

PART 2.6 Energy Efficiency
National Construction Code Series
Building Code of Australia 2016, Volume 2
BCA Compliance – Performance Solution

Report Reference: 212-00515

Date: 16/09/2019

CLIENT DETAILS

Name:	Glen Duncan	Phone No:	(08) 8338 2211
Company:	Spectra Building Designers	Fax No:	(08) 8338 2188
Address:	1/159 Port Road, HINDMARSH, SA 5007	Email:	glen@spectragroup.net.au

PROPOSED PROJECT DETAILS

Applicant:	S. Tatarelli	LGA:	Campbelltown City Council
Dwelling Type:	Double Storey Dwelling	Building Class:	1A
Address:	Dw.1, No.5 Athos Place, PARADISE, SA 5075	NCC Climate Zone	5
Total Floor Area:	241 m ²		

ENERGY EFFICIENCY ASSESSMENT

Compliance with P2.6.1 is verified when a proposed building, compared with a reference building has a heating and cooling load equal to or less than that of a reference building.

Heating:	PASS	Cooling:	PASS
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REFERENCE BUILDING ENERGY LOADS

Software Calculations

Heating:	80.0 MJ/m ²	Cooling:	43.8 MJ/m ²
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PROPOSED BUILDING ENERGY LOADS

Software Calculations

Heating:	79.0 MJ/m ²	Cooling:	37.5 MJ/m ²
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SPECIFICATIONS REQUIRED FOR BUILDING

Roof:	R4.0 + Sisalation throughout
External Walls:	R2.0 throughout
Internal Walls:	R1.5 (around garage only)
Floor:	None
Glazing:	Aluminium glazing – refer page 3

David Lenkic
Design & Thermal Performance Assessor

PART 2.6 Energy Efficiency

National Construction Code Series

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BCA Compliance – Alternative Solution

REFERENCE BUILDING DETAILS

The reference building must be simulated using approved software that satisfies the minimum: deemed to satisfy provisions of the BCA Volume 2 Part 3.12.10 including sections:

3.12.1	Building Fabric
3.12.2	External glazing and shading
3.12.3	Building sealing
3.12.4	Air Movement

Roof 3.12.1.2	Colour:	Light
	Ventilation:	Unvented
	Min Total Required R Value:	4.10
	Total R Value of Roof Materials:	0.39
	Min Added R Value:	3.71
External Walls 3.12.1.4	Wall Materials:	Brick Veneer/Hebel/FRC cladding
	Min Total Required R Value:	2.80
	Total R Value of Wall Materials:	0.48/0.96/0.26
	Min Added R Value:	2.32/1.84/2.54
Floors 3.12.1.5	Min Total Required R Value:	1.00 (for elevated floor only)
	Total R Value of Floor Materials:	0.51
	Min Added R Value:	0.49

PROPOSED BUILDING DETAILS

The proposed building has been simulated using approved software to achieve the required heating and cooling loads less than that of the Reference building.

Roof	Colour:	Light
	Ventilation:	Unvented
	Total R Value of Roof Materials:	R4.0 + Sisalation throughout
External Walls	Wall Materials:	Brick Veneer/Hebel/FRC cladding
	Wall Floor to Ceiling Height:	As per plans
	Min Total Required R Value:	R2.0 throughout
Internal Walls	Total R Value of Wall Materials:	R1.5 (around garage only)
Floor	Type:	CSOG/Timber
	Min Total Required R Value:	None

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WINDOWS	U-VALUE	SHGC
Aluminium single glazing 3mm clear for awning windows	6.29	0.60
Aluminium single glazing 3mm clear for fixed windows	6.16	0.75
Aluminium single glazing 5mm clear for sliding door	6.16	0.71
Aluminium single glazing 4mm clear for hinged doors	6.10	0.62

DESCRIPTION	ORIENTATION	HEIGHT (M)	WIDTH (M)	U-VALUE	SHGC
Entry	SW	0.30	1.12	6.16	0.75
Family	NE	2.40	3.61	6.16	0.71
Meals	NW	0.60	2.41	6.29	0.60
Kitchen	NW	2.10	0.61	6.16	0.75
Laundry	SW	2.40	0.82	6.10	0.62
WC	NW	1.20	0.61	6.29	0.60
Garage	NW	0.60	2.41	6.29	0.60
Hallway	NW	2.40	0.82	6.10	0.62

DESCRIPTION	ORIENTATION	HEIGHT (M)	WIDTH (M)	U-VALUE	SHGC
Bedroom 1	SW	2.40	2.41	6.29	0.60
WIR	SW	1.50	0.61	6.29	0.60
Bedroom 3	NE	0.60	2.41	6.29	0.60
Bedroom 2	NW	0.60	2.41	6.29	0.60
Bath	NW	0.60	1.51	6.29	0.60
Landing	NW	0.60	1.81	6.29	0.60
Ens	NW	0.60	1.81	6.29	0.60

Section 3.12.1 - Building Fabric

Section 3.12.1.1 - Building fabric thermal insulation

Building fabric thermal insulation must be installed in compliance with BCA 2016, Volume 2, Section 3.12.1.1, as follows:

- (a) Where required, insulation must comply with AS/NZS 4859.1 and be installed so that it—
 - (i) abuts or overlaps adjoining insulation other than at supporting members such as columns, studs, noggings, joists, furring channels and the like where the insulation must butt against the member; and
 - (ii) forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and
 - (iii) does not affect the safe or effective operation of a domestic service or fitting.
- (b) Where required, reflective insulation must be installed with—
 - (i) the necessary airspace, to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and
 - (ii) the reflective insulation closely fitted against any penetration, door or window opening; and
 - (iii) the reflective insulation adequately supported by framing members; and
 - (iv) each adjoining sheet of roll membrane being—
 - (A) overlapped not less than 150 mm; or
 - (B) taped together.
 - (c) Where required, bulk insulation must be installed so that—
 - (i) it maintains its position and thickness, other than where it crosses roof battens, water pipes, electrical cabling or the like; and
 - (ii) in a ceiling, where there is no bulk insulation or reflective insulation in the external wall beneath, it overlaps the external wall by not less than 50 mm.

Section 3.12.1.2 - Roofs

- (c) A roof that—
 - (i) is required to achieve a minimum Total R-Value; and
 - (ii) has metal sheet roofing directly fixed to metal purlins, metal rafters or metal battens; and
 - (iii) does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see BCA 2016, Figure 3.12.1.1(b)), must have a thermal break, consisting of a material with an R-Value of not less than 0.2, installed between the metal sheet roofing and its supporting metal purlins, metal rafters, or metal battens.
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Section 3.12.1.4 - External Walls

(b) An external wall that—

(i) has lightweight external cladding such as weatherboards, fibre-cement or metal sheeting fixed to the metal frame; and

(ii) does not have a wall lining or has a wall lining that is fixed directly to the metal frame (see BCA 2016, Volume

2, Figure 3.12.1.3(a) and (b)), must have a thermal break, consisting of a material with an R-Value of not less than 0.2, installed between the external cladding and the metal frame.

Section 3.12.1.5 – Floor

(c) A concrete slab-on-ground—

(i) with an in-slab or in-screed heating or cooling system, must have insulation with an R-Value of not less than 1.0, installed around the vertical edge of its perimeter; and

(ii) when in climate zone 8, must be insulated—

(A) around the vertical edge of its perimeter with insulation having an R-Value of not less than 1.0;
and

(B) underneath the slab with insulation having an R-Value of not less than 2.0.

(d) Insulation required by

(c)(i) must—

(i) be water resistant; and

(ii) be continuous from the adjacent finished ground level—

(A) to a depth of not less than 300 mm; or

(B) for at least the full depth of the vertical edge of the concrete slab-on-ground (see Figure 3.12.1.4)

(e) The requirements of (a)(ii), and (c)(i) do not apply to an in-screed heating or cooling system used solely in a bathroom, amenity area or the like.

Section 3.12.3 - Building Sealing

Section 3.12.3.1 - Chimneys and flues

There are no chimneys or flues for open solid-fuel burning appliances.

Section 3.12.3.2 - Roof lights

There are no roof lights.

Section 3.12.3.3 - External windows and doors

It has been specified that all the external windows and doors (where they exist) comply with Section 3.12.3.3.

Section 3.12.3.4 - Exhaust fans

It has been specified that all the exhaust fans comply with Section 3.12.3.4.

Section 3.12.3.5 - Construction of roofs, walls and floors

It has been specified that all construction of roofs, walls and floors comply with Section 3.12.3.5.

Section 3.12.3.6 - Evaporative coolers

There are no evaporative coolers.

Section 3.12.5 - Services

Section 3.12.5.0

Plumbing Code of Australia (PCA) Part SA B2.2 - General requirements

- (a) The design, construction, installation, replacement, repair, alteration and maintenance of a heated water service must be in accordance with the following:

- (i) AS/NZS 3500.4 with the following variations:

- (A) After clause 1.9.2(b) insert (c), (d), (e) and (f) as follows:

(c) Heated water services in buildings constructed after 19 October 1995 shall have temperature control in accordance with items (a) and (b).

(d) All new solar water installations (including solar heater replacements) shall be in accordance with items (a) and (b).

(e) Where an existing building is altered or extended in such a way that sanitary fixtures used primarily for personal hygiene purposes are installed in a location where, before the alteration or extension, no such fixture existed, the delivery temperature at the fixture shall be in accordance with items (a) and (b).

(d) Where a water heater is replaced, a temperature control device is required where such a device was in place prior to the installation of the replaced water heater. The device must meet the requirements of items (a) and (b).

- (B) Substitute clause 5.8(c) as follows:

5.8(c) All new or replacement unvented storage water heaters shall be fitted with new temperature/pressure relief and expansion control valves as shown in Figure 5.7.

- (C) Substitute clause 5.11.2.1 as follows:

5.11.2.1 The drain lines from the outlet of the temperature/pressure-relief valve and the expansion control valve on an individual water heater shall not be interconnected; and

- (D) Substitute clause 5.11.3(e) as follows:

5.11.3(e) All drain lines shall discharge separately over a gully, tundish or other visible approved outlet.

(ii) Section 3 of AS/NZS 3500.5 with the following variations:

(A) After clause 3.2.2 insert 3.2.2.1 as follows:

3.2.2.1 The requirements of Clause 3.2.2 apply to the following:

- (a) Heated water services in buildings constructed after 19 October 1995.
- (b) All new solar water heater installations (including solar water replacements).
- (c) Where an existing building is altered or extended in such a way that sanitary fixtures used primarily for personal hygiene purposes are installed in a location where, before the alteration or extension, no such fixture existed.
- (d) Where a water heater is replaced, a temperature control device is required where such a device was in place prior to the installation of the replaced water heater.

(B) Substitute clause 3.19(c)(i) as follows:

- (c)(i) All new or replacement unvented storage water heaters shall be fitted with new temperature/pressure relief and expansion control valves as shown in Figure 5.7.

(C) Substitute clause 3.21.2(a) and (b) as follows:

(a) The drain lines from the outlet of the temperature/pressure-relief valve and the expansion control valve on an individual water heater shall not be interconnected;

and

(b) All drain lines shall discharge separately over a gully, tundish or other visible approved outlet.

(iii) The requirements of this Part.

(b) * * * * *

(c) A solar heated water supply system for food preparation and sanitary purposes, where installed in a new building in climate zones 1, 2 or 3, is not required to comply with—

(i) Section 8 of AS/NZS 3500.4; or

(ii) for new Class 1a and Class 10 buildings, Section 3.33 of AS/NZS 3500.5.

section 3.12.5.1

Thermal insulation for central heating water piping and heating and cooling ductwork must—

- (a) be protected against the effects of weather and sunlight; and
- (b) be able to withstand the temperatures within the piping or ductwork; and
- (c) use thermal insulation material in accordance with AS/NZS 4859.1

Section 3.12.5.2

Central heating water piping that is not within a conditioned space must be thermally insulated to achieve the minimum material R-Value

as follows:

1. All internal flow and return internal piping that is—
 - (i) within an unventilated wall space; or
 - (ii) within an internal floor between storeys; or
 - (iii) between ceiling insulation and a ceiling,
in addition to any hot water piping encased within a concrete floor slab (except that which is part of a floor heating system) must have an R-Value greater than 0.4.
2. All piping located within a ventilated wall space, an enclosed building sub-floor or a roof space that is:
 - (a) flow and return *piping*; or
 - (b) cold water supply *piping*—within 500 mm of the connection to the central water heating system; or
 - (c) relief valve piping *piping*—within 500 mm of the connection to the central water heating system,
must be greater than 0.6, as required for climate zone 5.
3. All piping outside the building or in an unenclosed building sub-floor or roof space that is:
 - (a) flow and return *piping*; or
 - (b) cold water supply *piping*—within 500 mm of the connection to the central water heating system; or
 - (c) relief valve piping *piping*—within 500 mm of the connection to the central water heating system,
must be greater than 0.6, as required for climate zone 5.

Section 3.12.5.3

- (a) Heating and cooling ductwork and fittings must—
 - (i) achieve a minimum material R-Value of 0.4 for fittings, and 1 for ductwork, required for climate zone 5 as per table 3.12.5.2.
 - (ii) be sealed against air loss—
- (A) by closing all openings in the surface, joints and seams of ductwork with adhesives, mastics, sealants or gaskets in accordance with AS 4254 for a Class C seal; or
- (B) for flexible ductwork, with a draw band in conjunction with a sealant or adhesive tape.
- (b) Duct insulation must—
 - (i) abut adjoining duct insulation to form a continuous barrier; and
 - (ii) be installed so that it maintains its position and thickness, other than at flanges and supports; and

(iii) where located outside the building, under a suspended floor, in an attached Class 10a building or in a roof space—

(A) be protected by an outer sleeve of protective sheeting to prevent the insulation becoming damp;
And

(B) have the outer protective sleeve sealed with adhesive tape not less than 48 mm wide creating an airtight and waterproof seal.

(c) The requirements of (a) do not apply to heating and cooling ductwork and fittings located within the insulated building envelope including a service riser within the conditioned space, internal floors between storeys and the like.

Section 3.12.5.4

An electric resistance space heating system that serves more than one room must have—

(a) separate isolating switches for each room; and

(b) a separate temperature controller and time switch for each group of rooms with common heating needs; and

(c) power loads of not more than 110 W/m² for living areas, and 150 W/m² for bathrooms.

Section 3.12.5.5

(a) The lamp power density or illumination power density of artificial lighting, excluding heaters that emit light, must not exceed—

(i) 5 W/m² in a Class 1 building; and

(ii) 4 W/m² on a verandah, balcony or the like attached to a Class 1 building; and

(ii) 3 W/m² in a Class 10a building associated with a Class 1 building.

(b) The illumination power density allowance in (a) may be increased by dividing it by the illumination power density adjustment factor for a control device in BCA 2016, Table 3.12.5.3 as applicable.

(c) When designing the lamp power density or illumination power density, the power of the proposed installation must be used rather than nominal allowances for exposed batten holders or luminaires.

(d) Halogen lamps must be separately switched from fluorescent lamps.

(e) Artificial lighting around the perimeter of a building must —

(i) be controlled by a daylight sensor; or

(ii) have an average light source efficacy of not less than 40 Lumens/W.

Section 3.12.5.6

Plumbing Code of Australia (PCA) Part SA B2.4 - Water heater in a heated water supply system

(a) A water heater in a hot water supply system must be—

(i) a solar heater complying with (b); or

(ii) a heat pump water heater complying with (b); or

(iii) a gas water heater complying with (c); or

(iv) an electric resistance heater only in the circumstances described in (d); or

(v) a wood combustion water heater with a tank volume not more than 700 litres and no additional heating mechanisms.

(b) A solar heater and a heat pump heater must have the following performance:

(i) An electric boosted solar heated water service or heat pump heated water service (air source or solar boosted) with a single tank and a volume of 400 litres or more and not more than 700 litres—

(A) at least 38 *Renewable Energy Certificates* in zone 3; and/or

(B) at least 36 *Renewable Energy Certificates* in zone 4.

(ii) An electric boosted solar heated water service or heat pump heated water service (air source or solar boosted) with a single tank and a volume of more than 220 litres and less than 400 litres—

(A) at least 27 *Renewable Energy Certificates* in zone 3; and/or

(B) at least 26 *Renewable Energy Certificates* in zone 4.

(iii) An electric boosted solar heated water service or heat pump heated water service (air source or solar boosted) with a single tank and a volume of not more than 220 litres—

(A) at least 17 *Renewable Energy Certificates* in zone 3; and/or

(B) at least 16 *Renewable Energy Certificates* in zone 4.

(iv) A natural gas or LPG boosted solar heated water service with a total tank volume of not more than 700 litres and at least 1 or more *Renewable Energy Certificates* in any zone.

(v) A wood combustion boosted solar water heater, with no additional heating mechanism and a total tank volume not more than 700 litres.

(c) A gas heater must be rated at not less than 5 stars in accordance with AS 4552.

(d) An electric resistance water heater may be installed when—

(i) the building has—

(A) a water heater that complies with (b) or (c); and

(B) not more than 1 electric resistance water heater installed; and

(ii) the electric resistance water heater—

(A) has no storage capacity or a *rated hot water delivery* of not more than 50 litres; and

(B) it does not supply *heated water* to more than 1 room; and

(C) it does not supply *heated water* to a bath or a shower.

3.12.5.7

Swimming pool heating and pumping

(a) Heating for a swimming pool must be by—

(i) a solar heater not boosted by electric resistance heating; or

(ii) a heater using reclaimed energy; or

(iii) a gas heater; or

(iv) a heat pump; or

(v) a combination of

(i) to (iv).

(b) Where some or all of the heating required by (a) is by a gas heater or a heat pump, the swimming pool must have—

(i) a cover unless located in a conditioned space; and

(ii) a time switch to control the operation of the heater.

(c) A time switch must be provided to control the operation of a circulation pump for a swimming pool.

(d) For the purposes of 3.12.5.7, a swimming pool does not include a spa pool

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Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	S. Tatarelli
Rated Address	Dw.1, No.5 Athos Place PARADISE
Accredited Rater	David Lenkic
Date	13/09/2019
Reference	REFERENCE BUILDING

Energy Usage

Type	Energy MJ/m ²
Total	123.8
Heating	80.0
Cooling	43.8

Areas

Area	Size (m ²)
Net Conditioned Floor Area (NCFA)	151.7
Unconditioned Room Area	22.0
Garage Area	22.3

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	S. Tatarelli
Rated Address	Dw.1, No.5 Athos Place PARADISE
Accredited Rater	David Lenkic
Date	13/09/2019
Reference	PROPOSED BUILDING

Energy Usage

Type	Energy MJ/m ²
Total	116.5
Heating	79.0
Cooling	37.5

Areas

Area	Size (m ²)
Net Conditioned Floor Area (NCFA)	151.7
Unconditioned Room Area	22.0
Garage Area	22.3

9

CSHGC

0.122



ISE, SA 5075

Wall insulation option chosen for 3.12.1.4

131m²

G

Suspended

1000

No wall insulation concession used

C_U (only)

CSHGc x Area

STANDARD

Area of storey

131m²

ALLOWANCES

13.5

16.0

Area of glazing **17.8m² (14% of area of storey)**

17.8m²

8 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

If inputs (including air movement levels) are valid

The Glazing Calculator has been developed by the ABCB to assist in developing a better understanding of glazing energy efficiency parameters.

While the ABCB believes that the Glazing Calculator, if used correctly, will produce accurate results, it is provided "as is" and without

any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all

Your use of the Glazing Calculator is entirely at your own risk and the ABCB accepts no liability of any kind.

GLAZING CALCULATOR (first issued with BCA 2013)

Climate zone

5

C_u

C_{shgc}

CONSTANTS 12.118 0.110

Report from TATAFELLI
Building materials
10/11/2019
W.1. No.5
Gordon Sharplin
HE 192 (South Australia)
PH: 0403 777 778 - mail.energyworx.com.au

212-00515
16 September-2019
Single glazing

GLAZING CALCULATOR

Area
110m²

Wall insulation option chosen for 3:12:14
No wall insulation concession used

Area of glazing 12.7m² (12% of area of storey)

ALLOWANCES C_u (only) C_{shgc} x Area
12.1 12.1

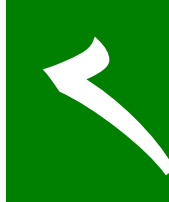
7 (as currently displayed)

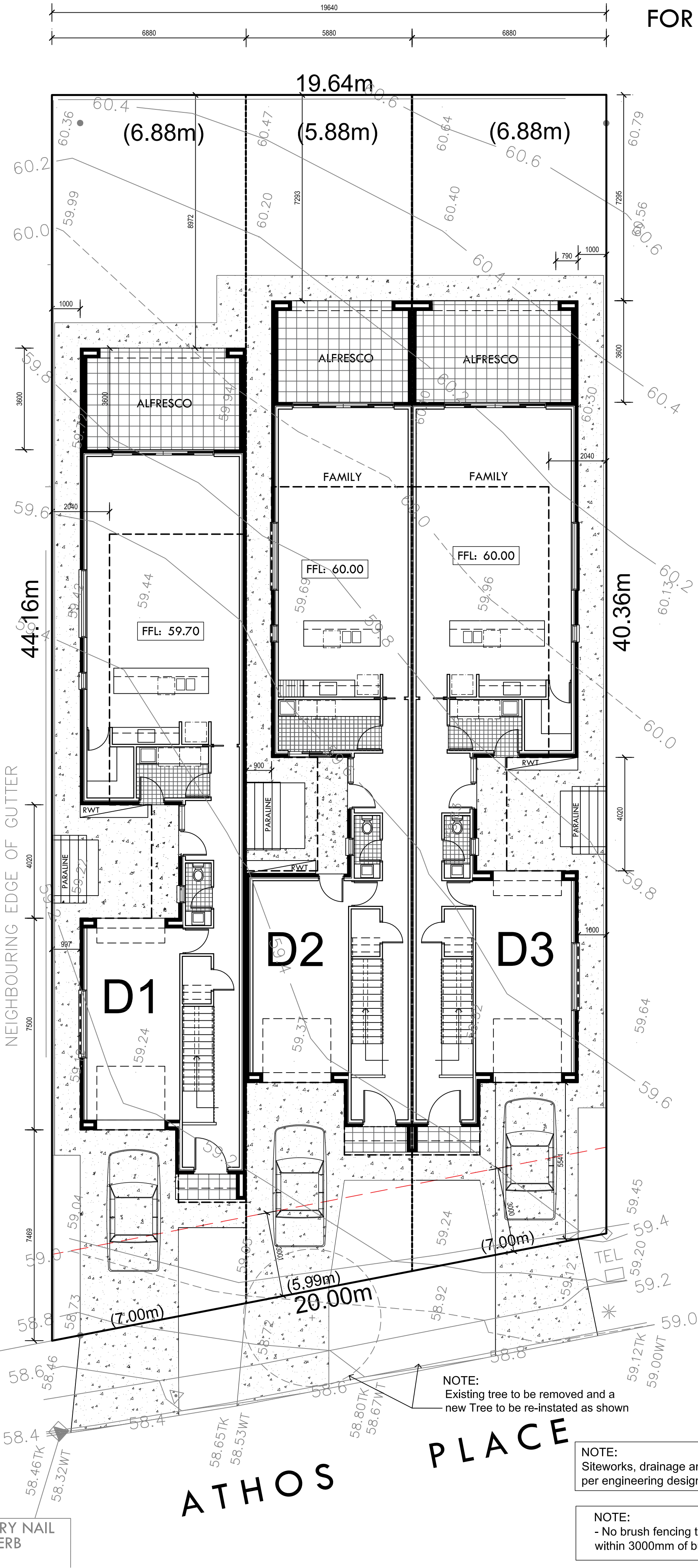
GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS										SHADING		CALCULATION DATA		CALCULATED OUTCOMES - OK (if inputs are valid)			
Glazing element		Orientation		Size		Performance		P&H or device		Exposure		Size		Conductance - PASSED		Solar heat gain - PASSED	
Description (optional)		Facing sector	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	Es	Area used (m²)	U x area / winter access	Element share of % of allowance used	SHGC x Es x area	Element share of % of allowance used	
1 Bedroom 1		SW	2.40	2.41		6.65	0.73	0.30	2.40	0.13	0.84	5.78	4.61	46% of 83%	3.5	38% of 76%	
2 WIR		SW	1.50	0.61		6.65	0.73				1.04	0.92	0.73	7% of 83%	0.7	8% of 76%	
3 Bedroom 3		NE	0.60	2.41		6.65	0.73				1.09	1.45	1.15	11% of 83%	1.2	13% of 76%	
4 Bedroom 2		NW	0.60	2.41		6.65	0.73				1.16	1.45	1.15	11% of 83%	1.2	13% of 76%	
5 Bath		NW	0.60	1.51		6.65	0.73				1.16	0.91	0.72	7% of 83%	0.8	8% of 76%	
6 Landing		NW	0.60	1.81		6.65	0.73				1.16	1.09	0.86	9% of 83%	0.9	10% of 76%	
7 Ens		NW	0.60	1.81		6.65	0.73				1.16	1.09	0.86	9% of 83%	0.9	10% of 76%	

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

If inputs (including air movement levels) are valid

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GENERAL NOTES:

PROPOSED BUILDING IS TO BE CONSTRUCTED OF BRICK VENEER CONSTRUCTION COMPRISING 110mm BRICK, 40mm CAVITY AND 90mm TIMBER STUD.
HEBEL PANEL CONSTRUCTION COMPRISING 75mm HEBEL, 25mm CAVITY AND 90mm TIMBER STUD.
90mm TIMBER STUD LINED WITH SELECTED LIGHTWEIGHT CLADDING. LINED WITH 10mm PLASTERBOARD WALL LINING. VILLABOARD TO WET AREAS.

ALL EXPOSED TIMBER MEMBERS AND FIXINGS ARE TO BE ADEQUATELY TREATED WITH PRESERVATIVE IN ACCORDANCE WITH AS 1604

VERIFY ALL FINISHED LEVELS BEFORE THE COMMENCEMENT OF ANY BUILDING WORK.

TERMITE PROTECTION SHALL COMPLY WITH AS3660.1, PROVIDE CERTIFICATE IN ACCORDANCE WITH AS3660.1 STATING METHOD OF APPLICATION AND CERTIFICATE OF COMPLETION.

ROOF CONTRACTOR SHALL PROVIDE ALL NECESSARY FLASHINGS, CAPPINGS AND OTHER ITEMS REQUIRED TO MAKE THE ROOF WATERTIGHT AND COMPLETE.

BUILDER TO CHECK AND CONFIRM ALL SITE AND SET OUT DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

REFER TO ENGINEERS DOCUMENTATION FOR DETAILS ON FOOTINGS, STRUCTURE, SITEWORKS AND STORMWATER DETAILS.

ALL GLAZING TO COMPLY WITH AS 1288-2006. ALL GLAZING IS TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH AS 1288.1

ALL SANITARY, PLUMBING, DRAINAGE & ELECTRICAL WORK TO BE CARRIED OUT BY FULLY QUALIFIED AND LICENSED TRADESPERSONS.

ALL ELECTRICAL WORK CARRIED OUT, TO BE IN ACCORDANCE WITH AS 3000.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, DOCUMENTS, SCHEDULES AND SPECIFICATIONS

ALL STEEL WORK TO COMPLY WITH BCE.C & C.GART 3.4.2.

ALL WET AREA DETAILS TO COMPLY WITH AS 3740-2004 AND BCA TABLE 3.8.1.1

EXTERNAL BALCONIES TO BE WATERPROOFED IN ACCORDANCE WITH AS4654.1 & 2

DETAILS OF THE REQUIRED RAINWATER TANK (MIN 1000 LITRES) COLLECTING A MINIMUM OF 50 m2 OF ROOF CATCHMENT AREA AND PLUMBED TO A WATER CLOSET, WATER HEATER OR LAUNDRY COLD WATER OUTLETS. THE TANK MUST ALSO BE FITTED WITH MOSQUITO PROOF, NON DE-GRADABLE SCREENS, FORMED FORM NOT LESS THAN .315MM DIAMETER MATERIAL AND HAVE A MINIMUM OF 6 X 7 OPENINGS PER cm2. IN THE EVENT THAT THE TANK IS TO BE SUPPORTED ON A STAND THE STAND SHALL BE DESIGNED TO BE ABLE TO ACCOMMODATE THE IMPOSED DEAD LOADS, WIND LOADS AND WHERE APPLICABLE THE EARTHQUAKE LOADS AS REQUIRED BY CLAUSE 3.11.2 OF THE BCA (APPLICABLE AS OF JULY 1ST 2006 BCA-SA 2.1

AMENDMENTS			
REV	DATE	DESCRIPTION	DRAWN

SPECTR	
SUITE 1 / 159 PORT ROAD HINDMARSH SA 5007 T: 8338 2211 F: 8338 2188	
PROJECT PROPOSED RESIDENTIAL DEVELOPMENT	
AT: 5 ATHOS PLACE PARADISE, SA 5075	
CLIENT SOFIA TATARELI	
DRAWN F.B./G.D	DATE AUG 2018
SCALE 1:200@A2	COPYRIGHT
PROJECT No. 23.2018	SHEET No. 01 OF 15
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STITE PLAN
1:200

TBM MASONRY NAIL
IN TOP OF KERB
EL: 58.48m

NOTE:
Existing tree to be removed and a
new Tree to be re-instated as shown

NOTE:
Siteworks, drainage and levels are to be as
per engineering design and documentation.

NOTE:
- No brush fencing to be constructed
within 3000mm of building

Gordon Sharplin

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TERMITE TREATMENT:

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TERMITE RISK MANAGEMENT IS TO COMPLY WITH PART 3.1.3 BCA96 WHERE THE SLAB IS EXPOSED TO GROUND OF A TERMITES RISK TO BE AS PART SYSTEM, THE SLAB MUST BE DESIGNED & CONSTRUCTED TO COMPLY WITH AS 2870

SLABS MUST HAVE PENETRATIONS, CONTROL JOINTS AND THE PERIMETER PROTECTED

THE SLAB ON GROUND MAY BE USED AS PERIMETER PROTECTION PROVIDED THAT THE SLAB IS EXPOSED 75 mm ABOVE FINISHED GROUND LEVEL AND THE SLAB EDGE DOES NOT HONEYCOMBED, ROUGH OR CONTAIN RIPPLES

CHEMICAL TERMITICIDE TO UNDERSIDE OF CONCRETE SLAB IN ACCORDANCE WITH 3660.1 (BIFLEX OR SIMILAR)
OR
STAINLESS STEEL MESH BARRIER EITHER FULL
OR
PARTIAL PROTECTION TERMIMESH OR SIMILAR)
OR
GRADED STONE BARRIER
OR
KORDON TERMITE BARRIER

NOTE: BUILDER TO SELECT IN CONSULTATION WITH OWNER

CONCRETOR'S NOTE:

PROVIDE ELECTRICAL CONDUIT UNDER SLAB TO KITCHEN ISLAND BENCH FOR DISHWASHER & DOUBLE POWERPOINT


NOTE: 86mm EDGE REBATE TO PERIMETER OF HOUSE.

REINFORCED CONCRETE FOOTING AND SLAB SYSTEM AS PER ENGINEERS DESIGN AND DETAILS.

FOOTING EDGE IS TO BE EXPOSED A MINIMUM OF 75mm ABOVE PAVING LEVEL OR ALTERNATIVE PERIMETER TERMITE TREATMENT IS REQUIRED.

ALLOW FOR SUB-FLOOR STORM WATER PIPES PRIOR TO POURING OF SLAB.

AMENDMENTS			
REV	DATE	DESCRIPTION	DRAWN



SUITE 1 / 159 PORT ROAD
HINDMARSH SA 5007
T: 8338 2211 F: 83382188

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
AT:
5 ATHOS PLACE
PARADISE, SA 5075

CLIENT
SOFIA TATARELLI

DRAWN
F.B./G.D.

DATE
AUG 2018

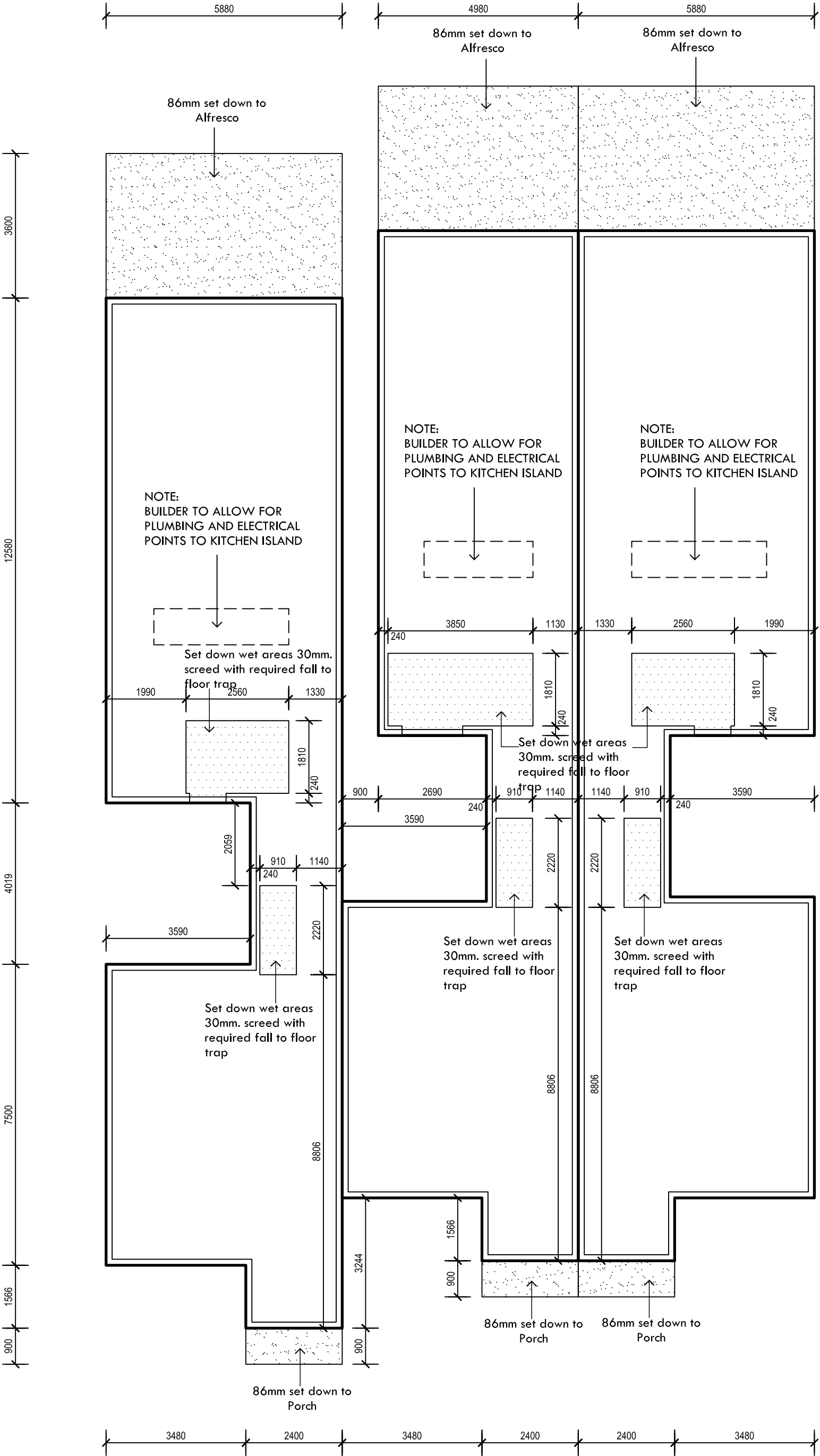
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PROJECT No.
23.2018

SHEET No.
02 OF 15

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CONCRETE SLAB FLOOR PLAN
1:100

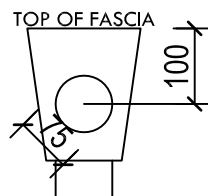
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Gutter Detail

' OG' GUTTERS



BCA-P3.5.2.5 RAINHEADS

- a. A 75mm DIAMETER HOLE IN THE OUTWARD FACE OF THE RAINHEAD; AND
- b. THE CENTRELINE OF THE HOLE POSITIONED 100mm BELOW THE TOP OF THE FASCIA

NOTES


PROVIDE FLASHINGS, SEAL AND ADEQUATELY FLASH ALL PENETRATIONS, JUNCTIONS AND JOINTS. INSTALL ROOF DECK, FLASHINGS AND FITTINGS IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND DETAILS TO ENSURE A NEAT WEATHER TIGHT ROOF.

ZINCALUME PARAPET CAPPING TO THE TOP OF ALL PARAPET WALLS.

ALL EXTERNAL, EXPOSED FLASHINGS TO HAVE A ZINCALUME FINISH.

CO-ORDINATE INSTALLATION OF ROOF CLADDING WITH ALL SERVICES TO ALLOW FOR ANY PENETRATIONS.

EXTRA BRACING FOR SOLAR HOT WATER PANELS

RWH	SELECTED 'FIELDERS' OR EQUAL RAINWATER HEAD, GALVANISED FINISH.
DP	90mm ROUND PVC DOWNPIPE
B/G	350 WIDE x 100 DEEP ZINCALUME BOX GUTTER, WITH 1:200 GRADED FALL. ARROWS INDICATE DIRECTION OF FALL.
SPD	90mm ROUND PVC DOWNPIPE WITH SPREADER END
	KLIPIKLOK ROOF SHEETING AT 2° ROOF PITCH. ARROW INDICATES DIRECTION OF FALL.

[illegible]SPECTR 

SUITE 1 / 159 PORT ROAD
HINDMARSH SA 5007
T: 8338 2211 F: 8338 2188

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
AT:
5 ATHOS PLACE
PARADISE, SA 5075

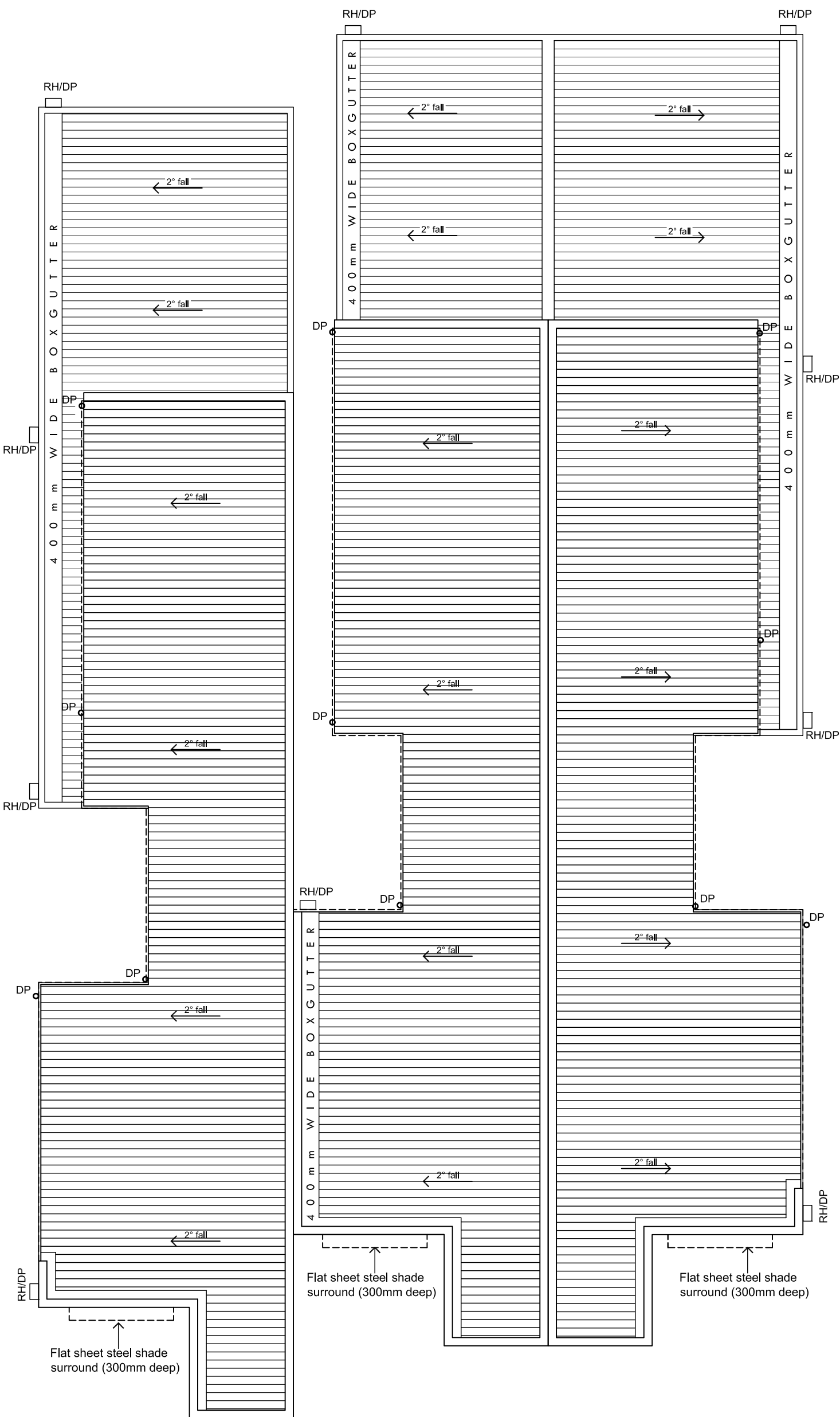
CLIENT
SOFIA TATARELLI

DRAWN	DATE
F.B./G.D	AUG 2018

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23.2018	04 OF 15

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ROOF PLAN

SCALE 1:100

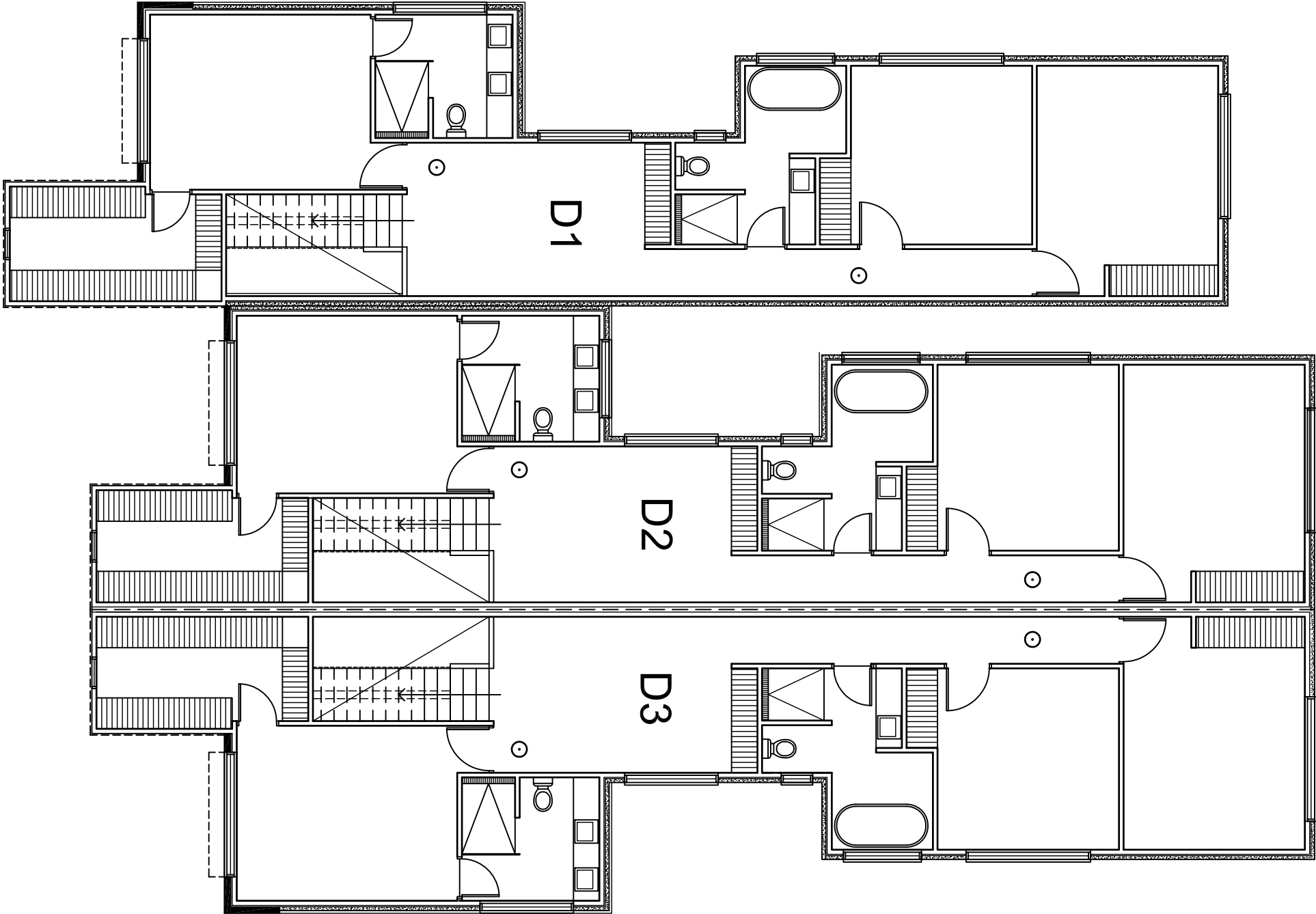
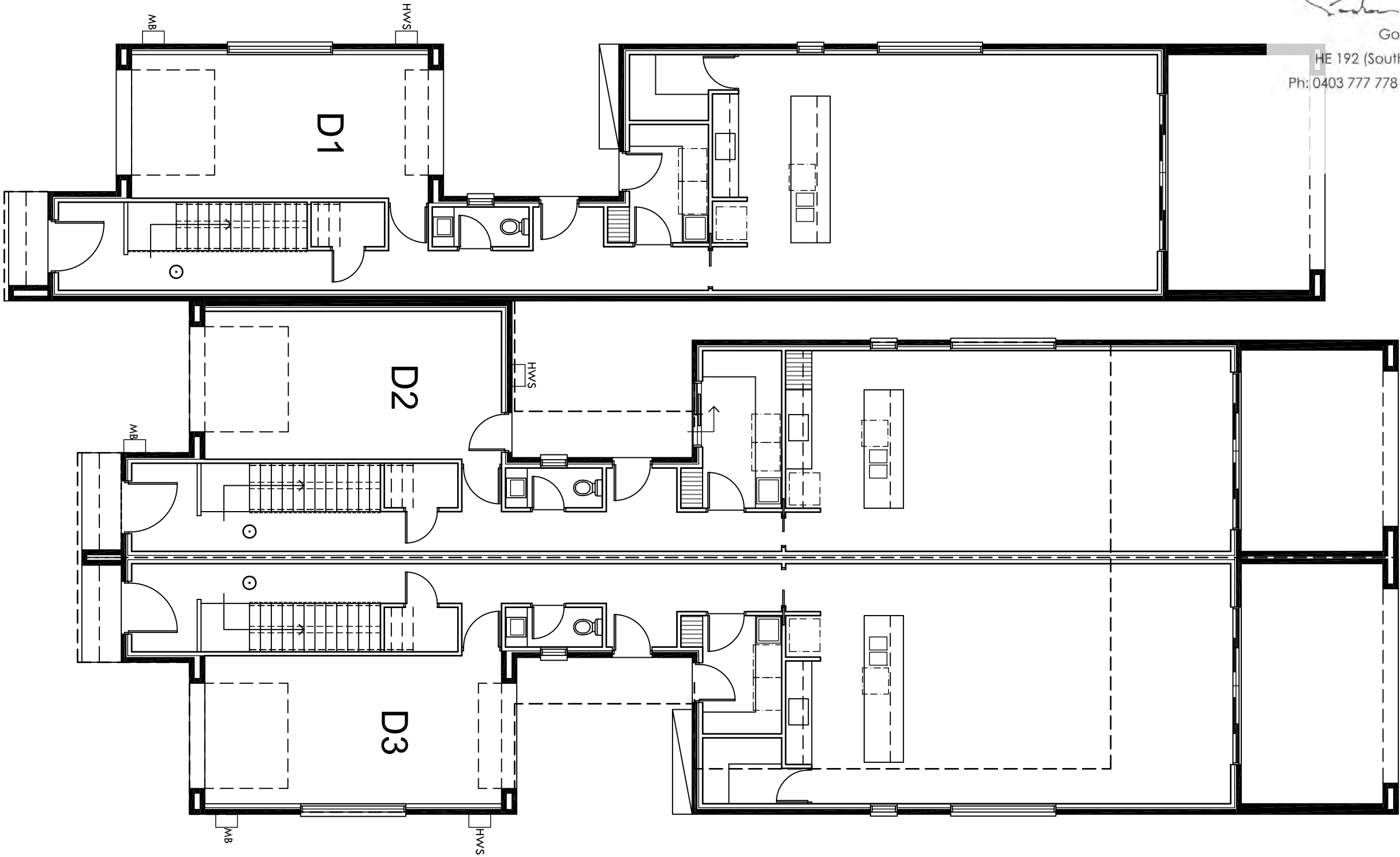
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16 September-2019
Single glazing



NO.	ELECTRICAL LEGEND:
LOWER/UPPER/TOTAL	
	△ SINGLE G.P.O @ 200mm FFL
	△△ DOUBLE G.P.O @ 200mm FFL
	▲ SINGLE G.P.O @ 1100mm FFL
	▲▲ DOUBLE G.P.O @ 1100mm FFL
	▲ SINGLE G.P.O @ 1400mm FFL
	▲▲ DOUBLE G.P.O @ 1400mm FFL
	△ SINGLE G.P.O AS SPECIFIED
	△△ DOUBLE G.P.O AS SPECIFIED
	X LIGHT SWITCH
	X 2 2-WAY LIGHT SWITCH (PAIR)
	X 3 3-WAY LIGHT SWITCH (SET)
	(P) PENDANT LIGHT
	⊗ RECESSED LED LIGHT
	⊙ COMPACT FLURO
	○ BATTEN LIGHT
	▽ STAR LIGHT
	⌂ WALL MOUNTED LIGHTS
	⌂ IXL (4) (INCLUDES SWITCH)
	⌂ IXL (2) (INCLUDES SWITCH)
	⌂ EXHAUST FAN
	⌂ T.V. POINT
	⌂ TELEPHONE
	⌂ DATA POINT
	⌂ CEILING FAN WITH LIGHT
	✂ CEILING FAN WITHOUT LIGHT

- MS DENOTES MOTION SENSOR
CONNECTED TO LIGHTS
- WP DENOTES WATER PROOF
EXTERNAL G.P.O
- ⊙ DENOTES SMOKE DETECTOR
HARD WIRED IN ACCORDANCE
WITH AS 3786
- NOTE:
ALL SMOKE ALARMS TO BE
INTERLINKED
- NOTE:
MECHANICAL VENTILATION TO WET
AREAS WITH NO NATURAL
VENTILATION BE CONNECTED TO
LIGHT SWITCH

FOR CERTIFICATION ONLY

LOWER ELETRICAL PLAN 1 : 100

UPPER ELETRICAL PLAN 1 : 100

AMENDMENTS		
REV	DATE	DESCRIPTION

SPECTR

5 AETHOS PLACE
PARADISE, SA 5075

SUITE 1/158 PORT ROAD
HINDMARSH SA 5007
T: 8338 2211 F: 8338 2186

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT

AL
5 AETHOS PLACE
PARADISE, SA 5075

CLIENT
SORIA TATARELI

DRAWN
FB/GJD

DATE
AUG 2018

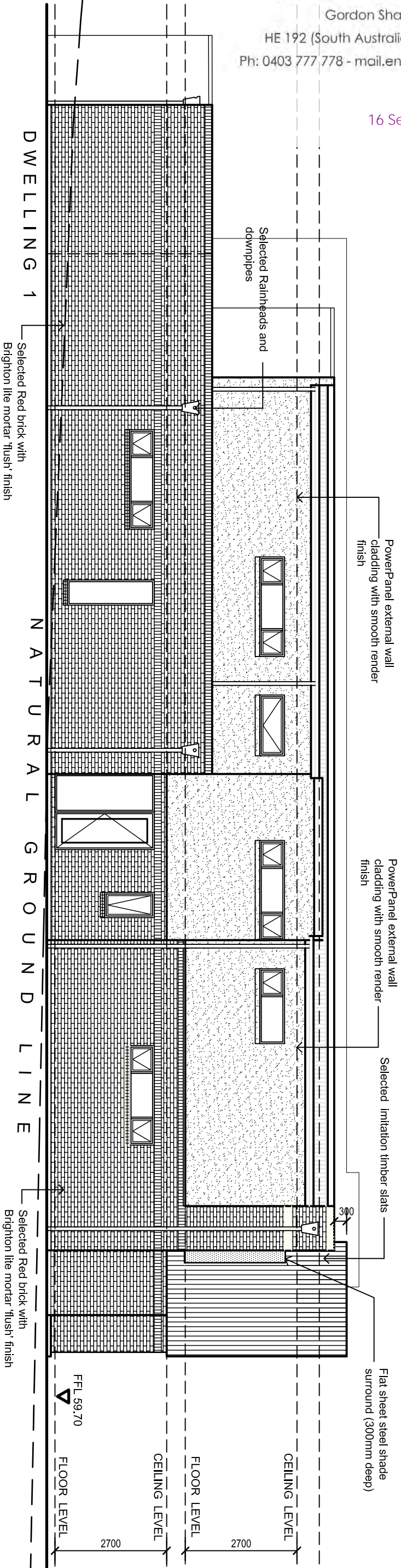
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05 OF 15

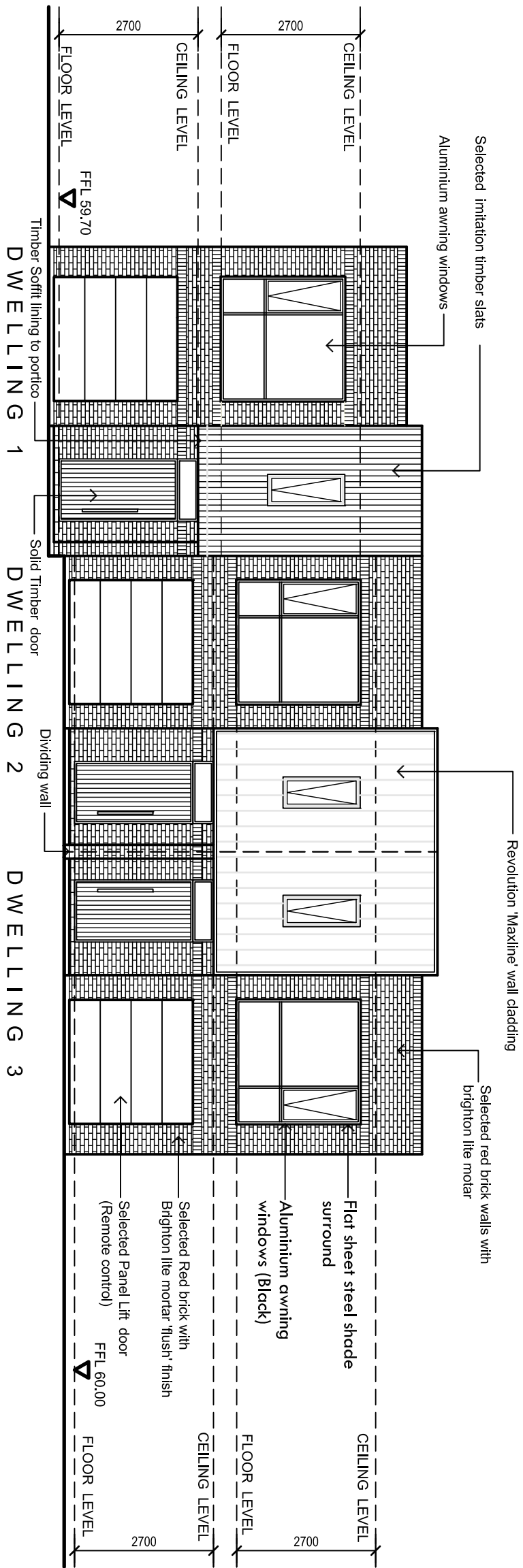
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WESTERN ELEVATION



FRONT ELEVATION

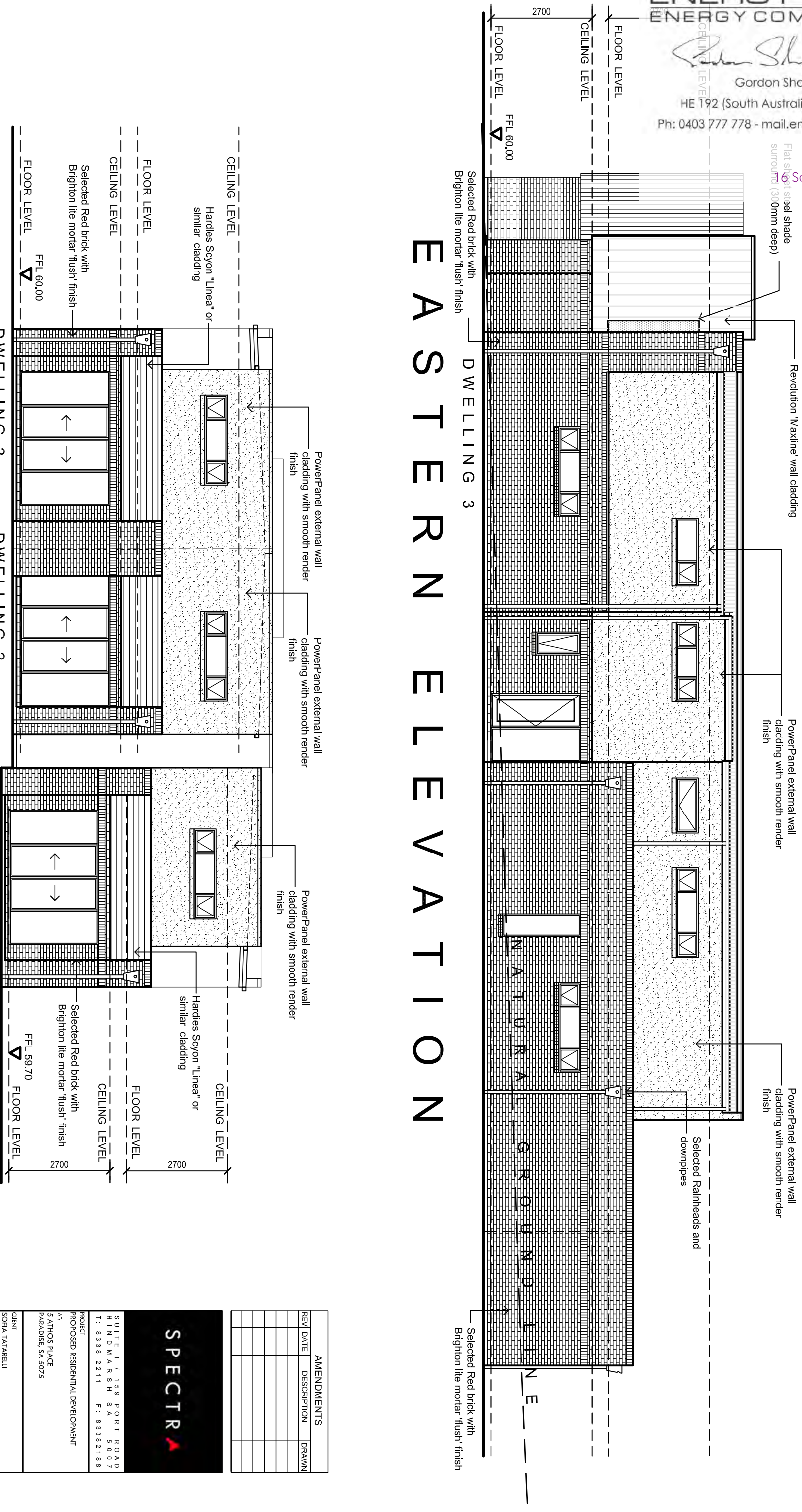
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AMENDMENTS		
REV	DATE	DESCRIPTION

S U I T E 1 / 1 5 9 P O R T R O A D H I N D M A R S H S A 5 0 0 7 T : 8 3 9 8 2 2 1 1 F : 8 3 9 8 2 1 8 8	
PROJECT PROPOSED RESIDENTIAL DEVELOPMENT	
AT 3 ATHOS PLACE PARADISE, SA 5075	
CLIENT SOFIA TATARELLI	
DRAWN F.B./G.D	DATE AUG 2018
SCALE 1:100@A3	COPYRIGHT
PROJECT No. 23.2018	SHEET No. 06 OF 15
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NOTE:
ALL UPPER FLOOR WINDOWS TO BE @ 2400HH UNLESS OTHERWISE NOTED. OBSCURE GLAZING TO MINIMUM 1700HH TO ALL UPPER WINDOWS (EXCLUDING STREET FACING)

EASTERN ELEVATION



REAR ELEVATION

NOTE:
ALL UPPER FLOOR WINDOWS TO BE @ 2400HH UNLESS OTHERWISE NOTED. OBSCURE GLAZING TO MINIMUM 1700HH TO ALL UPPER WINDOWS (EXCLUDING STREET FACING)

AMENDMENTS		
REV	DATE	DESCRIPTION

SPECTRA

SUITE 1 / 159 PORT ROAD
HINDMARSH SA 5007
T : 8338 2211 F : 8338 2188

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
AT
3 ATHOS PLACE
PARADISE, SA 5075

CLIENT
SOFIA TATARELLI

DRAWN
F.B./G.D

DATE
AUG 2018

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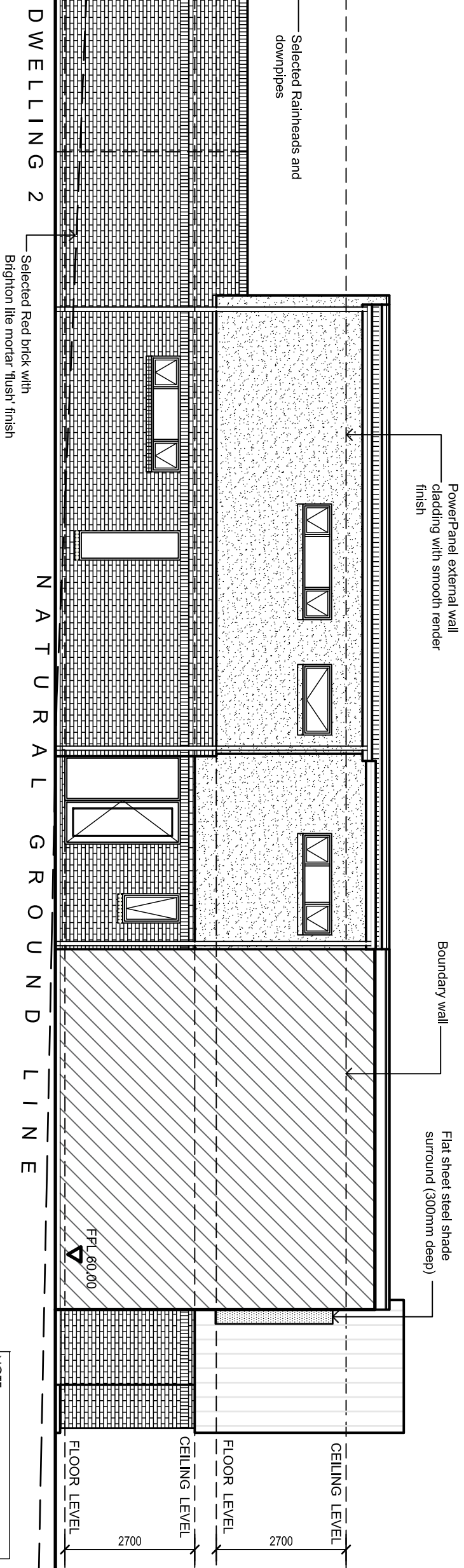
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EASTERN ELEVATION



WESTERN ELEVATION

[illegible][illegible]

SUITE 1 / 159 PORT ROAD
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T: 8338 2211 F: 83382188

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DRAWN

DATE _____

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08 OF 15

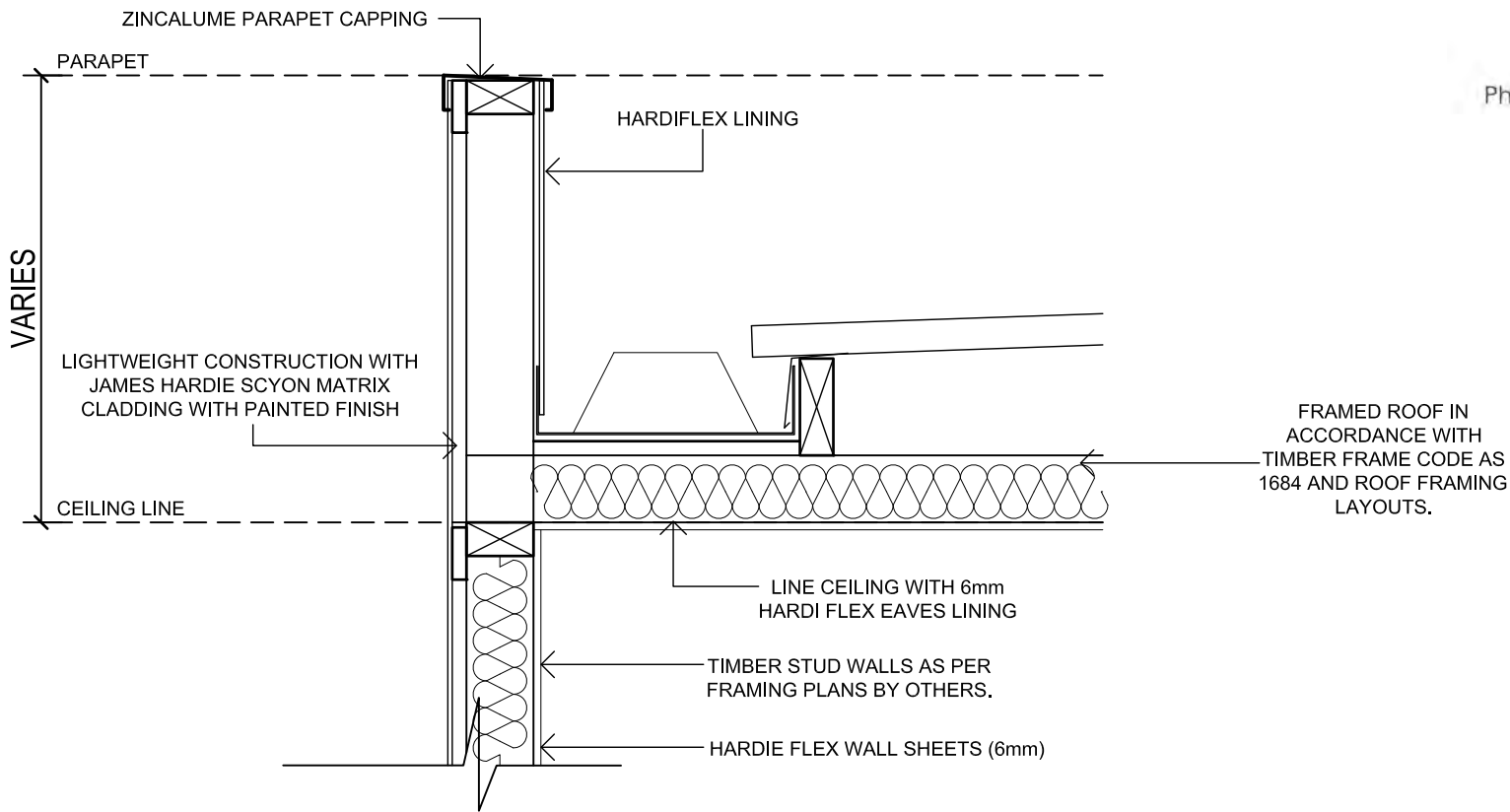
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1000 JOURNAL OF CLIMATE

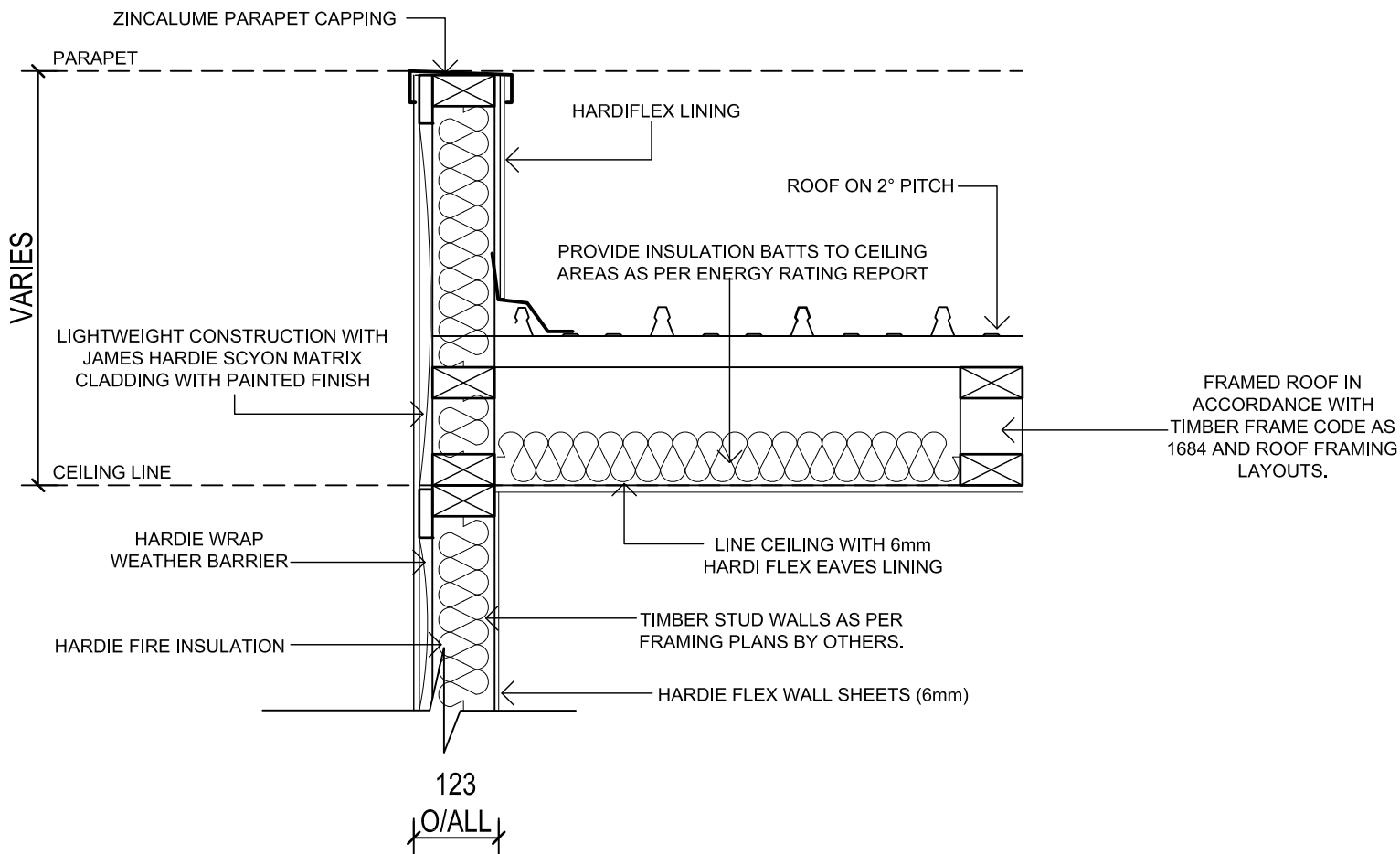
AND ANY DISCREPANCY SHALL
DESIGNERS IMMEDIATELY

REPORTED TO THE

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PARAPET DETAIL (LIGHTWEIGHT)
SCALE 1:10



PARAPET/WALL DETAIL (HARDIE SMART BOUNDARY WALL)
FRL 60/60/60
SCALE 1:10

AMENDMENTS			
REV	DATE	DESCRIPTION	DRAWN

SPECTR

SUITE 1 / 159 PORT ROAD
HINDMARSH SA 5007
T: 8338 2211 F: 8338 2188

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
AT:
5 ATHOS PLACE
PARADISE, SA 5075

CLIENT
SOFIA TATARELLI

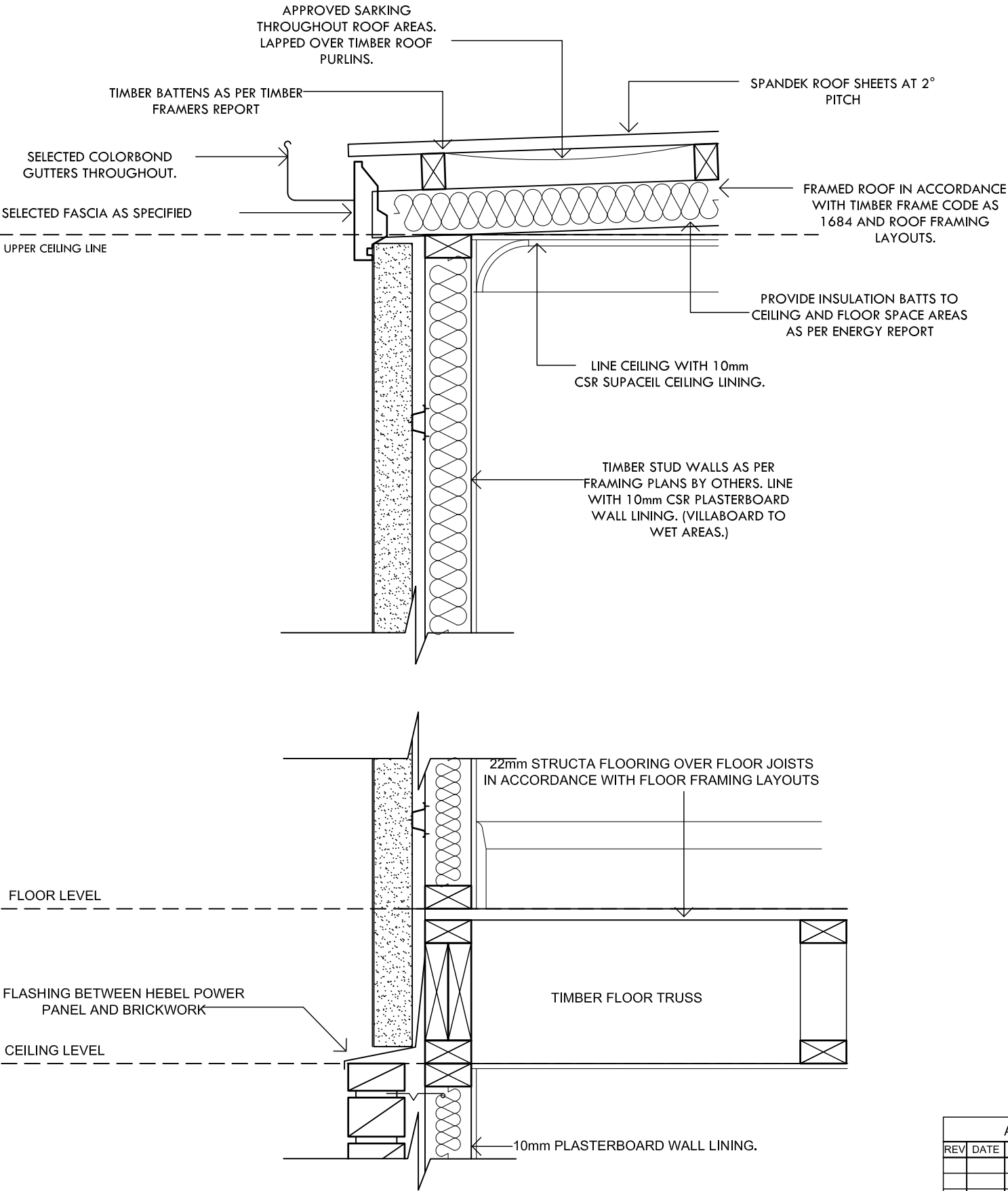
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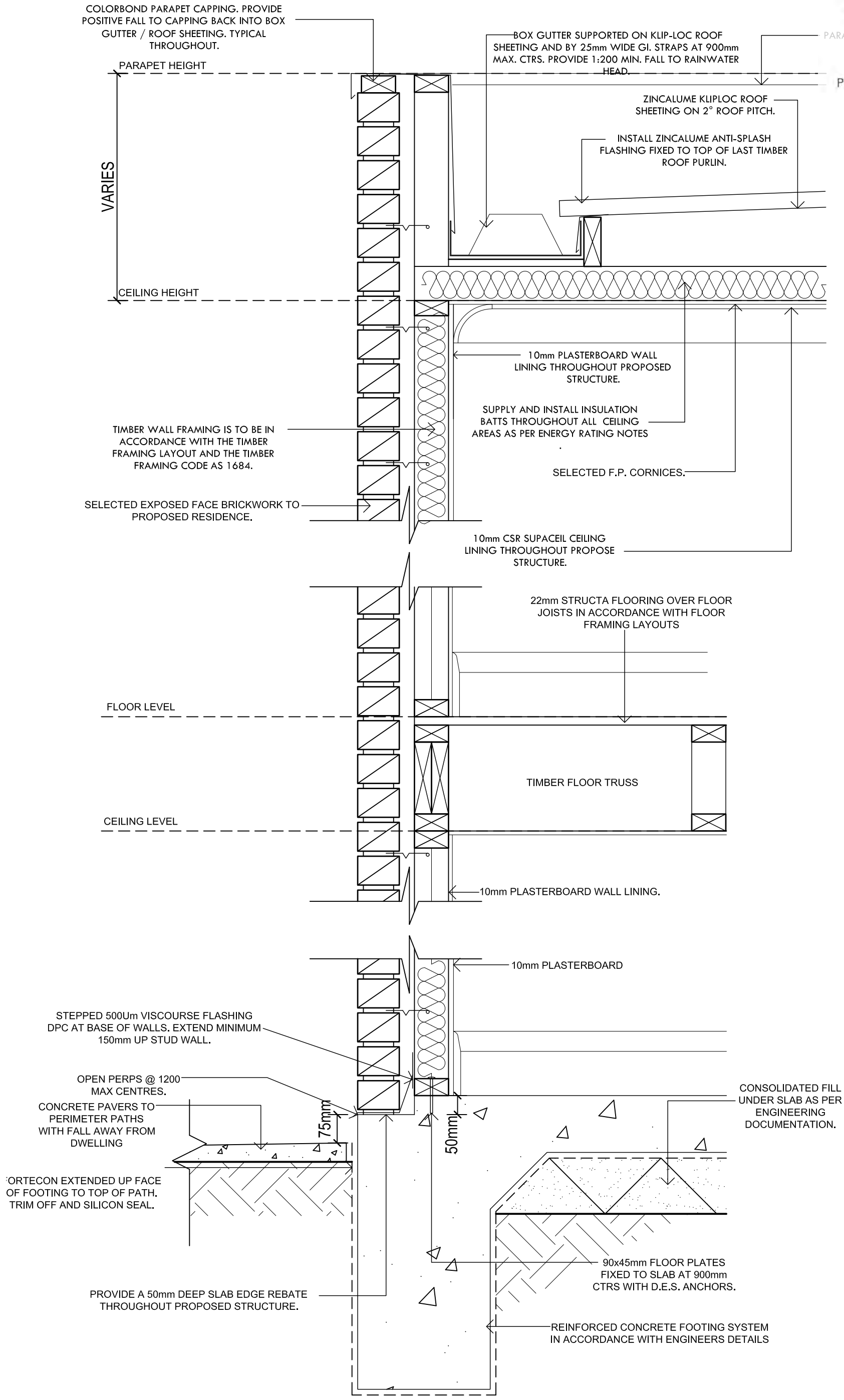
HEBEL WALL SECTION
SCALE 1:10

AMENDMENTS			
REV	DATE	DESCRIPTION	DRAWN

SPECTR	
SUITE 1 / 159 PORT ROAD HINDMARSH SA 5007 T: 8338 2211 F: 8338 2188	
PROJECT PROPOSED RESIDENTIAL DEVELOPMENT AT: 5 ATHOS PLACE PARADISE, SA 5075	
CLIENT SOFIA TATARELLI	
DRAWN F.B./G.D.	DATE AUG 2018
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STANDARD BRICK VENEER SECTION
SCALE 1:10

AMENDMENTS			
REV	DATE	DESCRIPTION	DRAWN

SPECTR

SUITE 1 / 159 PORT ROAD
HINDMARSH SA 5007
T: 8338 2211 F: 8338 2188

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
AT:
5 ATHOS PLACE
PARADISE, SA 5075

CLIENT
SOFIA TATARELLI

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