ENERGY REPORT

NATIONAL CONSTRUCTION CODE SERIES 2016 - VOLUME TWO

ENERGY ASSESSOR - David Burton : Accreditation No.VIC/BDAV/15/1683
SITE ADDRESS - Dwelling 3 @ No.541, Anzac Highway, Glenelg East
CLIENT - D'Andrea & Associates
OWNER - WP Property Group
JOB REF - DA-4891
DATE - 20/05/2018

NCC Clause 1.0.5 - Assessment Methods

Requirements

The following Assessment Methods, or any combination of them, can be used to determine that a **Performance Solution** or a **Deemed-to-Satisfy** Solution complies with the Performance Requirements, as appropriate:

(a) Evidence to support that the use of a material or product, form of construction or design meets a Performance Requirement or a design meets a Performance Requirement or a Deemed-to-Satisfy Provision as described in 1.2.2
(b) Verification Methods such as-
  (i) The Verification Methods in the NCC or
  (ii) Such other Verification Methods as the appropriate authority accepts for determining compliance with the Performance Requirements
(c) Expert Judgement
(d) **Comparison with the Deemed-to-Satisfy Provisions**

In accordance with National Construction Code Volume 2 Clause 3.12.0 (a) (ii),
:Performance Requirement **P2.6.1** for the thermal performance of a building is satisfied by compliance with Parts 3.12.1, 3.12.2, 3.12.3 & 3.12.4.
:Performance requirement **P2.6.2** is satisfied by compliance with **Part 3.12.5**

Energy Report Methodology

The Purpose of this report is to comply with Clause 1.0.5 (d) above by comparing the Deemed-to-Satisfy provisions for the building works to ensure compliance with the relevant Performance Provisions P2.6.1. & P2.6.2 of the National Construction Code 2016.

To demonstrate compliance, the building design has been modelled using NatHERS protocol Software **First Rate 5- Version 5.2.6 (3.13)** and two separate assessment runs have been undertaken to provide a set of results that can be directly compared with each other.

The first building model run **(Deemed-to-Satisfy building model)** includes minimum Building Code of Australia Deemed-to-Satisfy compliance requirements as set out in Parts 3.12.1, 3.12.2, 3.12.3 & 3.12.4 of the code and in accordance with the Australian Building Codes Board Handbook: NCC Volume 2 Energy Efficiency Provisions 2016 to determine a heating load and cooling load for the building modelled under Deemed-to-Satisfy conditions.

The second building model run **(Proposed building model)** alters the first modelling run only in terms of insulation and glazing requirements to demonstrate that the building can achieve heating and cooling loads equal to or less than that of the first modelling run.

Compliance is achieved where the results of the heating and cooling loads for Model 2 **(Proposed building model)** are compared with the heating and cooling loads for Model 1 **(Deemed-to-Satisfy building model)** are equal to or less than these loads.

Deemed-to-Satisfy building model

First Rate 5 report nominated as **'Deemed-to-Satisfy building model'** has produced the following results:

Heating Loads - 73.6 MJ/m2
Cooling Loads - 82.7 MJ/m2

Proposed building model

First Rate 5 report nominated as **'Proposed building model'** has produced the following results:

Heating Loads - 62.4 MJ/m2
Cooling Loads - 82.6 MJ/m2

Result

Heating Loads - Deemed-to-Satisfy building model exceeds Proposed building model, therefore acceptable
Cooling Loads - Deemed-to-Satisfy building model exceeds Proposed building model, therefore acceptable

Report Summary (minimum values for construction purposes)

R-Value of Roof Insulation	**R5.0 Insulation**
R-Value of External Wall Insulation	**R2.5 Insulation**
R-Value of Internal Wall Insulation	**R1.5 Insulation (Ground Floor only)**
R-Value of Party Wall Insulation	**R2.0 Insulation (both sides as per manufacturers requirements)**
R-Value of Suspended Floor Insulation	**R1.5 Insulation (Bed 1 & Bed 2 only)**
Glazing	**Single Glazed Energy Tech - Dine 24.27 ASD only** **Single Glazed - All other Glazing** **NOTE: Glazing based on Southern Star proprietary systems**
Downlights	**IC rated (if applicable)**

Notes:

1. All data used for modelling of the **Deemed-to-Satisfy building** is located in First Rate 5 **Deemed -to-Satisfy building model**. DO NOT use any glazing data from **NCC Volume Two Glazing Calculator** or insulation and glazing data from **First Rate 5 Deemed -to-Satisfy building model** for construction purposes.
Refer to **Proposed building model** in conjunction with **Report Summary** for all Insulation and Glazing design characteristics for **Construction Purposes only**.

2. The Hebel PowerPanel External Wall System shall be constructed in strict accordance with 'Houses and Low Rise Multi Residential PowerPanel External Walls - Design and Installation Guide'.

3. Unitex External Cladding System shall be constructed in strict accordance with 'Technical Manual - Unitex Base Board System' dated June 2015

4. The Scyon Matrix Cladding System shall be constructed in strict accordance with 'Technical Supplement' prepared by James Hardie

5. All details regarding Boral Partiwall System (Type 25TP1010A) shall be in strict accordance with manufacturers requirements. Insulation nominated by Boral Partiwall System (Type 25TP1010A) which exceeds this energy report shall take precedence.

6. All glazing nominated in Report Summary shall be in strict accordance with AS 1288 and AS 2047.

7. This energy assessment report is not a star rating report.

Disclaimer:

1. All items contained in this report directly correlate to the National Construction Code Series 2016 - Volume Two.
As such, this company shall take no responsibility regarding the accuracy of this report and the National Construction Code Series 2016 - Volume Two shall be used as a reference at all times.
All Insulation, Glazing and other requirements nominated in the Report Summary shall be strictly adhered to, otherwise this office shall not accept any liability.
The installation and construction of materials to achieve the requirements of this report shall be performed in strict accordance with the manufacturers specifications and relevant Australian Standards. As such, this office shall not be responsible for any reduced performance caused by either poor installation and/or defective workmanship.
Any discrepancies on site which directly effect the overall performance and nominated energy rating shall be brought to the attention of this office immediately. An amended energy assessment may be required.
This energy compliance report is based entirely on the documentation stamped by this office. Any alterations to the design may alter the energy efficiency compliance of the dwelling or addition and as such, an amended energy compliance report shall be required.

2. This is not a structural report. All assumptions and recommendations made within this report are for energy efficiency purposes only and should be verified by a suitably qualified structural expert as required.

Deemed-to-Satisfy Building Model

NOT FOR CONSTRUCTION PURPOSES

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	D'Andrea & Associates
Rated Address	Dwelling 3 @ No.541 Anzac Highway, Glenelg North
Accredited Rater	David Burton
Date	27/04/2018
Reference	DA-4891

Energy Usage

Type	Energy MJ/m²
Total	156.3
Heating	73.6
Cooling	82.7

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	99.5
Unconditioned Room Area	5.3
Garage Area	16.9

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Laundry	4.4	dayTime	Y
Entry	8.1	dayTime	Y
Cook/Dine/Living	35.0	kitchen	Y
Garage	16.9	garage	N
Bed 2	11.1	bedroom	Y
Ensuite	4.3	nightTime	Y
WIR	3.8	nightTime	Y
Bed 1	13.2	bedroom	Y
Bed 3	10.5	bedroom	Y
Bath	5.3	unconditioned	N
Passage	3.3	dayTime	Y
Activity Room	16.7	living	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Boral Party Wall	1.9	0	97.8
75mm RendaPanel Veneer	2.6	0	46.7
Scyon Matrix	2.6	0	16.9

Internal Plasterboard Stud Wall	0.0	0	118.9
ACC Veneer	1.4	1	38.0

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
CSOG: Slab on Ground	0.0	encl	64.4
Timber	0.0	encldisc	63.2
Timber	0.6	elevated	5.1

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	63.6
Cont:Attic-Continuous	4.2	0.0	69.1

Windows

Type	U-Value	SHGC	Area (m²)
SSW-012-01 A 100 SERIES - ALUMINIUM SLIDING DOOR SG 4Clr	6.11	0.75	11.02
SSW-010-01 A 100 Series Awning Window SG 4Clr	6.23	0.66	4.59
SSW-012-03 A 100 SERIES - ALUMINIUM SLIDING DOOR SG 4SG	6.11	0.52	0.63
SSW-012-04 A 100 SERIES - ALUMINIUM SLIDING DOOR SG 4ET	4.19	0.63	14.73

Window Directions

Direction	Area (m²)
E	17.8
W	13.1

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	3	0
Downlight	46	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
WIR	21.6	82.0	21.6	82.0
Ensuite	56.5	244.7	38.8	167.9
Entry	206.5	1662.4	87.6	705.1
Bed 2	43.7	486.0	54.5	606.0
Bed 1	45.1	593.8	79.5	1047.1

Bed 3	41.9	441.7	62.3	656.6
Activity Room	105.4	1764.1	190.2	3184.2
Cook/Dine/Living	83.1	2910.0	92.3	3232.5
Passage	120.5	398.6	96.8	320.1
Laundry	72.7	319.4	0.7	3.1

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NCC VOLUME TWO GLAZING CALCULATOR

Site Address / Details

Dwelling 3 @ No.541 Anzac Highway, Glenelg North, SA

Climate Zone 5

	C_U	C_{SHGC}
Constants	13.464	0.1247

Floor Construction	Area
Direct Contact	48.50m²
Suspended	
Total Area	48.50m²

Wall Insulation Option chosen for 3.12.1.4

No wall insulation concession used

Actual Conductance	12.37	**Compliant**
Actual Solar Heat Gain	6.03	**Compliant**

	C_u(only)	C_U X Area	**C_{SHGC} X Area**
Allowances	**13.50**	653.00	**6.05**

Name	Orientation	Height (m)	Width (m)	Area (m^2)	Habitable	% Open Ability	Total System U-Value	Total System SHGC	P Winter	H Winter	P Summer	H Summer	Ew	Es	Conductance	Solar Heat Gain	U Element share of % Allowance Used	SHGC Element share of % Allowance Used
Void	E	1.10	1.50	1.65m²	No	0%	6.11	0.75	1.60	3.15			0.56	0.84	1.66	1.04	13% of 92%	17% of 100%
Entry	E	3.00	0.80	2.40m²	No	0%	6.11	0.75	1.60	3.00			0.43	0.62	2.42	1.12	20% of 92%	19% of 100%
Entry	E	0.60	0.80	0.48m²	No	0%	6.11	0.75	1.60	0.60			0.15	0.24	0.48	0.09	4% of 92%	1% of 100%
Cook	W	0.70	0.90	0.63m²	Yes	90%	6.23	0.66	1.50	1.90			0.55	0.81	0.65	0.03	5% of 92%	1% of 100%
Cook	W	0.70	0.90	0.63m²	Yes	0%	6.11	0.52	1.50	1.90			0.55	0.81	0.63	0.27	5% of 92%	4% of 100%
Dine	W	2.40	2.70	6.48m²	Yes	45%	6.11	0.75					0.85	1.30	6.53	3.47	53% of 92%	58% of 100%

NCC VOLUME TWO GLAZING CALCULATOR

Site Address / Details

Dwelling 3 @ No.541 Anzac Highway, Glenelg North, SA

Climate Zone 5

	C_U	C_{SHGC}
Constants	12.118	0.1144

Floor Construction	Area
Direct Contact	
Suspended	71.60m²
Total Area	71.60m²

Wall Insulation Option chosen for 3.12.1.4

No wall insulation concession used

Actual Conductance	12.04	**Compliant**
Actual Solar Heat Gain	3.66	**Compliant**

	C_u(only)	C_U X Area	**C_{SHGC} X Area**
Allowances	**12.10**	867.65	**8.19**

Name	Orientation	Height (m)	Width (m)	Area (m^2)	Habitable	% Open Ability	Total System U-Value	Total System SHGC	P Winter	H Winter	P Summer	H Summer	Ew	Es	Conductance	Solar Heat Gain	U Element share of % Allowance Used	SHGC Element share of % Allowance Used
Staircase	E	0.70	1.70	1.19m²	No	90%	6.23	0.66	0.60	0.70			0.33	0.48	1.05	0.04	9% of 100%	1% of 45%
Staircase	E	1.90	1.70	3.23m²	No	0%	4.19	0.63	0.60	2.60			0.65	0.99	1.91	2.02	16% of 100%	55% of 45%
Void	E	2.10	0.85	1.79m²	No	90%	4.19	0.63	0.25	2.20			0.65	0.99	1.06	0.11	9% of 100%	3% of 45%
Void	E	2.10	0.85	1.79m²	No	90%	4.19	0.63	0.25	2.20			0.65	0.99	1.06	0.11	9% of 100%	3% of 45%
Bed 1	E	2.10	0.80	1.68m²	Yes	90%	4.19	0.63	0.60	1.10			0.42	0.62	1.00	0.07	8% of 100%	2% of 45%
Bed 1	E	2.10	0.80	1.68m²	Yes	0%	4.19	0.63	0.60	2.20			0.55	0.82	1.00	0.87	8% of 100%	24% of 45%
Bed 1	E	2.10	0.80	1.68m²	Yes	90%	4.19	0.63	0.60	1.10			0.42	0.62	1.00	0.07	8% of 100%	2% of 45%
Bed 2	W	1.50	1.80	2.70m²	Yes	90%	4.19	0.63		1.90			0.85	1.30	1.60	0.22	13% of 100%	6% of 45%
Bed 3	W	1.50	1.80	2.70m²	Yes	90%	6.23	0.66	0.55	1.90			0.62	0.91	2.38	0.16	20% of 100%	4% of 45%

Proposed Building Model

FOR CONSTRUCTION PURPOSES

Provisional Diagnostic Information

FirstRate® Provisional Diagnostic Information

Project Information

Mode	New Home
Climate	16 Adelaide (Kent Town)
Site Exposure	suburban
Client Name	D'Andrea & Associates
Rated Address	Dwelling 3 @ No.541 Anzac Highway, Glenelg North
Accredited Rater	David Burton
Date	27/04/2018
Reference	DA-4891

Energy Usage

Type	Energy MJ/m²
Total	145.1
Heating	62.4
Cooling	82.6

Areas

Area	Size (m²)
Net Conditioned Floor Area (NCFA)	99.5
Unconditioned Room Area	5.3
Garage Area	16.9

Zones

Zone	Area (m²)	Conditioning Type	Conditioned
Laundry	4.4	dayTime	Y
Entry	8.1	dayTime	Y
Cook/Dine/Living	35.0	kitchen	Y
Garage	16.9	garage	N
Bed 2	11.1	bedroom	Y
Ensuite	4.3	nightTime	Y
WIR	3.8	nightTime	Y
Bed 1	13.2	bedroom	Y
Bed 3	10.5	bedroom	Y
Bath	5.3	unconditioned	N
Passage	3.3	dayTime	Y
Activity Room	16.7	living	Y

Walls

Type	Bulk Insulation (R)	Num Reflective Airgaps	Area (m²)
Boral Party Wall	4.0	0	97.8
75mm Renda Panel	4.4	0	46.7
Scyon Matrix	2.5	0	16.9

Internal Plasterboard Stud Wall	1.5	0	42.4
ACC Veneer	2.5	0	38.0
Internal Plasterboard Stud Wall	0.0	0	76.5

Floors

Type	Bulk Insulation (R)	Ventilation	Area (m²)
CSOG: Slab on Ground	0.0	encl	64.4
Timber	1.5	encldisc	19.2
Timber	1.5	elevated	5.1
Timber	0.0	encldisc	44.0

Roofs/Ceilings

Type	Bulk Ceiling Insulation (R)	Bulk Roof Insulation (R)	Area (m²)
Ceil: Ceiling	0.0	0.0	63.6
Cont:Attic-Continuous	5.0	0.0	69.1

Windows

Type	U-Value	SHGC	Area (m²)
SSW-010-01 A 100 Series Awning Window SG 4Clr	6.23	0.66	15.87
SSW-012-01 A 100 SERIES - ALUMINIUM SLIDING DOOR SG 4Clr	6.11	0.75	8.62
SSW-012-04 A 100 SERIES - ALUMINIUM SLIDING DOOR SG 4ET	4.19	0.63	6.48

Window Directions

Direction	Area (m²)
E	17.8
W	13.1

Air leakage

Item	Sealed	Unsealed
Generic Vent	-	0
Unflued Gas Heater	-	0
Exhaust Fan	3	0
Downlight	46	0
Chimney	0	0
Heater Flue	-	0

Zone Energy Loads

Zone	Heating (MJ/m2)	Total Heating (MJ)	Cooling (MJ/m2)	Total Cooling (MJ)
WIR	22.8	86.8	23.3	88.7
Ensuite	53.1	229.9	37.4	162.0
Entry	178.7	1438.7	87.2	701.8
Bed 2	41.0	456.7	58.9	655.3
Bed 1	44.8	590.2	88.5	1165.9

Bed 3	32.9	346.5	59.0	621.7
Activity Room	113.0	1891.2	222.0	3716.1
Cook/Dine/Living	52.8	1850.2	71.2	2494.8
Passage	118.5	391.9	117.3	388.0
Laundry	61.7	270.9	0.3	1.5

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ENERGY COMPLIANCE REPORT

NATIONAL CONSTRUCTION CODE SERIES 2016 - VOLUME TWO

ENERGY ASSESSOR - David Burton : Accreditation No.VIC/BDAV/15/1683
SITE ADDRESS - Dwelling 3 @ No.541, Anzac Highway, Glenelg East
CLIENT - D'Andrea & Associates
OWNER - WP Property Group
JOB REF - DA-4891
DATE - 20/05/2018

BCA Part 3.12.1.1 - Building Fabric Thermal Insulation

Requirements

Where required, insulation must comply with AS/NZS 4859.1
Installation shall abut or overlap adjoining insulation, form a continuous barrier with ceilings, walls, bulkheads, floors or the like and not affect the safe or effective operation of a domestic service or fitting

Where required, reflective insulation must be installed with-
The necessary airspace to achieve the required R-Value and reflective insulation shall be closely fitted against any penetration, door or window and adequately supported by framing members, overlapped not less than 150mm or taped together

Where required, bulk insulation must be installed so that-
It maintains its position and thickness and 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 50mm

BCA Part 3.12.1.2(a) - Roofs

Requirements

Achieve the Total R-Value as specified
Where a pitched roof has a flat ceiling, have not less than 50% of the added insulation laid on the ceiling

BCA Part 3.12.1.2(b) - Roofs

Requirements

In climate zones 1-5 (inclusive), the Total R-Value specified is reduced by 0.5 where the required insulation is laid on the ceiling and the roof space is ventilated by gable vents, ridge vents, eave vents, roof vents or the like and not less than 2 wind-driven roof ventilators

BCA Part 3.12.1.2(c) - Roofs

Requirements

A roof that is required to achieve a minimum Total R-Value and has metal sheet roofing directly fixed to metal purlins, metal rafters or metal battens and does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens 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

BCA Part 3.12.1.2(d) - Roofs

Requirements

A roof, or roof and associated ceiling, is deemed to have the Total R-Value as specified

BCA Part 3.12.1.2(e) - Roofs

Requirements

For operational or safety reasons associated with exhaust fans, flues or recessed downlights, the area of required ceiling insulation is reduced, the loss of insulation must be compensated for by increasing the R-Value of insulation in the remainder of the ceiling

Note: As no electrical layout provided at time of assessment, this office has allowed for recessed downlights as per NatHERS protocol.
: IC rated recessed downlights shall be installed (if applicable).

BCA Part 3.12.1.3(a) - Roof Lights

Requirements

If the roof lights are not required for compliance, roof lights shall comply with Table 3.12.1.2 and have an aggregate area of not more than 3% of the total floor area of the storey served

BCA Part 3.12.1.3(b) - Roof Lights

Requirements

If the roof lights are required for compliance, have an area not more than 150% of the minimum area and have transparent and translucent elements, including any imperforate ceiling diffuser with an SHGC of not more than 0.29 and a Total U-Value of not more than 2.9

BCA Part 3.12.1.4(a) - External walls

Requirements

Each part of an external wall must satisfy the requirements of Table 3.12.1.3a for all walls or Table 3.12.1.3b for walls with a surface density of not less than 220 kg/m2 except for opaque non-glazed openings such as doors (including garage doors), vents, penetrations, shutters and the like and glazing unless covered by Table 3.12.1.3b

BCA Part 3.12.1.4(b) - External walls

Requirements

A wall that has lightweight external cladding such as weatherboards, fibre-cement or metal sheeting fixed to the metal frame and does not have a wall lining or has a wall lining that is fixed directly to the metal frame 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

BCA Part 3.12.1.4(c) - External walls

Requirements

A wall constructed in accordance with Figure 3.12.1.3 is deemed to have the Total R-Value specified in that Figure if it has an airspace

BCA Part 3.12.1.5(a) - Floors

Requirements

A suspended floor, other than an intermediate floor in a building with more than one storey must achieve the Total R-Value specified, an in-slab heating or cooling system must be insulated and that is enclosed beneath, must have a barrier to prevent convection installed below floor level between the airspace under the floor and any wall cavities

BCA Part 3.12.1.5(b) - Floors

Requirements

A floor is deemed to have the Total R-Value specified in Table 3.12.1.5

BCA Part 3.12.1.5(c) - Floors

Requirements

A concrete slab -on-ground with an in-slab 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

BCA Part 3.12.1.5(d) - Floors

Requirements

Insulation required by Part 3.12.1.5(c) must be water resistant and be continuous from the adjacent finished ground level to a depth of not less than 300mm or for at least the full depth of the vertical edge of the concrete slab-on-ground

BCA Part 3.12.1.6 - Attached Class 10a buildings

Requirements

A Class 10a building must-
Have an external fabric that achieves the required level of thermal performance for a Class 1 building or be separated from the Class 1 building with construction having the required level of thermal performance for the Class 1 building or
In a climate zone 5-
Be enclosed with masonry walls other than where there are doors and glazing and be separated from the Class 1 building with a masonry wall that extends to the ceiling and roof and achieve a Total R-Value in the roof equivalent to that required by Table 3.12.1.1 for the Class 1 building and not have a garage door facing the east or west orientation other than if the Class 1 building glazing complies with 3.12.2.1 with the applicable value for Cshgc reduced by 15%

BCA Part 3.12.2.1 - External glazing

Requirements

The aggregate conductance of the glazing in each storey including any mezzanine of a building must use the following:
Climate Zone 5 - Cu = 13.464 (standard & high air movement)
Climate Zone 6 - Cu = 6.418 (standard & high air movement)

The aggregate solar heat gain of the glazing in each storey including any mezzanine of a building must not exceed the allowances resulting area from multiplying the of the storey including any mezzanine measured within the enclosing walls by the constant Cshgc:
Climate Zone 5 - Cshgc = 0.122 (standard air movement) & Cshgc = 0.134 (high air movement)
Climate Zone 6 - Cshgc = 0.153 (standard air movement) & Cshgc = 0.168 (high air movement)

BCA Part 3.12.2.2 - Shading

Requirements

Where shading is required, it must be provided by an external permanent projection, such as a verandah, balcony, fixed canopy, eaves, shading hood or carport or be provided by an external shading device such as a shutter, blind, vertical or horizontal building screen with blades, battens or slats which are capable of restricting at least 80% of the summer solar radiation and if adjustable, is readily operated either manually, mechanically or electronically by the building occupants

BCA Part 3.12.3 - Building Sealing

Requirements

Applies to Class 1 building and a Class 10a building with a conditioned space

BCA Part 3.12.3.1 - Chimneys and flues

Requirements

The chimney or flue of an open solid-fuel burning appliance must be provided with a damper of flap that can be closed to seal the chimney or flue

BCA Part 3.12.3.2 - Roof lights

Requirements

A roof light must be sealed or capable of being sealed when serving a conditioned space or a habitable room in climate zones 4-8 . (inclusive). A roof light must be constructed with an imperforate ceiling diffuser or the like at the ceiling or internal lining level or a weatherproof seal or a shutter system readily operated either manually, mechanically or electronically by the occupant.

BCA Part 3.12.3.3 - External windows and doors

Requirements

A seal to restrict air infiltration must be fitted to each edge of an external door, openable window and other such opening when serving a conditioned space or habitable room.
A seal must be a draft protection device.

BCA Part 3.12.3.4 - Exhaust fans

Requirements

An exhaust fan must be fitted with a sealing device such as a self-closing damper, filter or the like when serving a conditioned space or a habitable room.

BCA Part 3.12.3.5 - Construction of roofs, walls and floors

Requirements

Roofs, external walls, external floors and any any opening such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage when forming part of the external fabric.

BCA Part 3.12.3.6 - Evaporative coolers

Requirements

An evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space or a habitable room.

BCA Part 3.12.4 - Air movement

Requirements

This part applies to a habitable room in a Class 1 building

BCA Part 3.12.4.1 - Air movement

Requirements

Air movement must be provided to habitable rooms
Climate Zone 5 - Without a ceiling fan or evaporative cooler - 7.5%, With a ceiling fan - 5.0%
Air movement may be provided through an opening from an adjoining room

BCA Part 3.12.4.2 - Ventilation openings

Requirements

In climate zone 5, the total ventilation opening area required to a habitable room must be connected by a breeze path to another ventilation opening in another room or space or be provided by a minimum of two ventilation openings located within the same habitable room. A breeze path must pass through not more than two openings in the internal walls and have a distance along the ventilation breeze path between 20m.

BCA Part 3.12.4.3 - Ceiling fans and evaporative coolers

Requirements

Ceiling fans or evaporative coolers required must be permanently installed and have a speed controller

BCA Part 3.12.5.0 - Services

Requirements

A hot water supply system must be designed and installed in accordance with Part B2 of NCC Volume Three - Plumbing Code of Australia

BCA Part 3.12.5.1 - Insulation of services

Requirements

Thermal insulation for central heating water piping and heating and cooling ductwork must be protected against the effects of weather and sunlight and be able to withstand the temperatures within the piping or ductwork and use thermal insulation material in accordance with AS/NZS 4859.1.

BCA Part 3.12.5.5 - Artificial lighting

Requirements

The lamp power density or illumination power density of artificial lighting, excluding heaters that emit light must not exceed in a Class 1 building - 5 W/m2, Verandah or Balcony attached to a Class 1 building - 4W/m2 and in a Class 10a building associated with a Class 1 building - 3 W/m2.
Halogen lamps must be separately switched from fluorescent lamps.
Artificial lighting around the perimeter of a building must be controlled by a daylight sensor or have an average light source efficiency of not less than 40 Lumens/W.

BCA Part 3.12.5.6 - Water heater in a hot water supply system

Requirements

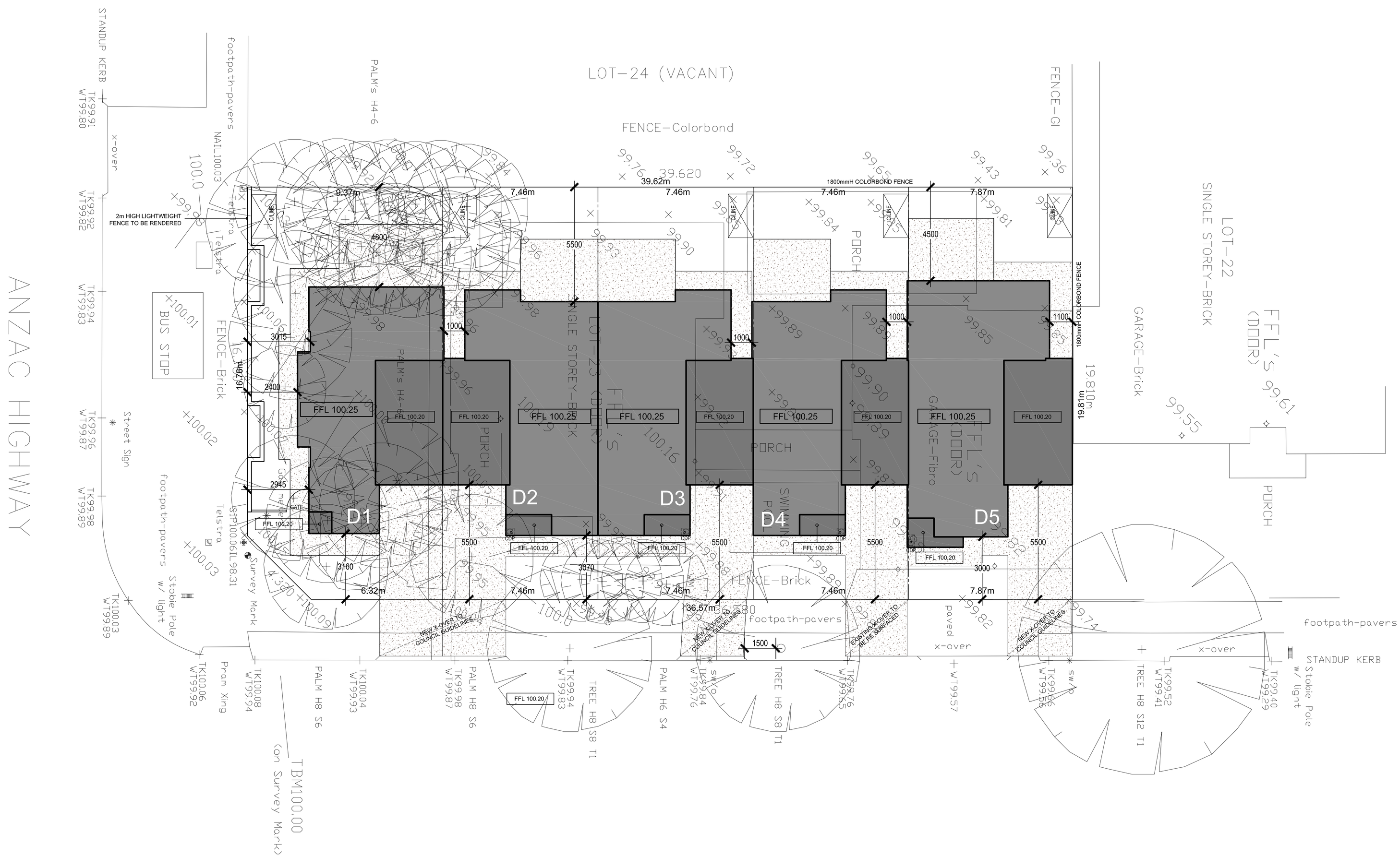
A water heater in a hot water supply system must be designed and installed in accordance with Part B2 of NCC Volume Three - Plumbing Code of Australia.

BCA Part 3.12.5.7 - Swimming pool heating and pumping

Heating for a swimming pool must be by a solar heater not boosted by electric resistance heating or a heater using reclaimed energy or a gas heater or a heat pump or combination solar heater and heat pump.
Where some or all of the heating required by a gas heater or a heat pump, the swimming pool must have a cover unless located in a conditioned space and a time switch to control the operation of the heater.
A time switch must be provided to control the operation of a circulation pump for a swimming pool.
NOTE: For the purposes of 3.12.5.7, a swimming pool does not include a spa pool.

BCA Part 3.12.5.8 - Spa pool heating and pumping

Heating for a spa pool that shares a water recirculation system with a swimming pool must be by a solar heater or a heater using reclaimed energy or a gas heater or a heat pump or a combination of a solar heater and a heat pump.
Where some or all of the heating required by a gas heater or a heat pump, the spa pool must have a cover and a push button and a time switch to control the operation of the heater.
A time switch must be provided to control the operation of a circulation pump for a spa pool having a capacity of 680 L or more.



Assessors Name: David Burton
Accreditation No: VIC/BDAV/15/1683
Dated: 20/05/2018 - Dwelling 3

SITE PLAN

DWELLINGS 1-5 SCALE 1:100

REFER TO ENGINEER'S SITE WORKS AND DRAINAGE PLAN FOR ALL SITE WORKS AND DRAINAGE

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5 TWO STOREY DWELLINGS AT 541 ANZAC HWY GLENELG EAST FOR: WP PROPERTY GROUP

ARCHITECTURAL DRAWINGS TO BE READ IN CONJUNCTION WITH ENGINEERS SOIL REPORT & MBA SPECIFICATION.

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PRELIMINARY PLAN FOR CONFIRMATION ☐
PLANNING APPLICATION ☐
BUILDING APPLICATION ☐

DRAWN: SHEET:
DATE: SCALE:

AMENDMENTS:

ISSUE DATE	REVISION	COMMENTS

SITE PLAN A - 06

NOT FOR CONSTRUCTION

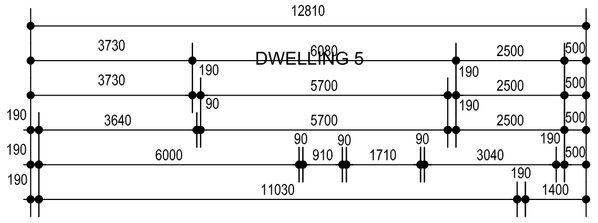
CONSTRUCTION NOTES

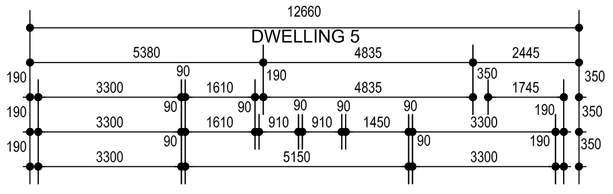
SD — INTERLINKED SMOKE DETECTOR HARD WIRED TO MAINS WITH 9V BATTERY BACK UP AS PER AS 3786

DENOTES CONTROL JOINTS REFER TO ENGINEERS REPORT FOR DETAILS. CONTROL JOINTS SHOWN ARE A MIN. ONLY FOR FOOTING PERFORMANCE. PROVIDE ADDITIONAL JOINTS AS REQUIRED BY SPECIFIED WALLING SYSTEM MANUF.

DENOTES EXHAUST FAN HARD WIRED TO LIGHT SWITCH, VENTED TO ATMOS.

PROVIDE EASILY REMOVABLE EXTERNAL HINGES TO ROOMS WITH WC'S





STORM WATER LEGENED

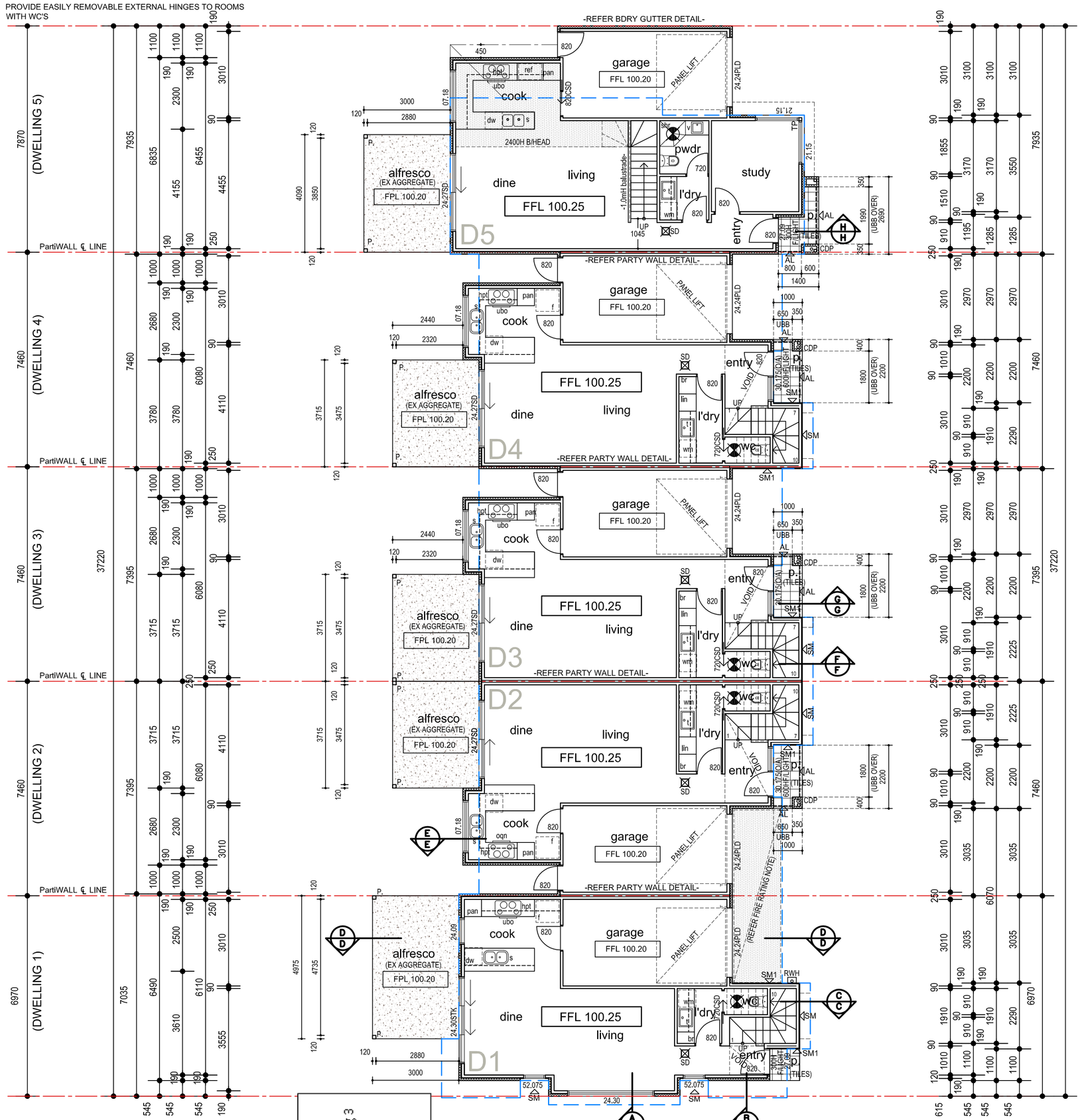
DP - DENOTES 90Ø UPVC STORM WATER GRADE DOWN PIPE

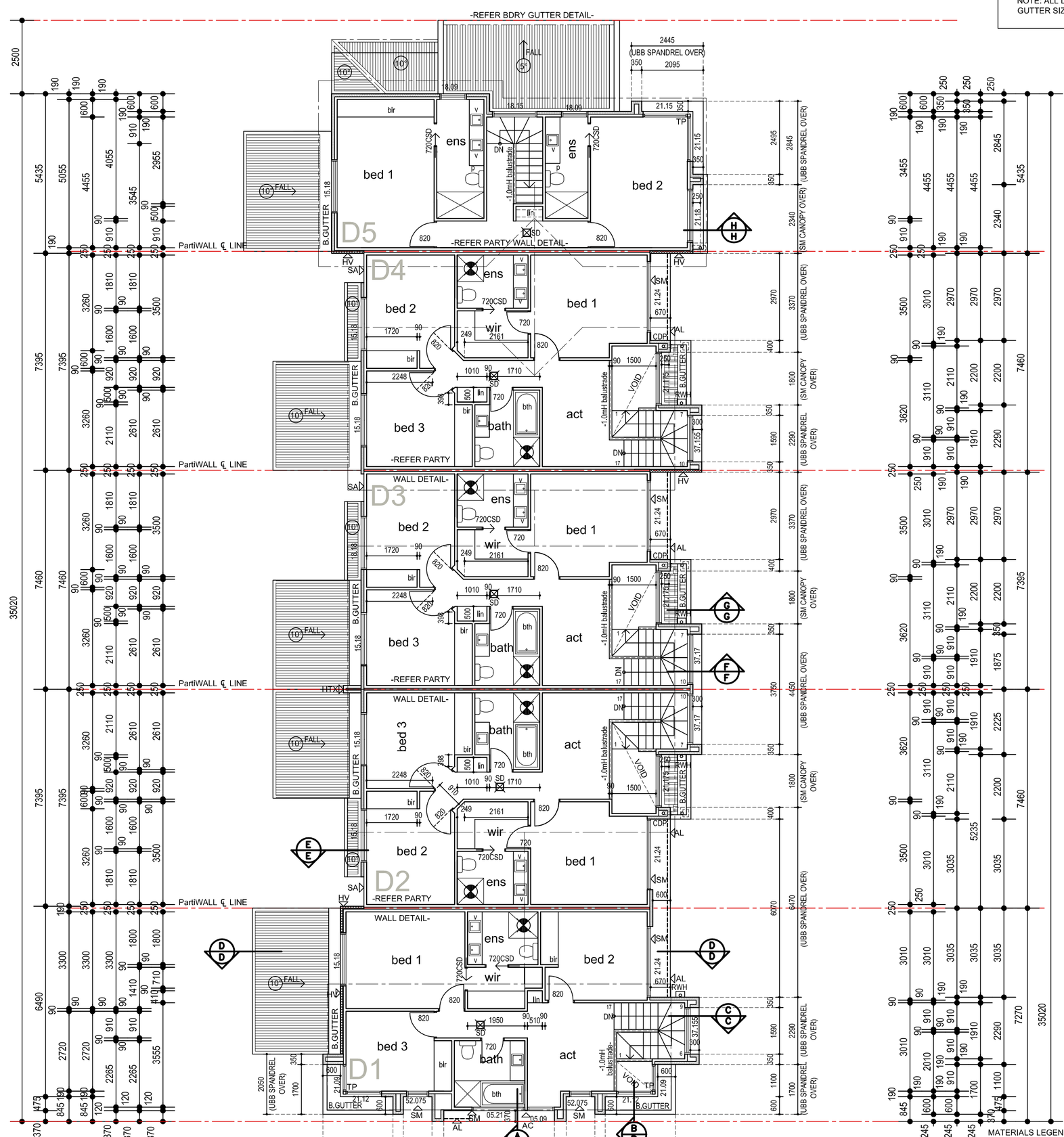
CDP - DENOTES 90Ø UPVC STORM WATER GRADE CONCEALED DOWN PIPE AS DETAILED

DPS - DENOTES 90Ø UPVC STORM WATER GRADE DOWN PIPE WITH SPREADER

RWH - DENOTES 90Ø UPVC STORM WATER GRADE DOWN PIPE CONNECTED TO RAINWATER HEAD

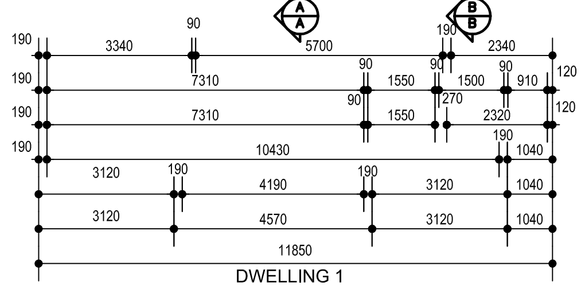
NOTE: ALL DP SIZES, LOCATIONS AND BOX GUTTER SIZES TO BE CONFIRMED BY ENG.

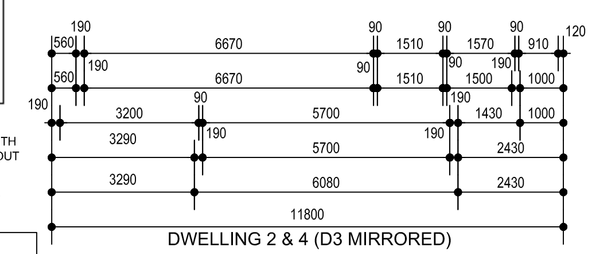


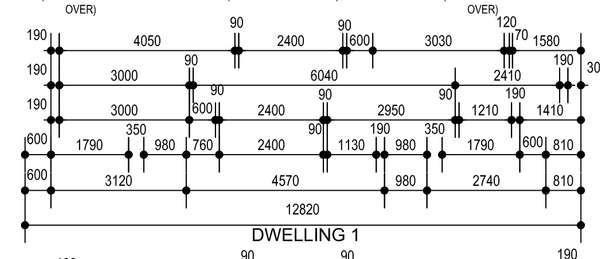


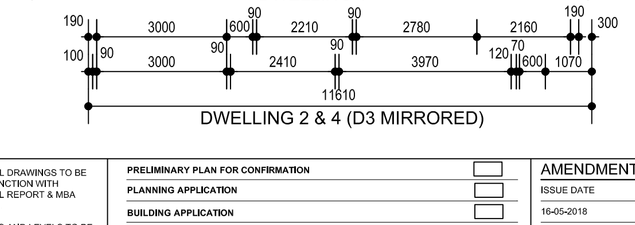
AREAS:

DWELLING 1	
MAIN LIVING:	52.10
UPPER FLOOR:	72.90
GARAGE:	18.50
PORTICO:	01.80
ALFRESCO:	14.92
TOTAL:	160.22
DWELLING 2	
MAIN LIVING:	55.30
UPPER FLOOR:	77.00
GARAGE:	18.70
PORTICO:	02.80
ALFRESCO:	11.50
TOTAL:	165.30
DWELLING 3 & 4	
MAIN LIVING:	55.40
UPPER FLOOR:	77.10
GARAGE:	18.70
PORTICO:	02.80
ALFRESCO:	11.50
TOTAL:	165.50
DWELLING 5	
MAIN LIVING:	61.60
UPPER FLOOR:	59.90
GARAGE:	19.10
PORTICO:	02.5
ALFRESCO:	11.47
TOTAL:	154.57









MATERIALS LEGEND

- HV — HEBEL VENEER CONSTRUCTION U.N.O. (190THK O/A)
- SM — 90mm T/FRAME CLAD WITH 'SCYON MATRIX' (120THK O/A) U.N.O.
- SM1 — 90mm & 70mm STUD CLAD WITH SCYON MATRIX (190THK)
- UBB — UNI-TWS UNITEX BASE BOARD 'RENDA PANEL' FIXED TO T/FRAME (190THK O/A) *NOTE USE 50mmTHK BASE BOARD TO ALL SPANDRELS CLAD IN UNI-TEX
- SA — SCYON AXON CLADDING FIXED TO 90mm T/FRAME
- HTX — JAMES HARDIES HARDIETEX CLADDING FIX TO 90mm T/FRAME
- ▫ — 120² PAINTED TIMBER POST
- ▫TP — DENOTES TIMBER POST WITH ALUM. CAPPING TO MATCH WINDOW JOINERY
- AL — DENOTES SELECTED FIXED ALUMINIUM LOUVERS
- CO — DENOTES HORIZONTALLY CLAD COLORBOND CUSTOM ORB FIXED TO TIMBER FRAME VIA TOP HAT

SELECTED PRODUCTS/MATERIALS TO BE INSTALLED IN ACCORDANCE WITH MANUF. SPECIFICATION

WINDOW NOTE:
ALL INTERNAL AND EXTERNAL DOORS TO BE 2400mm HIGH. ALL WINDOW HEAD HEIGHTS TO BE AT 2400mm FROM FFL U.N.O.
* DENOTES 2600H HEAD HEIGHT.
BUILDER TO CONFIRM ALL WINDOW SIZES WITH MANUFACTURER PRIOR TO INSTALLATION.

Assessors Name: David Burton
Accreditation No: VIC/BDAV/15/1683
Dated: 20/05/2018 - Dwelling 3

GROUND FLOOR PLAN

DWELLINGS 1-5 SCALE 1:100

HEBEL VENEER CONSTRUCTION U.N.O.
BORAL Partiwall SYSTEM (TYPE 25TP1010A) SHAFT LINER
NO EAVES EAVES U.N.O.
10° ROOF PITCH TYPICAL U.N.O.
10° POLYCARBONATE(CLEAR) ROOF DECKING (ALFRESCO)

ENERGY EFICIENCY NOTES
PLEASE REFER ENERGY EFFICIENCY REPORT PRODUCED BY OTHERS FOR ALL ENERGY EFFICIENCY REQUIREMENTS.

FIRE RATING NOTE :
PROVIDE 2X13mm CSR Gyprock Fyrchek MR TO ACHIEVE A FRL OF 60/60/60 AS DETAILED & SPECIFIED BY 'CSR system 6026' SHOWN DOTTED

STAIR NOTES
PROVIDE INTERNAL STAIRS AND BALUSTADES BY "STAIR LOCK" PROVIDE 1.0m HIGH BALUSTRADES WITH NO GAPS LARGER THAN 120mm TYPICAL THROUGHOUT
RISERS =17@183.6470mm HIGH = 3122 (C.O.S.)
GOINGS = 250mm WIDE
PROVIDE APPROVED NON SLIP TREADS OR CARPET FINISH

BULKHEAD NOTE:
PROVIDE 2400H DROPPED BULKHEADS OVER ALL B.I.R. LINEN & OVER HEAD CUBS TO KITCHEN & LAUNDRY U.N.O.

UPPER FLOOR PLAN

DWELLINGS 1-5 SCALE 1:100

UNI-TWS UNITEX BASE BOARD CAVITY SYSTEM U.N.O.
BORAL Partiwall SYSTEM (TYPE 25TP1010A) SHAFT LINER
SKILLION ROOF - 10° ROOF PITCH
- 450W SAIL OVER EAVES EAVES U.N.O.
PITCHED ROOF - 8° ROOF PITCH (NO EAVES U.N.O.)

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5 TWO STOREY DWELLINGS AT 541 ANZAC HWY GLENELG EAST FOR: WP PROPERTY GROUP

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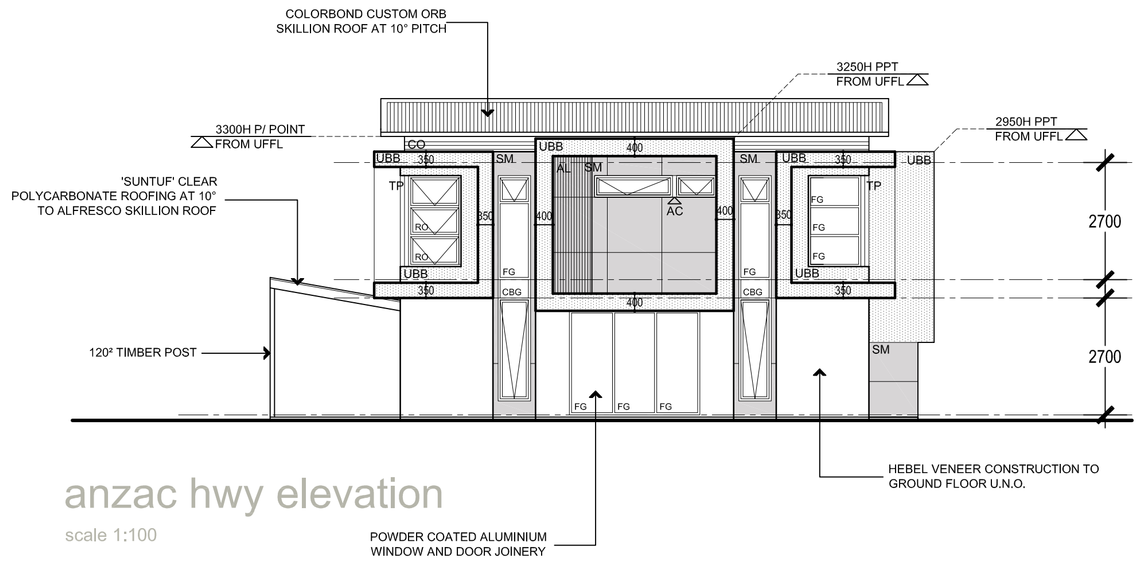
PRELIMINARY PLAN FOR CONFIRMATION	☐
PLANNING APPLICATION	☐
BUILDING APPLICATION	☐
DRAWN:	SHEET:
DATE:	SCALE:

AMENDMENTS:

ISSUE DATE	REVISION	COMMENTS
16-05-2018	A	EER WINDOW AMENDMENTS

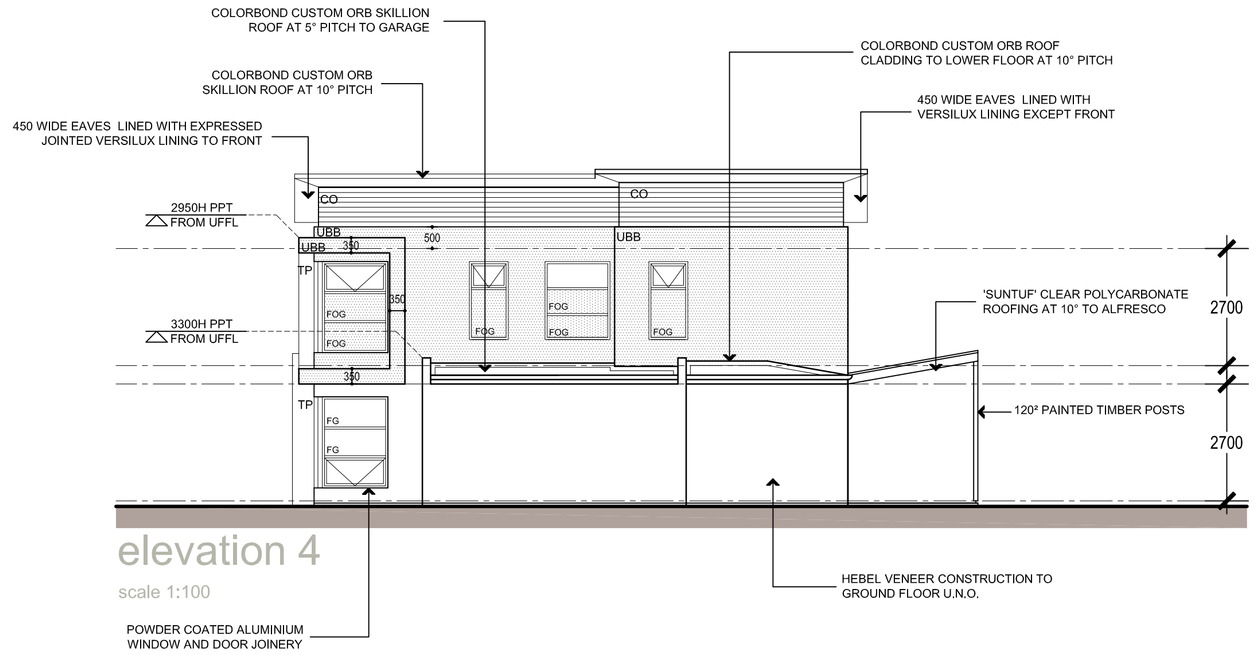
FLOOR PLAN A - 01

NOT FOR CONSTRUCTION



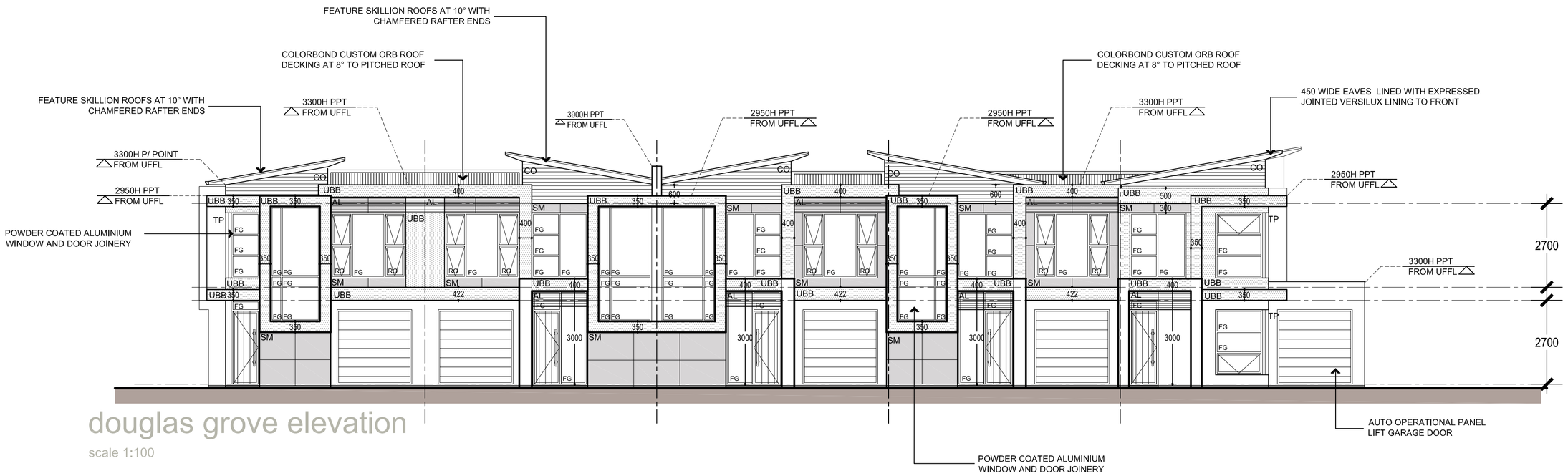
anzac hwy elevation

scale 1:100



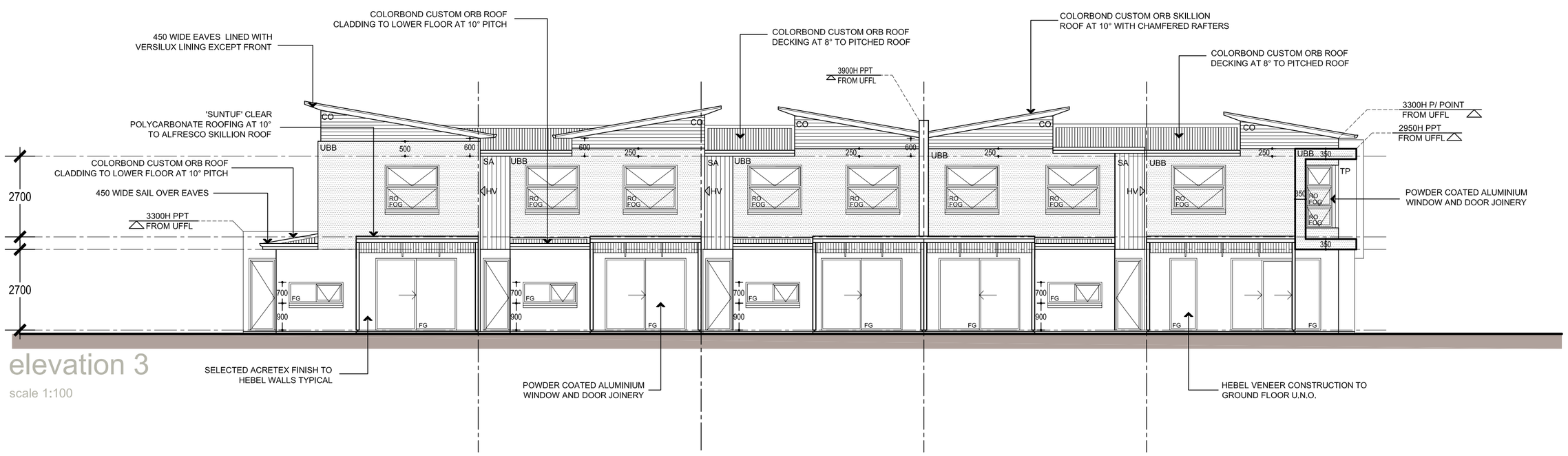
elevation 4

scale 1:100



douglas grove elevation

scale 1:100



elevation 3

scale 1:100

MATERIALS LEGEND

HV	HEBEL VENEER CONSTRUCTION U.N.O. (190THK O/A)
SM	90mm T/FRAME CLAD WITH 'SCYON MATRIX' (120THK O/A) U.N.O.
SM1	90mm & 70mm STUD CLAD WITH SCYON MATRIX (190THK)
UBB	UNI-TWS UNITEXT BASE BOARD 'RENDA PANEL' FIXED TO T/FRAME (190THK O/A)
AL	DENOTES SELECTED FIXED ALUMINIUM LOUVERS
CO	DENOTES HORIZONTALLY CLAD COLORBOND CUSTOM ORB FIXED TO TIMBER FRAME VIA TOP HAT

SELECTED PRODUCTS/MATERIALS TO BE INSTALLED IN ACCORDANCE WITH MANUF. SPECIFICATION

WINDOW LEGEND
FG - DENOTES FIXED GLASS
FOG - DENOTES 1700H FIXED OBSCURE GLAZING FROM FFL
RO - DENOTES 120mm RESTRICTED OPENING
CBG - DENOTES SELECTED COLOUR BACK GLASS
TP - DENOTES TIMBER POST WITH ALUM. CAPPING TO MATCH WINDOW JOINERY
AC - ALUMIUM CAPPING TO MATCH WINDOW JOINERY

Assessors Name: David Burton
Accreditation No: VIC/BDAV/15/1683
Dated: 20/05/2018 - Dwelling 3

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PRELIMINARY PLAN FOR CONFIRMATION	☐
PLANNING APPLICATION	☐
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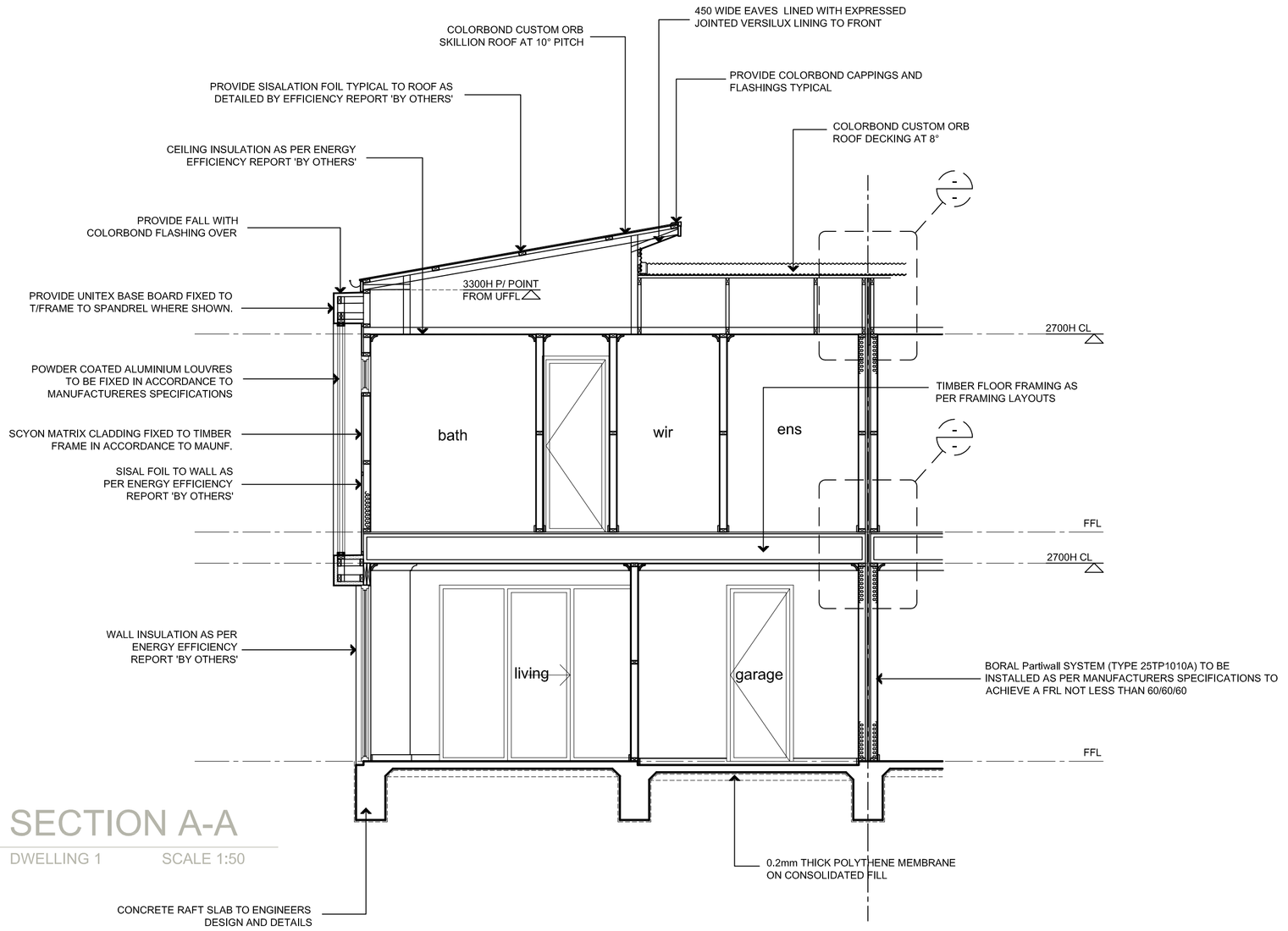
DATE:	SCALE:

AMENDMENTS:

ISSUE DATE	REVISION	COMMENTS
16-05-2018	A	EER WINDOW AMENDMENTS

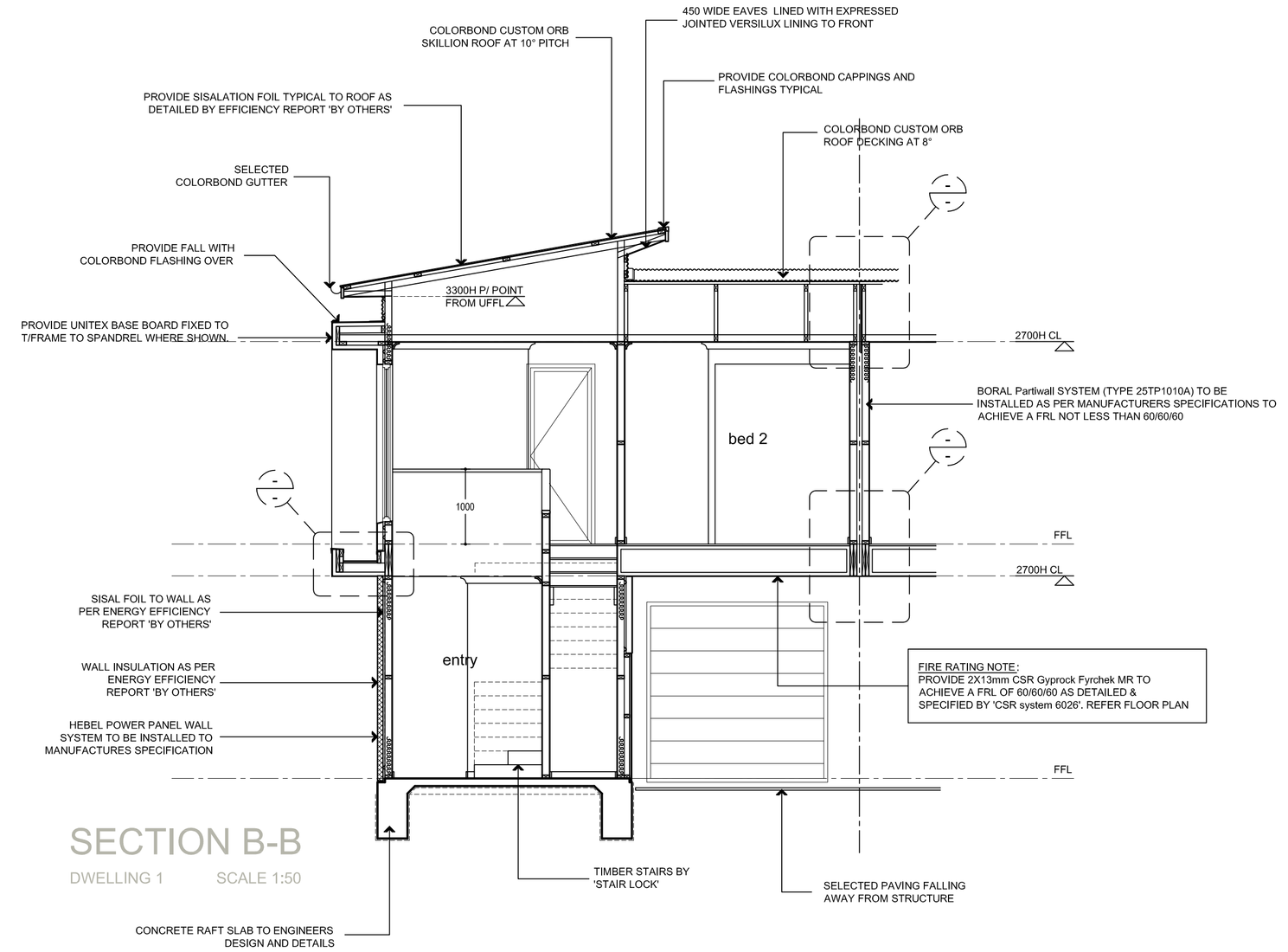
ELEVATIONS A - 02

NOT FOR CONSTRUCTION



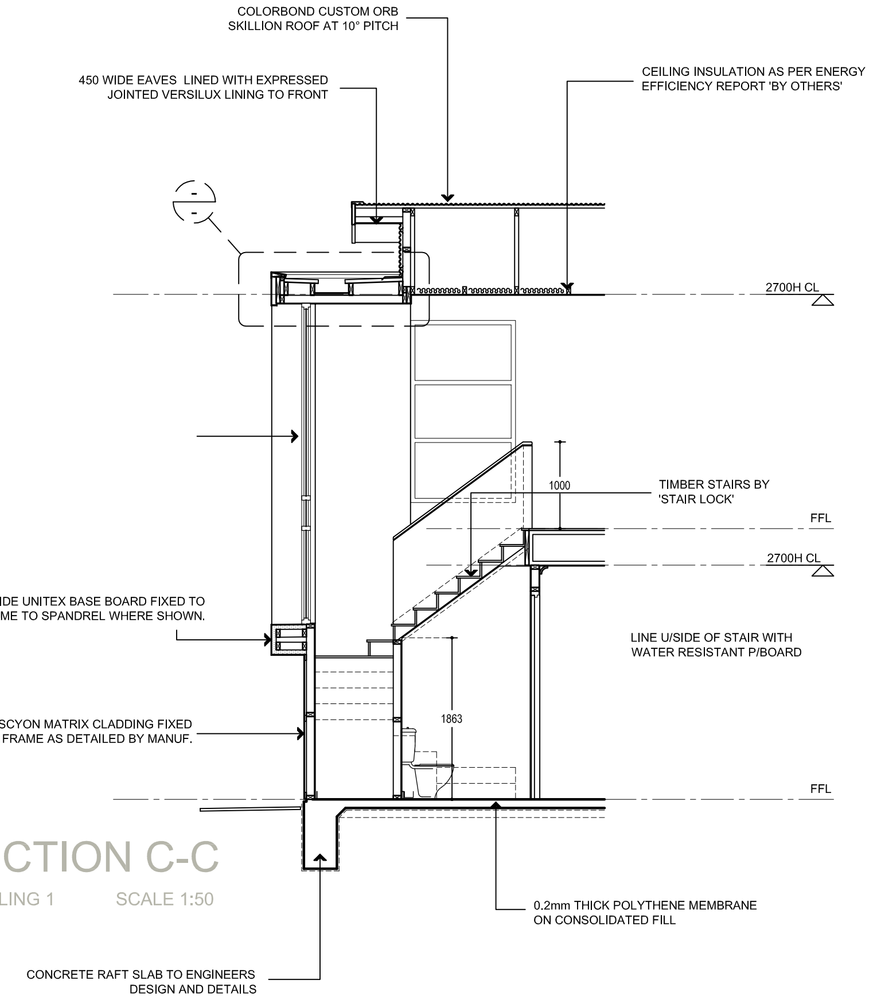
SECTION A-A

DWELLING 1 SCALE 1:50



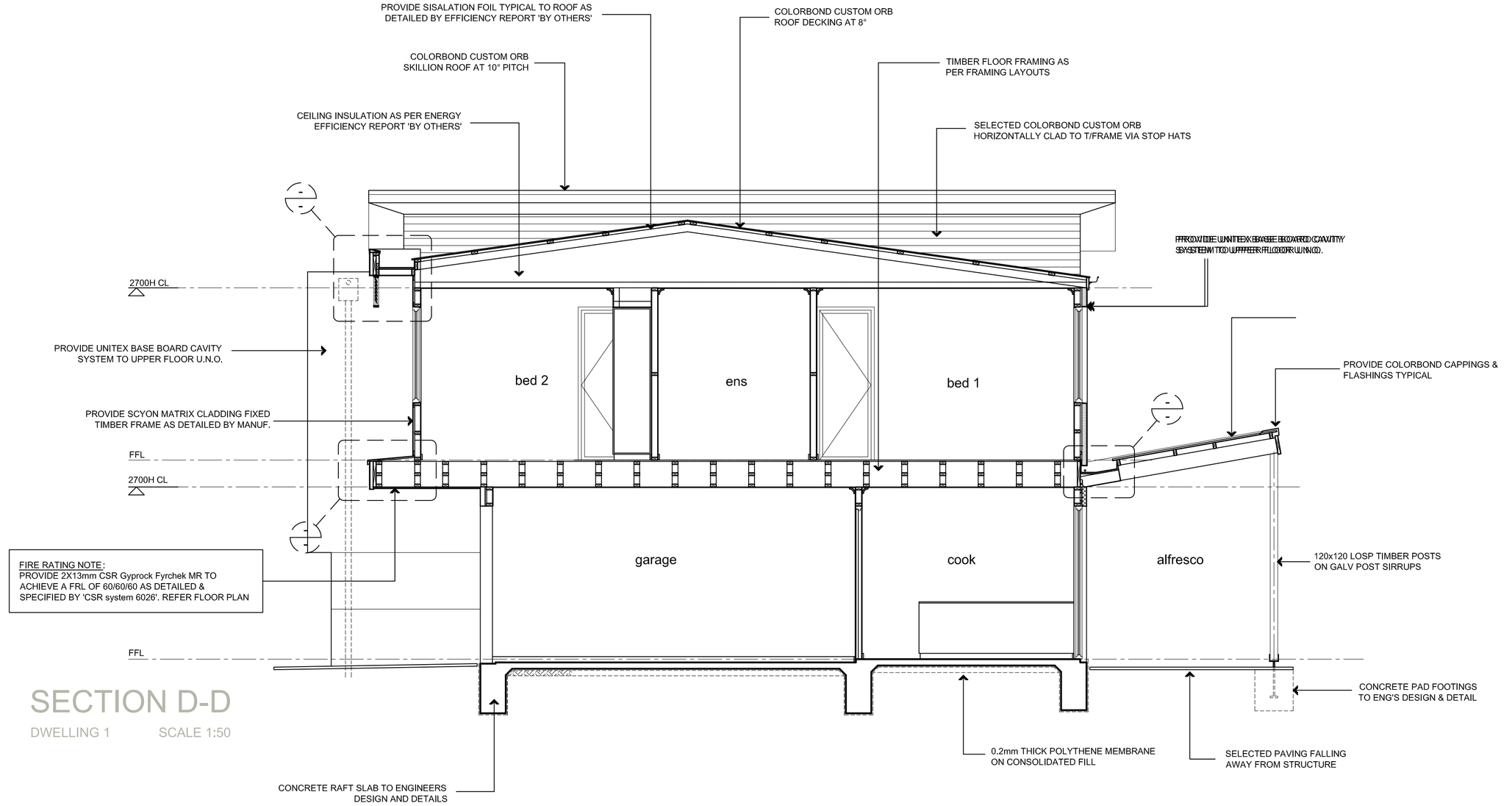
SECTION B-B

DWELLING 1 SCALE 1:50



SECTION C-C

DWELLING 1 SCALE 1:50



SECTION D-D

DWELLING 1 SCALE 1:50

Assessors Name: David Burton
Accreditation No: VIC/BDAV/15/1683
Dated: 20/05/2018 - Dwelling 3

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5 TWO STOREY DWELLINGS AT 541 ANZAC HWY GLENELG EAST FOR: WP PROPERTY GROUP

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PRELIMINARY PLAN FOR CONFIRMATION
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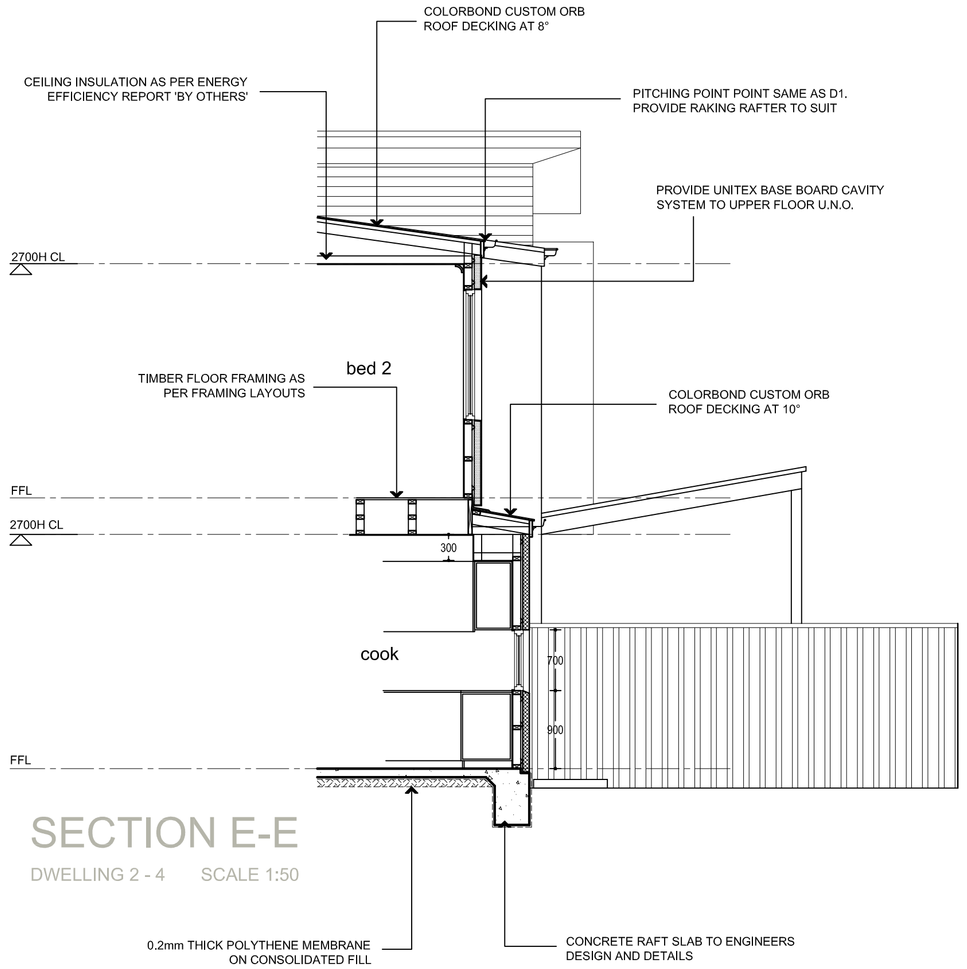
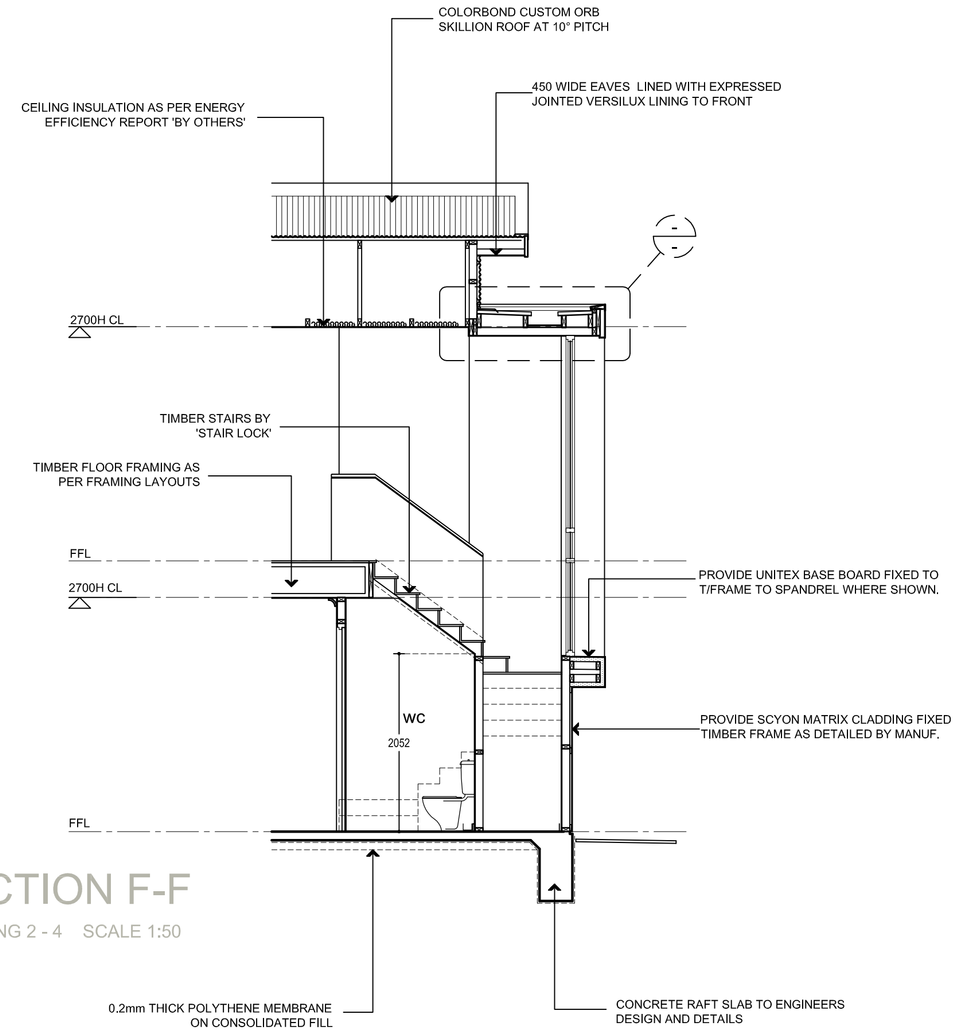
SECTIONS A - 03

NOT FOR CONSTRUCTION



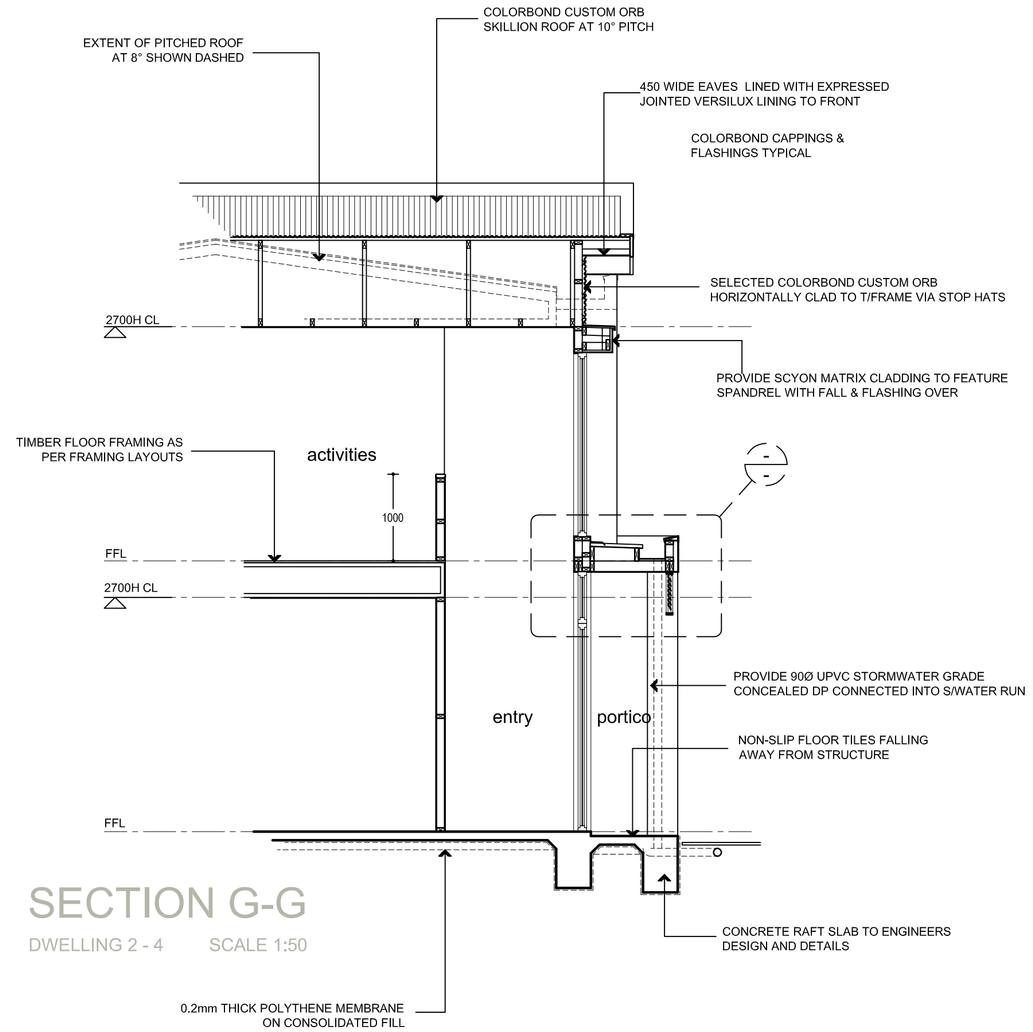
SECTION E-E

DWELLING 2 - 4 SCALE 1:50



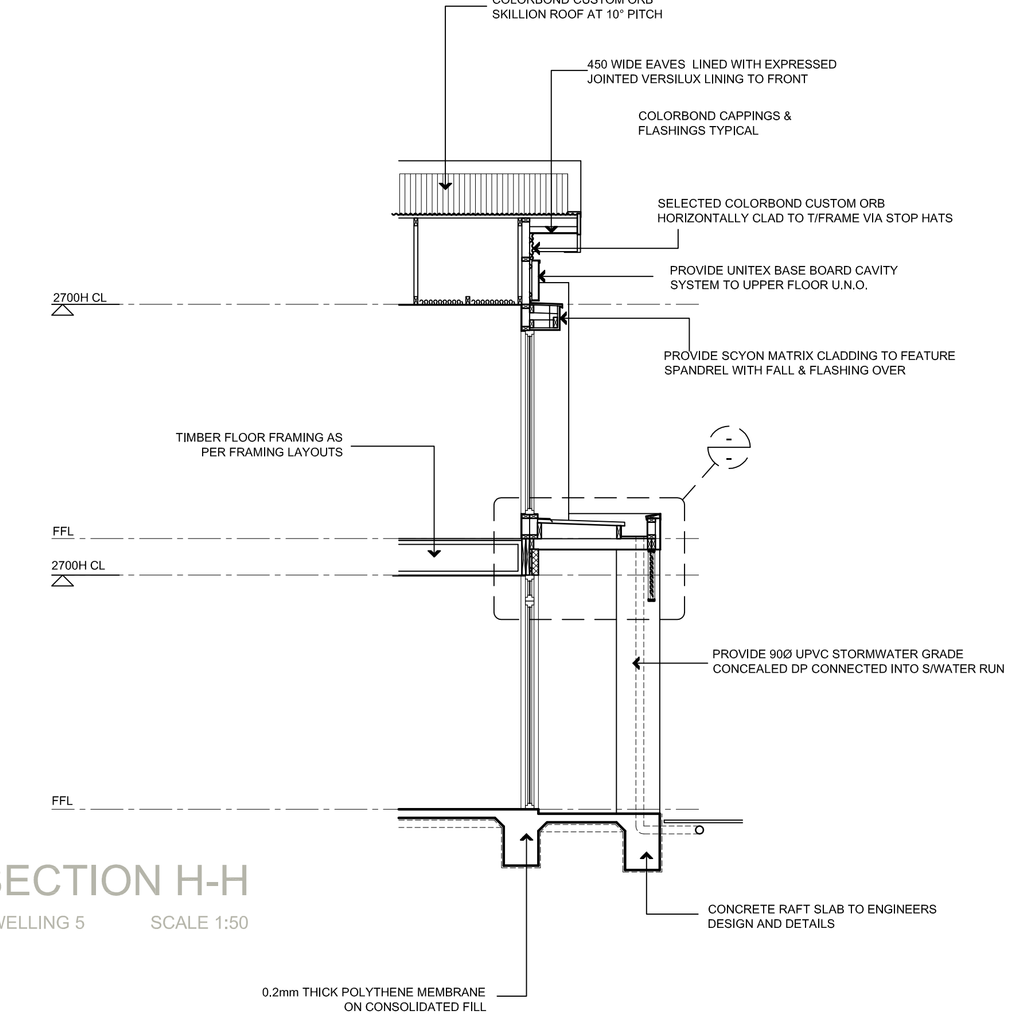
SECTION F-F

DWELLING 2 - 4 SCALE 1:50



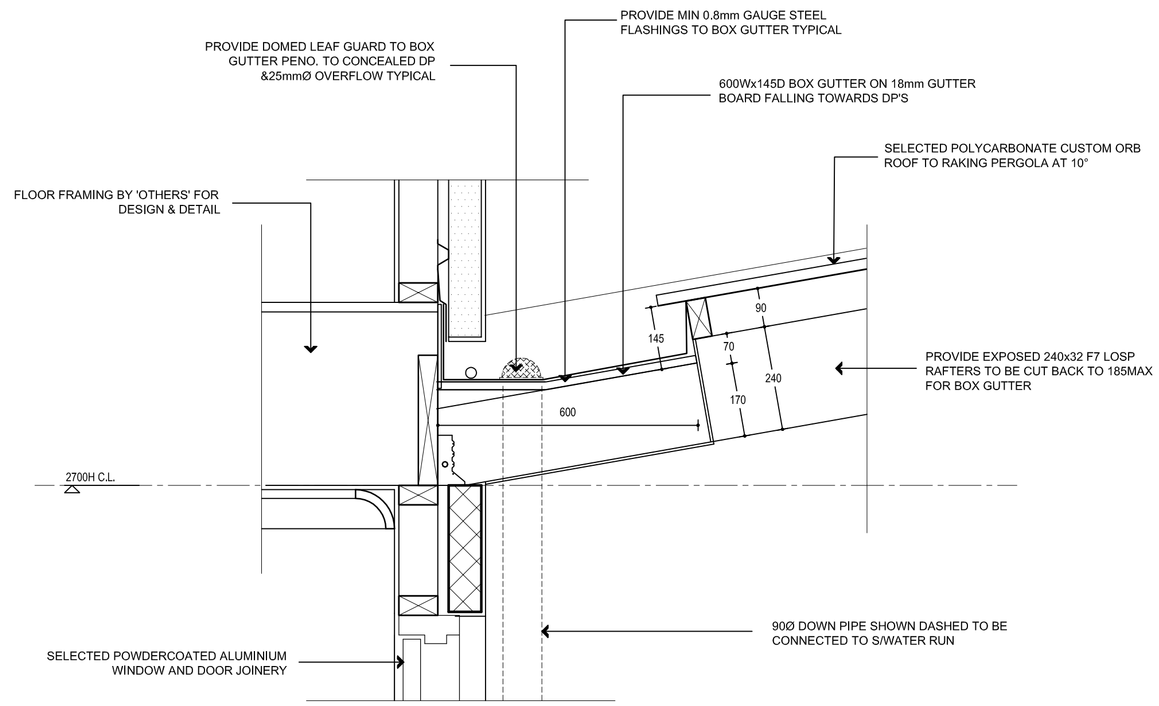
SECTION G-G

DWELLING 2 - 4 SCALE 1:50



SECTION H-H

DWELLING 5 SCALE 1:50



TYPICAL ALFRESCO DETAIL

SCALE 1:10

Assessors Name: David Burton
Accreditation No: VIC/BDAV/15/1683
Dated: 20/05/2018 - Dwelling 3

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SA 5063

5 TWO STOREY DWELLINGS
AT 541 ANZAC HWY GLENELG EAST
FOR: WP PROPERTY GROUP

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PRELIMINARY PLAN FOR CONFIRMATION
PLANNING APPLICATION
BUILDING APPLICATION

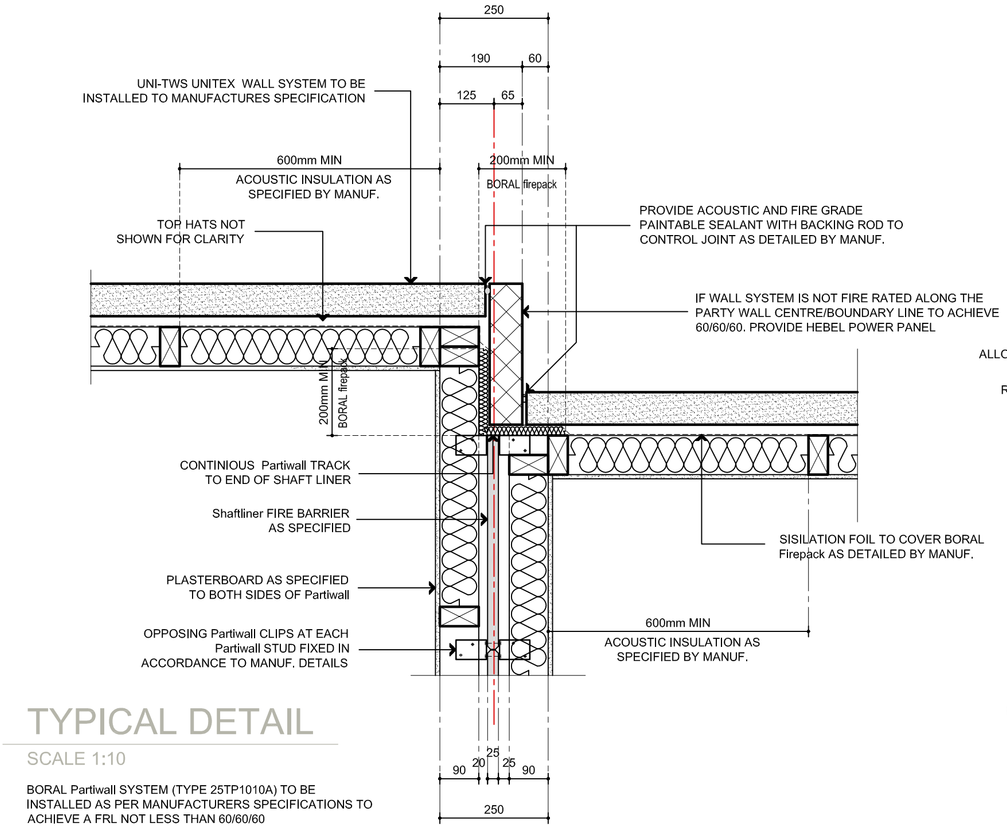
DRAWN: SHEET:
DATE: SCALE:

AMENDMENTS:

ISSUE DATE	REVISION	COMMENTS

SECTIONS A - 04

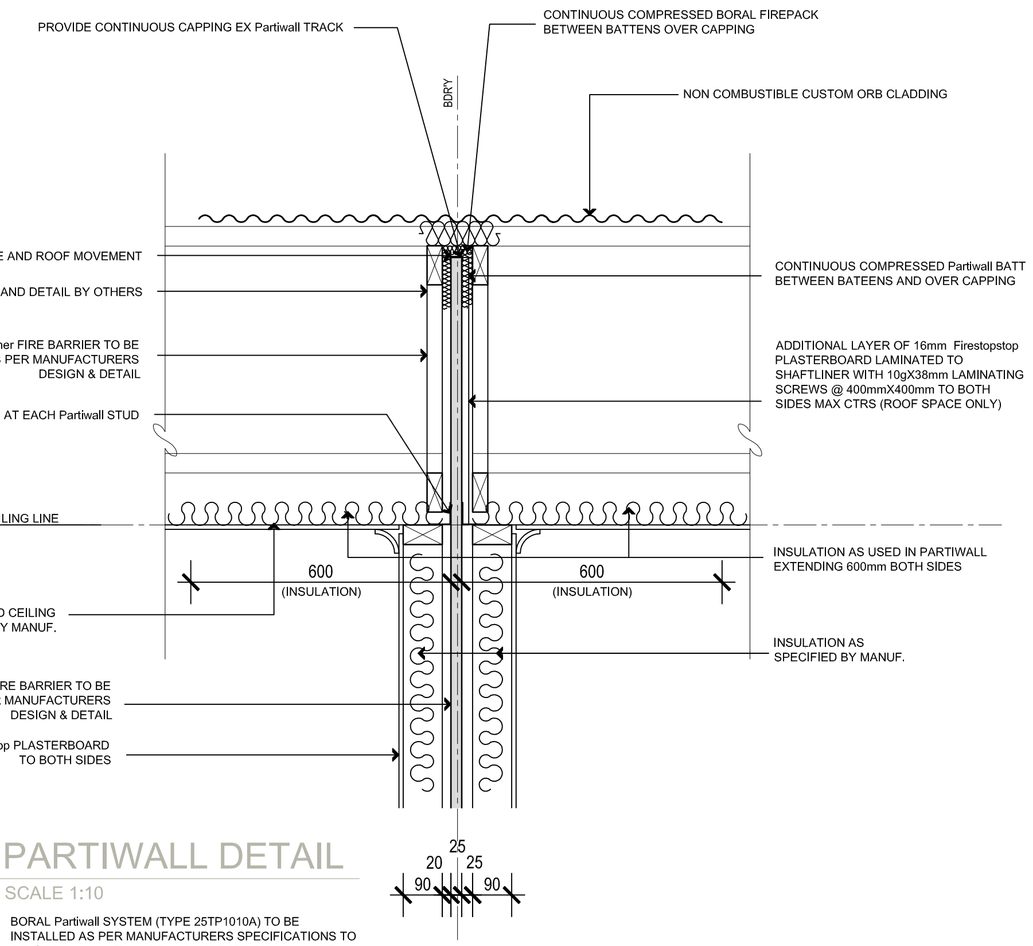
NOT FOR CONSTRUCTION



TYPICAL DETAIL

SCALE 1:10

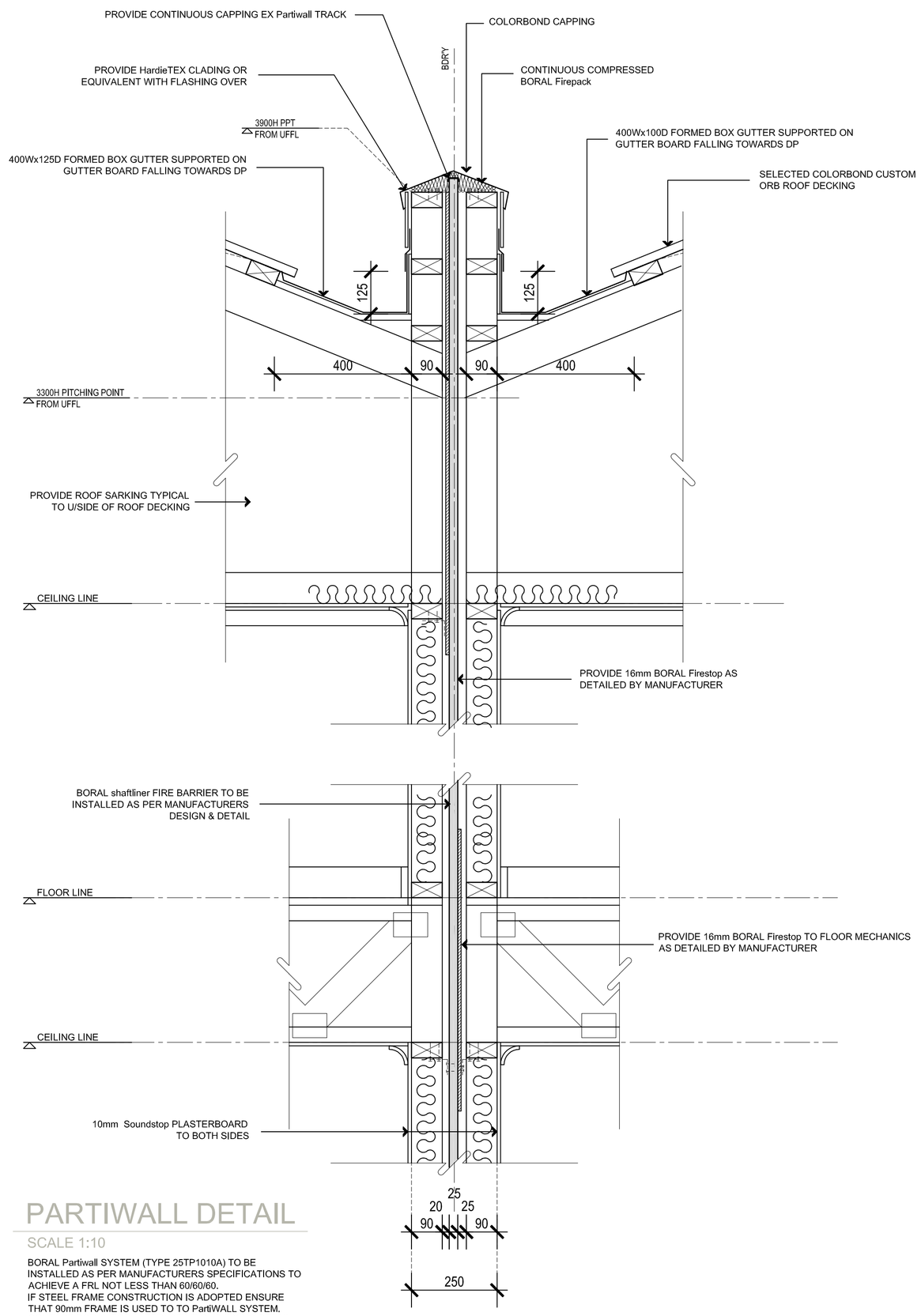
BORAL Partiwall SYSTEM (TYPE 25TP1010A) TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS TO ACHIEVE A FRL NOT LESS THAN 60/60/60

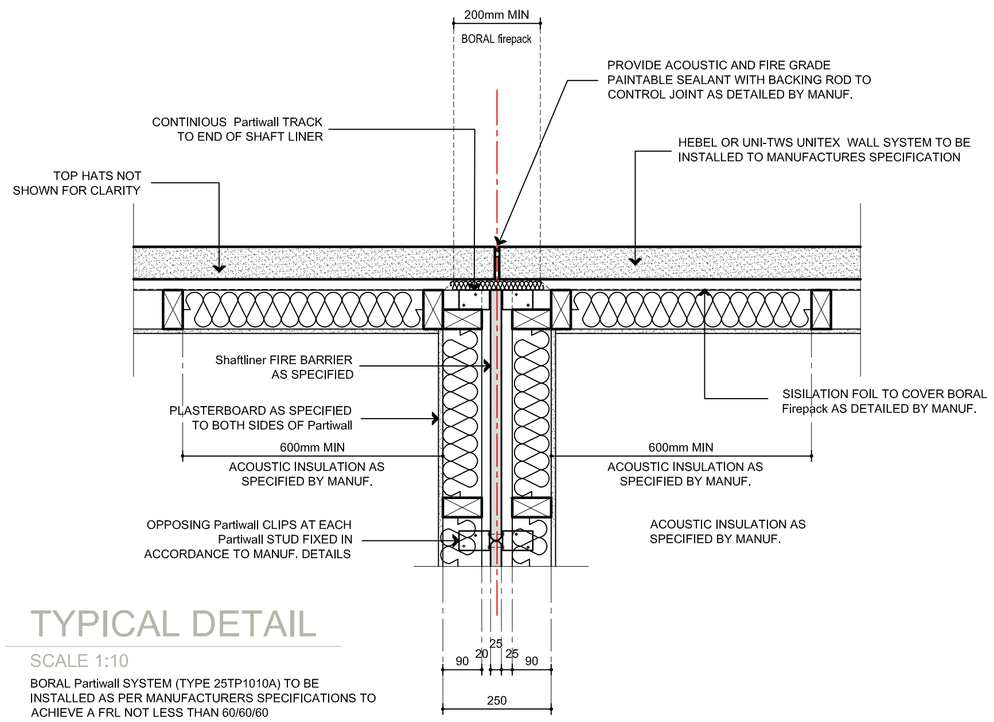


PARTIWALL DETAIL

SCALE 1:10

BORAL Partiwall SYSTEM (TYPE 25TP1010A) TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS TO ACHIEVE A FRL NOT LESS THAN 60/60/60. WHERE LENGTHS OF WALLS EXCEED 12m A FIRE RATED EXPANSION JOINT AS DETAILED BY MANUF. IS REQUIRED TO THE PLASTERBOARD AS SPECIFIED BY MANUF.

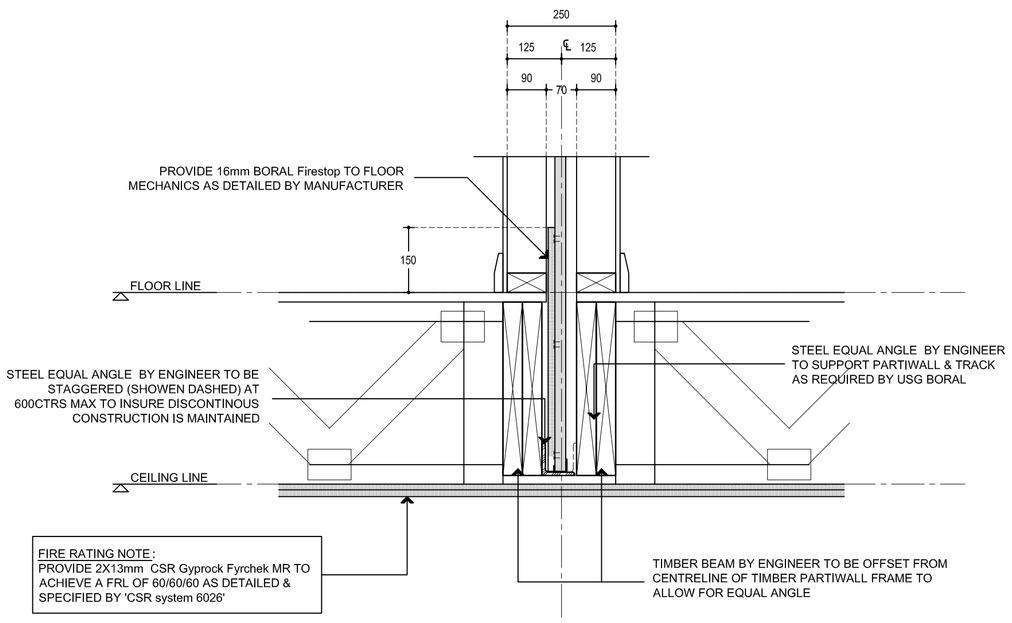




TYPICAL DETAIL

SCALE 1:10

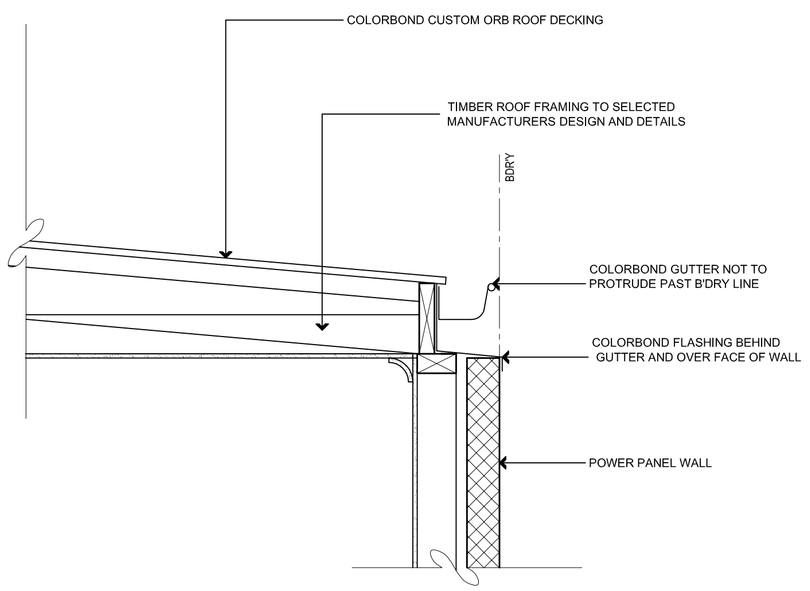
BORAL Partiwall SYSTEM (TYPE 25TP1010A) TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS TO ACHIEVE A FRL NOT LESS THAN 60/60/60



TYPICAL PARTIWALL BEAM DETAIL

SCALE 1:10

BORAL Partiwall SYSTEM (TYPE 25TP1010A) TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS TO ACHIEVE A FRL NOT LESS THAN 60/60/60



BOUNDARY GUTTER DETAIL

SCALE 1:10

Assessors Name: David Burton
Accreditation No: VIC/BDAV/15/1683
Dated: 20/05/2018 - Dwelling 3

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AT 541 ANZAC HWY GLENELG EAST
FOR: WP PROPERTY GROUP

ARCHITECTURAL DRAWINGS TO BE READ IN CONJUNCTION WITH ENGINEERS SOIL REPORT & MBA SPECIFICATION.

ALL DIMENSIONS AND LEVELS TO BE CONFIRMED PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCY TO BE REPORTED TO THIS OFFICE IMMEDIATELY.

PRELIMINARY PLAN FOR CONFIRMATION ☐
PLANNING APPLICATION ☐
BUILDING APPLICATION ☐

DRAWN: SHEET:
DATE: SCALE:

AMENDMENTS:

ISSUE DATE	REVISION	COMMENTS

SECTION DETAILS A - 05

NOT FOR CONSTRUCTION