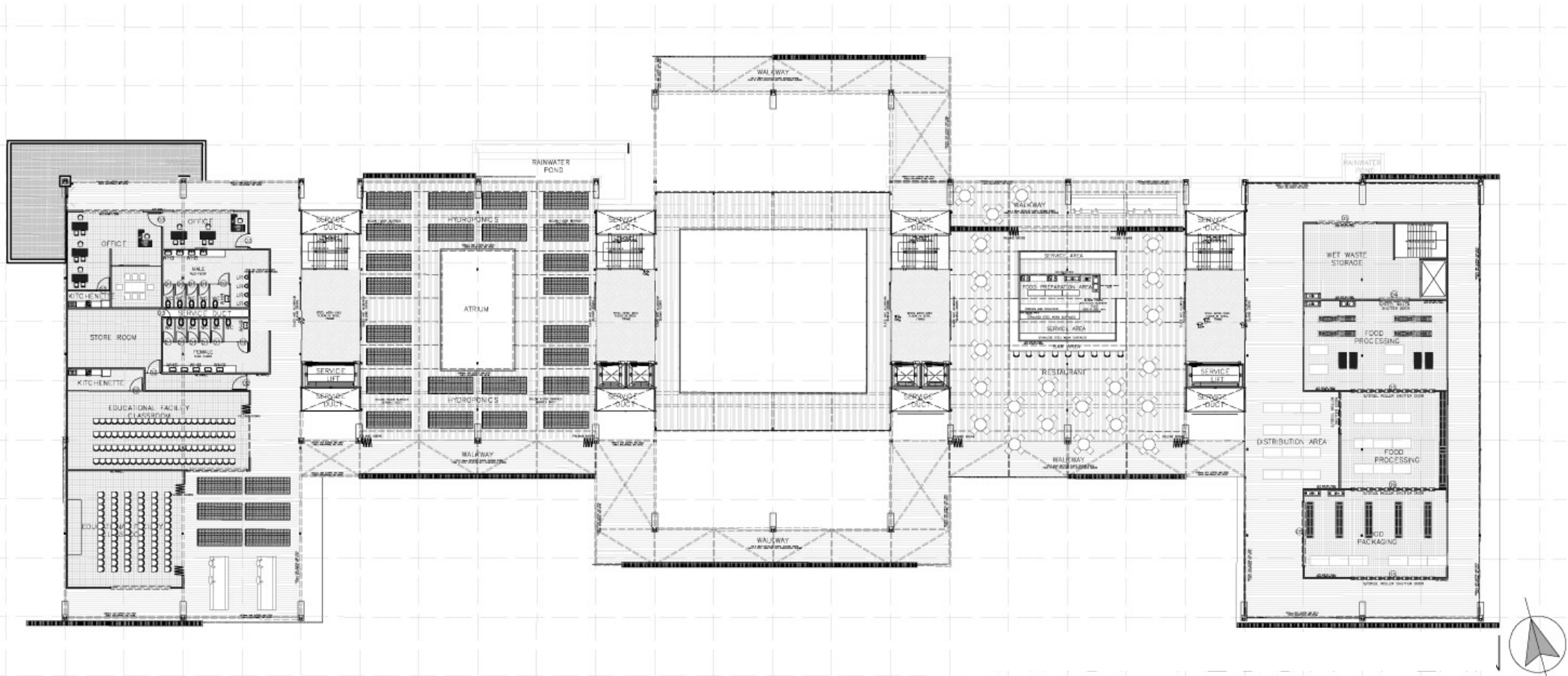
BASEMENT PLAN

>>117: Basement floor plan.



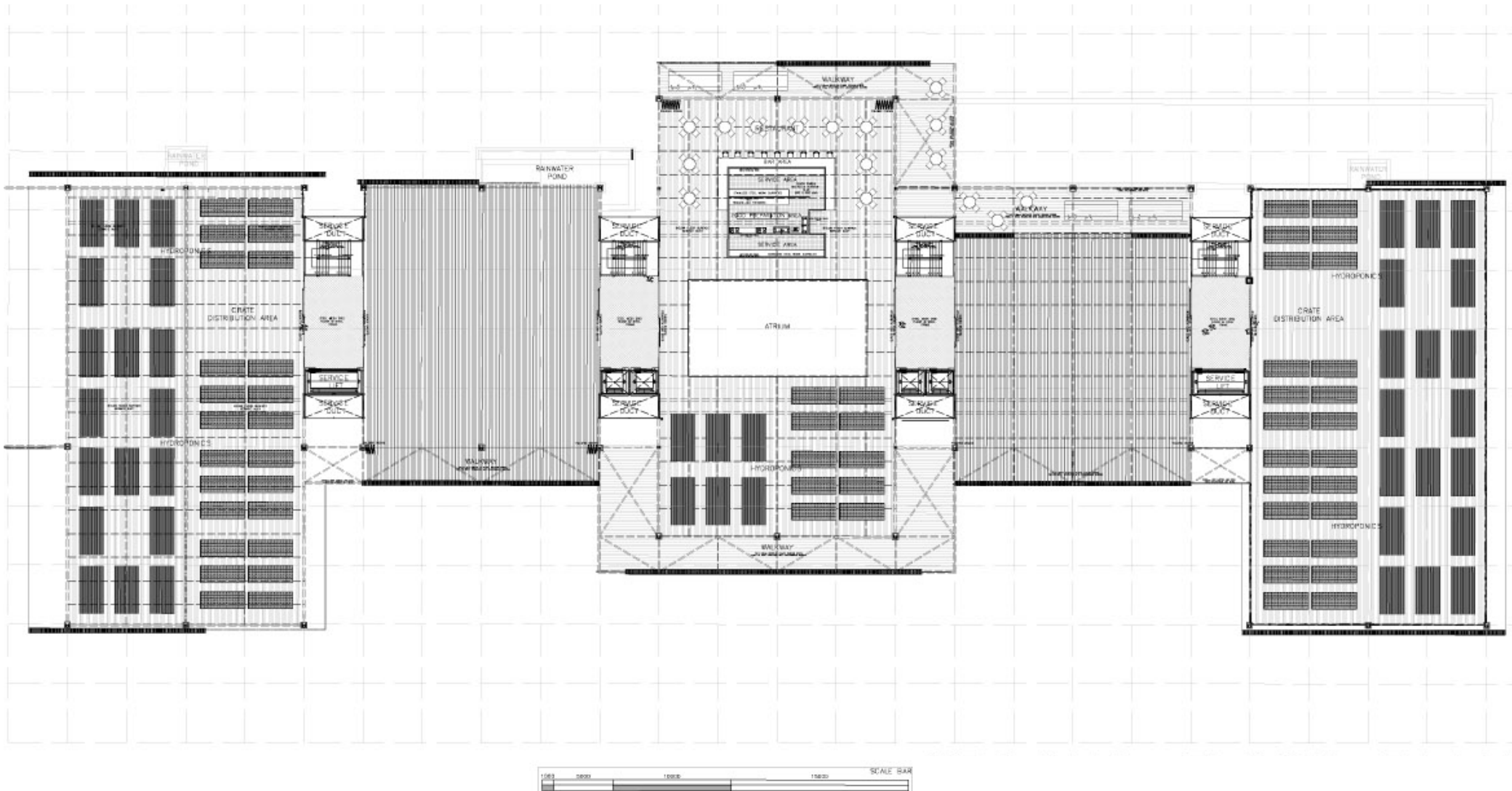
>>118: Groundfloor plan.

GROUND FLOOR PLAN



FIRST FLOOR PLAN

>>119: First floor plan.



>>120: Second floor plan.

SECOND FLOOR PLAN



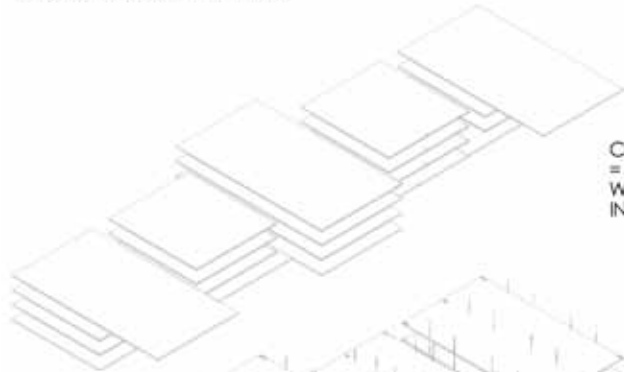
PORTAL FRAME STRUCTURE ON
800mm X 800mm CONCRETE FOOTINGS/COLUMNS

TECTONIC

+

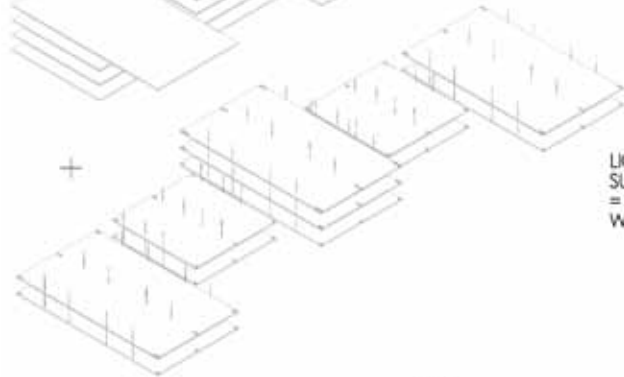
STEREOTOMIC

CONCRETE BASEMENT FLOORS
AND RETAINING WALLS



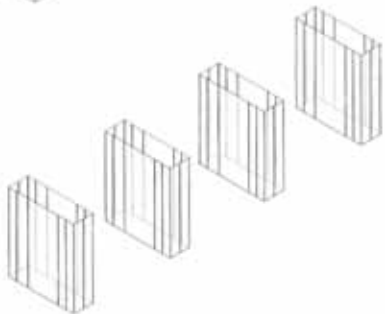
CONCRETE FLOOR SLABS
= 350mm DEEP
WITH 500mm DEEP BEAMS
IN BOTH DIRECTIONS

+

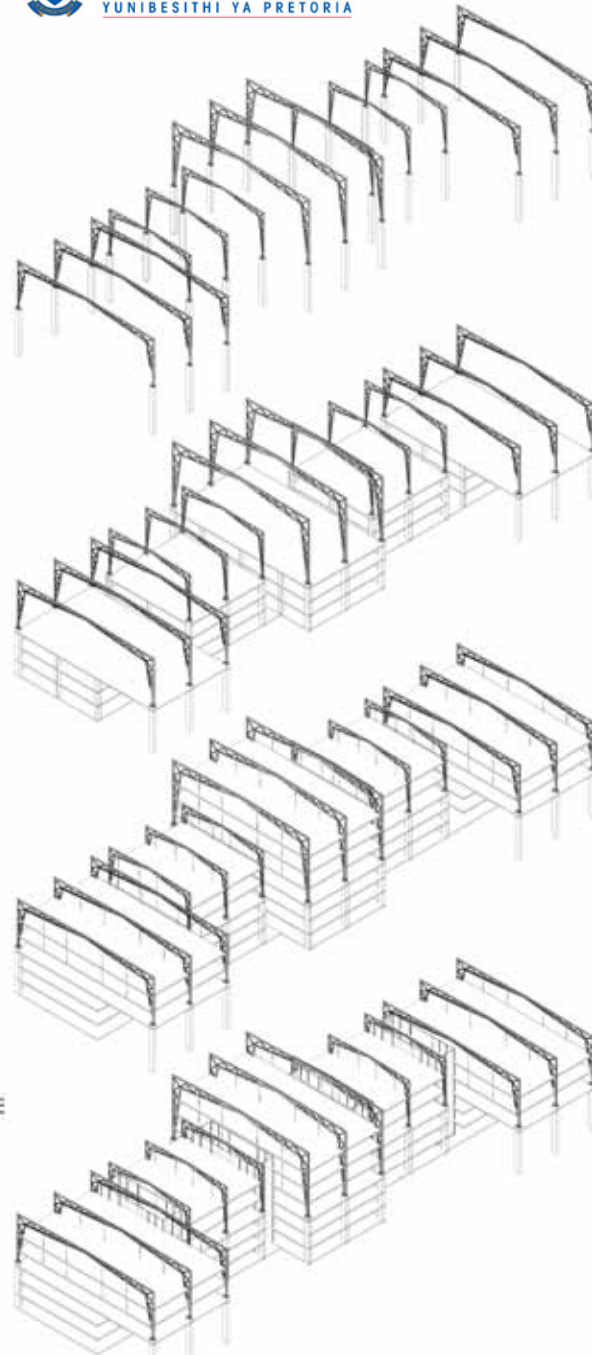


LIGHTWEIGHT CONCRETE
SUSPENDED FLOOR SLABS
= 320mm DEEP
WITH 25mm Ø STEEL CABLES

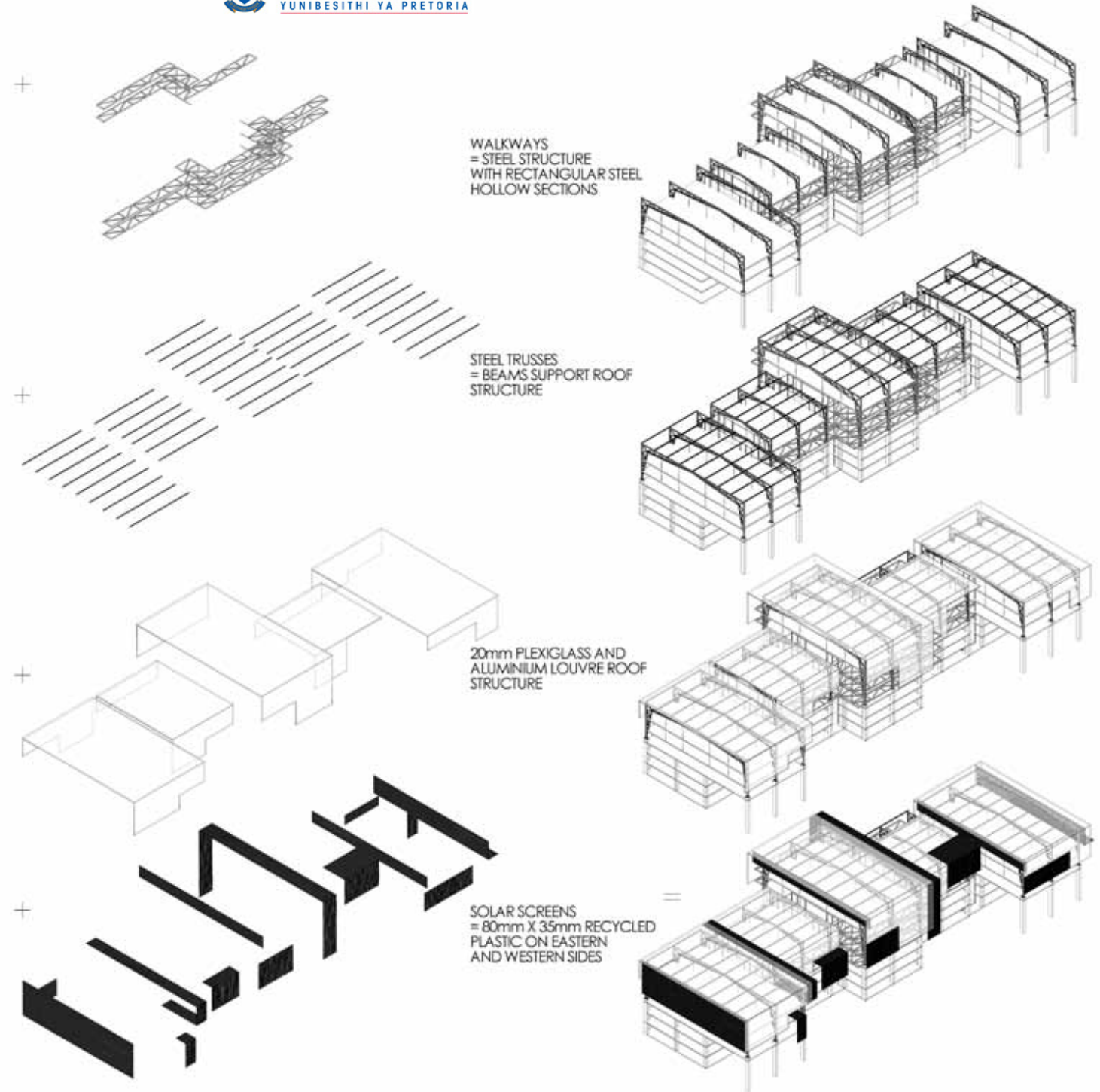
+



VENTILATION/CIRCULATION
CORES = GLASS CURTAIN
WALLS AND STEEL STRUCTURE



STRUCTURAL COMPOSITION





PORTAL FRAMES

L=40M
L/4=10M

FRAME SPACING = 10M

FRAME DEPTH
L/D = 35 - 40
D = 1.25M

ELEMENTS IN FRAME

H-SECTION STEEL POSTS
H BETWEEN FLOORS = 4m
h/d = 7-18
d = 300mm (est)
h/0.3 = 13.3 (correct)

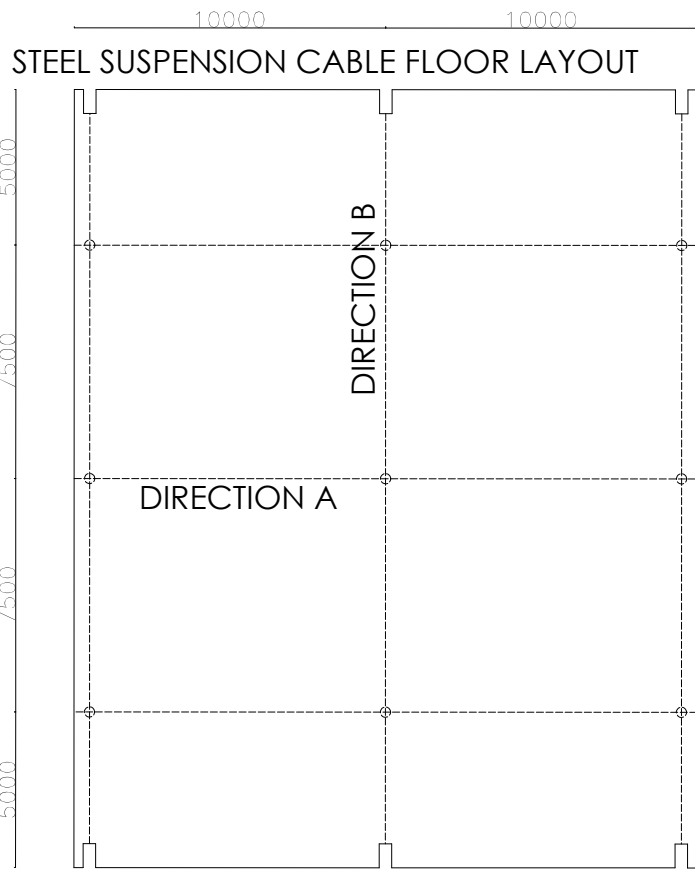
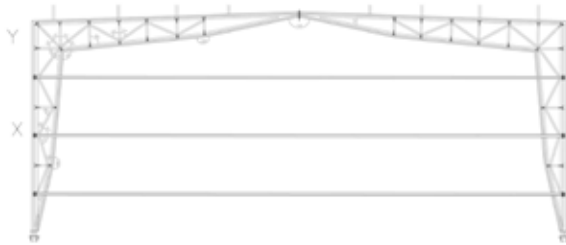
X = HEIGHT/10
= 15000/10
= 1500mm

Y = SPAN/20
= 36000/20
= 1800mm

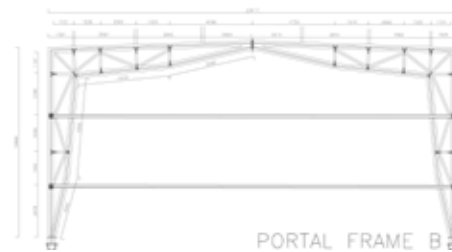
SUBSTRUCTURE

CONCRETE COLUMNS

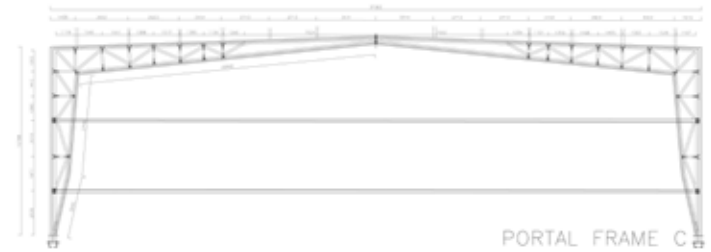
HEIGHT BETWEEN FLOORS = 4m
H/d = 6 - 15
d = 500mm (est)
4 / 0.5 = 8 (correct)



>>122: Steel suspension cable floor layout showing connection points.



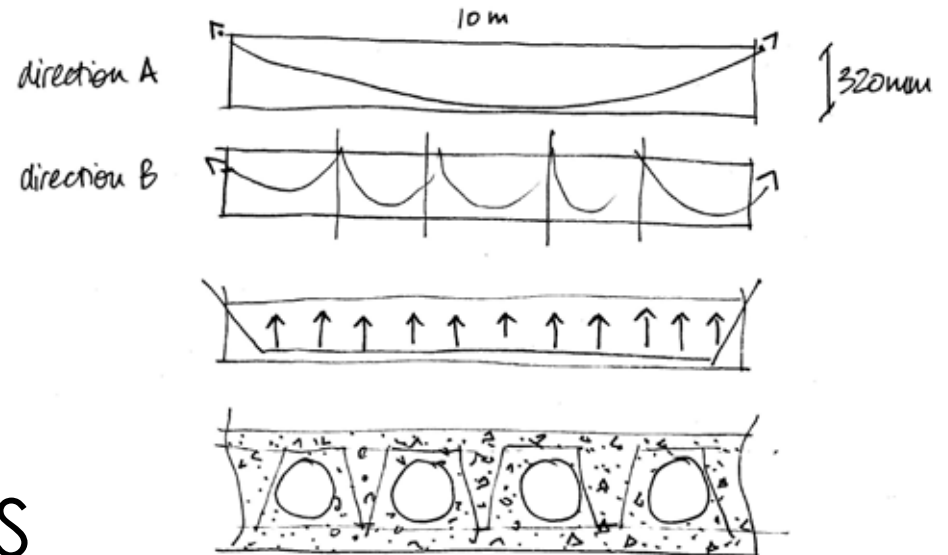
PORTAL FRAME B



PORTAL FRAME C

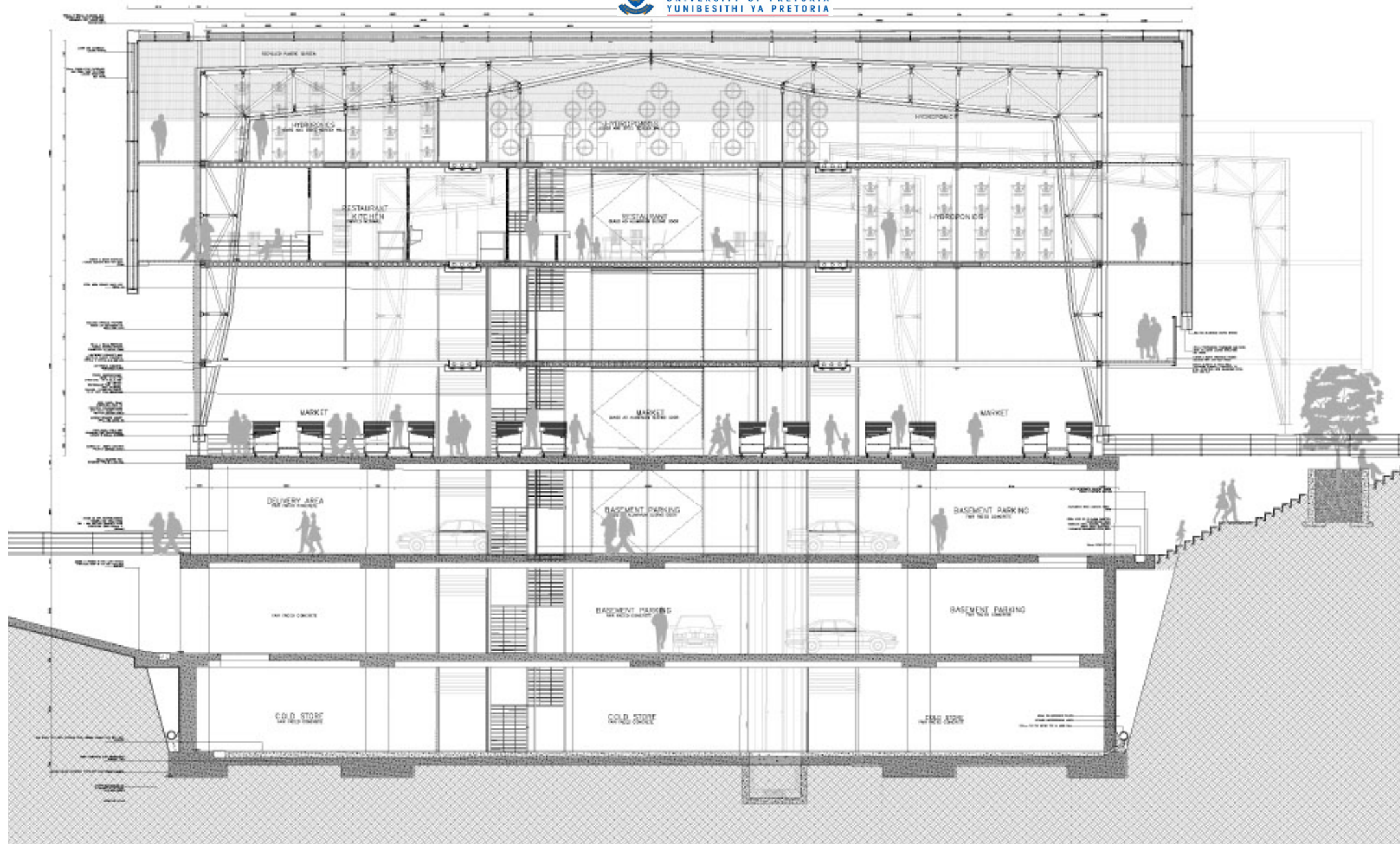
LIGHTWEIGHT CONCRETE SUSPENDED FLOORS

H = SPAN/32
= 10000mm/32
= 320mm

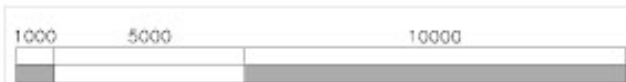


>>123: Lightweight concrete suspended floor design with internal spherical void formers.

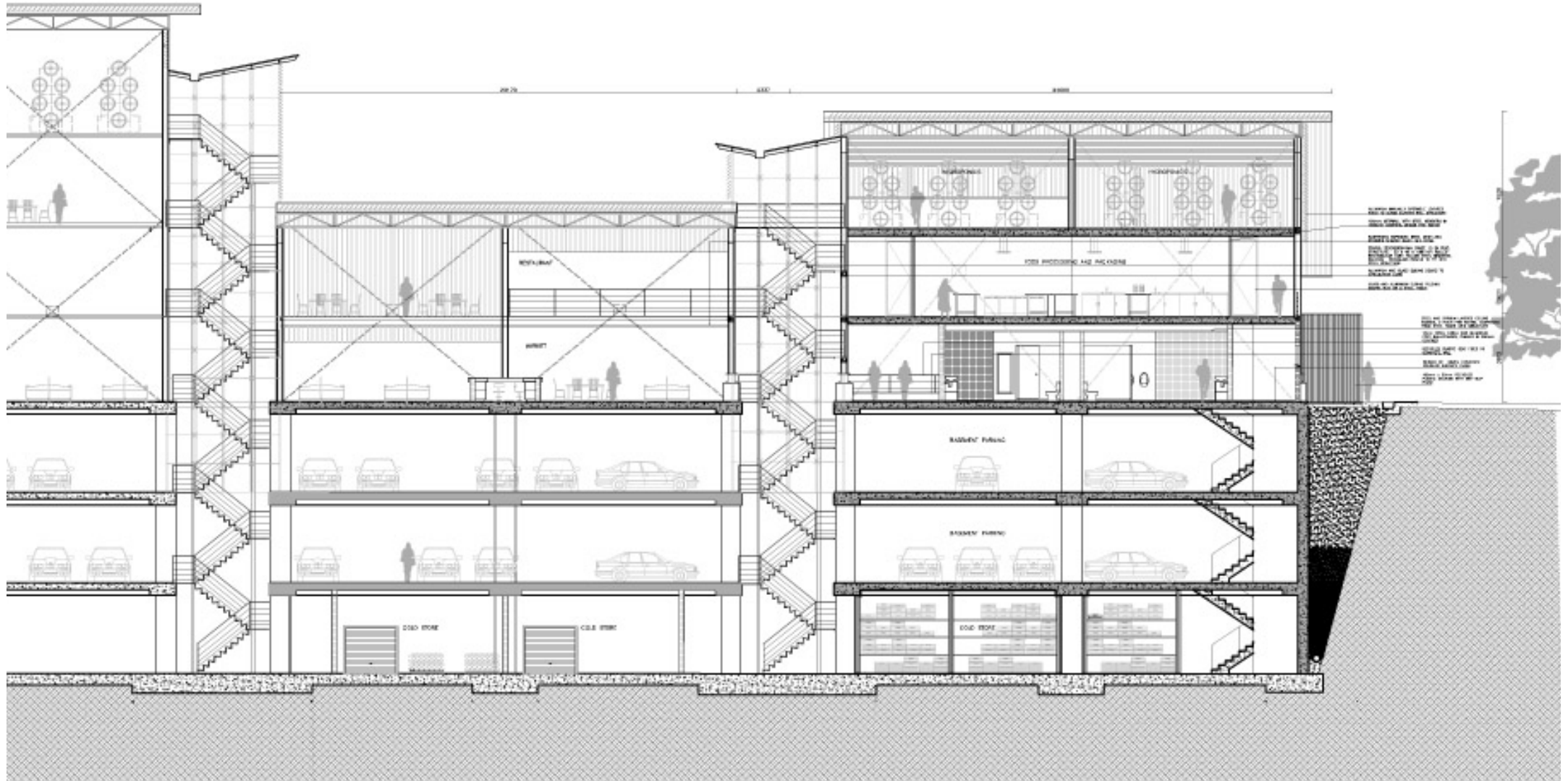
STRUCTURAL CALCULATIONS



>>124: Section A-A.



SECTION A-A



>>126: Section C-C.



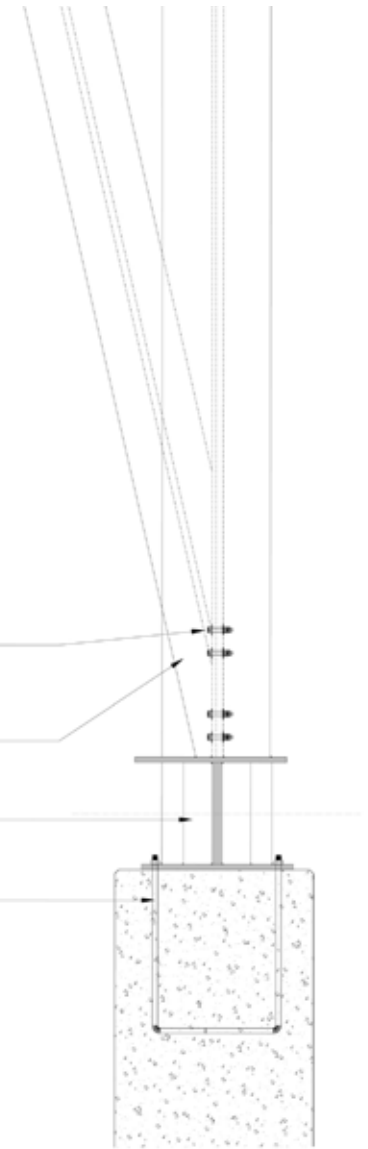
SECTION C-C

20mm STEEL GUSSET PLATE CONNECTING H-BEAMS WITH GALVANISED HIGH TENSILE M 22 BOLTS

STEEL PORTAL FRAME STRUCTURE, FIXED TO CONCRETE COLUMNS/BEAMS WITH 20mm GUSSET PLATE AND M32 ANCHOR BOLTS

100mm DIAMETER HOT ROLLED TUBULAR STEEL SECTION, WELDED TO STEEL PLATE AND 10mm WALL THICKNESS FINIS

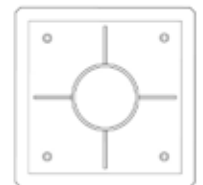
20mm DIAMETER GALVANISED STEEL J BOLTS, CAST INTO CONCRETE COLUMN



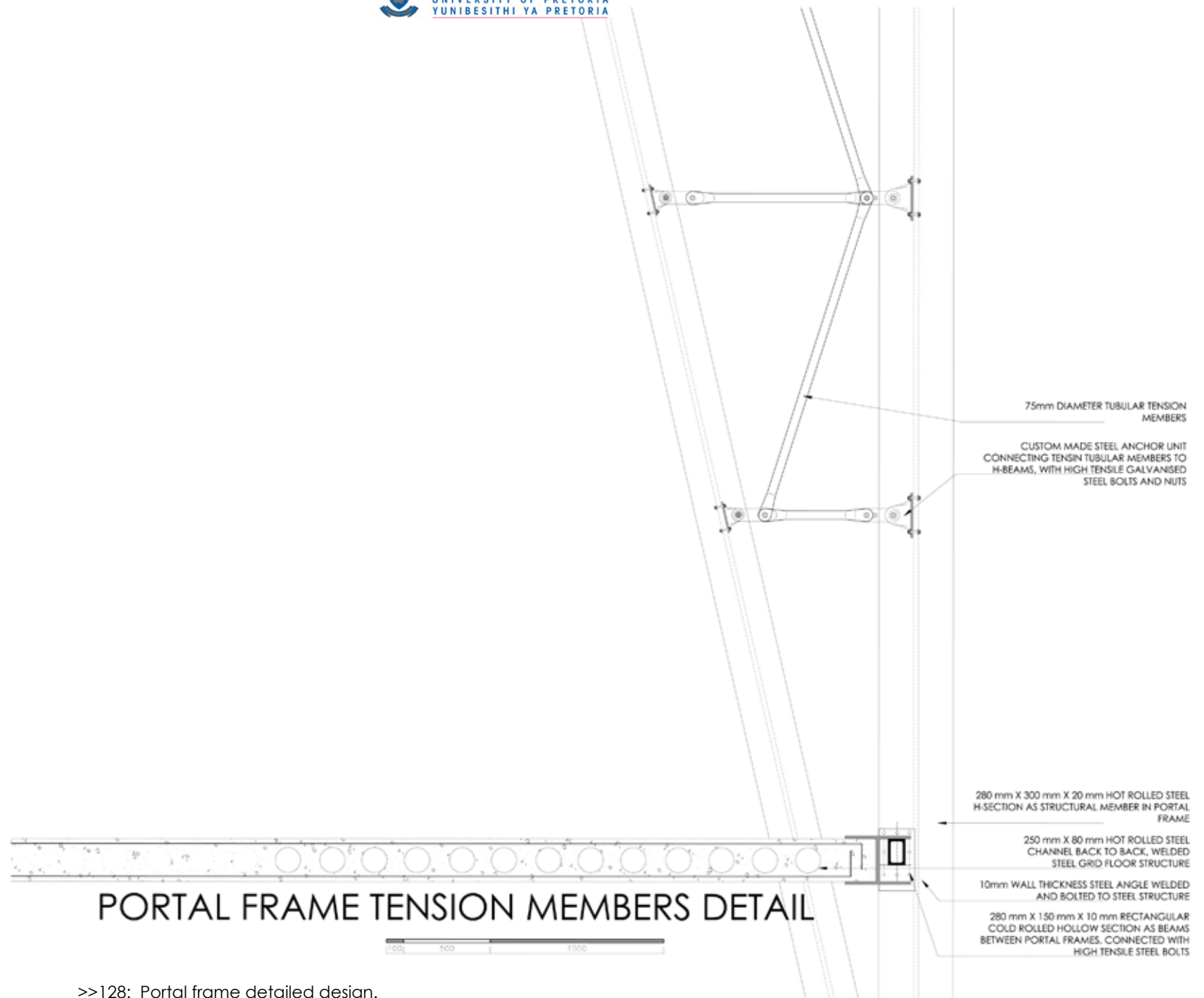
DETAILED DESIGN



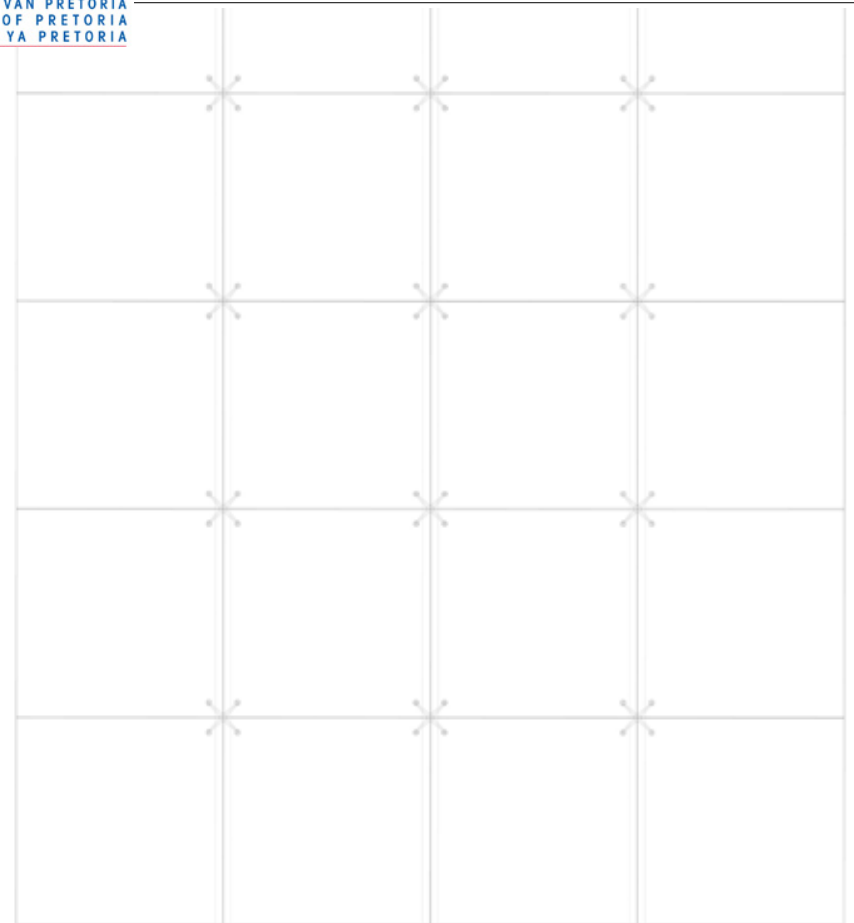
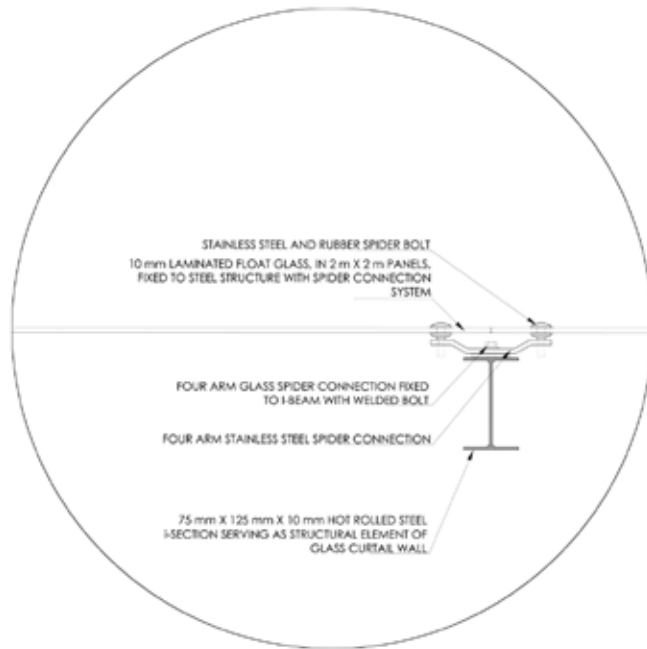
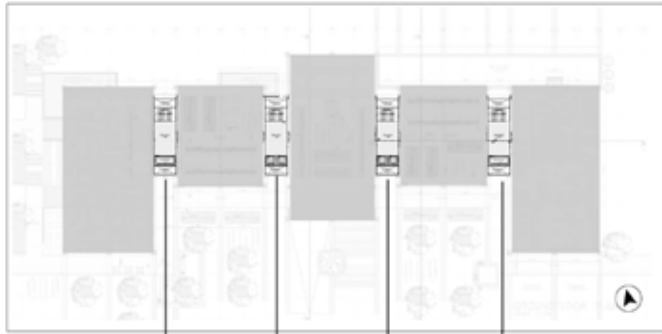
PORTAL FRAME CONNECTION TO CONCRETE COLUMN



>>127: Steel to concrete connection detail.



>>128: Portal frame detailed design.



ELEVATION



PLAN

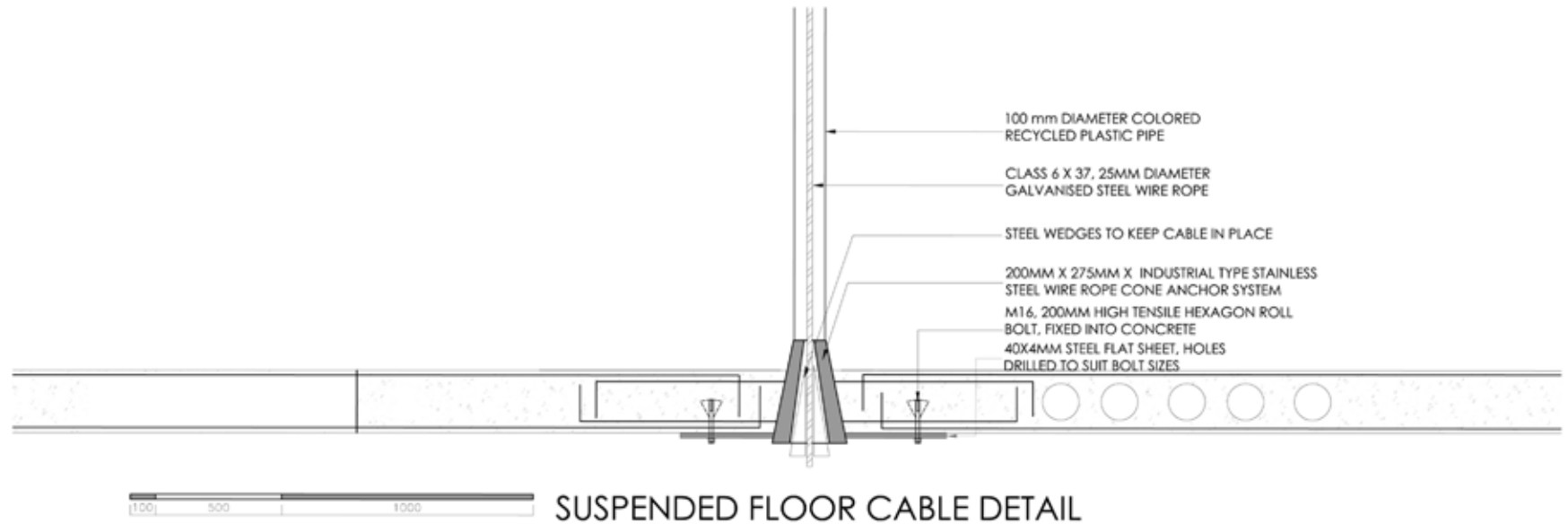
GLASS CURTAIN WALL DETAIL



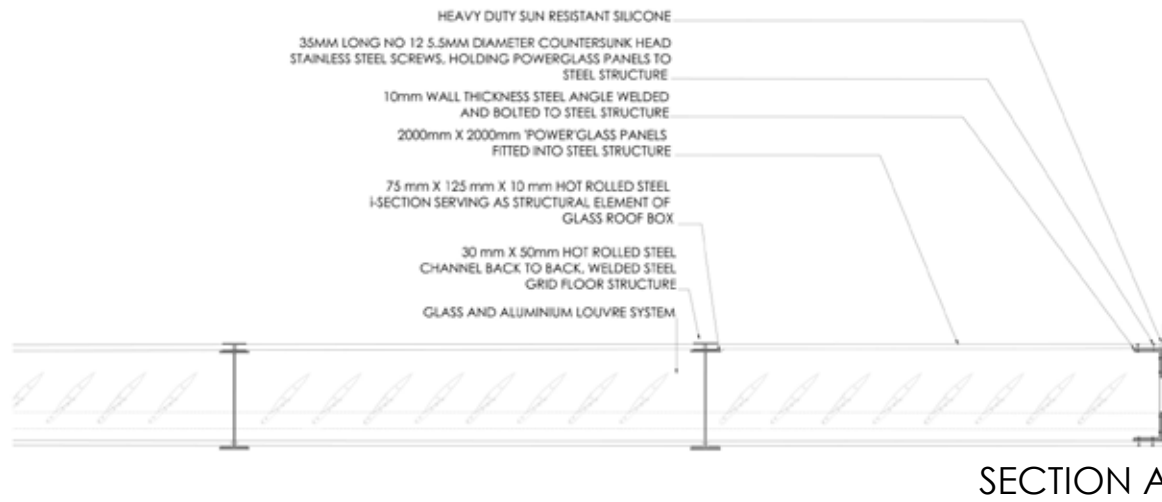
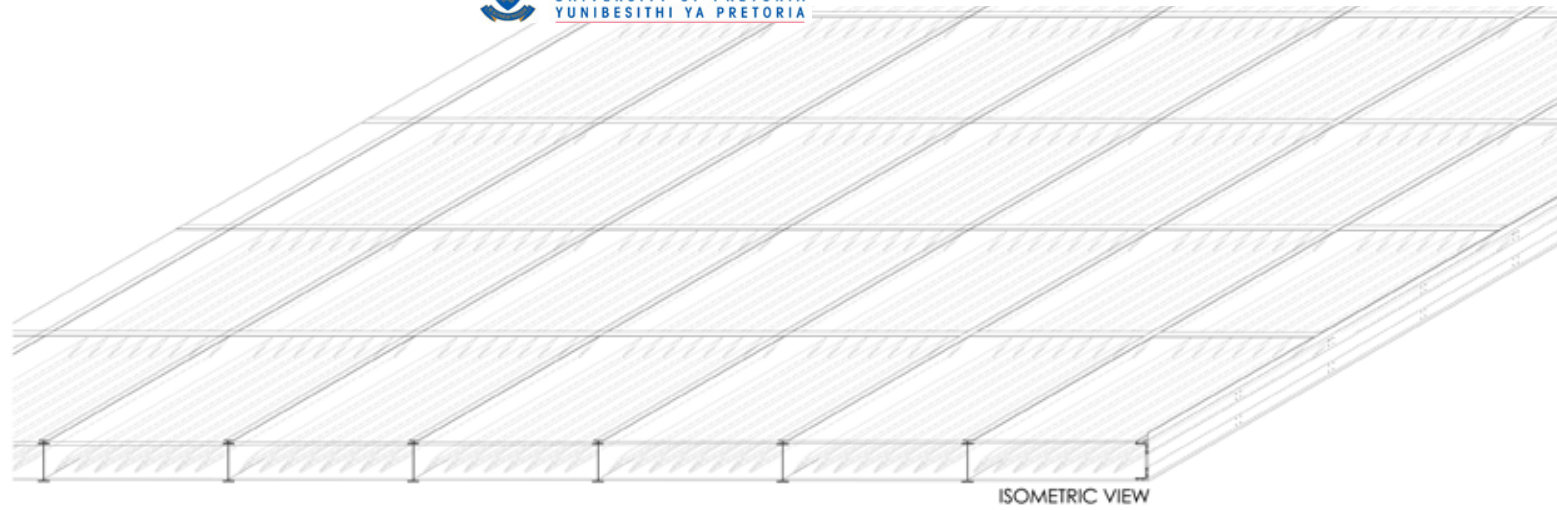
>>129: Service core glass facade detail.



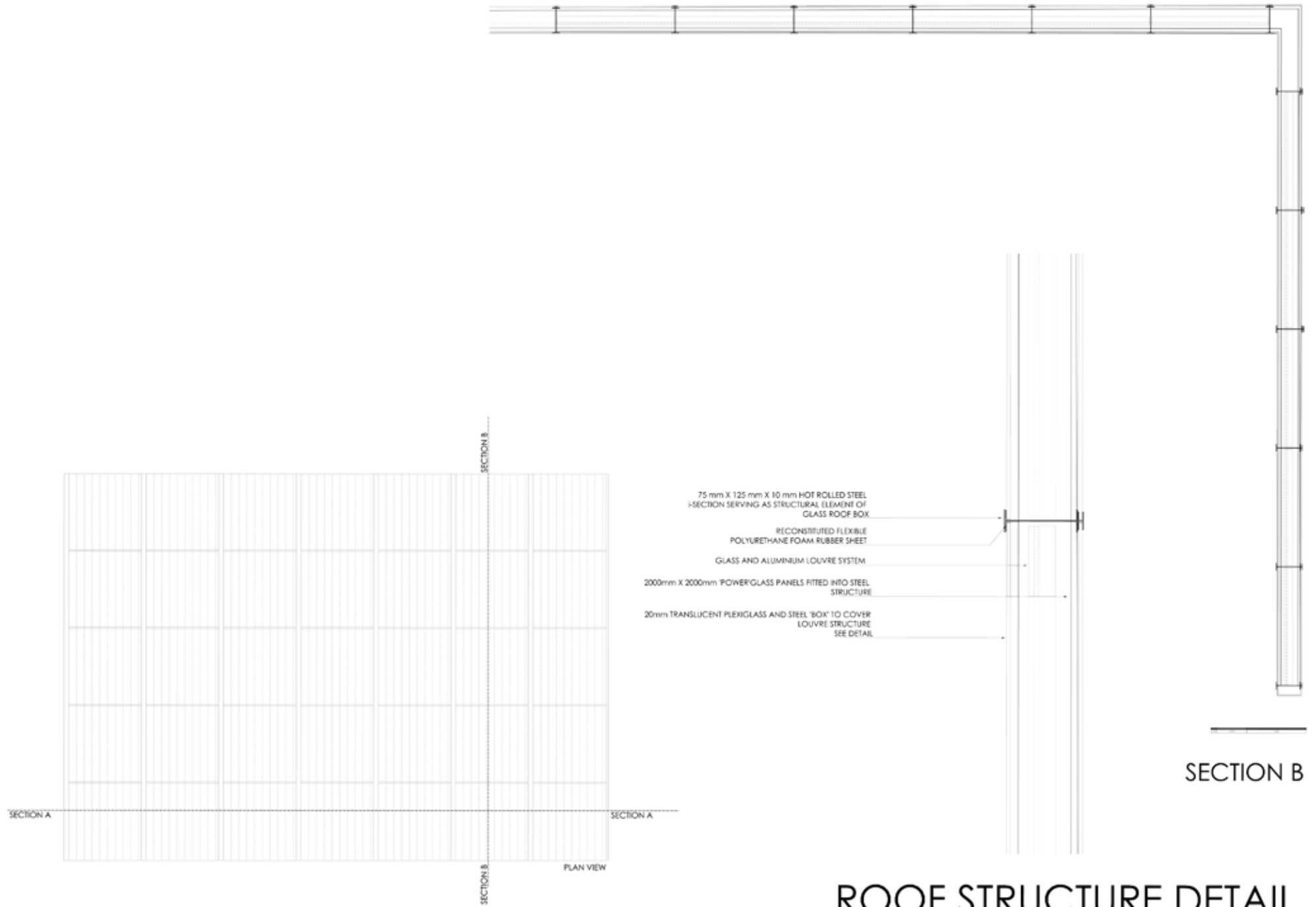
>>130: Suspended floor horizontal service duct detail.



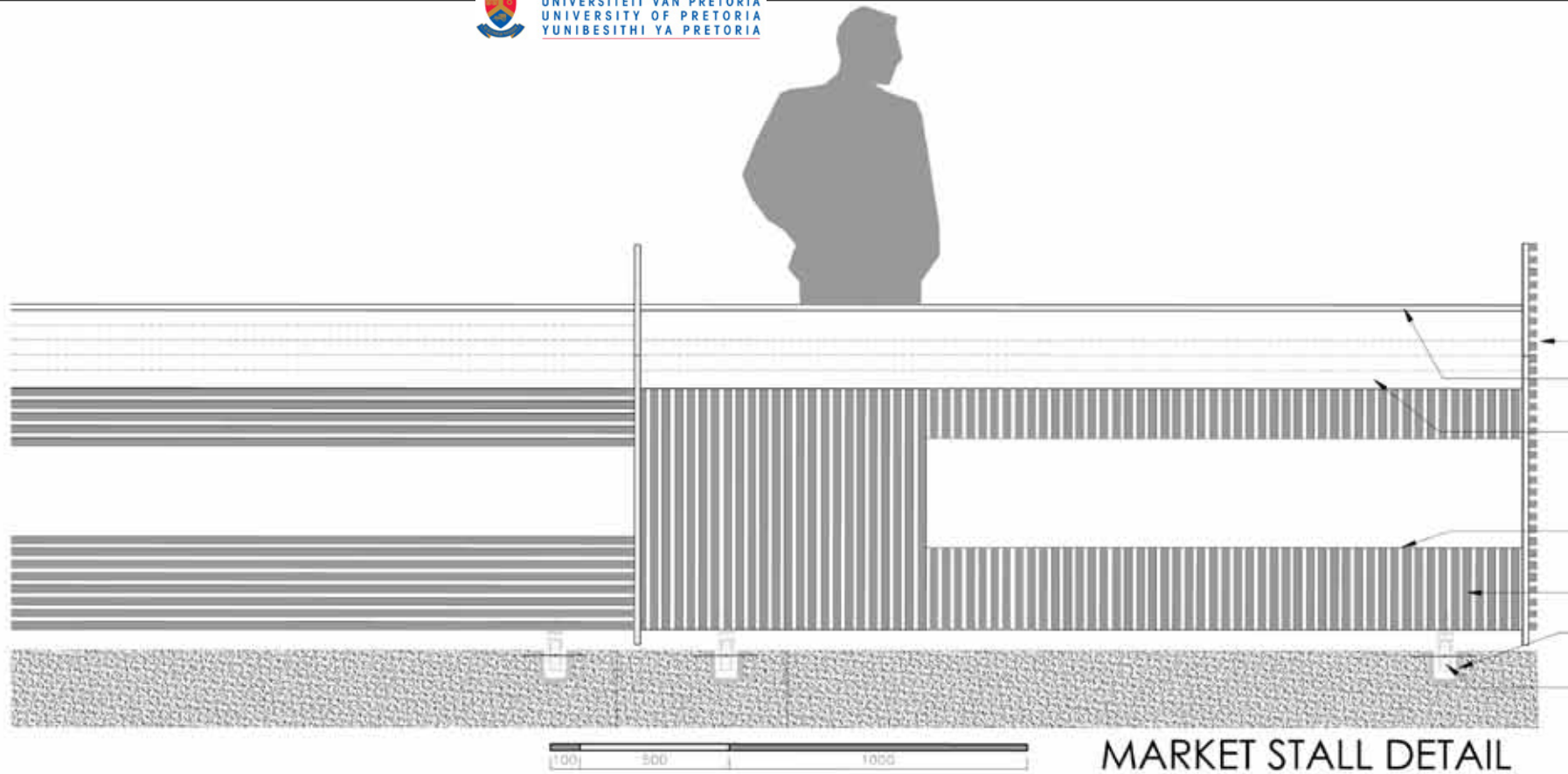
>>131: Floor anchor detail.

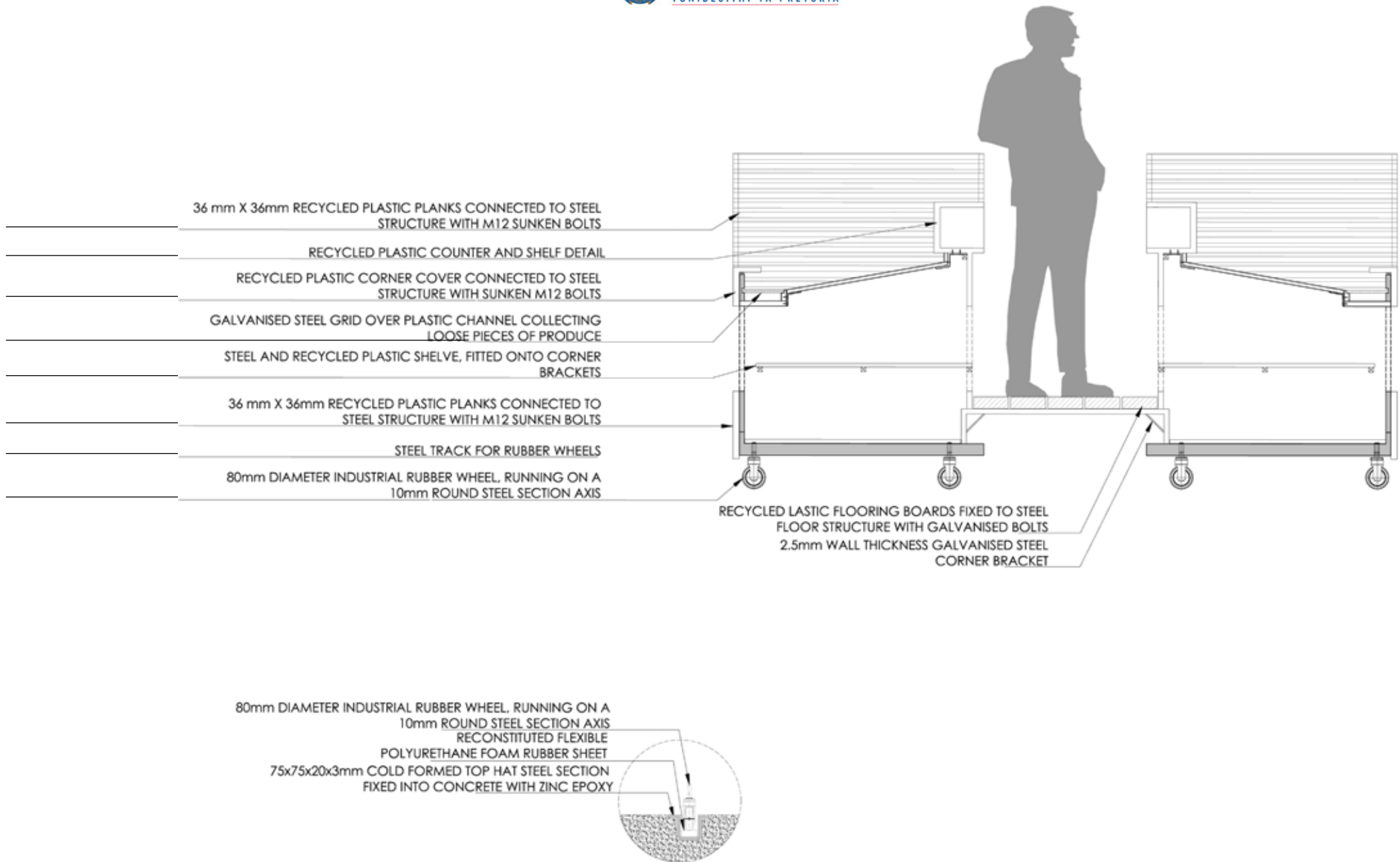


>>132: Powerglass, plexiglass and aluminium louvre roof details.



ROOF STRUCTURE DETAIL





>>133: Market stall detail.