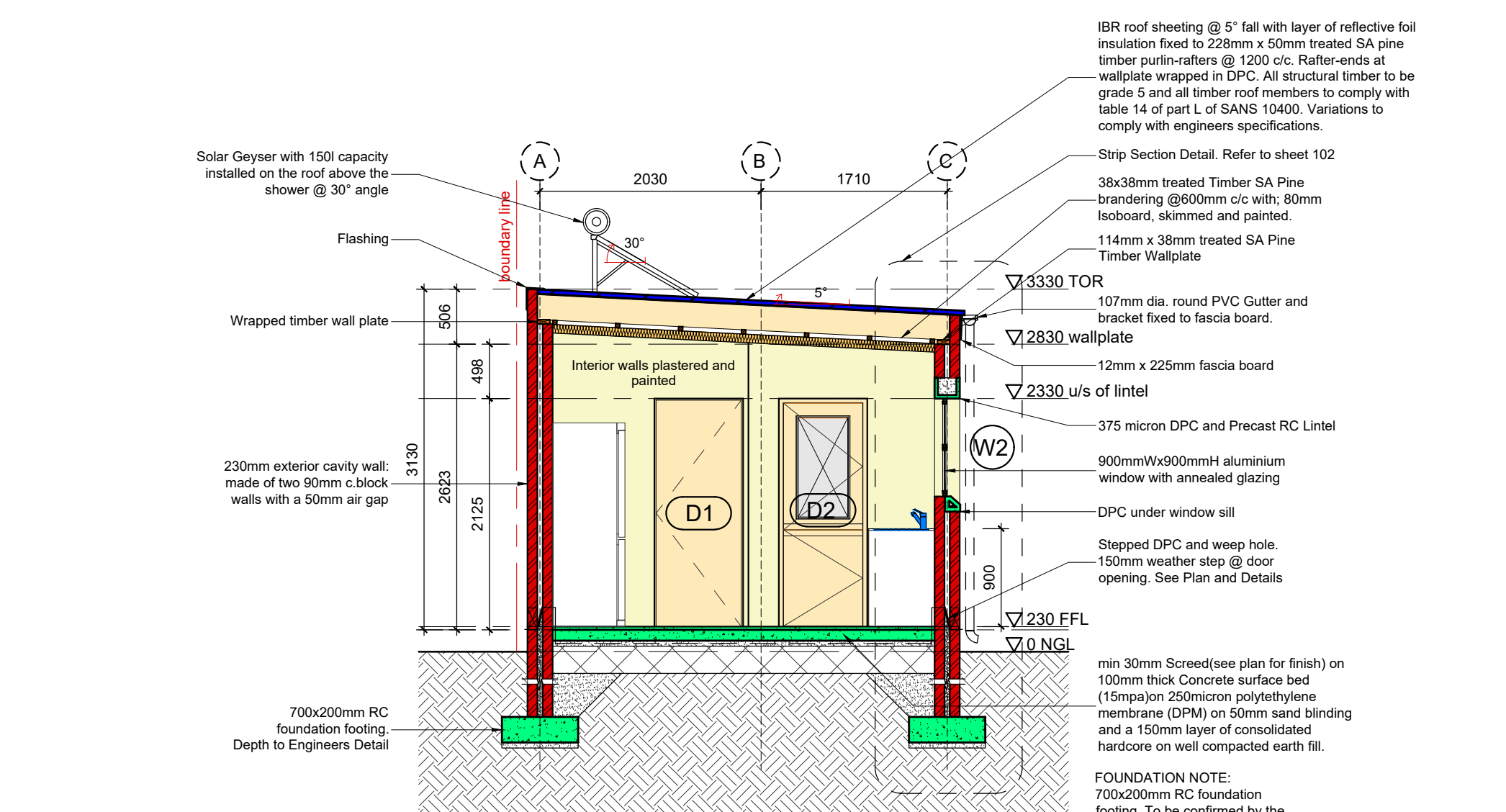


SITE AND ROOF PLAN

SCALE 1 : 100

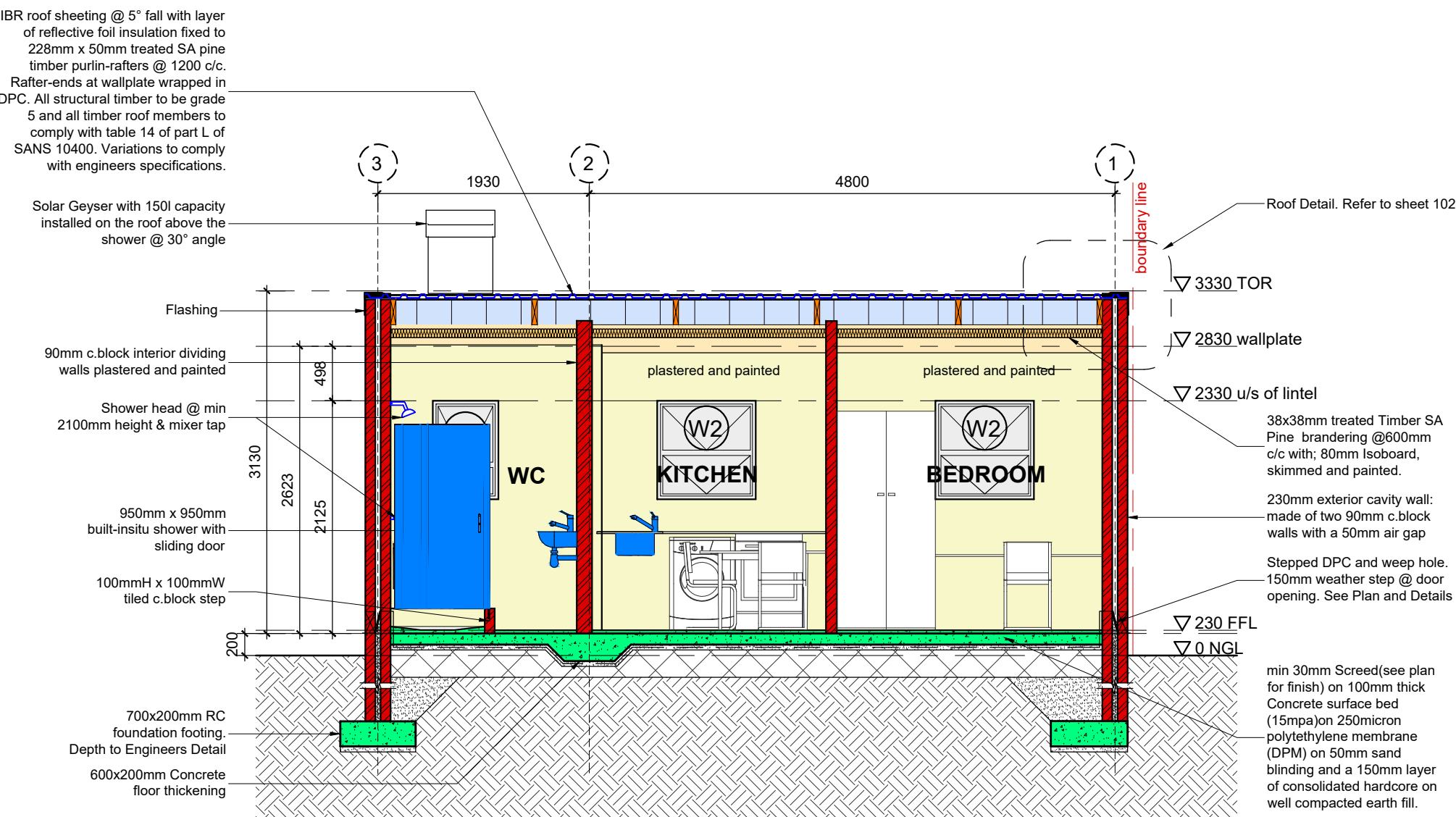


SECTION AA

SCALE 1 : 50

GROUND FLOOR

SCALE 1 : 50



SECTION BB

SCALE 1 : 50

Electrical Fixture Schedule

TYPE	NO.	COMMENTS	KEY
Prepaid water meter and DB	1	1600mm above FFL	
Wall outlet	5	300mm above FFL	
Double lever light switch	1	1100mm above FFL	
Single lever light switch	2	1100mm above FFL	
LED light fixture	3	ceiling mounted	
Outlet for Oven/Stove	1	1100mm above FFL	
Wifi Router Connection	1	300mm above FFL	
Wall mounted outdoor light	1	2150mm above FFL	

GLAZING

7.1 Glazing to comply with SANS 10400-part N and SANS 10137. Safety glazing required in a bath enclosure or shower cubicle that is glazed, or where glazing occurs immediately above and within a distance of 1 800 mm horizontally or vertically from a bath or shower. All glazing thickness and safety glazing to be in accordance with SANS 10400 N. The maximum air leakage for windows and doors shall comply with the requirements of SANS 613. All doors and windows to be sealed with foam or rubber or fibrous seals as per SANS 10400 part XA.

REINFORCEMENT

8.1 These notes are to be read in conjunction with all related engineering drawings and project specifications. Notes on drawings take preference over General Notes.
8.2 Reinforcement shall be fixed to comply with the tolerances specified in the current edition of SANS 920.
8.3 No heat treatment (including but not limited to welding) or cutting of steel is allowed without the written approval of the Engineer. Any site bending of steel reinforcement shall be done using a proper bar re-bending tool, and bars should only be re-bent once.
8.4 The Contractor shall exercise care that no damage to waterproofing materials underneath surface beds is caused during fixing of steel or other operations. The cost to repair or replace waterproofing materials shall be at the Contractor's expense.
8.5 Vertical element (columns and walls) reinforcement to be adjusted and approved in writing by the Engineer immediately prior to casting of concrete.
8.6 The Contractor shall confirm all levels and dimensions on site before erecting formwork and casting concrete. Any discrepancies shall be reported to the Engineer immediately.
8.7 All reinforcement must be inspected and approved by the Engineer in writing before concreting. The Engineer shall be given at least 24 hours advance notification of an inspection. Inspection will only be done if all steel is properly fixed, spacer blocks positioned, shuttering cleaned out and reinforcement checked by the Contractor prior to the Engineer arriving for inspection.
8.8 It is the Contractor's responsibility to maintain reinforcement (including mesh) in the correct position with approved spacers and/or stools during concreting.

MASONRY

9.1 Masonry units shall comply to the current editions of relevant specifications, including but not limited to :
i. SANS 227, ii. SANS 285, iii. SANS 1215
9.2 Brickwork to be built according to the current edition of SANS 10164.
9.3 Minimum brickwork strengths:
i. Load-bearing bricks: 14 MPa; ii. Non load-bearing bricks: 7 MPa.
9.4 All mortar for brickwork shall be Class 2 according to SANS 10164
9.4 All brickwork anchors, wall ties and straps shall be hot dip galvanized.
9.5 Butterfly wall ties shall be built into cavity walls at three per square meter (3/m²) (staggered) or similar approved spacing.
9.6 Hoop iron straps shall be built in a minimum of every fourth course (i.e. minimum every 340mm) for a minimum of 700mm, and shot-fired steel wire mesh shall be provided in every fourth course.
9.7 Concrete lintels to be supplied and installed above all openings in brickwork in accordance with supplier's specification.
9.8 Brickwork shall be reinforced with an approved brickwork every fourth course (i.e. minimum every 340mm).
9.9 V-joints are to be cut through the plaster where brickwork and concrete join.
9.10 Refer Architect's drawings for details of reinforced brick lintels.
9.11 WSCC drawings indicate load-bearing brickwork. Refer Architect's drawings for the full extent of all brickwork.
9.12 Where filled cavities are indicated, any reinforcing steel shall be properly secured.
9.13 All non-load bearing walls and partitions shall be kept 20mm clear of the underside of beams and slabs, unless otherwise specified.

SUSPENDED FLOOR SLAB - RIB AND BLOCK (where applicable)

10.1 All concrete work is to be done in accordance with the current edition of SANS 2001-CC1 10.2 All concrete sizes on drawings are without finishes unless indicated otherwise.
10.3 Unless otherwise specified by a Specialist Consultant or Specialist Contractor and approved by the Engineer in writing:
i. Ribs to bear a minimum of 30mm onto the supporting structure.
ii. Ribs to be propped at a maximum of 1500mm c/c. Props are to remain in place for at least ten (10) days after casting.
iii. No blocks may be taken more than 20mm onto supporting walls.
iv. Rib soffits to be cast in place at a rate of 6mm per hour.
10.4 The Engineer shall be given at least 48 hours advance notice when inspections are due.
10.5 Ribs and topping to be cast simultaneously unless otherwise specified in writing by the Engineer.
10.6 All concrete is to be mechanically vibrated during casting.
10.7 Position of any walls on top of the slab may not be altered without Engineer's written approval.
10.8 Prestressed lintels and minimum four courses of brickwork with brickwork every layer to be placed over openings where reinforcement is provided on beams have not been specified.
10.9 No in-situ concrete may be poured onto the slab before the layout of the pre-cast units and the reinforcing steel has been inspected and approved in writing by the Engineer.

SURFACE BED

11.1 Minimum 30mm Screed (see plan for finish) on 100mm thick Concrete surface bed (15mpa).
11.2 250micron polyethylene membrane (DPM) on 50mm sand blinding and a 200mm layer of consolidated hardcore on well compacted earth fill.
11.3 Internal tiled floor finish to arch's specification on 50mm screed on reinforced concrete slab to structural engineer's detail.
12.1 External & Internal walls made of concrete block, with brickwork in every course in foundations walls and every fourth course in superstructure walls.
12.2 DPC min. 150mm above existing ground level
12.3 External walls to be 230mm thick (2 x 90mm skins with 50mm cavity)
12.4 Internal walls to be 90mm thick
12.5 External and Internal walls to be plastered and painted.

RAINWATER DISPOSAL

13.1 Slope area has a 50mm screed laid to fall 1:70 to patent stormwater outlet.
13.2 Roof slope of 5 degrees to direct water toward front of dwelling with 1200mm roof overhang to allow water discharge away from structure and foundations.
13.3 Excess discharge to be directed into masonry catchpits with covers to 100mm diam. Stormwater pipes running below ground from municipal stormwater system.

ROOF CONSTRUCTION

14.1 Specifics of roof structure to comply with SANS 10400 or to structural engineer's detail.
14.2 Roof construction for Typology A is as follows:
14.2.1 IBR roof sheeting @ 5' fall with layer of reflective foil insulation fixed to 7mm x 38mm treated SA pine timber purins @ 900 c/c fixed to 228mm x 70mm treated SA pine timber rafters @ 1200 c/c. Roof rafters tied down with 30mm x 1.6mm galvanized steel straps every 1200mm c/c and embedded 600mm deep into blockwork.
14.2.2 38x38mm treated Timber SA Pine battens @600mm c/c with 130mm mineral wool insulation on 6.4mm Gypsum ceiling board, skimmed and painted.
14.2.3 6.4mm gypsum ceiling board fixed to 38mmx38mm timber battens
14.2.4 All timber roof members to comply with table 13 of part L of SANS 10400.
14.3 Roof construction for Typology B is as follows:
14.3.1 IBR Roof sheeting @ 5' fall fixed to 228mm x 50mm treated Timber SA Pine purin-raffers @ 1200 c/c with layer of reflective foil insulation. Purin-raffers tied down with 30mm x 1.6mm galvanized steel straps every 1200mm c/c and embedded 600mm deep into blockwork.
14.3.2 80mm Isoboard fixed to 38mmx38mm timber battens @ 600mm c/c.
14.3.3 All timber roof members to comply with table 14 of part L of SANS 10400.
14.4 Dimension limits are reference in SANS 10400, changes will require approval by responsible engineer.
14.5 All structural timber to be grade 5, timber roof members to comply with table 13, 14 or 15 of part L of SANS 10400. Roof to comply as per engineers detail.

WINDOWS AND DOORS

15.1 All glazing to comply with requirements of SANS 10137 & SANS 10400 Part N
15.2 Burglar Bars to be fitted to opening section of windows to manufacturers spec.
15.3 Precast concrete lintels + 4 courses brickwork with brickwork every course over all openings not exceeding 3m.
15.4 Windows minimum 10% of floor area for natural light (artificial light should be a min. lux levels as per the SANS codes).
15.5 Natural ventilated spaces – openings to be a min. of 5% of the floor area. (Check SANS codes)
15.6 Smoke ventilations – openings should be a min. of 3% of the floor area. (Check SANS codes)
16.1 Overlap of treads/nosings) not less than 25mm.
16.2 Min tread = 250mm and Max riser = 200mm to comply with SANS 10400
16.3 50mm handrail at 1000mm height
16.4 Spacing of balusters maximum 100mm
16.5 Head room not less than 2100AFFL
16.6 Doors opening onto landings to comply with SANS codes.
16.7 Staircase width and landings to comply.

LIGHTS

17.1 All external light fittings to be waterproofed

WATER BYLAW

18.1 All work to comply with the water bylaw.
18.1.1 Section 51 - Material, installation and maintenance of pipes used to convey water must comply.
18.1.2 Section 52 (d) the storage of a minimum quantity of water, to be used for purposes other than fire-fighting or air-conditioning, is provided in accordance with Table 1 of Schedule 3
18.1.3 Section 55 - The responsibility of the owner to supply and support fire installations and connection to mains.

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All dimensions to be checked on site and on drawings. Any discrepancies to be reported to the architect before work is put to hand. Only figure dimensions are to be taken. All levels to be checked on site and on drawings and any discrepancies must be reported to the architect before any work is put to hand. All levels shown are finished floor levels. Soil and water levels must be checked and verified by a geotechnical engineer. All work must be completed in accordance with SANS 10400 and the current National Building Regulations. All structural work must be checked by a structural engineer and must be read in conjunction with their drawings.

GENERAL NOTES

1.1 These notes are to be read in conjunction with all related engineering drawings and project specifications. Notes on drawings take preference over General Notes.
1.2 Structural drawings must be read in conjunction with the relevant drawings and documentation from other Consultants and Specialists, including but not limited to architectural, drainage, mechanical, electrical and plumbing drawing. Any discrepancies (including dimensions and levels) shall be brought to the attention of the Engineer immediately prior to casting of concrete.
1.3 All Engineers' and other Consultants' instructions must be recorded in the site instruction (SI) book or confirmed via email.
1.4 The current edition of all relevant SANS specifications for the project, including but not limited to those mentioned in the notes, on the drawings and in the project specifications must be available at all times on site. Any reference to a SANS or other specification is a reference to the latest published edition of that specification.
1.5 The Contractor shall confirm all levels and dimensions on site before erecting formwork and casting concrete. Any discrepancies shall be reported to the Engineer immediately.
1.6 The Contractor may not use alternative products or designs other than those prescribed, unless equivalent and written approval from the Engineer is obtained. Alternative design/drawings are to then be submitted at no extra cost to the Client unless otherwise agreed.
1.7 Care must be exercised to ensure that waterproofing membranes and filters are not damaged during construction. Water proofing by specialist to Architect's approval.
1.8 DO NOT SCALE OFF DRAWINGS. Request required dimensions.
1.9 The works will be inspected from time to time by the Engineer (and other Consultants and Specialists where relevant) to ascertain that the Contractor is carrying out the works in general conformity with the construction documentation. It remains the Contractor's responsibility to ensure that the works are carried out in accordance with the latest relevant construction documentation and good building practices.
1.10 No works to encroach the erf boundary.
1.11 No dispersed water to be a nuisance to neighboring properties.

EARTHWORKS

2.1 All earthworks shall be in accordance with SANS 12000 and relevant drawings.
2.2 The Contractor shall confirm the nature and location of any and all existing services which may be affected by construction works.
2.2.1 The Contractor shall ensure proper damage protection of these services during construction works.
2.2.2 The Contractor shall notify and/or arrange with the relevant authorities of any service/supply discontinuance, and undertake all relevant cutting, disconnecting and/or sealing of services and drains as required.
2.3 All dimensions and levels are to be confirmed by the Contractor with Architect's and other relevant drawings prior to any excavations commencing. Any discrepancies shall be brought to the Engineer's attention and resolved prior to excavations commencing.
2.4 The Contractor is responsible for implementing and maintaining a temporary site drainage system to channel water away from the works to ensure the local protection of the structure and surface beds against damage caused by water (including but not limited to Stormwater, and water from neighbouring systems) and transportable solids during construction.
2.4.1 The Contractor's temporary drainage system shall provide the necessary pumps, temporary sumps and drains to ensure that excavations remain free of water at all times.
2.5 The Contractor is responsible for ensuring that the site work is maintained in a safe and stable condition.
2.5.1 Bulk excavation batters are to be provided around the perimeter of the site at one (1) meter from the site boundary and at 1V/2H, unless otherwise indicated on drawings or agreed upon in writing by the Engineer.
2.5.2 The Contractor shall engage with the responsible Engineer for approval on steeper slopes.
2.5.3 Slope stabilisation and erosion protection shall be provided at the Contractor's expense.
2.5.4 The Contractor shall design and install all bracing and/or shoring necessary to retain earth banks, roads, pavements, walls, and footings of adjacent properties and structures, as well as to prevent caving and displacement of adjacent soil and structures.
2.6 All excavations to be inspected and approved in writing by the Engineer.
2.7 Footing levels shown on the drawings are preliminary and based on the geotechnical report. Excavations shall continue until the required soil bearing capacity as per the geotechnical report is found, and shall be confirmed by the Geotechnical Engineer. Any deviation from the footing founding level as noted on the drawings is to be discussed between the Contractor and the Engineer to determine whether the over-excavations are to be filled with mass concrete (15 MPa/19 mm) or whether the reinforcing steel is to be appropriately adjusted.
2.8 Over-excavations are to be filled with mass concrete (15 MPa/19 mm) at the rate of 150mm per layer.
2.9 Backfill material to be compacted in layers not exceeding 150mm to 98% MOD AASHTO, and approved by Geotechnical Engineer.
2.9.1 Column bases shall be backfilled with approved material in accordance with the project specification.
2.9.2 Sub-slab drains shall be inspected and approved by Engineer/relevant Consultant before being covered with backfill.
2.9.3 Waterproofing (by Specialist Contractor) for retaining walls to be inspected and approved by Engineer/relevant Consultant and/or Architect before being covered with backfill.

FOUNDATIONS

3.1 Footing levels shown on the drawings are preliminary and shall be confirmed by the Engineer in order to obtain the specified allowable soil bearing pressure.
3.2 No foundations are to be cast on fill. Over-excavations to be filled with mass concrete (15 MPa/19 mm) at the Contractor's expense.
3.3 A 50mm thick blinding layer (15 MPa/19mm) shall be cast under all foundations of the concrete structure.
3.4 All footings shall be placed concentrically below columns and symmetrically below brickwork unless otherwise indicated.
3.4.1 Footings located along property boundaries to be eccentrically loaded where indicated.
3.5 Final foundation levels shall be confirmed on site and submitted by the Contractor for approval by the Engineer before further work is conducted.
3.6 All strip footings for load bearing walls shall be 200 deep x 700mm wide (excluding 50mm sand blinding) unless otherwise specified.
3.7 Waterproofing (by Specialist Contractor) for retaining walls to be inspected and approved by relevant Consultant and/or Architect before being covered.
3.8 Footings to be confirmed by the appointed responsible engineer as per SANS 10400 or engineers specification - however given site conditions - changes may be required based on the finding of the geotechnical investigation on site.

FIRE

4.1 1 x 4.5kg DCP extinguisher per 200 square meter
4.2 Unit separation walls to extend to underside of the roof covering (no combustibles to pass through or over the unit separation walls which is to be min 60min fire rated)
4.3 Any openings for ventilation purposes in fire walls (boundary or separation) are to be provided with a fire damper.
4.4 1m Flame path travel to be provided
4.5 Safety distances between existing house and new modular units must be provided (depends on size of unprotected openings of the 2 buildings facing each other and may not be applicable)
4.6 Where 2 or more units are serviced by a single stair:
4.6.1 Fire hose reel installation is to be provided
4.6.2 Unprotected (windows/doors) openings permitted within 3m of the external escape stair and/or passage (window not exceeding 0.3 square meters serving a bathroom or toilet need not be protected)

TIMBER

5.1 All timber to comply with SANS 10082

CONCRETE

6.1 All Pc lintels to have min. 4 courses of brickwork with brick face in every course over all openings not more 3.0m. All opening wider than 3m to engineer's specification.

CLIENT	
Add client info here	Add property info here
SIGNATURE:	

PROJECT NAME

Prototypical Modular Micro Units

DRAWING NAME	DRAWING STATUS
Type 2B - Single Unit	Council Submission
ARCHITECT, REG. NO. & SIGNATURE	

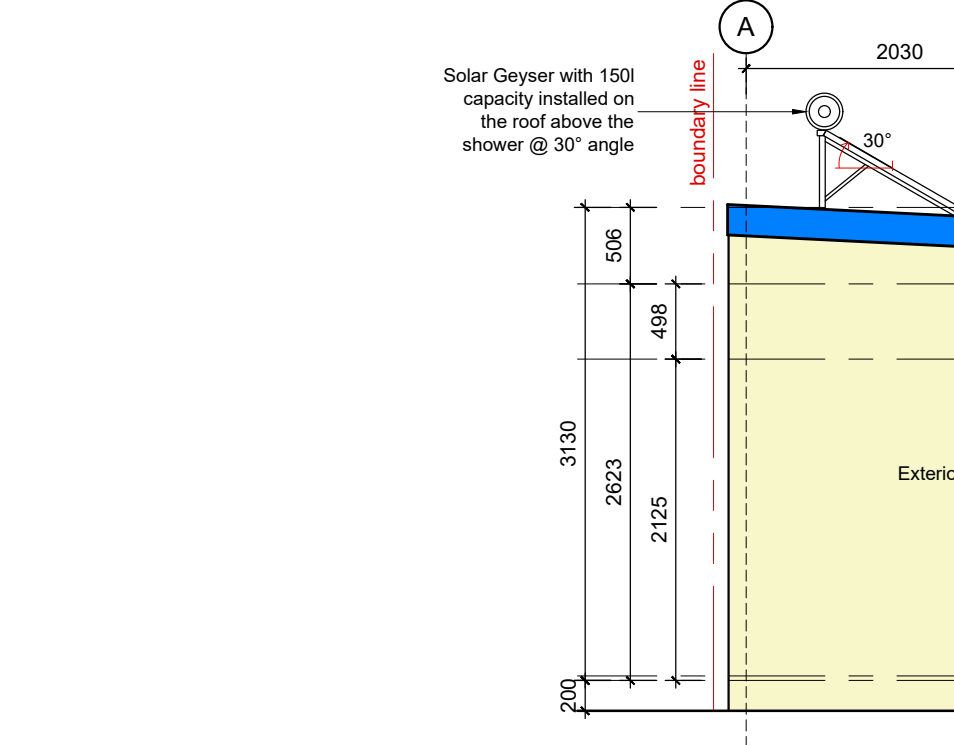
LOCATION

ENGINEER, REG. NO. & SIGNATURE

DATE		STAGE	
26/06/24		4.1	
SCALE	DRAWN BY	CHECKED BY	
1 : 50	@ A1	LW	KJ
PROJECT NO.	DRAWING NO.	REV NO.	
2310	101	03	

FRONT ELEVATION

SCALE 1 : 50



SIDE ELEVATION 01

SCALE 1 : 50

Window Schedule			
NAME	W1	NAME	W2
ROOM	BATHROOM	ROOM	KITCHEN
QUANTITY	1	QUANTITY	2
GLAZING	Frosted annealed glazing.	GLAZING	Single clear annealed glazing.
FRAME	600mm Wide x 900mm High Aluminium Window Frame	FRAME	900mm Wide x 900mm High Aluminium Window Frame
U-VALUE	U-value of 5,9	U-VALUE	U-value of 5,9
HARDWARE	To manufacturer's specification.	HARDWARE	To manufacturer's specification.

Windows

SCALE 1 : 50

Door Schedule			
NAME	D1 - Internal door	NAME	D2 - external door
QUANTITY	2	QUANTITY	1
CONSTRUC TION	2032mm x 813mm leaf, 40mm thick Masonite faced hollow core door	CONSTRUC TION	2032mm x 813mm leaf, 40mm thick timber solid rebate stable door with fixed glazed panel
HARDWARE	Std. door spindle & 2-lever-lock and 1 pair std. butt hinges	HARDWARE	Door spindle, 3-lever-lock, self-closing mech. a pair of butt hinges, weather seal & Kickplate

Doors

SCALE 1 : 50

Services Legend	
TYPE	KEY
Electrical wiring to conduit	---
Electrical wiring to light fixture	---
Electrical wiring under screed	---
110mm Drain and Soil Pipe	---
50mm Waste Pipe	---
Soil and combined Vents	---
Existing Drains and Stormwater	---
Fire escape route and direction	---
Stormwater run-off	---

Electrical Fixture Schedule			
TYPE	NO.	COMMENTS	KEY
Prepaid water meter and DB	1	1600mm above FFL	---
Wall outlet	5	300mm above FFL	---
Double lever light switch	1	1100mm above FFL	---
Single lever light switch	2	1100mm above FFL	---
LED light fixture	3	ceiling mounted	---
Isolate Outlet for Oven/Stove	1	1100mm above FFL	---
Wifi Router Connection	1	300mm above FFL	---
Wall mounted outdoor light	1	2150mm above FFL	---

BACK ELEVATION

SCALE 1 : 50



GLAZING

7.1 Glazing to comply with SANS 10400-part N and SANS 10137. Safety glazing required in a bath enclosure or shower cubicle that is glazed, or where glazing occurs immediately above and within a distance of 1 800 mm horizontally or vertically from a bath or shower. All glazing thickness and safety glazing to be in accordance with sans 10400 N. The maximum air leakage for windows and doors shall comply with the requirements of SANS 613 A1. All doors and windows to sealed with foam or rubber or fibrous seals as per sans 10400 part XA.

REINFORCEMENT

8.1 Bending of reinforcement shall be in accordance with the current edition of SANS 282.
8.2 Reinforcement shall be fixed to comply with the tolerances specified in the current edition of SANS 920
8.3 No heat treatment (including but not limited to welding) or cutting of steel is allowed without the written approval of the Engineer. Any site bending of steel reinforcement shall be done using a proper bar re-bending tool, and bars should only be re-bent once.
8.4 The Contractor shall exercise care that no damage to waterproofing materials underneath surface beds is caused during fixing of steel or other operations. The cost to repair or replace waterproofing materials shall be at the Contractor's expense.
8.5 Vertical element (columns and walls) reinforcement to be adjusted and approved in writing by the Engineer after levels have been confirmed on site.
8.6 All re-entrant corners of openings in slabs and walls shall have two (2) Y12 corner bars of length 1200 mm on both sides of the concrete element, unless specified otherwise on the relevant bending schedule.
8.7 All reinforcement must be inspected and approved by the Engineer in writing before concreting. The Engineer shall be given at least 24 hours advance notification of an inspection. Inspection will only be done if all steel is properly fixed, spacer blocks positioned, shuttering cleaned out and reinforcement checked by the Contractor prior to the Engineer arriving for inspection.
8.8 It is the Contractor's responsibility to maintain reinforcement (including mesh) in the correct position with approved spacers and/or stools during concreting.

MASONRY

9.1 Masonry units shall comply to the current editions of relevant specifications, including but not limited to :
i. SANS 227; ii. SANS 285; iii. SANS 1215
9.2 Brickwork to be built according to the current edition of SANS 10164.
9.3 Minimum brickwork strengths:
i. Load-bearing bricks: 14 MPa; ii. Non load-bearing bricks: 7 MPa.
9.4 All mortar for brickwork shall be Class 2 according to SANS 10164
9.4 All brickwork anchors, wall ties and straps shall be hot dip galvanized.
9.5 Butterfly wall ties shall be built into cavity walls at three per square meter (3/m²) (staggered) or similar approved spacing.
9.6 Hoop iron straps shall be built in a minimum of every fourth course (i.e. minimum every 340mm) for a minimum of 700mm, and shot-fixed to steel/UPVC vertical elements.
9.7 Concrete lintels to be supplied and installed above all openings in brickwork in accordance with supplier's specification.
9.8 Brickforce:
i. Brickwork shall be reinforced with an approved brickforce every fourth course (i.e. minimum every 340mm).
ii. First two brickwork courses above window and door openings, and below window openings to contain brickforce extending 600mm past these openings.
iii. In filled cavity retaining walls, brickforce should be placed every second course.
9.9 V-joints are to be cut through the plaster where brickwork and concrete join.
9.10 Refer Architect's drawings for details of reinforced brick lintels.
9.11 WSCC drawings indicate load-bearing brickwork. Refer Architect's drawings for the full extent of all brickwork.
9.12 Where filled cavities are indicated, any reinforcing steel shall be properly secured.
9.13 All non-load bearing walls and partitions shall be kept 20mm clear of the underside of beams and slabs, unless otherwise specified.

SUSPENDED FLOOR SLAB - RIB AND BLOCK (where applicable)

10.1 All concrete work is to be done in accordance with the current edition of SANS 2001-CC1 10.2 All concrete sizes on drawings are without finishes unless indicated otherwise.
10.3 Unless otherwise specified by a Specialist Consultant or Specialist Contractor and approved by the Engineer in writing:
i. Ribs to bear a minimum of 90mm onto the supporting structure.
ii. Ribs to be propped at a maximum of 1500mm c/c. Props are to remain in place for at least ten (10) days after casting.
iii. No blocks may be taken more than 20mm onto supporting walls.
iv. Rib soffits to be cambered at a rate of 6mm per 3m span.
10.4 The Engineer shall be given at least 48 hours advance notice when inspections are due.
10.5 Ribs and topping to be cast simultaneously unless otherwise specified in writing by the Engineer.
10.6 All concrete is to be mechanically vibrated during casting.
10.7 Position of any walls on top of the slab may not be altered without Engineer's written approval.
10.8 Prestressed lintels and minimum four courses of brickwork with brickforce every layer to be placed over openings where reinforced concrete beams have not been specified.
10.9 No in-situ concrete may be poured onto the slab before the layout of the pre-cast units and the reinforcing steel has been inspected and approved in writing by the Engineer.

SURFACE BED

11.1 Minimum 30mm Screed (see plan for finish) on 100mm thick Concrete surface bed(15mpa).
11.2 250micron polyethylene membrane (DPM) on 50mm sand blinding and a 200mm layer of consolidated hardcore on well compacted earth fill.
11.3 Internal tiled floor finish to arch's specification on 50mm screed on reinforced concrete slab to structural engineer's detail.

WALLS

12.1 External & Internal walls made of concrete block, with brickforce in every course in foundations walls and every fourth course in superstructure walls.
12.2 DPC min. 150mm above existing ground level
12.3 External walls to be 230mm thick (2 x 90mm skins with 50mm cavity)
12.4 Internal walls to be 90mm thick
12.5 External and Internal walls to be plastered and painted.

RAINFALL DISPOSAL

13.1 Slope area has a 50mm screed laid to fall 1:70 to patent stormwater outlet.
13.2 Roof slope of 5 degrees to direct water toward front of dwelling with 1200mm roof overhang to allow water discharge away from structure and foundations.
13.3 Excess discharge to be directed into masonry catchpits with covers to 100mm diam. Stormwater pipes running below ground to municipal stormwater system.

ROOF CONSTRUCTION

14.1 Specifics of roof structure to comply with SANS 10400 or to structural engineer's detail.
14.2 Roof construction for Typology A is as follows:
14.2.1 IBR roof sheeting @ 5° fall with layer of reflective foil insulation fixed to 75mmx50mm treated SA pine timber purlins @ 900 c/c fixed to 228mm x 70mm treated SA pine timber rafters @ 1200 c/c. Roof Rafters tied down with 30mm x 1,6mm galvanized steel straps every 1200mm c/c and embedded 600mm deep into blockwork.
14.2.2 38x38mm treated Timber SA Pine battens @600mm c/c with 130mm mineral wool insulation on 6.4mm Gypsum ceiling board, skimmed and painted.
14.2.3 6.4mm gypsum ceiling board fixed to 38mmx38mm timber battens
14.2.4 All timber roof members to comply with table 13 of part L of SANS 10400.
14.3 Roof construction for Typology B as follows:
14.3.1 IBR Roof sheeting @ 5° fall fixed to 228mm x 50mm treated Timber SA Pine purlin-rafters @ 1200 c/c with layer of reflective foil insulation. Purlin-rafters tied down with 30mm x 1,6mm galvanized steel straps every 1200mm c/c and embedded 600mm deep into blockwork.
14.3.2 80mm Isoboard fixed to 38mmx38mm timber battens @ 600mm c/c.
14.3.3 All timber roof members to comply with table 14 of part L of SANS 10400.
14.4 Dimension limits are reference in SANS 10400, changes will require approval by responsible engineer.
14.5 All structural timber to be grade 5, timber roof members to comply with table 13,14 or 15 of part L of SANS 10400. Roof to comply as per engineers detail.

WINDOWS AND DOORS

15.1 All glazing to comply with requirements of SANS 10137 & SANS 10400 Part N
15.2 Burglar Bars to be fitted to opening section of windows to manufacturers spec.
15.3 Precast concrete lintels + 4 courses brickwork with brickforce every course over all openings not exceeding 3m
15.4 Windows minimum 10% of floor area for natural light (artificial light should be a min. lux levels as per the SANS codes).
15.5 Natural ventilated spaces – openings to be a min. of 5% of the floor area. (Check SANS codes)
15.6 Smoke ventilations – openings should be a min. of 3% of the floor area. (Check SANS codes)

STAIRCASE

16.1 Overlap of treads/noisings) not less than 25mm.
16.2 Min tread = 250mm and Max riser = 200mm to comply with SANS 10400
16.3 50mm handrail at 1000mm height
16.4 Spacing of balusters maximum 100mm
16.5 Head room not less than 2100AFL.
16.6 Doors opening onto landings to comply with SANS codes.
16.7 Staircase width and landings to comply.

LIGHTS

17.1 All External light fittings to be waterproofed

WATER BYLAW

18.1 All work to comply with the water bylaw.
18.1.1 Section 51 - Material, installation and maintenance of pipes used to convey water must comply.
18.1.2 Section 52 (d) the storage of a minimum quantity of water, to be used for purposes other than fire-fighting or air-conditioning, is provided in accordance with Table 1 of Schedule 3
18.1.3 Section 55 - The responsibility of the owner to supply and support fire installations and connection to mains.

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GENERAL NOTES

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1.3 All Engineers' and other Consultants' instructions must be recorded in the site instruction (SI) book or confirmed via email.
1.4 The current edition of all relevant SANS specifications for the project, including but not limited to those mentioned in the notes, on the drawings and in the project specifications must be available at all times on site. This reference to a SANS or other specification is a reference to the latest published edition of that specification.
1.5 The Contractor shall confirm all levels and dimensions on site before erecting formwork and casting concrete. Any discrepancies shall be reported to the Engineer immediately.
1.6 The Contractor may not use alternative products or designs other than those prescribed, unless equivalent and written approval from the Engineer is obtained. Alternative design/drawings are to then be submitted at no extra cost to the Client unless otherwise agreed.
1.7 Care must be exercised to ensure that waterproofing membranes and filters are not damaged during construction. Water proofing by Architect's approval.
1.8 DO NOT SCALE OFF DRAWINGS. Request required dimensions.
1.9 The works will be inspected from time to time by the Engineer (and other Consultants and Specialists where relevant) to ensure that the Contractor is carrying out the works in general conformity with the construction documentation. It remains the Contractor's responsibility to ensure that the works are carried out in accordance with the latest relevant construction documentation and good building practices.
1.10 No works to encroach the erf boundary.
1.11 No dispersed water to be a nuisance to neighboring properties

EARTHWORKS

2.1 All earthworks shall be in accordance with SANS 1200D and relevant drawings.
2.2 The Contractor shall confirm the nature and location of any and all existing services which may be affected by construction works.
2.2.1 The Contractor shall ensure proper damage protection of these services during construction works.
2.2.2 The Contractor shall notify and/or arrange with the relevant authorities of any service/supply discontinuance, and undertake all relevant cutting, disconnecting and/or sealing of services and drains as required.
2.3 All dimensions and levels are to be confirmed by the Contractor with Architect's and other relevant drawings prior to any excavations commencing. Any discrepancies shall be brought to the Engineer's attention and resolved prior to excavations commencing.
2.4 The Contractor is responsible for implementing and maintaining a temporary site drainage system to channel water away from the works to ensure the local protection of the structure and surface beds against damage caused by water (including but not limited to Stormwater, and water from neighbouring systems) and transportable solids during construction.
2.4.1 The Contractor's temporary drainage system shall provide the necessary pumps, temporary sumps and drains to ensure that excavations remain free of water at all times.
2.5 The Contractor is responsible for ensuring that the site work is maintained in a safe and stable condition.
2.5.1 Bulk excavation batters are to be provided around the perimeter of the site at one (1) meter from the site boundary and at 1V:2H, unless otherwise indicated on drawings or agreed upon in writing by the Engineer.
2.5.2 The Contractor shall engage with the responsible Engineer for approval on steeper slopes.
2.5.3 Slope stabilisation and erosion protection shall be provided at the Contractor's expense.
2.5.4 The Contractor shall design and install all bracing and/or shoring necessary to retain earth banks, roads, pavements, walls, and footings of adjacent properties and structures, as well as to prevent caving and displacement of adjacent soil and structures.
2.6 All excavations to be inspected and approved in writing by the Engineer.
2.7 Footing levels shown on the drawings are preliminary and based on the geotechnical report. Excavations shall continue until the required soil bearing capacity as per the geotechnical report is found, and shall be confirmed by the Geotechnical Engineer. Any deviation from the footing founding level as noted on the drawings is to be discussed between the Contractor and the Engineer to determine whether the over-excavations are to be filled with mass concrete (15 MPa/19 mm) or whether the reinforcing steel is to be appropriately adjusted.
2.8 Over-excavations are to be filled with mass concrete (15 MPa/19 mm) at the Engineer's approval.
2.9 Backfill material to be compacted in layers not exceeding 150mm to 98% MOD AASHTO, and approved by Geotechnical Engineer.
2.9.1 Column bases shall be backfilled with approved material in accordance with the project specification.
2.9.2 Sub-slab drains shall be inspected and approved by Engineer/relevant Consultant before being covered with backfill.
2.9.3 Waterproofing (by Specialist Contractor) for retaining walls to be inspected and approved by Engineer relevant Consultant and/or Architect before being covered over with backfill.

FOUNDATIONS

3.1 Footing levels shown on the drawings are preliminary and shall be confirmed by the Engineer in order to obtain the specified allowable soil bearing pressure.
3.2 No foundations are to be cast on fill. Over-excavations to be filled with mass concrete (15 MPa/19 mm) at the Contractor's expense.
3.3 A 50mm thick blinding layer (15 MPa/19 mm) shall be cast under all foundations of the concrete structure.
3.4 All footings shall be placed concentrically below columns and symmetrically below brickwork unless otherwise indicated.
3.4.1 Footings located along property boundaries to be eccentrically loaded where indicated.
3.5 Final foundation levels shall be confirmed on site and submitted by the Contractor for approval by the Engineer before further work is conducted.
3.6 All strip footings for load bearing walls shall be 200 deep x 700mm wide (excluding 50mm sand blinding) unless otherwise specified.
3.7 Waterproofing (by Specialist Contractor) for retaining walls to be inspected and approved by relevant Consultant and/or Architect before being covered.
3.8 Footings to be confirmed by the appointed responsible engineer as per SANS 10400 or engineers specification - however given site conditions - changes may be required based on the finding of the geotechnical investigation on site.

FIRE

4.1 1 x 4.5kg DCP extinguisher per 200 square meter
4.2 Unit separation walls to extend to underside of the roof covering (no combustibles to pass through or over the unit separation walls which is to be min 60min fire rated)
4.3 Any openings for ventilation purposes in fire walls (boundary or separation) are to be provided with a fire damper.
4.4 1m Flame path travel to be provided
4.5 Safety distances between existing house and new modular units must be provided (depends on size of unprotected openings of the 2 buildings facing each other and may not be applicable)
4.6 Where 2 or more units are serviced by a single stair:
4.6.1 Fire hose reel installation is to be provided
4.6.2 No unprotected (windoos) openings permitted within 3m of the external escape stair and/or passage (window not exceeding 0,3 square meters serving a bathroom or toilet need not be protected)

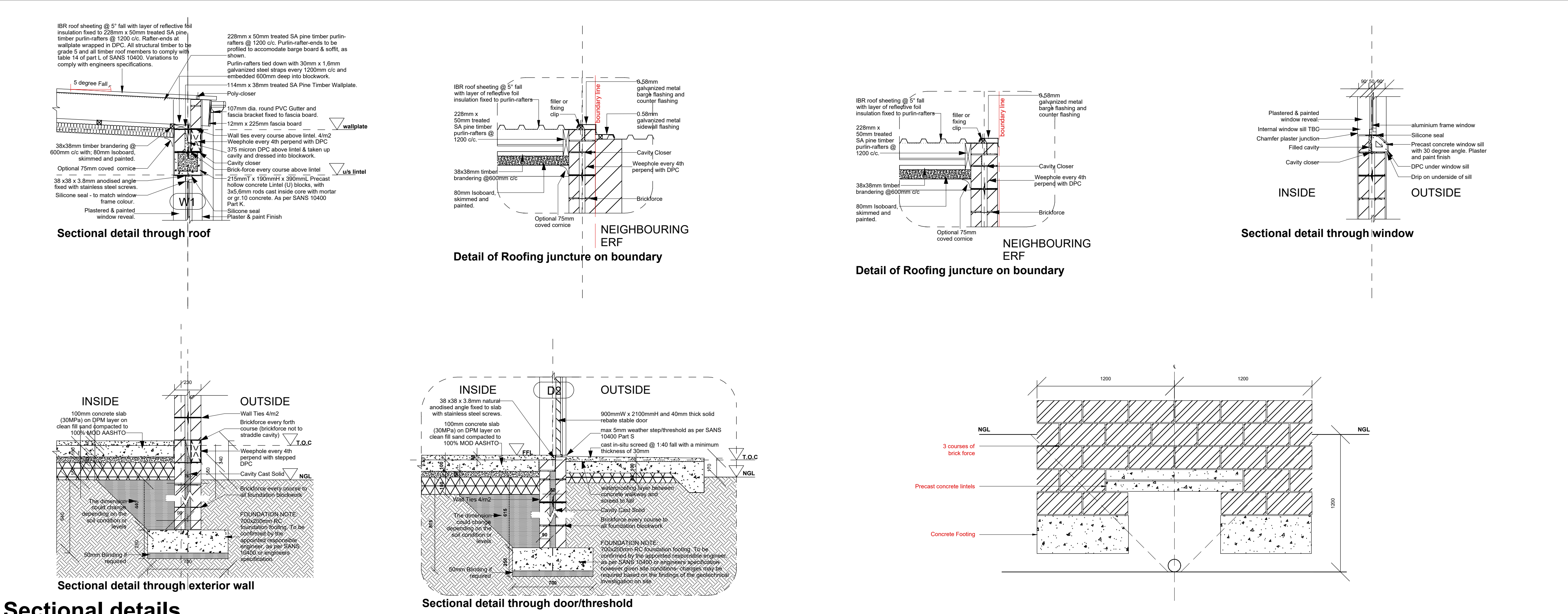
TIMBER

5.1 All timber to comply with SANS 10082

CONCRETE

6.1 All P/c lintels to have min. 4 courses of brickwork with brick force in every course over all openings not more 3.0m. All opening wider than 3m to engineer's specification.

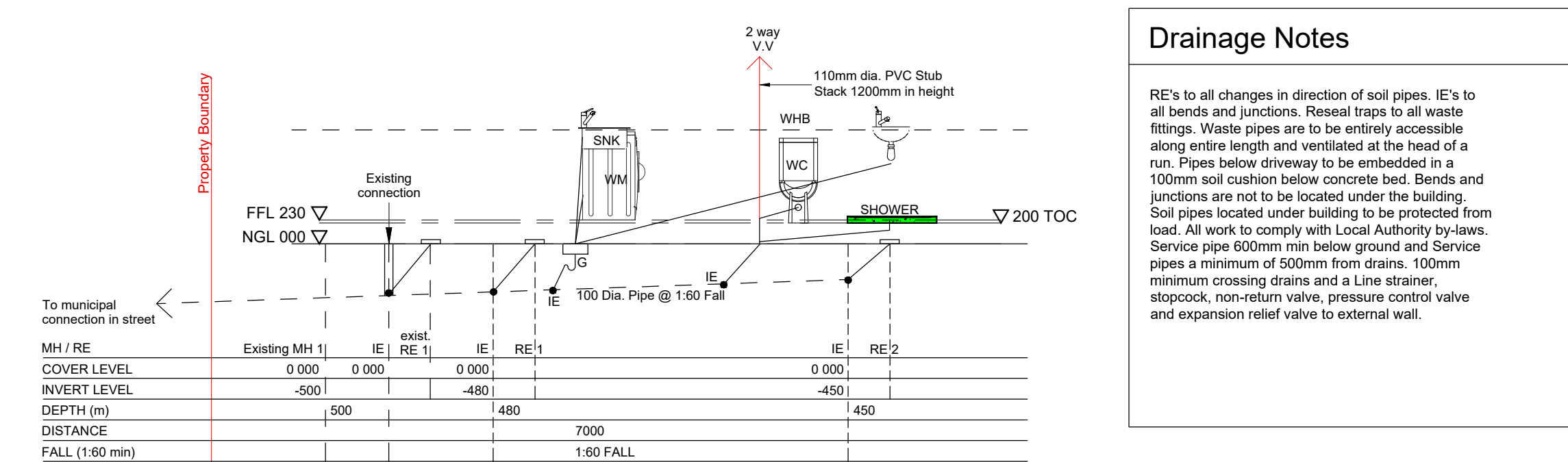
CLIENT	
Add client info here	Add property info here
SIGNATURE:	
PROJECT NAME	
Prototypical Modular Micro Units	
DRAWING NAME	DRAWING STATUS
Type 2B - Single Unit	Council Submission
ARCHITECT, REG. NO. & SIGNATURE	
LOCATION	
ENGINEER, REG. NO. & SIGNATURE	
DATE	STAGE
26/06/24	4.1
SCALE	DRAWN BY
1 : 50	@ A1 LW
PROJECT NO.	DRAWING NO.
2310	102
	REV NO.
	03



Sectional details

SCALE 1 : 20

Site information * note to replace all details and values in red with those particular to the applicable site, erf and location.		
LOCATION: Suburb/Town Name, Cape Town, South Africa (The Municipal Planning By-law stipulates the below requirements and classifications in respect to the particular zoning of the erf) OCCUPANCY/BUILDING CLASSIFICATION: H3 - Domestic Residence Occupance consisting of two or more dwelling units on a single site. *2 persons per bedroom. ZONING: Single Residential 2 (SR2) FLOOR FACTOR: 1 BUILDING LINE SETBACK: Setback from street boundary = 1m Setback along Common Boundary = 0,0 m measured perpendicular from street boundary for 60% of total linear distance along all common boundaries around land unit and 1 m for remainder Setback between structures = 2,5 m	COVERAGE CALCULATION SITE AREA: 263,9 sqm (input the total area of the erf) EXISTING COVERAGE AREA: HOUSE: 46,7 sqm CAR PORT: 20,2475 sqm = 66,95 sqm = 25,37% (input the area/footprint of existing dwellings and structures to calculate the percentage of covered surface area on the site) PROPOSED COVERAGE AREA: 28,33 sqm = 10,7% (input the area/footprint of proposed dwellings and structures to calculate the percentage of covered surface area on the site) TOTAL ACTUAL COVERAGE AREA: 95,28 sqm = 36,07% Permissible Coverage = N/A	FLOOR AREA CALCULATION (input areas of the respective spaces to determine the density) EXISTING DWELLING FLOOR AREA: 46,7 sqm PROPOSED G/FLOOR AREA: 19,4 sqm EXTERNAL STOEP AREA: 3 sqm PROPOSED NEW DWELLING AREA: 22,4 sqm FLOOR FACTOR: Density of 35 dwelling units per hectare. PARKING REQUIREMENTS: (Determine the number of parking bays required by the Zoning bylaw. 1 bay per dwelling unit EXISTING DWELLINGS: 1 PROPOSED DWELLINGS: 1 TOTAL = 2 Bays required



Drainage Diagram

SCALE 1 : 50

Compliance with 10 400 XA

Ground Storey Fenestration Calculations PER UNIT

Fenestration Area (sqm)	Net Floor Area	% Fenestration Area	% Ventilation Area
2,54 m2	19,2 m2	13,23%	0,297 sqm(W1) + 0,697 sqm(W2) + 0,697 sqm(W2) + 1,703 sqm(D2) = 3,394 sqm = 17,68%

Note: Accumulative fenestration to floor area is less than equal to 20% & therefore achieves SANS 10400 XA and Part O(natural light) compliance.
Note: The total area of an opening, a door or an openable glazed window that complies with the requirements of 4.3.1.1.2(a) or (b) shall be not less than 5 % of the floor area of the room therefore achieves SANS 10400 XA and Part O(natural ventilation) compliance.

Hot water consumption calculations

H3	2
Number of occupants:	2-3
Hot water cylinder:	150 l

Hot water cylinder with a storage capacity of 150 litres is sufficient for a 3 person household.

Hot water cylinder insulation R-value to be 2.0 min. 50% hot water supply by solar heating system, including but not limited to heat pumps & heat recovery from other processes.

Note: Hot water usage shall be minimised and the system maintained in accordance with the requirements as per SANS 10252 - 1

- Insulation to be protected againsts the effects of weather and sunlight;
- To be able to withstand the temperatures within the piping and achieve the minimum R-values as specified above.

Roof Assembly * the minimum required total R-value(for climatic zone 4) is 3,7

Roof Layers	k-value W/(m.K)	thickness (mm)	R (m2.K)/W
IBR Roof Sheetting	110	0,85	0
Reflective foil Insulation	0,6	0,1	0
Isoboard	0,24	82	3,42
Indoor and Outdoor Air film			0,15
Roof Space			0,15
Totals			3,72

Sanitary Schedule *adapt to client spec				
TYPE	QUANTITY	DESCRIPTION	ELEVATION	HARDWARE/FITTINGS
Basin	1	240 x 340mm small ceramic basin	900mm from FFL	Taps, mixer and faucet
Kitchen Sink	1	780 x 500mm galvanized steel sink & BIC with open shelves and room for washing machine	900mm from FFL	Taps, mixer and fauset
Toilet	1	Ceramic Toilet and cistern	250mm from FFL	Flush lever and mechanism
Shower	1	950 x 950mm instiu shower	Tap @ 900mm & head @ 2100mm	Taps and shower head

Internal Finishing Schedule *adapt to client spec					
FLOOR	SKIRTING	WALL	SILL	CORNICE	CEILING
Polished Screed at a thickness of 40mm	N/A	1 x coat wood float plaster 1 x coat filler coat, 2 x coats internal PVA as per specification /OR/ Wet or Dry Bagging and/painted with acrylic low gloss/sheen Tiled splash back to WHB height and full shower walls	Plastered sill to detail. Same finish as internal wall.	75mm coved cornice for paint finish OR Shadow-line trim	80mm Isoboard ceiling fixed to 38mmx38mm timber brandering @ 600mm c/c

External Finishing Schedule *adapt to client spec				
WALL	ROOF	SILL	WINDOW & DOOR FRAMES	EAVES
1 x coat wood float plaster 1 x coat filler coat, 2 x coats external PVA as per specification /OR/ Wet or Dry Bagging and/painted with external acrylic low gloss/sheen 10mm ruled joints in plaster	17,5 mm rib-height IBR Sheetting or similar. Pre-painted 12mm thick x 225 wide fibre cement barge board or similar	Precast concrete sill sloped. Same finish as external wall.	Aluminium window frames as per manufacturers spec. & SAP Timber door frames, varnished or painted (enamel).	Exposed timber roof rafters to be painted with two coats of preservative varnish

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 - Over-excavated materials shall not be used for backfill, leveling of uneven areas or filling in of over-excavations and shall be removed from site to a place of legal disposal, unless written approval is obtained from the Engineer.
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 - Column bases shall be backfilled with approved material in accordance with the project specification.
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- FIRE**
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 - Unit separation walls to extend to underside of the roof covering (no combustibles to pass through or over the unit separation walls which is to be min 60min fire rated)
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 - 4.1m Flame path travel to be provided
 - Safety distances between existing house and new modular units must be provided (depends on size of unprotected openings of the 2 buildings facing each other and may not be applicable)
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 - 4.1 Fire hose reel installation is to be provided
 - 4.6.2 No unprotected (window/doors) openings permitted within 3m of the external escape stair and/or passage (window not exceeding 0,3 square meters serving a bathroom or toilet need not be protected)
- All timber to comply with SANS 10082

TIMBER

- All timber to comply with SANS 10082
- CONCRETE**
 - All Pc lintels to have min. 4 courses of brickwork with brick force in every course over all openings not more 3.0m. All opening wider than 3m to engineer's specification.

CLIENT	
Add client info here	Add property info here
SIGNATURE:	

PROJECT NAME

Prototypical Modular Micro Units

DRAWING NAME	DRAWING STATUS
Type 2B - Single Unit	Council Submission
	ARCHITECT, REG. NO. & SIGNATURE

LOCATION	ENGINEER, REG. NO. & SIGNATURE
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DATE	STAGE
26/06/24	4.1
SCALE	DRAWN BY
1 : 50	@ A1 LW
PROJECT NO.	DRAWING NO.
2310	103
	KJ
	03