

Sharalyn Fraser *Agency*

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TENDERING, WORKMANSHIP & PRICING CONTINGENCIES

NEW WORK

REMOVAL WORK

EXIST WALLS

ALL PRICING IS CONSIDERED PROVISIONAL UNTIL ALL CONSENTS ARE GRANTED AND THE REQUIREMENTS OF THE PROJECT ARE FULLY REALISED.

THE PLANS AND SPECIFICATIONS SHOULD BE THOROUGHLY READ AND UNDERSTOOD BY ALL CONTRACTORS INVOLVED WITH THE PROJECT FOR THE PURPOSES OF QUOTING AND EXECUTING THE WORKS INVOLVED.

UPON READING THE DOCUMENTATION ANY CONCERNS ABOUT THE DOCUMENTATION WITH REGARD TO ANY ASPECT OF THE PROJECT INCLUDING, BUT NOT LIMITED TO MATERIALS AND WORKMANSHIP SHOULD BE IMMEDIATELY ADDRESSED TO THE DESIGNER.

A PRELIMINARY SITE INVESTIGATION SHOULD BE CARRIED OUT BY THE MAIN CONTRACTOR AND ANY SUBCONTRACTORS DEEMED NECESSARY BY THE MAIN CONTRACTOR, TO ESTABLISH THE EXISTING STATUS OF THE SITE & STRUCTURE, PRIOR TO PROCEEDING WITH QUOTING.

ANY EXISTING ELEMENTS THAT MAY BE AFFECTED BY THE PROPOSED WORKS, THAT CAN NOT BE VISUALLY INSPECTED PRIOR TO COMMENCING THE WORKS SHOULD BE CONSIDERED AS VARIABLES AND SUBJECT TO ADDITIONAL CONTINGENCY COSTS IF DETERMINED AS UNSUITABLE, ONCE EXPOSED AND INSPECTED.

ANY CONCERNS ABOUT ANY ON SITE CONDITIONS SHOULD IMMEDIATELY BE ADDRESSED TO THE DESIGNER FOR FURTHER CLARIFICATION.

THE MAIN CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL EXISTING AND PROPOSED DIMENSIONS, HEIGHTS, ROOF PITCHES, OVERHANGS, MATERIALS, SITE CONDITIONS, SITE LEVELS AND ANY OTHER ASPECTS OF THE PROJECT WHICH MAY AFFECT IT'S OUTCOME.

ALL WORKMANSHIP AND EVERY ASPECT OF THE PROJECT IS TO COMPLY WITH THE RELEVANT STANDARDS, THE NZBC, TERRITORIAL AUTHORITY REQUIREMENTS, BUILDING CONSENT DOCUMENTS AND COMMENTS FROM THE VARIOUS COUNCIL DEPARTMENTS AND IS TO BE EXECUTED TO THE BEST TRADE PRACTICE BY SUITABLY QUALIFIED AND EXPERIENCED PROFESSIONALS AND SHOULD BE PRICED AS ALLOWING FOR SUCH.

ANY VARIABLES OR UNKNOWN QUANTITIES SHOULD BE TAGGED IN THE QUOTATION.

ANY REFERENCE IN THE DRAWINGS FOR ASPECTS OF THE WORK THAT ARE TO BE DETERMINED ON SITE, TO THE OWNERS REQUIREMENTS, SHOULD BE TAGGED IN THE QUOTATION.

ANY ITEMS NOTED ON THE PLANS OR IN THE SPECIFICATIONS TO BE CHECKED OR CONFIRMED ON SITE ARE TO BE DONE SO BY THE MAIN CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY WORK OR AS SOON AS PRACTICALLY POSSIBLE AND PRIOR TO FABRICATION OR PURCHASE OF ANY ITEMS THAT ARE AFFECTED BY THE ITEM REQUIRED TO BE CHECKED OR CONFIRMED.

ANY DISCREPANCIES UPON CHECKING OR CONFIRMING ON SITE SHOULD IMMEDIATELY BE ADDRESSED TO THE DESIGNER PRIOR TO PROCEEDING ANY FURTHER.

THE TERRITORIAL AUTHORITY IS TO BE SATISFIED IN ALL RESPECTS OF THESE WORKS AND THEREFORE ANY QUERIES ARE TO BE ADDRESSED TO THEM BY THE MAIN CONTRACTOR FOR FINAL CONFIRMATION.

ALLOW FOR A 10% CONTINGENCY SUM BASED ON AND IN ADDITION TO THE COST OF THE WORKS.

TENDERING FOR ALTERATIONS & ADDITIONS:

A PRELIMINARY SITE INVESTIGATION SHOULD BE CARRIED OUT BY THE CONTRACTOR TO ESTABLISH THE EXISTING STATUS OF THE SITE, PRIOR TO CONFIRMATION OF ANY TENDER PRICES.

ANY CONCERNS SHOULD IMMEDIATELY BE ADDRESSED TO THE DESIGNER FOR FURTHER CLARIFICATION.

ANY VARIABLES OR UNKNOWN QUANTITIES SHOULD BE TAGGED IN THE QUOTATION.

DEMOLITION:

ALLOW FOR ALL REMOVALS AS INDICATED ON WORKING DRAWINGS.

CONTRACTOR TO CONFIRM ALL STRUCTURAL LOADS PRIOR TO ANY REMOVAL OR DEMOLITION WORK BEING UNDERTAKEN.

CONTRACTOR TO VERIFY PRESENCE OF ANY SERVICES LOCATED IN AREAS TO BE DEMOLISHED.

ALLOW FOR SUITABLE TEMPORARY PROPPING OF STRUCTURE DURING REINSTATEMENT WORK.

ENSURE NO UNNECESSARY DAMAGE OCCURS AND DAMAGE IN GENERAL IS MINIMISED DURING DEMOLITION AND REMOVAL WORK.

ENSURE PROTECTION OF NEIGHBOURING PROPERTY DURING DEMOLITION, MINIMISING DUST, NOISE AND GENERAL NUISANCE.

IF STRUCTURE IS REVEALED TO BE OTHERWISE THAN INDICATED ON WORKING DRAWINGS AFTER EXPOSURE, THEN CONTACT DESIGNER.

ALLOW TO MAKE GOOD ALL FLOOR, WALL & CEILING SURFACES AFTER DEMOLITION AND REMOVAL, REPAIR TO MATCH EXISTING MATERIALS OR NEW FINISHES AS INDICATED IN WORKING DRAWINGS.

ALLOW FOR REMOVAL OF ALL DEMOLITION AND WASTE MATERIAL FROM SITE.

WIND ZONE:

THE WIND ZONE CLASSIFICATION IS TO BE CONFIRMED BY ALL MANUFACTURERS OF ANY BUILDING COMPONENTS TO WHICH THIS INFORMATION IS RELEVANT, PRIOR TO FABRICATION OF ANY ELEMENTS.

VERY HIGH WIND ZONE

WIND ZONE DETERMINED BY: TERRITORIAL AUTHORITY

BUILDING WRAP	THERMAKRAFT WATERGATE PLUS
EXTERIOR WALLS	REFER TIMBER TREATMENT NOTES
EXT. & LOAD-BEARING STUDS	REFER TABLE
RAFTER FIXING TO TOP PLATE	250x3 IS SKEW NAILS & 2 WIREDOGS
PURLIN / BATTEN FIXING	TYPICALLY 110g SELF-DRILLING SCREW, 80mm LONG, REFER NZS:3604:2011, TABLES 10.10 - 10.12
TRUSS FIXING TO TOP PLATE	REFER TRUSS MANUFACTURER
UNDERFLOOR WIND BARRIER	NA
ROOF UNDERLAY	THERMAKRAFT 215 UNDERLAY

INSULATION:

WALLS: TASMAN INSULATION R2 2W PINK BATTS.
 CEILING: TASMAN INSULATION R 32C PINK BATTS.
 FLOORS: SMOOFLOOR 430 R1.6 PINK BATTS.

- INSTALLATION OF ALL INSULATION SHALL BE DONE IN ACCORDANCE WITH NZS 4246:2006 - ENERGY EFFICIENCY - INSTALLING INSULATION IN RESIDENTIAL BUILDINGS.
 - THE INSTALLER OF ALL INSULATION MUST BE EXPERIENCED &

TIMBER TREATMENT:

REFER NZBC 62:AS1 TABLE 1A & NZS 3602:2003 TABLE 1

BUILDING COMPONENT	MINIMUM TREATMENT
A. IN CONTACT WITH GROUND	
PILES & OTHER STRUCTURAL ELEMENTS IN CONTACT WITH THE GROUND	H5
B. EXPOSED TO WEATHER	
EXPOSED POSTS, BEAMS, BEARERS, JOISTS & RAFTERS, FINISHING TIMBERS (FASCA, BARGE, FACINGS, ETC.)	H3.2
C. PROTECTED BUT EXPOSED TO GROUND	
WET AREA FLOORING & ADJOINING FRAMING	H3.2
FLOOR JOISTS, BLOCKING	H1.2
D. PROTECTED BUT RISK OF MOISTURE PENETRATION	
CANTILEVERED ENCLOSED JOISTS & ASSOCIATED FRAMING (JOIST TRIMMERS, NOGS, BLOCKING, CAVITY BATTENS, SHEETS PROVIDING BRACING, ALL BOTTOM PLATES)	H3.2
PARAPETS (INCLUDING BENEATH THEM), EXTERIOR WALL FRAMING ETC, EXTERIOR & BOUNDARY JOISTS ENCLOSED FLAT ROOF FRAMING & ASSOCIATED MEMBERS	H1.2
E. PROTECTED AND DRY CONDITIONS	
ROOF, CEILING FRAMING, PURLINS, BATTENS, MID-FLOOR FRAMING, DOUBLE TOP PLATES, INTERNAL WALLS, INTERNAL FLOORING	H1.2

TOP PLATES:

TOP PLATE SIZES IN ACCORDANCE WITH TABLE 8.16 - NZS3604:2011, DETERMINED BY PRE-NAILER.

JOINTS IN TOP PLATES SHALL BE MADE ONLY OVER SUPPORTS BEING EITHER A STUD OF BLOCKING. ALLOW FOR 80N CONNECTION PLATE OVER JOINT.

HOLES THRU TOP PLATE GREATER THAN 25mm REQUIRE ADDITIONAL SUPPORT IN ACCORDANCE WITH 8.7.5.1 (c) NZS3604:2011.

THE FIXING OF TOP PLATES TO WALL STUDS OR Lintel SHALL BE IN ACCORDANCE WITH TABLE 8.16 NZS 3604:2011.

ALLOW FOR 150x40 ADDITIONAL PLATE FIXED OVER ALL TOP PLATES SUPPORTING TRUSSES ONLY.

BOTTOM PLATES:

BOTTOM PLATE SIZES IN ACCORDANCE WITH TABLE 8.17 NZS3604:2011, DETERMINED BY PRE-NAILER.

BOTTOM PLATE FIXED THRU FLOORING TO FLOOR JOISTS WITH:
 - 2100x3.75 NAIL @ 600mm c/c MAX FOR EXTERNAL WALLS
 - 1700x3.75 NAIL @ 600mm c/c MAX FOR INTERNAL WALLS

BOTTOM PLATE FIXING AT BRACING ELEMENTS MAY HAVE ADDITIONAL REQUIREMENTS. REFER BRACING NOTES & MANUFACTURERS INFORMATION FOR REQUIRED FIXING TYPES AND FIXING LOCATIONS.

HOLES/NOTCHES EXCEEDING 50% OF BOTTOM PLATE WIDTH TO HAVE ONE 100x3.75mm NAIL FIXED THRU PLATE EITHER SIDE OF HOLE IN ACCORDANCE WITH NZS 3604:2011, CLAUSE 8.7.5.2

FRAMES & TRUSSES:

ALLOW FOR 2.0 ROUGH OPENING HEAD HEIGHT FOR WINDOWS & EXTERIOR ALUMN. DOORS, UNLESS STATED OTHERWISE.

90mm TIMBER WALLS TO BE S6S OR GREATER IN ACCORDANCE WITH NZS 3602:1993 AMENDMENT #4 AS AN ALTERNATIVE SOLUTION TO THE NZBC CLAUSE B1.

ALL TIMBER LINTELS TO BE S6S OR GREATER UNLESS OTHERWISE STATED AS PER NZS 3604:2011

PRE-NAILER TO SUPPLY CERTIFICATION WITH NZBC FOR ALL FRAMES & TRUSSES & SUPPLY CERTIFICATE TO COUNCIL & A COPY TO DESIGNER ITEMISING FULL COMPLIANCE, JOB ADDRESS & CLIENT, BEFORE FABRICATION.

THE Lintel SIZES SHOWN TAKE NO ACCOUNT OF CONCENTRATED LOADINGS FROM GIRDER TRUSSES, (OTHER THAN THOSE SHOWN), MANUFACTURER TO DESIGN ALL NECESSARY TRANSFER OF LOADS OR CONTACT DESIGNER FOR FURTHER CLARIFICATION.

ALLOW FOR MULTIPLE STUDS UNDER POINTS OF SUPPORT, TO ALL BEAMS, DOUBLE JOISTS, TRIMMER JOISTS AS REQD.

CUTS/NOTCHES THRU FRAMING TO BE SIZED AND LOCATED IN ACCORDANCE WITH NZS 3604:2011, FIGURE 6.4

CONTRACTOR TO ENSURE THEY ARE FULLY CONVERSANT WITH CONNECTIONS, LINING FIXINGS, EDGE DISTANCES ETC BEFORE CONSTRUCTION. IF IN ANY DOUBT ASK & OBTAIN FURTHER DETAILS FROM MANUFACTURER.

INTERNAL LININGS:

GIB BD LININGS MUST BE STORED, HANDLED & FIXED IN ACCORDANCE WITH WAINSTONE WALLBOARDS LTD GIB SITE GUIDE DATED JAN 2010

ALL SHEETS MUST BE FULL LENGTH, FIXED VERTICAL (IE. NO PATCHES)

ALLOW FOR ADDITIONAL DWANGS AS REQD FOR BOTTOM/TOP FIXING

ALLOW FOR GIB GOLDLINE TAPE ON TRIMS FOR JOINTS AS REQD

WALL LININGS - 10mm
 BRACELINE - REFER FLOOR PLANS FOR THE LOCATIONS
 AQUALINE - EN SUITE
 HOSELINE - ALL EXTERIOR WALLS
 STANDARD GIB - ELSEWHERE

CEILING LININGS
 15mm GIB BD FOR 800mm SUPPORT STRUCTURE SPACINGS
 10mm GIB BD FOR 450mm SUPPORT STRUCTURE SPACINGS

VERTICAL GIB JOINTS MUST NOT OCCUR ON LOAD BEARING DOOR OR WINDOW STUDS

NO JOINTS WITHIN 200mm OF OPENING JAMBS

TYPICAL GIB SHEET WALL FIXING DETAIL

CEILING BATTENS & LININGS:

ALLOW TO FIX GIB RONDO METAL CEILING BATTENS TO THE UNDERSIDE OF ALL TRUSSES, FIXED IN ACCORDANCE WITH MANUFACTURERS DETAILS.

ALLOW FOR 150x40 PERIMETER PLATE FIXED OVER TOP PLATE SUPPORTING TRUSSES ONLY.

BATTENS AT:
 - 600mm c/c MAX. FOR 13mm GIB B.D.
 - 450mm c/c MAX. FOR 10mm GIB B.D.

SINGLE OR UPPER LEVEL STUDS

(MIN. SIZES & MAX. SPACINGS REQD BY NZS3604:2011)

STUD HEIGHT	VERY HIGH WIND ZONE - S6S	
	EXT. LOAD BEARING WALLS	INT. LOAD BEARING WALLS
2.400	90x45 @ 400c/c	90x45 @ 600c/c
2.700	90x90 @ 400c/c	90x45 @ 600c/c

INTERNAL GRABRAILS

GRABRAILS:

A GRABRAIL MUST PROVIDE A COMFORTABLE & SAFE HANDHOLD.

BE A CIRCULAR OR OVAL SHAPE 35-45mm IN DIAMETER

WATER SPLASH:

WALL & FLOOR SURFACES TO AREAS CONTAINING SANITARY FIXTURES OR APPLIANCES MUST BE IMPERVIOUS & EASILY CLEANED IN ACCORDANCE WITH NZBC CLAUSE E3A5.1

WALLS:

PAINTED GIB AQUALINE INSTALLED TO MANUFACTURERS SPECIFICATIONS.

FLOORS:

SELECTED TILES SEE TILE HOTEL.

JOINTS:

WHERE BASH ABUT IMPERVIOUS LININGS, THE JOINT BETWEEN FIXTURE AND LINING SHALL BE SEALED TO PREVENT WATER PENETRATION TO CONCEALED SPACES OR BEHIND LININGS.

TILES:

TILES TO BE SELECTED BY OWNER AND INSTALLED STRICTLY TO MANUFACTURERS INSTRUCTIONS BY QUALIFIED, EXPERIENCED TILER ONLY.

TILES TO BE CHECKED THAT THEY ARE SUITABLE FOR THE PURPOSES IN WHICH THEY WILL BE USED, E.G. WEY/DRY WEAR, INTERIOR/EXTERIOR, FLOOR/WALL, SLIP RESISTANCE

TILING SYSTEMS TO BE USED STRICTLY ACCORDING TO SYSTEM MANUFACTURERS INSTRUCTIONS.

TILED AREA TO BE PREPARED & CLEANED TO THE TILERS DESIRED STANDARD BY CONTRACTOR PRIOR TO COMMENCING WORK.

ALL VIBRATION-INDUCING CONSTRUCTION TO BE COMPLETED BEFORE TILING COMMENCES TO PROTECT AGAINST TILE DISTURBANCE.

TILES MUST BE ADHERED TO A SUBSTRATE OR BACKING MATERIAL THAT PROVIDES A SOLID, NON-FLEXING, RIGID BASE

PATTERNED TILE SYSTEMS TO BE LAYED IN SUCH A MANNER THAT PATTERNS LINE UP & MATCH AS REQD

USE ALL ADHESIVES STRICTLY ACCORDING TO MANUFACTURERS INSTRUCTIONS & MAKE SURE THEY ARE SUITABLE FOR THE TILE SYSTEM IN USE.

GROUT TO BE SELECTED ACCORDING TO TILE APPLICATION AND USED STRICTLY TO MANUFACTURERS INSTRUCTIONS.

MOVEMENT CONTROL JOINTS TO BE LOCATED BY TILER AS REQUIRED.

TILES TO BE CLEANED AS REQUIRED AT COMPLETION.

ELECTRICAL:

ALL WORK TO BE CARRIED OUT BY OR UNDER THE DIRECT SUPERVISION OF A HOLDER OF A PRACTISING CERTIFICATE UNDER THE ELECTRICITY REGULATIONS 1993

- TEST & COMPLETE A CERTIFICATE OF COMPLIANCE, SUPPLY CERTIFICATE TO OWNER

- CONTRACTOR TO ALLOW FOR FINISHED CONNECTION TO STREET SUPPLY INCLUDING LIASING WITH THE NETWORK UTILITY OPERATOR AND THE SUBMISSION OF ALL REQUIRED FORMS AND ASSOCIATED PAPERWORK

ALLOW FOR: (LOCATION AS DIRECTED BY OWNER)

- DOUBLE SOCKET POWER UNITS
- CEILING MOUNTED OR RECESSED LIGHT FITTINGS
- EXT. SECURITY SPOTS WITH SENSOR
- T.V AERIAL SOCKETS
- TELEPHONE SOCKETS
- TO CONNECT ALL APPLIANCES, FANS ETC AS REQD
- SHAVERS POINT IN ENSUITE, WHERE DIRECTED BY OWNER
- ALL FITTINGS & LOCATIONS TO BE CONFIRMED BY OWNER PRIOR TO PURCHASE OR INSTALLATION

DOMESTIC SMOKE ALARMS:

ALLOW FOR SMOKE ALARMS ON OR NEAR CEILING IN ACCORDANCE WITH AS 1878.8 & MANUFACTURERS INSTRUCTIONS. SMOKE ALARMS TO BE LOCATED ON THE ESCAPE ROUTES WITHIN THE HOUSEHOLD UNITS ON LEVELS CONTAINING THE SLEEPING SPACES, THE SMOKE ALARMS SHALL BE LOCATED WITHIN:

A) EVERY SLEEPING SPACE, OR
 B) 3.0m OF EVERY SLEEPING SPACE DOOR, i.e., SMOKE ALARMS MUST BE ADJUBLE TO SLEEPING OCCUPANTS ON OTHER SIDE OF CLOSED DOORS.

SHELVING:

SHELVES TO BE CONSTRUCTED FROM 60x20mm THICK DRESSED PINE. SCREW FIX.

SLATTED SHELVES ARE REQUIRED IN ALL HALL CUPBDS.

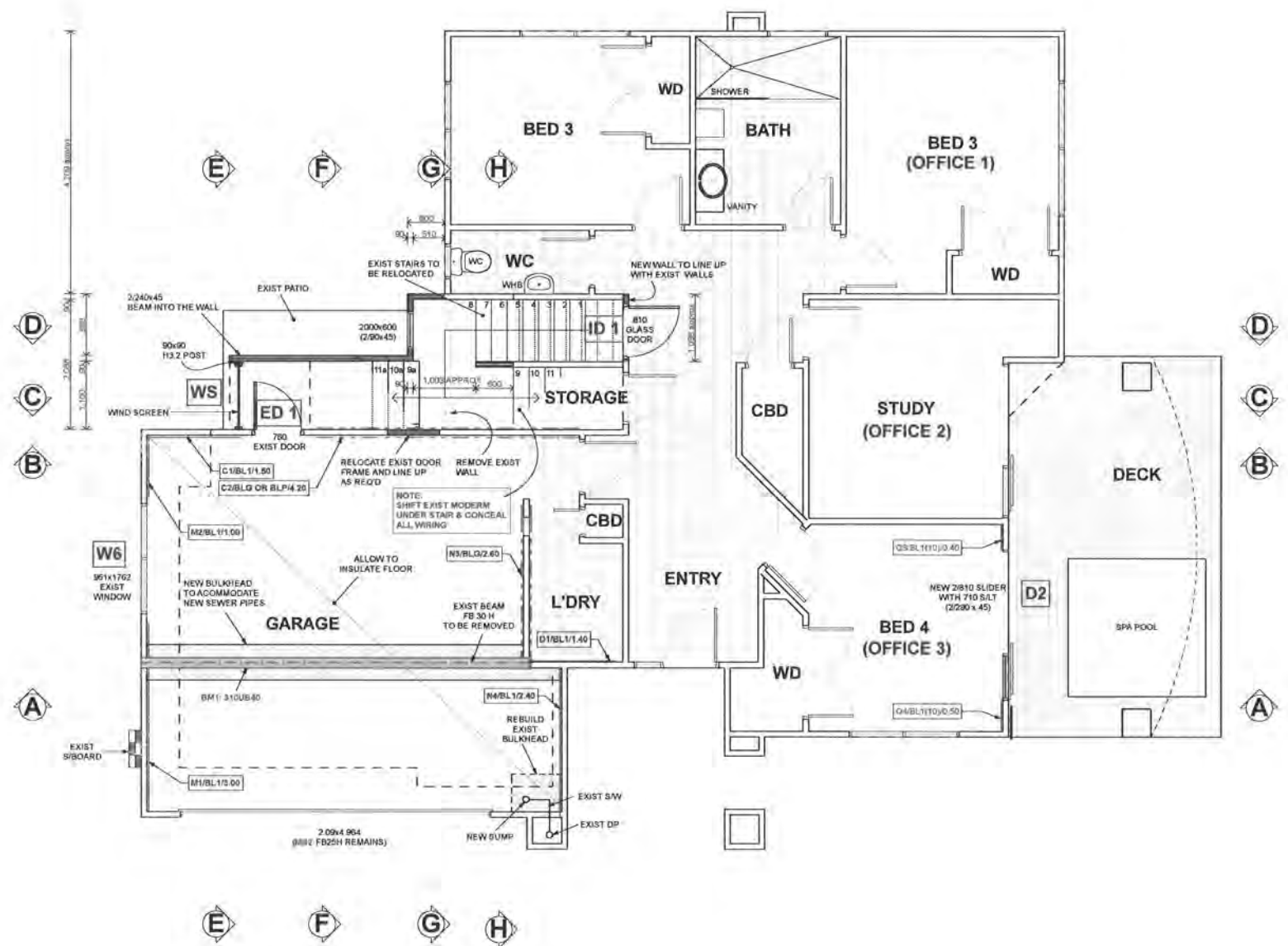
SHELVES ARE REQUIRED IN ALL BEDROOMS WITH RAIL TO BE INSTALLED IN WARDROBES.

THE ABOVE MAY BE SUBSTITUTED WITH A PROPRIETARY WARDROBE ORGANISER. REQUIREMENTS TO BE CONFIRMED WITH CLIENT.

AIR EXTRACTION & VENTING:

ALLOW FOR AIR EXTRACTION FANS IN ENSUITE TO BE INSTALLED TO MANUFACTURERS INSTRUCTIONS AND TAKEN TO EXTERIORS AS REQD.

FANS MUST BE SIZED TO PROVIDE A MINIMUM AIR CHANGE OF 25 LITRES PER SECOND & WIRED TO LIGHT SWITCH WITH A MINIMUM 5 MINUTE RUN-ON PERIOD.



LOWER LEVEL
 151.51m² (1631 sq.ft.)+ DECKS 36.58m²(394 sq.ft.)

REV. No	REV. DATE	DRAWING AMENDMENT	START DATE	18-07-2011	BUILDING CONSENT APPLICATION	SHEET No.	4	
			REV. DATE	30-08-2011		CODE		P20N
			FINISH DATE	09-09-2011		REF		6604K

SCALES FOR A1 SIZE PAPER: 1:50

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RECEIVED
18 SEP 2011
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EZY BRACE BRACING:

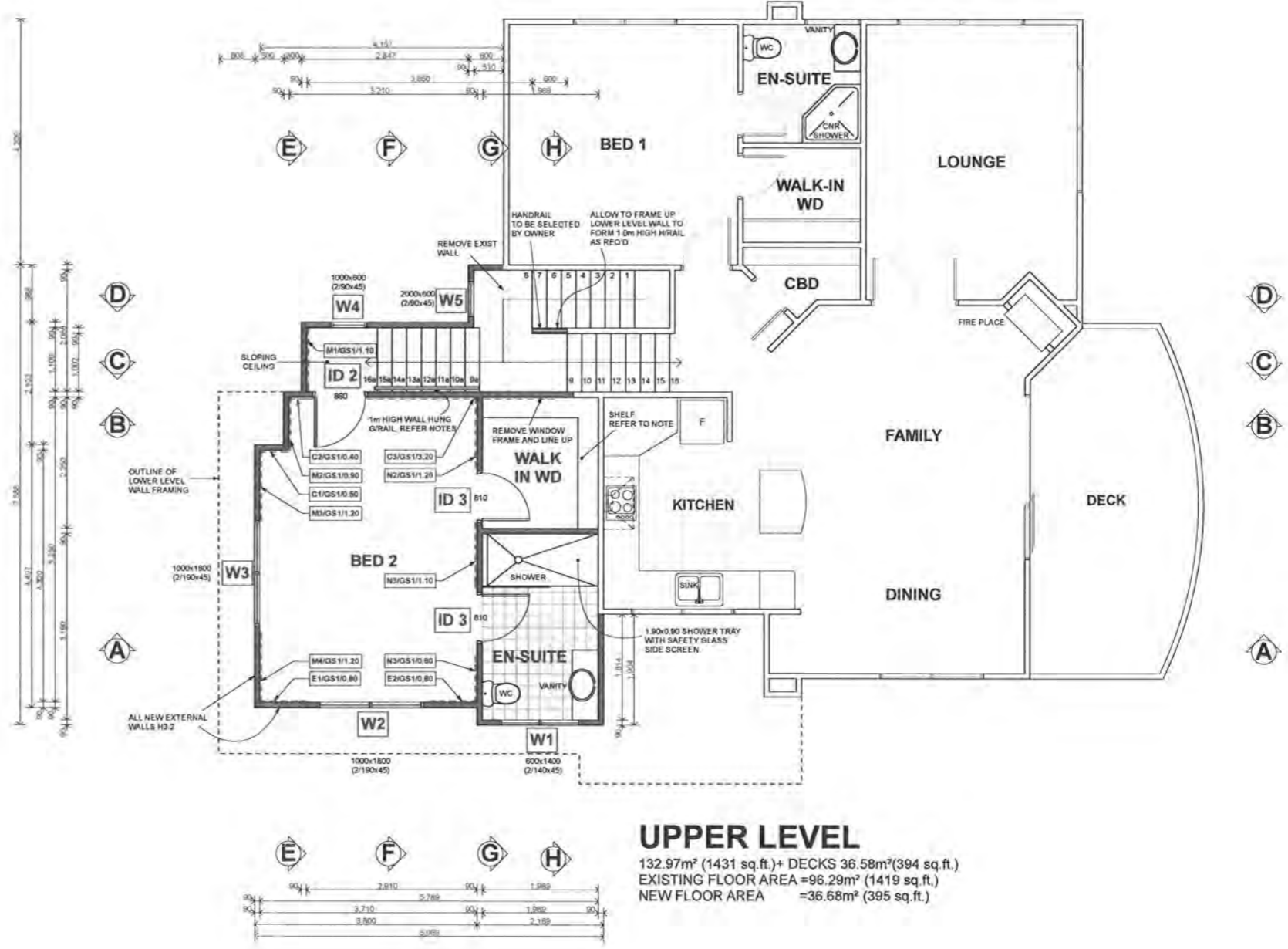
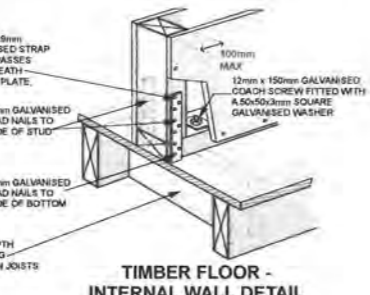
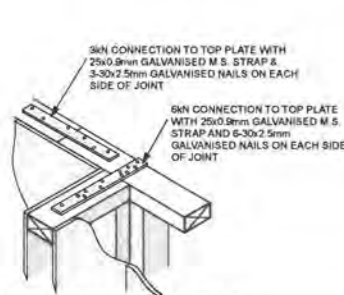
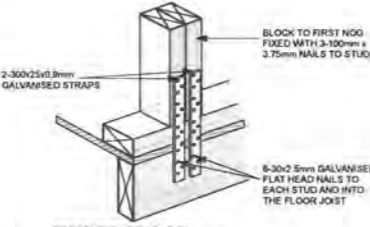
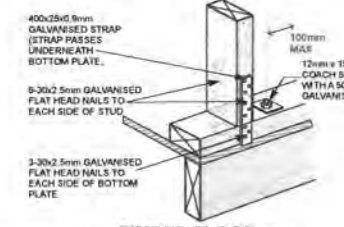
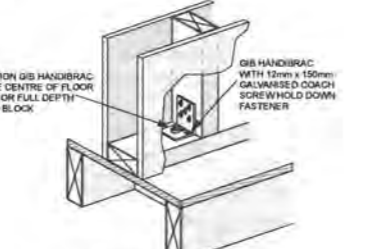
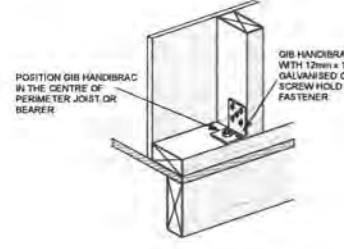
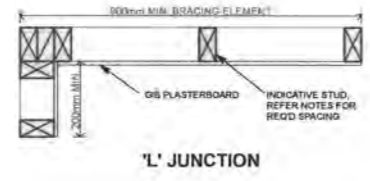
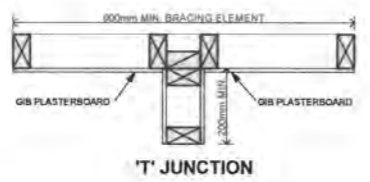
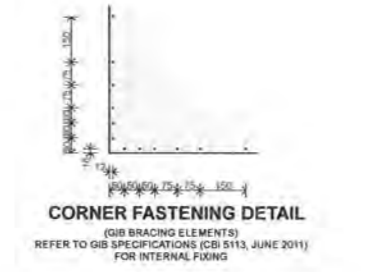
NOTE:
ALL BRACING DESIGNED IN ACCORDANCE WITH "GIB EZY-BRACE™ SYSTEMS, JUNE 2011" & BRACES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS
- FIX EACH END OF BRACELINE BRACING ELEMENTS TO CONCRETE SLAB WITH RAMSET 12x150mm ANKASCREWS AND THROUGH TIMBER FLOORS WITH 12x150mm GALV COACH SCREWS. REFER MANUFACTURERS INFORMATION
- SUBSTITUTIONS OF PLASTERBOARD, REFER PAGE 21, "GIB EZY-BRACE™ SYSTEMS, JUNE 2011"

- BRACING TABLES FOR 10mm & 13mm COMBINED

PLASTERBOARD		BRACELINE	
A4/BL1/1.50	A4 = BRACING ELEMENT NO. BL1 = BRACE TYPE 1.50 = HORIZ LENGTH		

TYPE	LENGTH MIN. (m)	LININGS	OTHER REQUIREMENTS
GS1-A	0.4 1.2	GIB STANDARD PLASTERBOARD ONE SIDE	N/A
GS2-A	0.4 1.2	GIB STANDARD PLASTERBOARD EACH SIDE	N/A
GS3-A	0.4 1.2	GIB STANDARD PLASTERBOARD ONE SIDE & PLY ON THE OTHER	PANEL HOLD DOWN FIXINGS

TYPE	LENGTH MIN. (m)	LININGS	OTHER REQUIREMENTS
BL1-A	0.4 1.2	GIB BRACELINE ONE SIDE	PANEL HOLD DOWN FIXINGS
BL2-A	0.4 1.2	GIB BRACELINE & STANDARD PLASTERBOARD ONE SIDE	PANEL HOLD DOWN FIXINGS
BL3-A	0.4 1.2	GIB BRACELINE ONE SIDE & PLYWOOD THE OTHER	PANEL HOLD DOWN FIXINGS



UPPER LEVEL
132.97m² (1431 sq.ft.)+ DECKS 36.58m²(394 sq.ft.)
EXISTING FLOOR AREA =96.29m² (1419 sq.ft.)
NEW FLOOR AREA =36.68m² (395 sq.ft.)

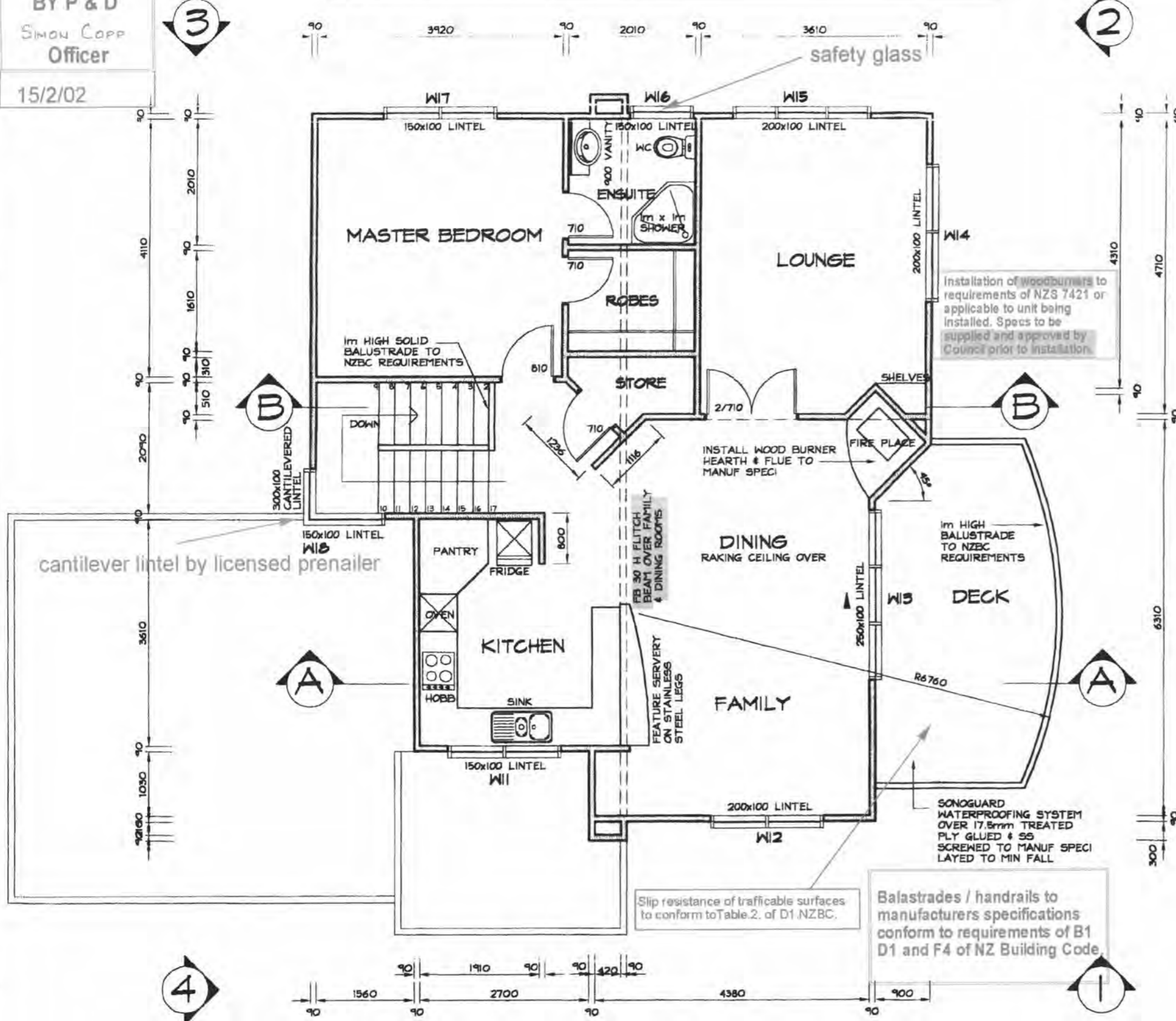
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			REV. DATE	30-08-2011		CODE		P20N
			FINISH DATE	09-09-2011				
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APPROVED
BY P & D

SIMON COPP
Officer

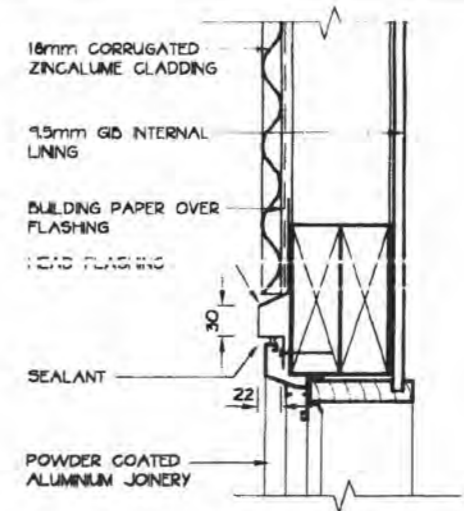
15/2/02

ensure soil and waste pipes can run to the exterior without damaging any structural members.

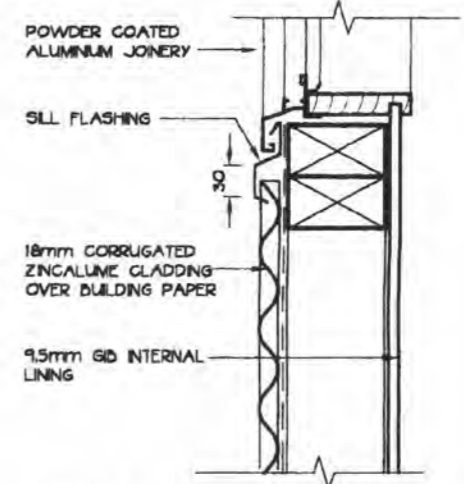


FIRST FLOOR PLAN

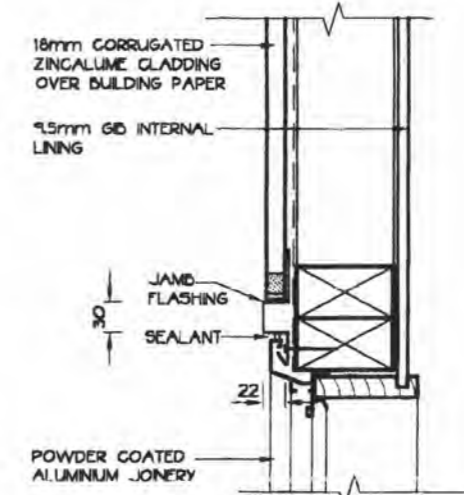
SCALE 1:70 AREA = 90m²



HEAD DETAIL 1:5



SILL DETAIL 1:5



JAMB DETAIL 1:5

CRITICAL DETAIL:
BUILDER & ROOFING CONTRACTOR MUST WORK IN UNISON TO ENSURE THAT BOXED WINDOW FLASHINGS SIT TIGHT AROUND ALUMINUM WINDOWS. TIMBER OPENING TO BE PACKED IF NECESSARY.
ROOFER - TO PRECUT & TRIM FLASHINGS AS REQUIRED
BUILDER - TO ORGANISE WINDOW PLACEMENT & LEVELLING PACK & FIX WHEN ROOFER READY

PROJECT: PROPOSED DWELLING FOR MR & MRS YOUNG
LOT 8 FIELDWAY WAIKANA E BEACH

REVISIONS:
1 - 10/1/02

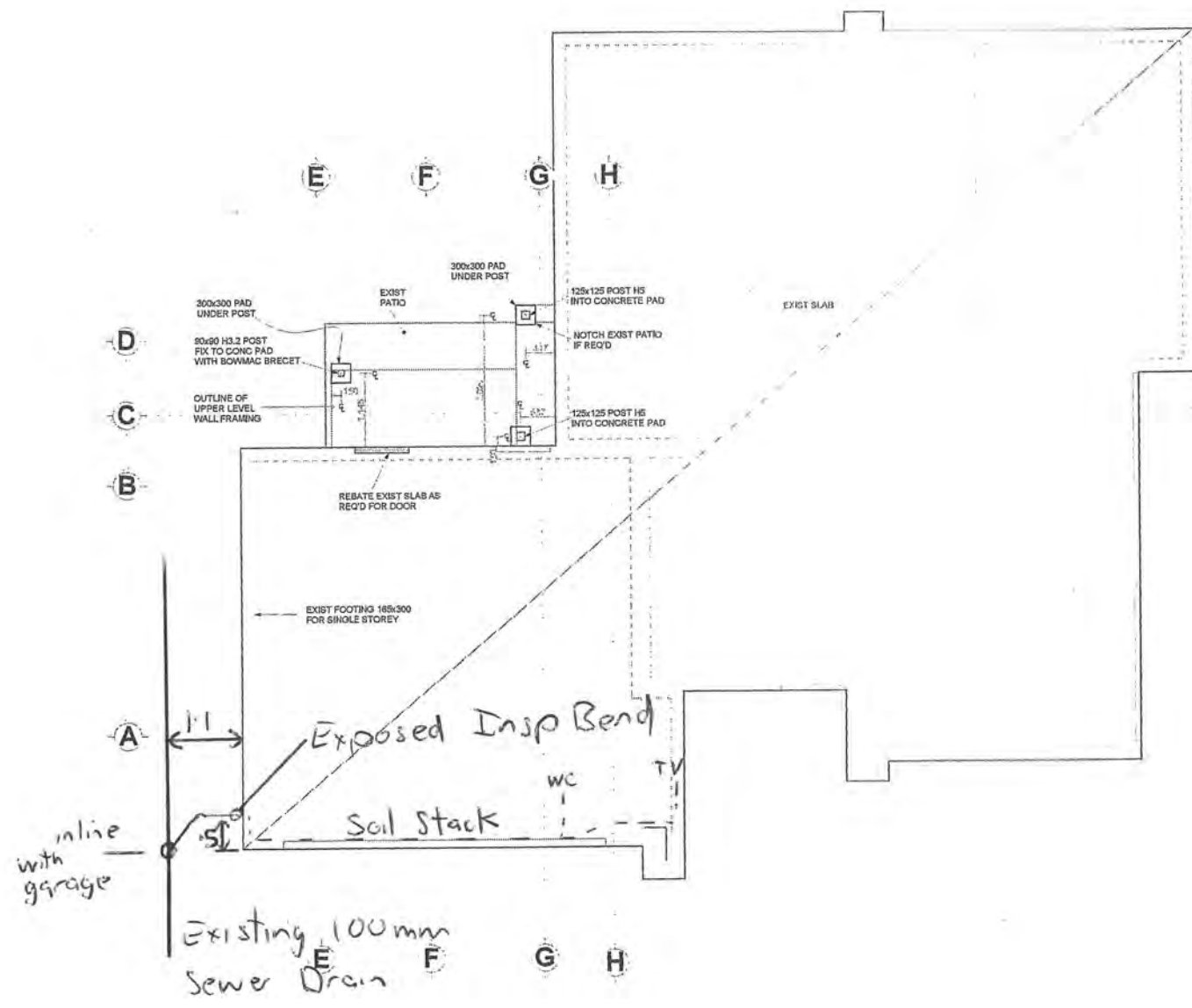
301 Kapiti Road
PO Box 1616
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Tel: 04 902 5505
Fax: 04 902 5504
Email: kapiti@desnet.co.nz

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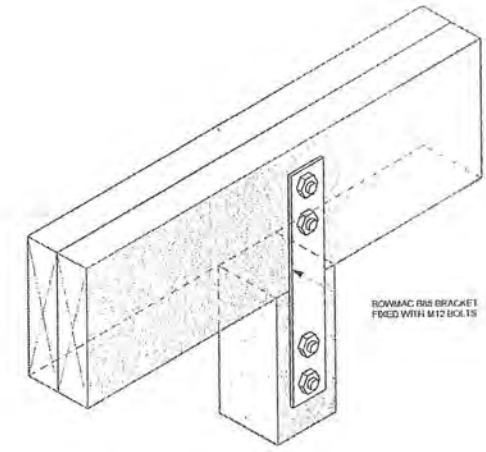
DATE:	NOVEMBER 2001
DESIGNED:	MS
DRAWN:	BF
CAD REF:	
SCALE:	1:70

JOB/SHEET No:
2285/3
(A1 original) OF 7

Design Network Kapiti

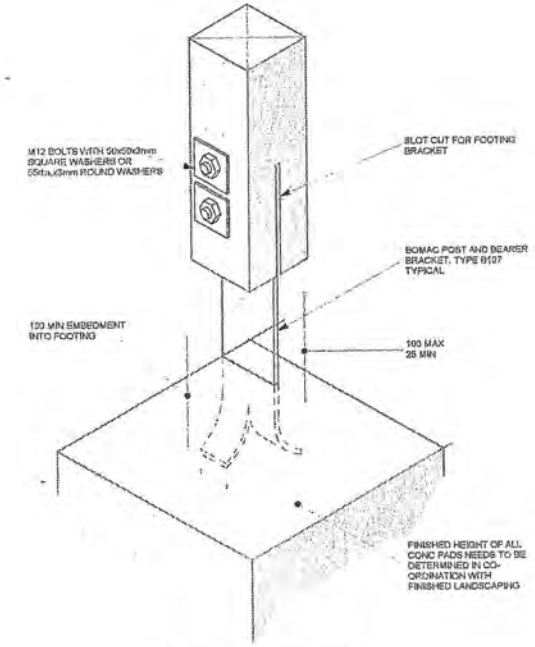


Drain Connection for New Soil Stack
 Kapiti Plumbing
 2012



POST TO BEAM CONNECTION

D
C
B
A



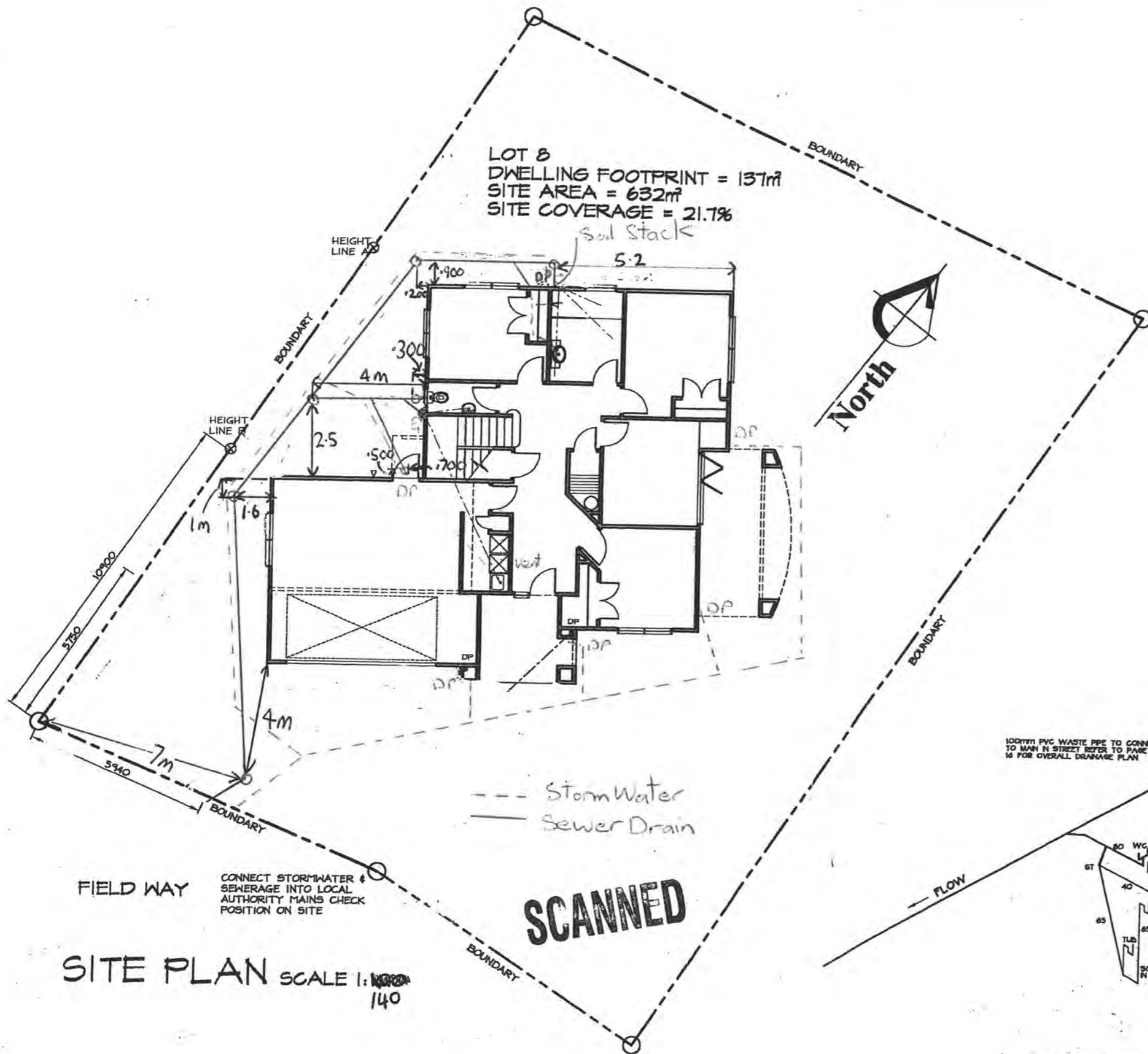
POST UPLIFT FIXING

Design Network
 ARCHITECTURE LTD

P.O BOX 30814, LOWER HUTT 5040, E-MAIL: office@designnetwork.co.nz
 PH: LOWER HUTT:(04) 5696-109, KAPITI(04)9025-505

PROPOSED ALTERATIONS & ADDITIONS
 155 FIELD WAY
 WAIKANAI BEACH

REV. No	REV. DATE	DRAWING AMENDMENT	START DATE	BUILDING CONSENT APPLICATION	SHEET No.
			18-07-2011		3
			REV. DATE 30-08-2011		
			FINISH DATE 09-09-2011		
			SCALES FOR A4 SIZE PAPER	CODE	P20N
			1:50 1:5	REF	6604K
<small>COPYRIGHT RETAINED BY DESIGN NETWORK ARCHITECTURE LTD. DESIGNER TO BE CONTACTED IMMEDIATELY IF AN ERROR OR DISCREPANCY IS DISCOVERED</small>					



LOT 8
 DWELLING FOOTPRINT = 137m²
 SITE AREA = 632m²
 SITE COVERAGE = 21.7%

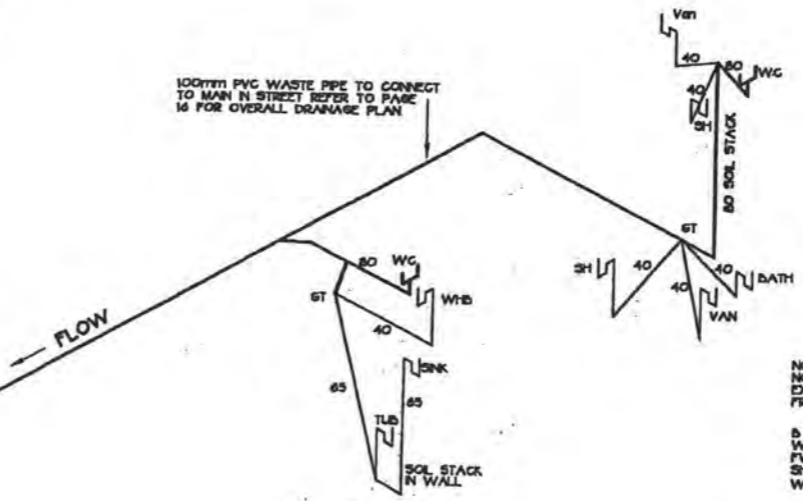


SCANNED

FIELD WAY
 CONNECT STORMWATER & SEWERAGE INTO LOCAL AUTHORITY MAINS CHECK POSITION ON SITE

SITE PLAN SCALE 1:140

100mm PVC WASTE PIPE TO CONNECT TO MAN IN STREET REFER TO PAGE 16 FOR OVERALL DRAINAGE PLAN



NOTE
 NO PIPES AT ANY POINT EXCEED 8.5m IN LENGTH FROM DN 100 VENTED DRAIN

B BATH
 WC WATER CLOSET
 FW FLOOR WARE
 SH SHOWER
 WTB WASH HAND BASIN

PLUMBING SCHEMATIC & DRAINAGE TO BE APPROVED BY PLUMBER & DRAINLAYER

PROJECT:
 PROPOSED DWELLING FOR MR & MRS YOUNG
 LOT 8 FIELD WAY WAIKANAEBE BEACH

Design Network Kapiti

REVISIONS:
 1 - 10/1/02

301 Kapiti Road
 PO Box 1616
 Paraparaumu Beach
 New Zealand
 Tel: 04 902 5505
 Fax: 04 902 5504
 Email: kapiti@desnet.co.nz

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. DO NOT SCALE DRAWINGS. THESE DRAWINGS ARE COPYRIGHT. DRAWINGS TO BE READ IN CONDUCTION WITH STRUCTURAL ENGINEERS DRAWINGS.

DATE: NOVEMBER 2001

DESIGNED: MS

DRAWN: BF

CAD REF:

SCALE: 1:140

JOB/SHEET No:
 2285/1

(A1 original) OF 7

CODE COMPLIANCE CERTIFICATE

Section 95 Building Act 2004 [Form 7 – Building (forms) Regulations 2004]



Consent No: 170818

The Building			
Street address of building:	155 Field Way, Waikanae Beach	Building name:	N/A
Current, Lawfully established, use:	Residential Dwelling	Location of building within site/block number:	Centre of the site
Level/unit number:	Two Levels	Intended life of the building if 50 years or less:	-
Legal description of land where building is located:	LOT 8 DP 91324	Year first constructed:	2002
The Owner			
Name of owner:	Naef Werner Richard & Naef-Wittwer Andrea Cornelia	Street address /registered office:	N/A
Contact person:	Richard Naef	Phone numbers:	
Mailing address:	155 Field Way Waikanae Beach Waikanae 5036	Landline:	04 905 0084
Email address:	werner@kahleroceania.com	Mobile:	021 430 396
Website:	-	Daytime:	-
		After hours:	-
		Facsimile number:	-
First point of contact for communications with the Kapiti Coast District Council:			
As above			
Building Work			
Building Consent No:	170818	Issued by:	Kapiti Coast District Council
Project Description:	Reclad entire building, removal & replace rotten timber, replace membrane roofs & decks where appropriate.		

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that:

- (a) the building work complies with the building consent

Michelle Salmon –
Building Inspections Team Leader
On behalf of **Kapiti Coast District Council**

Date: 25 February 2019

BC170818
Received by
Kapiti Coast District Council
20/02/2019
via email

Central Adjusters

(Building Surveyors)

PO Box 17, 108

Karori

Wellington

0274 445486

E-Mail: Central-Adjusters@xtra.co.nz

31/05/2018

Resolve It Architects Ltd
Cl- Mr Mark Ansell
marka@resolveitarchitects.co.nz
Wellington.

Dear Mr Ansell

Ref: 155 Field Way Waianae / KDC Consent No 170818

Timber Remediation Statement

In addition to completion of Kapiti District Council QA and statutory site inspection processes and further to instructions received I confirm during the process of repairs to the dwelling that between 12/03/2018 – 21/05/2018 8 site inspections were carried out to inspect the external framing following removal of the cladding.

This was to ensure that the timber remediation process followed accepted sound remedial practice to any framing compromised by water entry and giving the best opportunity to satisfy durability standards as required by NZ Building Code Clause B2 (Durability) for the remainder of the required durability period of up to 50 years.

My involvement is separate to the normal regulatory inspection process and does not involve structure or fixings, which continues to remain part of the Council inspection process.

An extensive and comprehensive timber replacement or timber remediation program was undertaken by contractors CD Vandermeer Builders Ltd, who upon instruction replaced any decayed or suspected decayed timber with an appropriate mix of new treated framing. Substantial quantities of replacement framing was installed on the northeast, northwest and southwest elevations.

Any untreated external framing timber that was left on site from the original 2002 - 2004 build was surface treated using a mix of 2 liberal applications of pink Protim Frame Saver. Treated timber framing that comprised the 2012 addition was unaffected by water and remained in original condition.

Yours faithfully



Haydon Miller MNZIBS ANZIIF ACLA



PRODUCER STATEMENT – MANUFACTURING (PS 3)

Building consent no: _____

Issued by: (manufacturer business name): Fairview Kapiti

To: (City/District council): _____

In respect of building consent application number: _____

Granted to (building consent applicant): _____

In relation to (description of building work): _____

At: (address): 155 Fieldway, WAIKANAE _____

Lot: _____ DP: _____ SO: _____

I (manufacturer business name) Fairview Kapiti have been engaged by

(building consent applicant): Carl van der Meer Builders _____

(Cross out non-relevant manufacturing sections below)

To manufacture only:

To manufacture	23 units
All	Silver Pearl

I am satisfied on reasonable grounds that the building work specified above has been completed to the extent required by the New Zealand Building Code.

- B1 Structure
- B2 Durability
- F2 Hazardous Building Materials
- F4 Safety from Falling
- E2/AS1 Clause 9.1.10 Windows and Doors

and the following New Zealand Standards

- NZS 4211: 2008 Specification for Performance of Windows
- NZS 4223 (Part 3) Glazing
- NZS 3504: 1979 Specification for Aluminium Windows.

I understand that if this producer statement is accepted, it will be relied upon by (City/District council) _____ for the purpose of establishing compliance with the building code.

Manufacturing signed

(On behalf of): Fairview Kapiti

Date: 31 May 2018

Manufacturer's address: 24 Birmingham Street, PARAPARAUMU 5032

Manufacturer's phone: 04-902 6668

Manufacturer's fax: 04-902 6669

MAXX™

COLORSTEEL

Residential Warranty and Maintenance Requirements

SUPPLY DATE: JUNE 2018

PROPERTY OWNER C D van der Meer
SITE ADDRESS 155 Field Way, Waikanae Beach, Waikanae 5036, New Zealand
SITE ENVIRONMENT Very Severe
BUILDING TYPE Residential
ROLLFORMER Metalcraft Palmerston North

WARRANTY THAT PRODUCT:	ROOFING	WALL CLADDING	GUTTERS/DOWNPIPES	FASCIA
Paint will not flake, peel or excessively fade	-	15 Years	-	-
Will not perforate through corrosion	-	15 Years	-	-

The product manufactured from COLORSTEEL® Maxx® is subject to normal wear and tear, which may include uniform fading, chalking and dirt collection. Minor white corrosion, which may appear at unwashed tension bends or cut edges, is a natural weathering phenomenon of COLORSTEEL® Maxx® and does not constitute a failure of the coating system. Testing to determine coating performance will be in accordance with the methods described in Australian Standard AS1580.

This warranty is issued by New Zealand Steel Limited and is subject to the following terms and conditions:
 (Note: all New Zealand Steel literature referred to in this warranty is that which is current at the time of installation and is available from the rollformer or www.colorsteel.co.nz)

- The maintenance programme specified on the reverse BEING STRICTLY ADHERED TO and documented.
- The warranty periods stated above start from the date the material is supplied to site.
- The installed pitch of the roof is equal to or greater than 3°, or the minimum recommended for the profile, whichever is greater.
- The product is only used in the environments and applications as recommended in the *Environmental Categories and Product Maintenance Recommendations* brochure (or on-line *Guidelines for Use*).
- The product is designed, formed, stored, handled and installed in accordance with recommendations given in *Specifiers and Builders Guide* (on-line *Guidelines for Use*), *Information Bulletins* and *NZ Metal Roof and Wall Cladding Code of Practice*.
- This warranty covers the COLORSTEEL® Maxx® material only and no accessories supplied which include, without limitation, fasteners, soft edge and building wrap.
- All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed in law. In particular, where the product is supplied for the purpose of business, the guarantees contained in the Consumer Guarantees Act 1993 do not apply.
- Failure of the material or the coating partially or wholly due to one or more of the following causes is not covered by this warranty:
 - Use of the product within 50m of breaking surf on the East Coast or 100m of breaking surf on the West Coast
 - Physical damage during or after installation, including scratching, contact with other metal items, incorrect installation of external objects such as air-conditioning units, PV/Solar energy systems, and failure to remove swarf
 - Contact with soil, ash, fertilizer, moisture retaining substances, or sunscreen

- Contact with or runoff from lead or copper and other dissimilar metals, chemical agents, green or wet timber or treated timber.
- Water entrapment or ponding for any reason.
- Mechanical damage, chemical attack, corrosion or other damage sustained during transport, handling, storage, installation or subsequent to installation.
- Attack from chemical or other agents, fumes, solids or liquids other than direct rain or run-off falling onto the product under warranty.
- Application of post paint treatments or systems.
- Failure to install, use and maintain the product in accordance with NZ Steel's guidelines and applicable industry standards.
- Underside corrosion as a result of high humidity, condensation or pollution generated within a building.
- Failure to replace corroded fasteners, or use of incorrect fasteners
- Corrosion arising from lapped areas of end-lapped sheets
- The product having been inappropriately stored prior to installation.
- Causes beyond the control of New Zealand Steel or the roofing manufacturer, including earthquakes, fires, cyclones, tornadoes, storms, hurricanes, lightning, hail, volcanic activity and other similar extreme "Acts of God"
- Actions by other persons.

If COLORSTEEL® Maxx® pre-painted steel has failed to perform as warranted, then a claim, in writing, specifying in what respect the COLORSTEEL® Maxx® has failed to perform, must be made within the applicable warranty period, to New Zealand Steel who will at its sole option repair or replace (including labour) the affected material or provide a refund equal to the cash value based on New Zealand Steel's estimate of the cost of the then current New Zealand Steel equivalent product. All claims must be accompanied by this original warranty document. A new warranty will be issued to cover the balance of the original warranty offer for both the paint coating and perforation protection where repair or replacement is made, this period is not extended in case of replacement. Neither the roofing manufacturer named below nor New Zealand Steel will be liable for any consequential loss or damage except as may be required under any mandatory statutory provisions. Nothing in this warranty is intended to exclude or limit any rights consumers may have under the Consumer Guarantees Act 1993.

New Zealand Steel and/or the roofing manufacturer reserve the right to inspect a building prior to issuing of the warranty and/or to inspect and conduct tests as necessary at any time after a claim is made under this warranty and accordingly have access to the property.





Standard Materials Warranty

Warranty Number: NZCBM-0073446

Date of Installation: 19-Jun-2018

Building/Project Address: 155 Field Way, Waikanae, Waikanae 5036

Company: Butynol Fixers Wellington 2017 Limited ("the Applicator")

Address: PO Box 2010, Raumati Beach, Paraparaumu 5255

Phone: 027 444 8834

Reference: BFW - 0995

Product Type and Use: 1.5mm Dove Grey Butynol, Deck

Area Laid: 22.72 SquareMetres

Subject to the conditions appearing below, ARDEX NEW ZEALAND LIMITED ("ARDEX") warrants to 155 Field Way that the ARDEX Membrane stated as the Product Type will retain its waterproofing properties for the following period from the date of installation of the Membrane:

This warranty is effective for (20) twenty years years from the date of installation of the Membrane.

This Warranty is subject to the following conditions.

Extent of Liability

1. Warranty shall only apply to any defect in the Membrane which permits the entry of water due solely to the natural deterioration of the Membrane or ridges or splits not caused by structural failure of movement of or cracks in the substrate or roof base or insulation over which the Membrane is applied. This Warranty does not cover workmanship which is and shall be the sole responsibility of the approved applicator who is not an agent, servant, or employee of ARDEX.
2. Failure to follow the ARDEX Specification and Instructions of use of the Product and/or all applicable laws will render this Warranty null and void. This includes protection of the Membrane when used in below ground DPM tanking, internal waterproofing and external waterproofing applications. ARDEX advise that products may have limitations as detailed in the product datasheets.
3. This Warranty will not apply where any other product or material has been added to or used in conjunction with the product, unless approved by ARDEX in writing (permission can be given or withheld at ARDEX's discretion and is not required when using ARDEX Tile adhesives in conjunction with ARDEX Undertile Membranes).
4. ARDEX's obligations under this Warranty shall be limited to the timely repair or replacement by ARDEX of any defective Membrane which permits the entry of water at ARDEX's cost. This is ARDEX's sole and total liability under this Warranty.
5. ARDEX shall have no further liability or responsibility other than set out in this Warranty. In particular, ARDEX shall not be liable for any loss of profits or loss of revenue or for any other economic loss or for any special, indirect, incidental, consequential damage, loss or injury of any kind, including but not limited to, damage to the structure or its contents arising under any theory of law whatsoever.
6. Without limiting the generality of the preceding clauses, this Warranty shall not cover and ARDEX shall have no liability for the following acts, conditions, or circumstances or any damage or defects which may arise there from:
 - a. Wars, strikes, lock-outs, delays, acts of God, fire, earthquake, flood, hail, lightning, hurricane, tornado, windstorm, governmental or environmental interference or any other cause (whether similar or dissimilar) beyond the reasonable control of ARDEX; or
 - b. The act, omission, default or representation of any party other than ARDEX or its servants or agents; or
 - c. Exposure to a chemical or solution, fire or radiation, or contamination by radioactivity from any nuclear fuel or waste; or
 - d. Settlement, distortion, failure of the walls or foundations of the building, ponding or cracking of the roof or the deck; or
 - e. Infiltration or condensation of moisture in, through, or around the walls, copings, building structure, or underlying or surrounding materials; or
 - f. Any design defect or structural failure of any framework or material in or on which the Membrane has been installed or applied which was not supplied by ARDEX; or
 - g. Materials other than the membrane, including, but not limited to, metal work expansion or control joints, fasteners, drains, vents, vapour retarders, walkways, pitch pockets, flashing materials and rooftop units and equipment; or
 - h. Expansion or contraction of any flashing or metal work, any adjacent or abutting building, structure or improved or unimproved property, or any component thereof, including but not limited to, structural failure or damage, leakage, or drainage; or
 - i. Any new installations, repairs, or other maintenance or construction on, to or through the Membrane; or
 - j. Damage caused directly or indirectly by falling objects or traffic of any nature on the roof; or
- k. Improper installation of insulation or defects or failure of any material used in any roof base or insulation over which the Membrane is applied; or

Applicator Workmanship Warranty

Warranty Number: BFW - 0995

Date of Installation: 19-Jun-2018

Building Address: 155 Field Way, Waikanae, Waikanae 5036

Company: Butynol Fixers Wellington 2017 Limited ("the Applicator")

Address: PO Box 2010, Raumatī Beach, Paraparaumu 5255

Phone: 027 444 8834

Product Type and Use: 1.5mm Dove Grey Butynol, Deck

Area Laid: 22.72 SquareMetres

Subject to the conditions appearing below, the Applicator warrants its workmanship as follows:

- a. All membrane products (the "Materials") are laid and installed in compliance with the manufacturer's instructions; and
- b. For a period of [5] years from the date of installation, the Workmanship on the Materials by the Applicator shall maintain a waterproof barrier to the area treated.

This Warranty shall be subject to the conditions which follow:

1. This Warranty is limited to the workmanship undertaken by the Applicator and shall in no way bind the manufacturer of the Materials laid and installed by the Applicator.
2. The Applicator's liability, and the liability of its employees, shall be limited to the Applicator making good at its expense any defect in the workmanship which permits the entry/escape of water. The Applicator, and its employees, shall have no further liability or responsibility for any direct, indirect or consequential injury, loss or damage whatsoever and howsoever arising any loss of profits or loss of revenue or other economic loss or for any special, indirect, incidental, consequential damage, loss or injury of any kind including but not limited to, damages to the structure or its contents arising under any theory of law whatsoever.
3. Without limiting the generality of clause 2 above, this Warranty shall not apply to any alleged defective workmanship that is:
 - a. Due directly or indirectly to any cause such as (without limiting the generality of this exclusion) governmental or environmental interference, wars, lock-outs, delays, acts of God, fire, earthquake, flood, hail, lightning, hurricane, tornado or windstorm or any other cause beyond the reasonable control of the Applicator;; or
 - b. Caused by the act, omission, default or representation of any party other than the Applicator, its servants or agents and in particular the work of any other tradesman and damage from persons not authorised by the Applicator to have access to or be employed in the repair, maintenance or alteration of the application during the warranty period; or
 - c. Caused by the Materials or any of them being disturbed by any party other than the Applicator after fixing; or
 - d. Due to exposure to a chemical or solution, fire or radiation, or contamination by radioactivity from any nuclear fuel or waste; or
 - e. Due to settlement, distortion, failure of the walls or foundations of the building, ponding or cracking of the roof or the deck; or
 - f. Due to infiltration or condensation of moisture in, through, or around the walls, copings, building structure, or underlying or surrounding materials; or
 - g. Due to any design defect or structural failure of any framework or material in or on which the Materials have been installed or applied which was not supplied by ARDEX; or
 - h. Due to materials other than the Materials, including, but not limited to, metal work expansion or control joints, fasteners, drains, vents, vapour retarders, walkways, pitch pockets, flashing materials and rooftop units and equipment; or
 - i. Due to expansion or contraction of any flashing or metal work, any adjacent or abutting building, structure or improved or unimproved property, or any component thereof, including but not limited to, structural failure or damage, leakage, or drainage; or
 - j. Due to any new installations, repairs, or other maintenance or construction on, to or through the Materials; or
 - k. Due to damage caused directly or indirectly by falling objects or traffic of any nature on the roof; or
 - l. Due to improper installation of insulation or defects or failure of any material used in any roof base or insulation over which the Materials are applied; or
 - m. Due to the failure of material or structures to conform to manufacturer's specifications as to roof slopes or other requirements.

BC170818
Received by
Kapiti Coast District Council
13/02/2019

4. The Applicator shall ~~only be obligated to make good defects~~ of workmanship, under clause 2 of this Warranty, if a claim is made to the Applicator in writing:
 - a. Within the warranty period; and
 - b. Within (14) days of the reasonable discovery of any alleged defect by the party making the claim.
5. Where it is necessary for the Applicator to repair any defective workmanship, the Building Owner shall remove any objects and any building elements that hinder the access by the Applicator to the Materials, and the Applicator shall not be responsible for any costs associated with creating clear access to the Materials.
6. The Applicator shall be entitled to be reimbursed for his costs, on a time basis at its normal consultancy rates, of any site visit requested under a warranty claim which does not reveal any defect within the scope of this Warranty.
7. Any rights against the Applicator under this Warranty, shall only accrue once the Applicator has received full payment for the work that the Warranty relates to.
8. The Customer acknowledges that the Applicator is not employed by nor is an agent of the manufacturer of the Materials and that the manufacturer will not be liable to any person for the Workmanship, act or defaults of the Applicator.
9. Where the services supplied by the Applicator are being acquired by you in trade you agree that it is fair and reasonable in the circumstances that the Consumer Guarantees Act 1993 (CGA) not apply. Accordingly, to the maximum extent permitted by law, the CGA shall not apply.
10. This Warranty is governed by the laws of New Zealand.

Signature of Applicator:

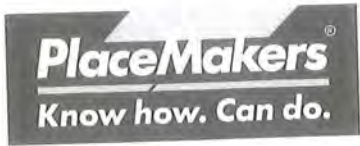


**Butynol Fixers
Wellington 2017 Ltd**
Matt Hall (Director)

Date:

15 / 8 / 18

BC170818
 Received by
 Kapiti Coast District Council
 12/02/2018



THE BUILDING

Street address: 155 Feildway
 Suburb: Waikanae Beach
 Town/City: _____ Postcode: _____

THE PROJECT

Building consent number: _____

THE OWNER(S)

Name(s): Werner & Andrea Nairn
 Mailing address: 155 Feildway
 Suburb: Waikanae PO Box/Private Bag: _____
 Town/City: _____ Postcode: _____
 Phone number: _____ Email address: _____

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE		Carried out or supervised
Work that is restricted building work Tick	Description of restricted building work If necessary, describe the restricted building work	Tick <input checked="" type="checkbox"/> whether you carried out the RBW or supervised someone else.
Foundations and subfloor framing <input type="checkbox"/>	<u>N.I.</u>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Walls <input checked="" type="checkbox"/>	<u>Corner put and replaced decayed Framing Inspected by building surveyor</u>	<input checked="" type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Roof <input type="checkbox"/>	<u>As is</u>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Columns and beams <input type="checkbox"/>	<u>As is</u>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Bracing <input type="checkbox"/>	<u>As is</u>	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised
Other <input type="checkbox"/>	_____	<input type="checkbox"/> Carried out <input type="checkbox"/> Supervised

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Damp proofing <input type="radio"/>		BC170818 Received by Kapiti Coast District Council 13/02/2019	<input type="radio"/> Carried out <input type="radio"/> Supervised
Roof cladding or roof cladding system <input checked="" type="checkbox"/>	By all Roof		<input type="radio"/> Carried out <input type="radio"/> Supervised
Ventilation system (for example, subfloor or cavity) <input checked="" type="checkbox"/>	Building paper window Tape cavity Batten		<input type="radio"/> Carried out <input type="radio"/> Supervised
Wall cladding or wall cladding system <input checked="" type="checkbox"/>	Caster Ply by Builder Metal Wall cladding by all Roof		<input checked="" type="radio"/> Carried out <input checked="" type="radio"/> Supervised
Waterproofing <input checked="" type="checkbox"/>	Butynak by all Roof		<input type="radio"/> Carried out <input type="radio"/> Supervised
Other <input type="radio"/>			<input type="radio"/> Carried out <input type="radio"/> Supervised

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: Carl Vander Meer LBP number: 106221

Class(es) licensed in: S2

Plumbers, Gasfitters and Drainlayers registration number (if applicable): N/A

Mailing address (if different from below): 9 Kotuku Drive

Street address/Registered office: Paopao

Suburb: Town/City:

PO Box/Private Bag: Postcode:

Phone number: 0274463238 Mobile:

After hours: Fax:

Email address: Website:

DECLARATION

I Carl Vander Meer carried out or supervised the restricted building work recorded on this form.

Signature: [Signature] Date: 13.2.19

155 Field Way Cladding Remediation

155 Field Way,
Waikanae Beach

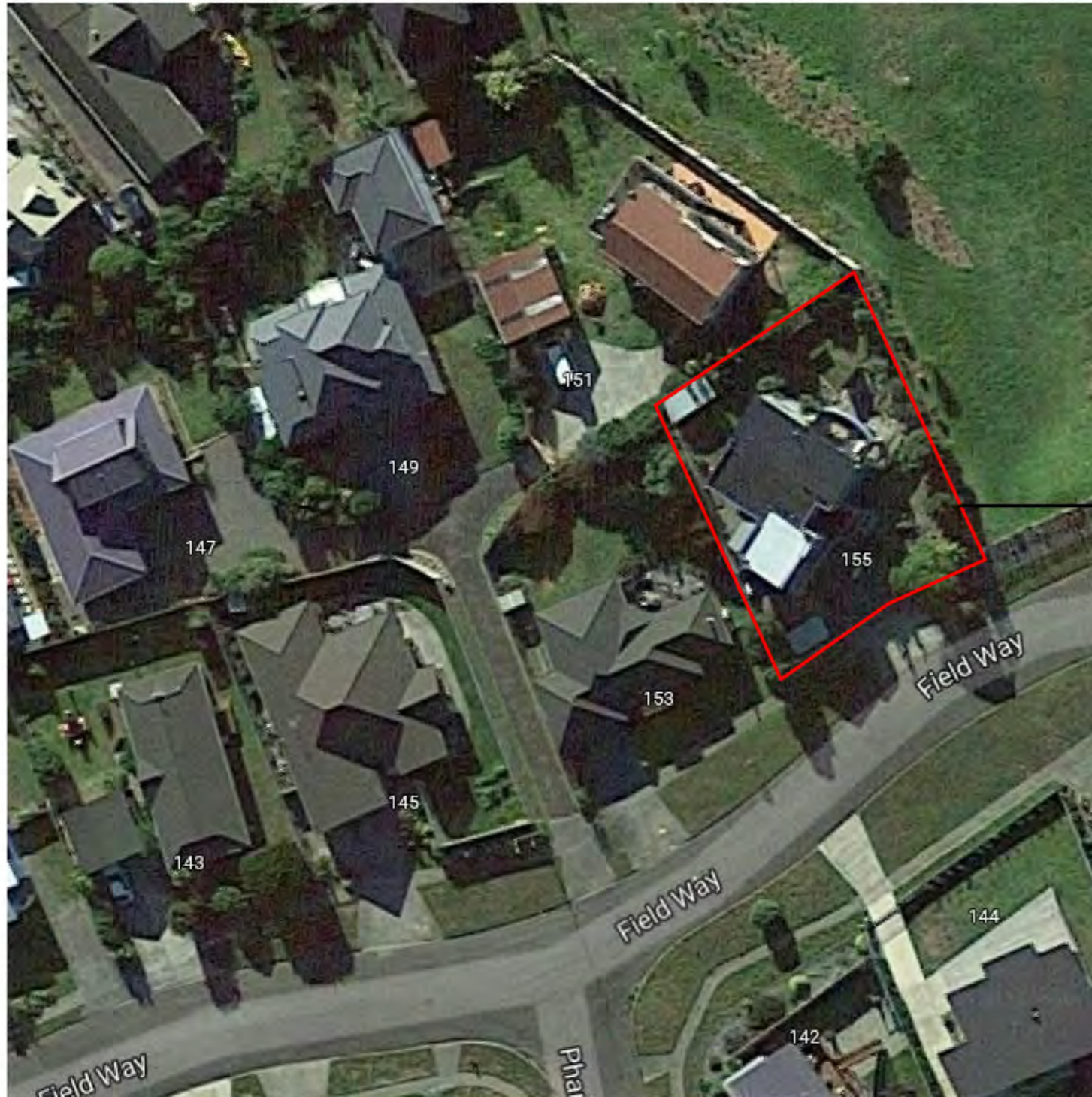
Werner and Andrea Naef

BC and Tender

170818
Further Information Received
21/12/2017

APPROVED BY
BUILDING
johnpe
OFFICER
12/01/2018

**155 Field Way,
Waikanae Beach**



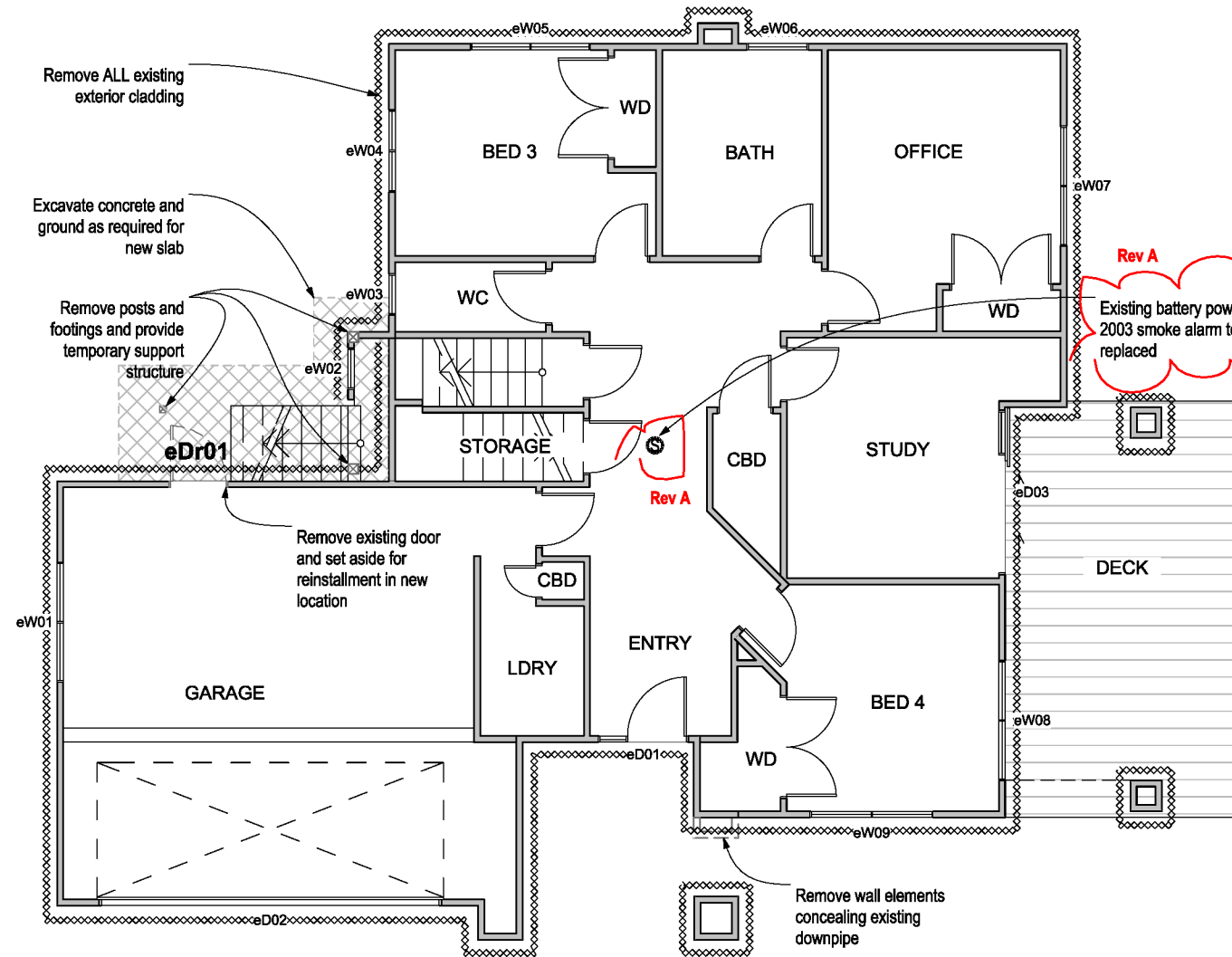
Site Location Plan

PROPERTY INFORMATION	
Parcel ID:	6528435
Legal Description:	Lot 8 DP 91324
Address:	155 FIELD WAY, WAIKANA BEACH
Earthquake Zone:	Zone 3
Exposure Zone:	Zone D
Climate Zone:	Zone 2
Wind Region:	W
Lee Zone:	No
Rainfall Intensity (range):	70 - 80
Wind Zone (experimental):	Very High
No changes in Site Coverage	

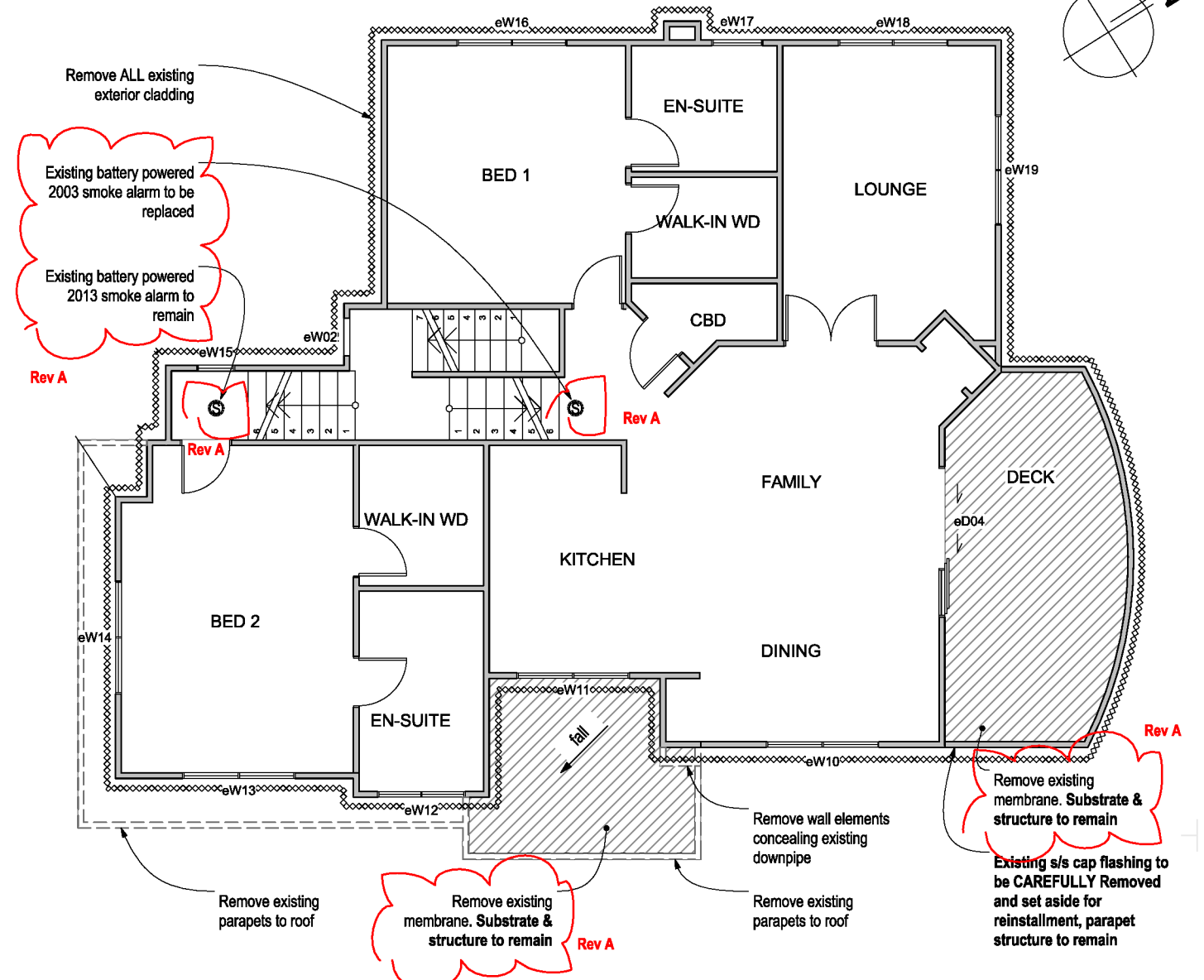
BUILDING ENVELOPE RISK MATRIX		
All Elevations		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Very high risk	2
Number of storeys	High risk	2
Roof/wall intersection design	High risk	3
Eaves width	Very high risk	5
Envelope complexity	Medium risk	1
Deck design	High risk	4
Total Risk Score:		17

Architectural Drawings

No.	Rev.	Sheet Name
000		Cover Sheet & Location Plan Rev B
100		Demolition Floor Plans Rev A
101		Demolition Roof Plan
105		Foundation Plan
110		Proposed Floor Plan Rev A
120		Proposed Roof Plan Rev A
125		Roof Framing Plan Rev A
200		Demolition Elevations
210		Proposed Elevations Rev B
211		Proposed Elevations Rev B
500		Construction Details - Joinery Rev A
501		Construction Details - Joinery
502		Construction Details - Cladding Rev B
503		Construction Details - Cladding Rev B
504		Construction Details - Cladding Rev A
505		Construction Details - Cladding Rev A
506		Construction Details - Roof Rev A
507		Construction Details - Roof Rev A
508		Construction Details - Roof Rev A
509		Construction Details - Roof
510		Construction Details - Roof Rev B
511		Construction Details - Roof
512		Construction Details - Roof & Slab Rev A
513		Construction Details - Posts Rev A
514		Construction Details - Roof Rev A
515		Construction Details - Roof Rev A



1 Ground Floor Demo Plan
1:100



2 First Floor Demo Plan
1:100

DEMO PLAN		
2110 Demolition		
-----	Remove ALL existing exterior wall claddings	
=====	Existing timber framed walls to remain.	
-----	Existing timber framed walls/parapets to be demolished.	
XXXXXX	Excavate concrete and ground as required for new slab	
eDr01	Existing door to be carefully removed and set aside for reinstallation in NEW LOCATION	
eD01	Existing door to be carefully removed and set aside for reinstallation in EXISTING LOCATION (after new cladding is installed)	
eW01	Existing window to be carefully removed and set aside for reinstallation in EXISTING LOCATION (after new cladding is installed)	
Temporarily remove all meter & distribution boards as required for new cladding and reinstall in existing location after new claddings have been installed		
Remove all soffit linings		

170818
Further Information Received
30/11/2017

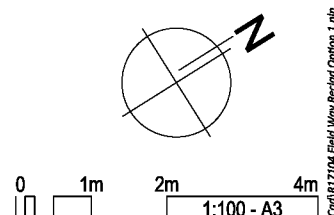
Rev	Notes	Date
A	Notes and fill updated for areas of existing membrane to be removed, extg smoke alarm locations shown	21/11/17

RESOLVE IT ARCHITECTS
LEVEL 1, 171 VIVIAN STREET, TE ARO
PO BOX 9792, WELLINGTON
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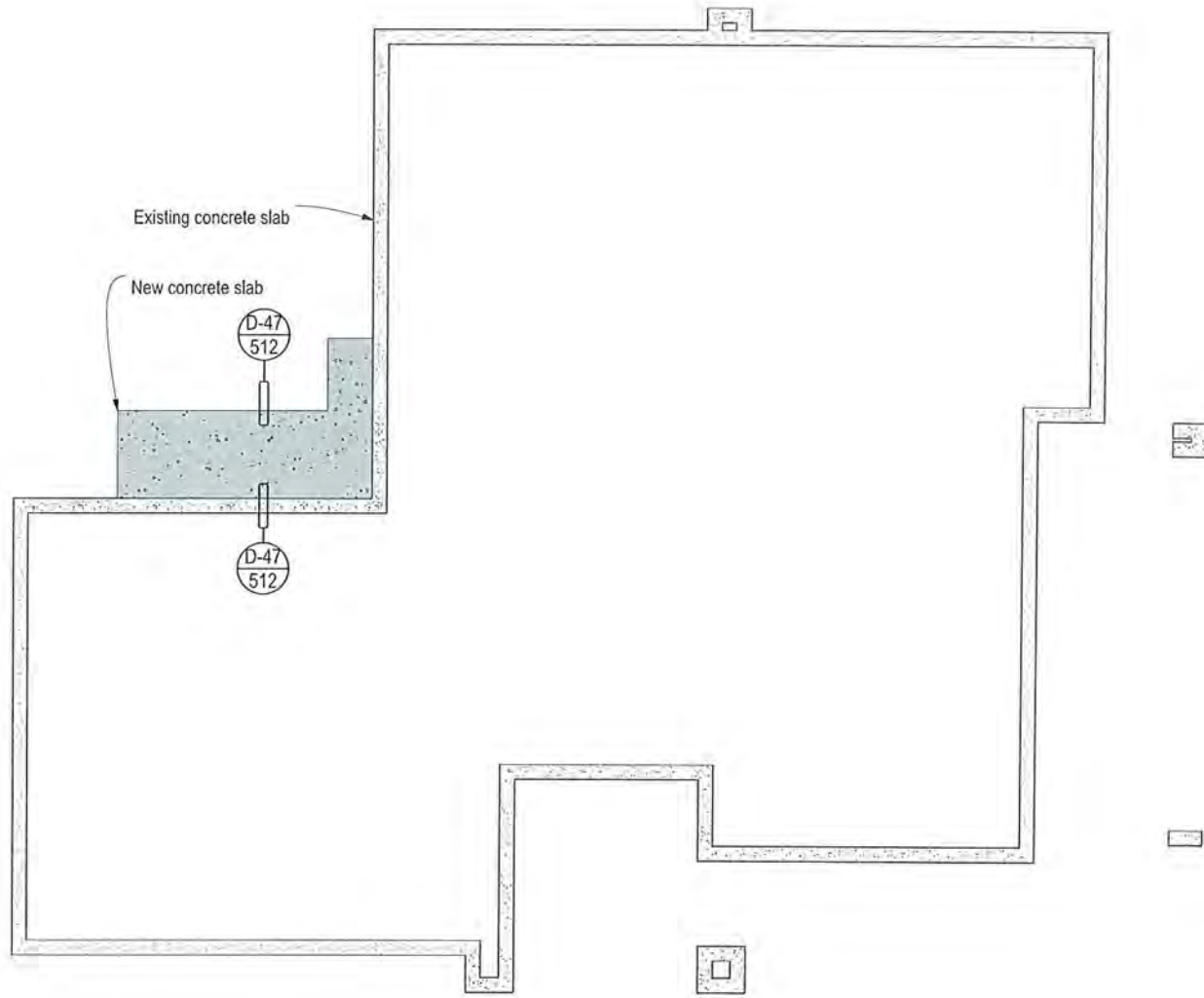
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Project Name:
155 Field Way Cladding Remediation
Project Address:
155 Field Way Waikanae Beach


Drawing Title:
Demolition Floor Plans Rev A
Project Number: R17104 Status: BC and Tender
Date: 23/11/2017 Scale: As Shown Size: A3
Drawing No. **100** Revision No. **A**

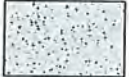


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3102 Concrete Work Standard J0004

 Existing foundations and footings

 New 100mm thick SE62 mesh reinforced concrete slab. Refer to D46/DWG512

All dimensions to the outside edge of timber wall framing, allow for concrete foundations to be inside these dimensions as required for 6mm overhang of timber framing, refer detail.

Connection to slab -

- concrete strength - 17.5MPa
- mesh reinforcing - Grade 500E with min lap of one mesh space plus 50mm, all other reinforcing to be Grade 300E
- damp proof membrane - Thermakraft Thermathene Black DPM (250um),
- sand blinding - max 25mm thick
- hardfill - 150mm layers compacted hardfill to solid ground

Concrete Floor Finish:
 Kellyfloat U3 Trowelled finish to surface of concrete slab
 NOTE: Allow to protect floor during construction.

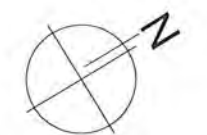
Allow to plaster finish all exposed edges of concrete floor/foundations, refer materials schedule

① Foundation Plan
1:100

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0 1m 2m 4m
1:100 - A3

Rev	Notes	Date

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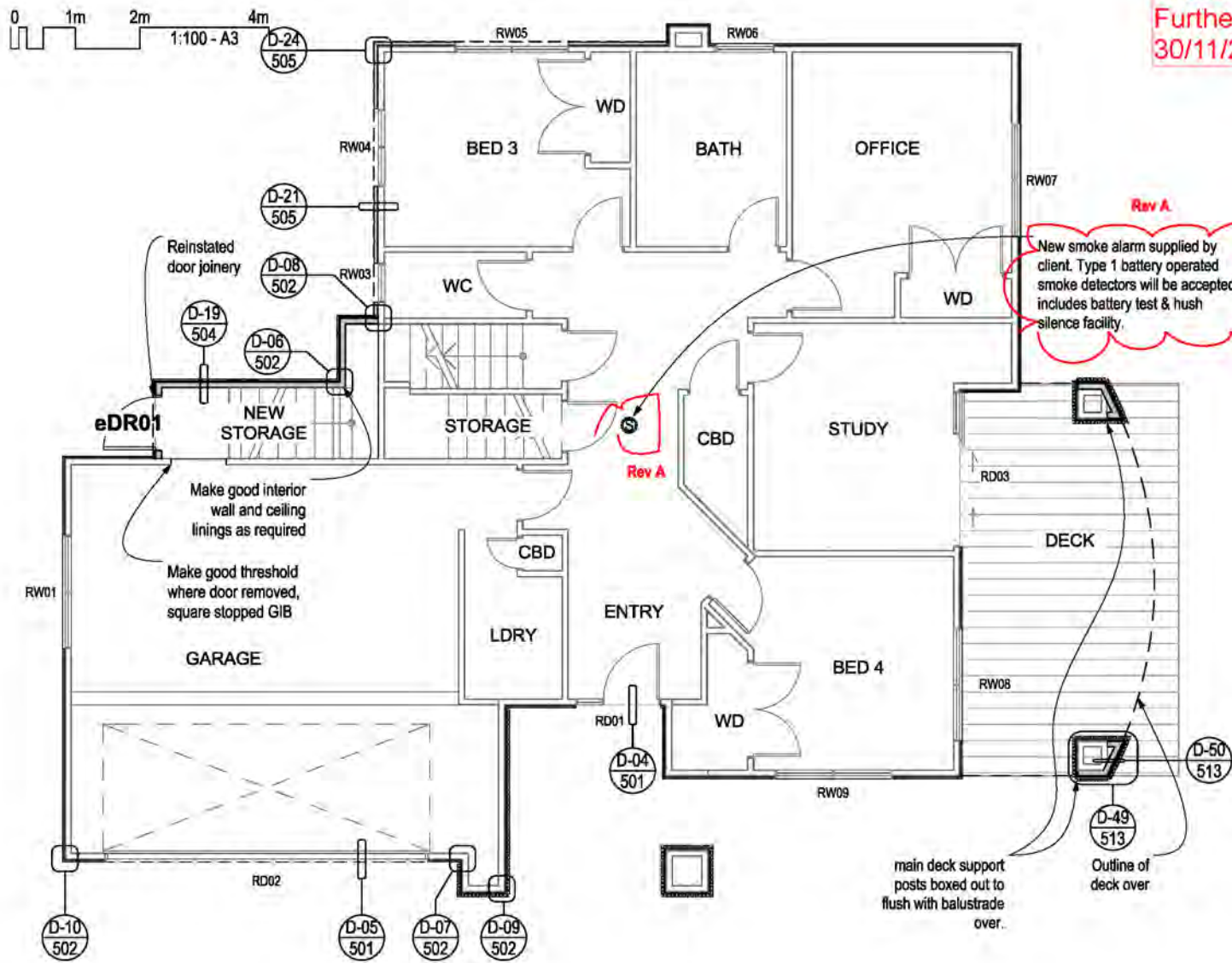
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155 Field Way Waikanae Beach

Drawing Title:
Foundation Plan

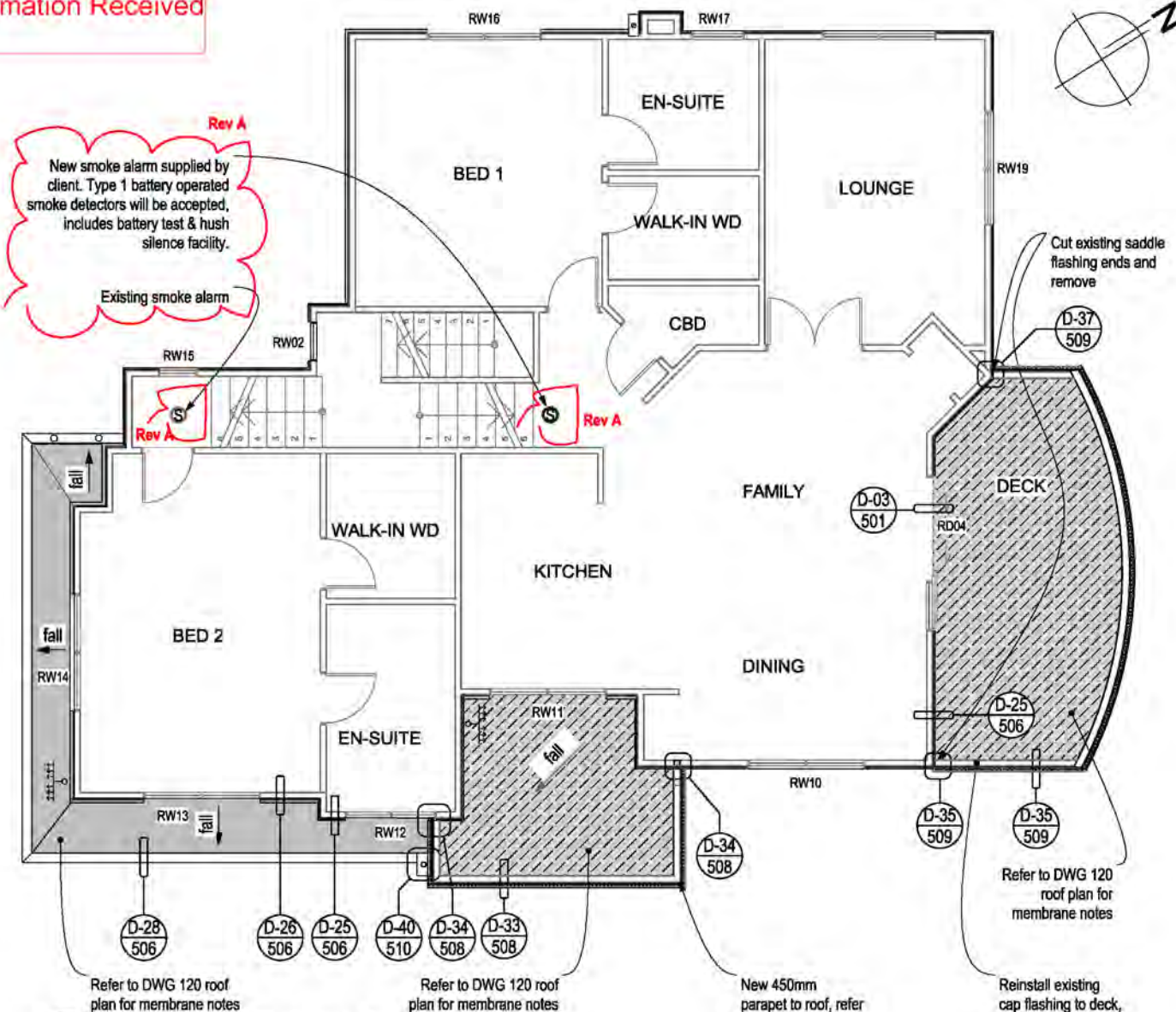
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Date: 17/10/2017	Scale: As Shown Size: A3
Drawing No. 105	Revision No.

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1 Ground Floor Proposed Plan
1:100



2 First Floor Proposed Plan
1:100

PROPOSED PLAN

3820 Carpentry

wall framing notes:

NOTE: All timber framing to be SGB unless noted otherwise

- Existing timber framed walls
- New timber framed walls with selected wall linings to match existing wall structure

- RW01 Reinstated window joinery IN EXISTING LOCATION
- RD01 Reinstated door joinery IN EXISTING LOCATION
- eDR01 Reinstated door joinery IN NEW LOCATION

New exterior wall cladding to all exterior walls, refer to elevations

Windzone is Very High for all NZS3604:2011 tables and figures.

For all timber treatments refer to carpentry section of the specification.

Top plate
90x45 (to match extg wall thickness)
fixing to stud fixing as per NZS 3604: 2011 Table 8.18:
2 / 90x3.15 end nails + 2 wire dogs (or 4.7kN alternative fixing)

Bottom plate

- 2/90x45 (to match extg wall thickness)
- Fixings to concrete slab, refer to the attached documentation in specification appendix:
- Ramset - TDS03046 - 12mm AnkaScrew Uplift capacity in 100 mm Slab Thickness
- Ramset APG 2013 AnkaScrew Screw In Anchor

Lintels

- Allow for doubling stud under ends of all lintels, allow for trimming studs as per NZS3604:2011 table 8.5
- Lintel fixing to trimmer studs. As per NZS 3604: 2011 Table 8.14 and figure 8.12:
- Double stud to be continuous between the bottom plate and the underside of the lintel. Fix double studs together with 100x3.75mm nails @ 600 crs. with 2/100 x 3.75mm immediately under the lintel.
- Provide a 25 x 1mm strap with 6/30 x 2.5mm nails into both lintel and stud, or a 7.5kN (tension) connection to each end of the lintel
- Provide a 25x1mm strap taken under plate and 150up each side of stud, with 6/30 x 2.5mm nails into each side.

4710P Pink Batts Insulation

- R2.6 fibreglass insulation to all exterior wall cavities
- R3.2 insulation to all new skillion ceilings and where substrate is removed in existing roof, ensure min. 25mm cavity between insulation & roof underlay

flooring notes:

- Concrete floor finish notes, refer to 105 Foundation Plan

Replacing Covered Rotten Timber

Refer to Specification Section 3897 Replacement & Treatment of Decayed Timber and Quality Assessment Plan

New Bracing (Gib EzyBrace)

Any new bracing is to be specified and installed to the current august 2016 manual

Rev A

Rev	Notes	Date
A	notes updated for "replacing covered rotten timber," bracing note updated, smoke alarms added	21/11/17

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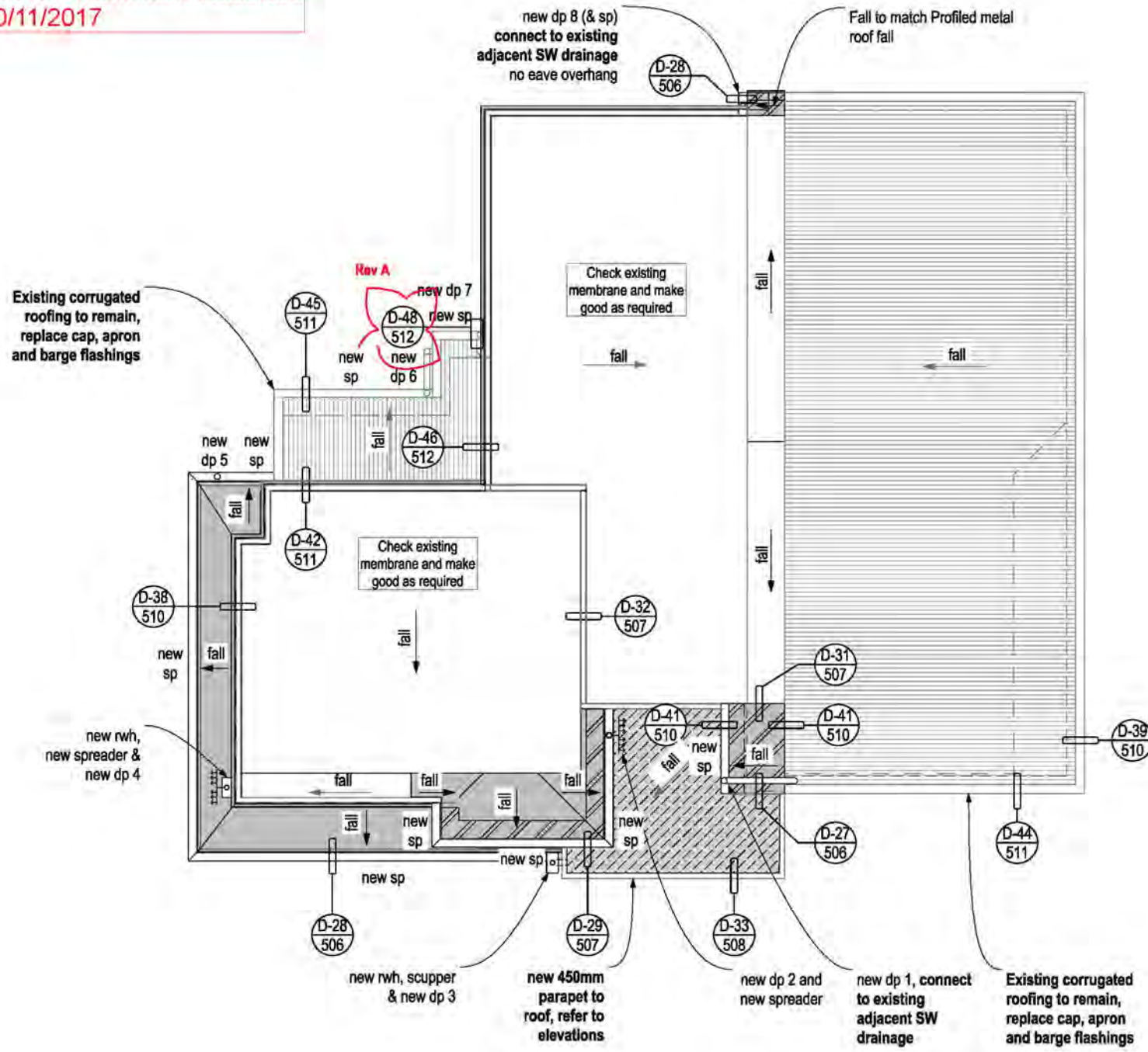
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Project Address:
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Drawing Title:
Proposed Floor Plan Rev A
Project Number: R17104 | Status: BC and Tender
Date: 23/11/2017 | Scale: As Shown | Size: A3
Drawing No. **110** | Revision No. **A**

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Roof Proposed Plan
1:100

4311 Profiled Metal Roofing

roof plan notes:

Existing corrugate steel profile roof on existing roof structure to remain, replace cap, apron and barge flashings with new flashings

Roof Flashings (new): to be fabricated from same material as roof unless detailed otherwise

Roof Fixing: pre painted Class 5 galvanised steel fixings with neoprene sealing washers (coil coated) for exposure zone D. Refer to DWG 125 Roof Framing Plan for fixing types

4421 Bitumen Based Sheet Roofing

Existing membrane roof (Check all jointing and laps of existing membrane)

New Viking Butylclad Roofing Membrane to match existing. New substrate on firming to min 2° fall. Existing roof structure TO REMAIN

New Viking Butylclad Roofing Membrane to match existing. Existing substrate and roof structure TO REMAIN

New Viking Butylclad Roofing Membrane to match existing. New substrate on firming to min 2° fall & new roof structure, refer to DWG 125 roof framing plan

New substrates: 19mm H3.2 CCA treated CD plywood fix with s/s built jointed allow 3mm gap between sheets with tape over.

membrane: to match existing

capping and flashings: refer to details

Roof Underlay: refer DWG210 Proposed Elevations Notes, 4161 Wraps, Underlays and DPC

7411 Rainwater Spouting System

where downpipe is discharging onto roof below always allow for spreader in accordance with E2/AS1 Fig. 20

Allow to install wire mesh domes to top of all downpipes, and leaf guard mesh to all spoutings.

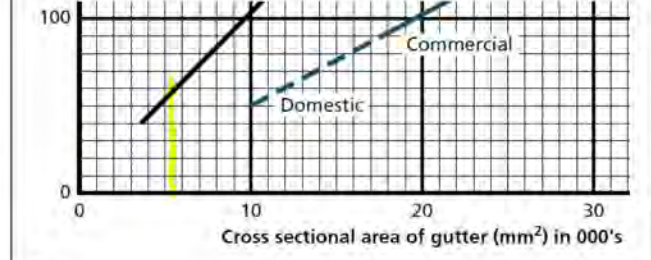
NOTE: refer to dwg 210 for downpipe positions on elevations

- Spoutings: All spoutings Marley Stormcloud, 5100mm² effective cross sectional area, colour to match vertica profiled metal cladding, tbc
- Downpipes: Marley RP80, colour to match vertica profiled metal cladding, tbc
- Downpipe Spreaders: Generic PVC, colour to match vertica profiled metal cladding, tbc
- Rain water heads: Calder Steward Roofing Standard Rectangular Rainwater Head (RWH4), 350w x 300h x 200d, colour to match profiled metal wall cladding, tbc
- Scuppers: Fabricated coloursteel to match spoutings

Key

	exist. dp	existing downpipe
	new dp 1	new downpipe
	new sp	new spouting
	new rwh	new rainwater head

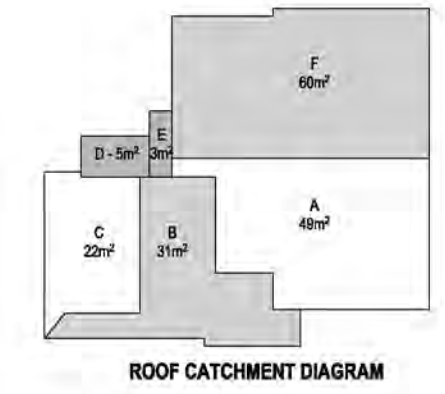
Catchment Calculations - (NZBC Clause E1: Table 5)
Rainfall Intensity (range): 70-80mm/hr (BRANZ Maps)
Effective Cross Sectional Area of all other new spoutings (min) E1: 60m² roof and under (80mm/hr instead of 100mm/hr) = 5500mm² x 0.8 x 1.1(15° factor) = ~4840mm²
Roof Pitch: maximum pitches of existing/new roofs = 15°
New Selected Spouting Cross section area = 5100mm²



Key

Key	DP size selected	Roof	Max roof area served	min DP size
	80mm	A	49m ²	existing
	80mm	B (part)	19m ²	63mm
	80mm	B	31m ²	63mm
	80mm	C (part)	16m ²	63mm
	80mm	C	22m ²	63mm
	80mm	D	5m ²	63mm
	80mm	E	3m ²	63mm
	80mm	F	60m ²	63mm

c.o.s condition of existing rwh, outlets and dp's to deck on first floor and replace if required



Rev	Notes	Date
A	Details marker D-48 added	21/11/17

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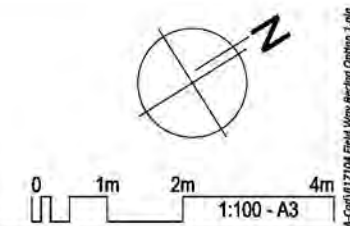
Project Name:
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Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Proposed Roof Plan Rev A

Project Number: R17104 | Status: BC and Tender
Date: 23/11/2017 | Scale: As Shown | Size: A3

Drawing No. **120** | Revision No. **A**



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3820 Carpentry (roof framing notes):

NOTE: all timber framing to be SG8 unless noted otherwise

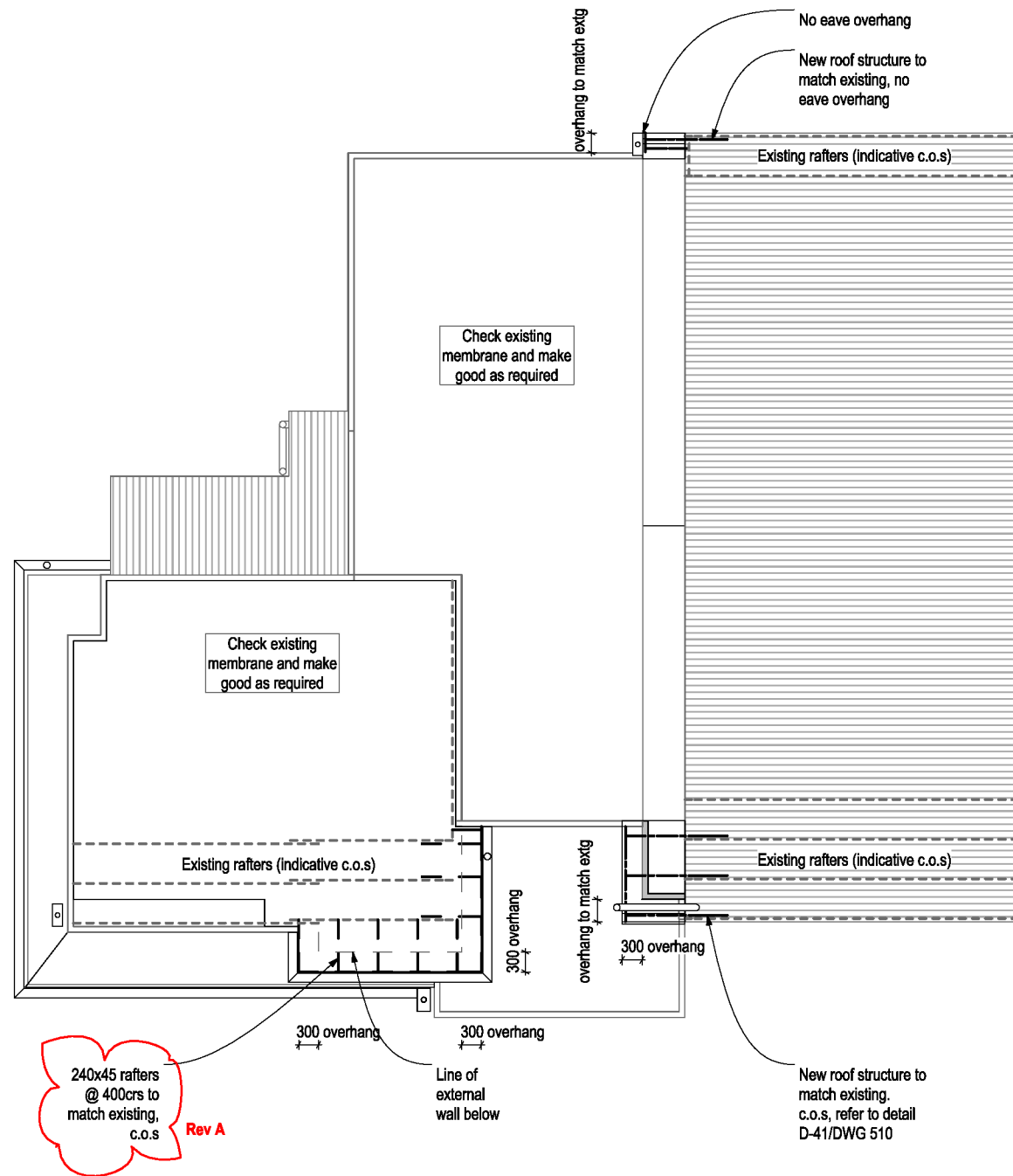
----- Existing rafters (indicative c.o.s)

Rev A
240x45mm timber rafters
- @ max 600mm crs to match extg for corrug metal roof
- @ max 400 crs for membrane deck and roof
Rafter fixing: As per NZS3604:2011 Table 10.1:
200x3.45 skewed nails + 2 wire dogs [Type E - 4.7kN]
- Fixing types @ intermediate supports for rafters running continuously over those supports shall have double the capacity of the fixing types given.

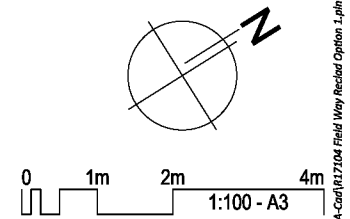
----- Rafters to match existing, c.o.s sizes and spacings
Rafter fixing c.o.s: As per NZS3604:2011 Table 10.1

Roof Fixing: Roof Fixings appropriate for the design loads of site. Allow for specific loadings @ corners & the periphery of the roof where localised pressure factors apply

Ensure roof bracing system for existing roof remains intact and replace if required



Roof Framing Plan
1:100



Rev	Notes	Date
A	Rafters over membrane roof and deck to 400 crs	21/11/17

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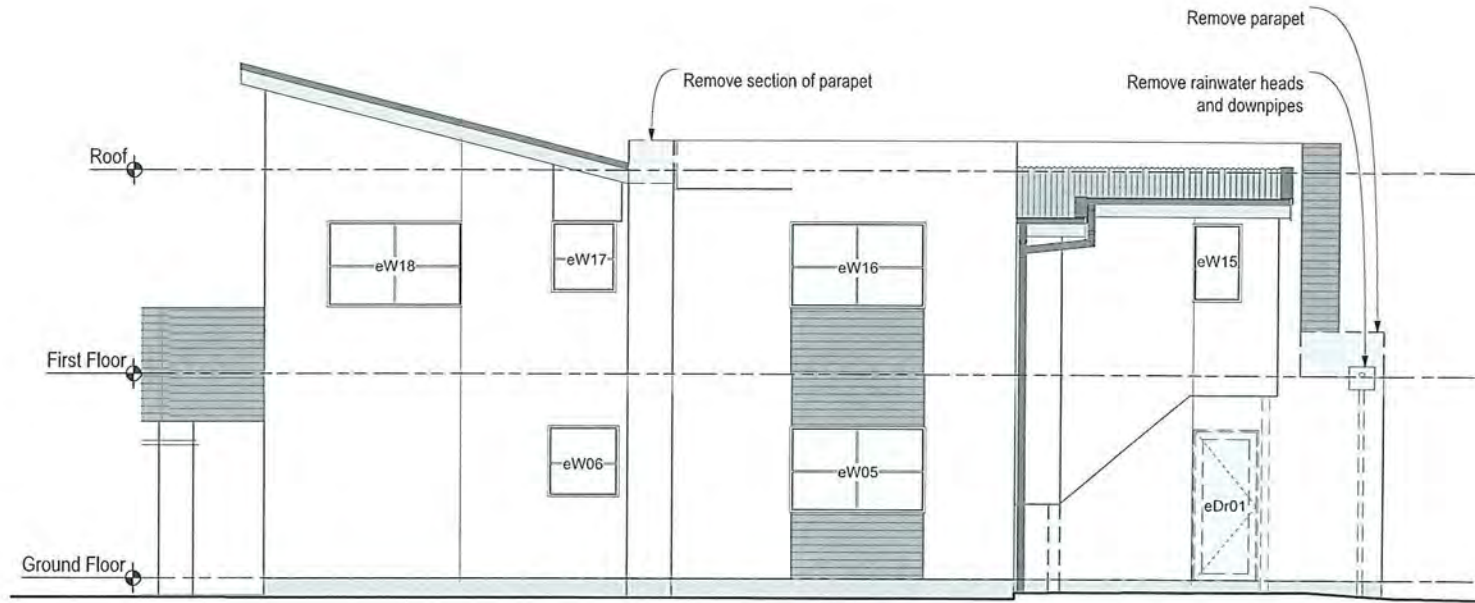
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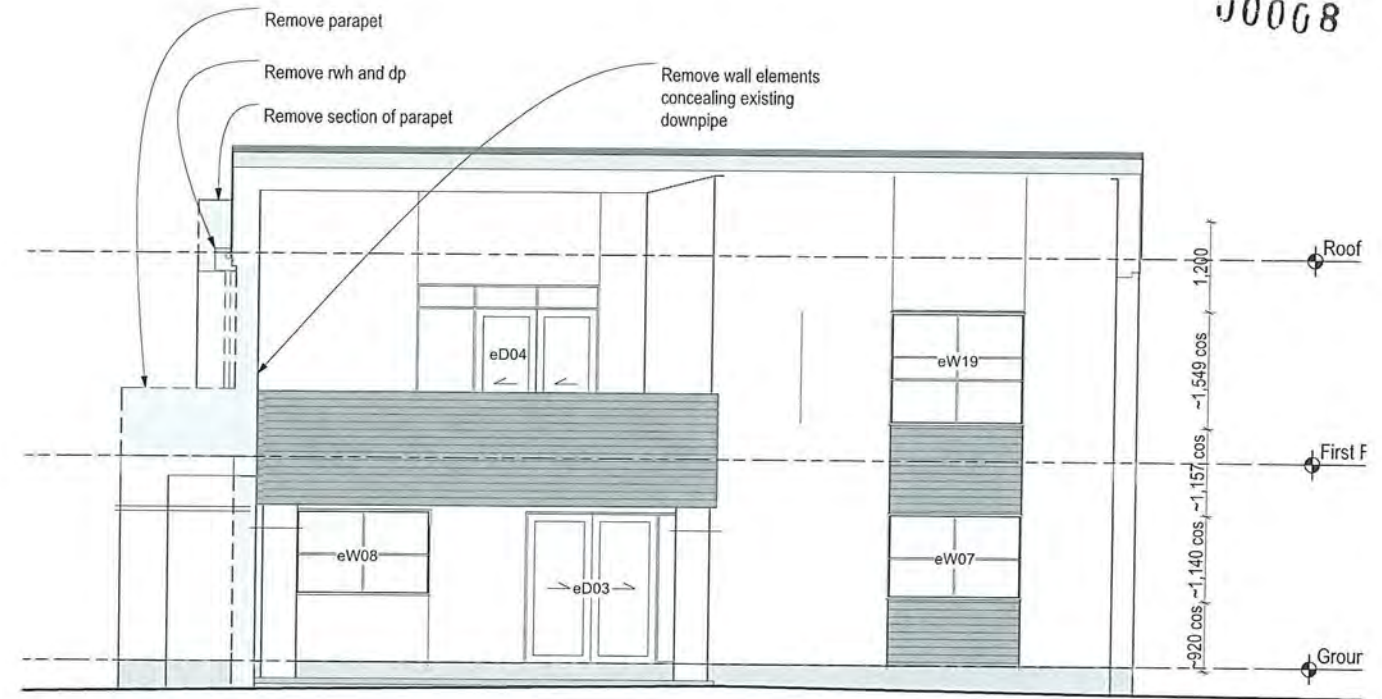
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Roof Framing Plan Rev A

Project Number: R17104	Status: BC and Tender
Date: 23/11/2017	Scale: As Shown Size: A3
Drawing No. 125	Revision No. A

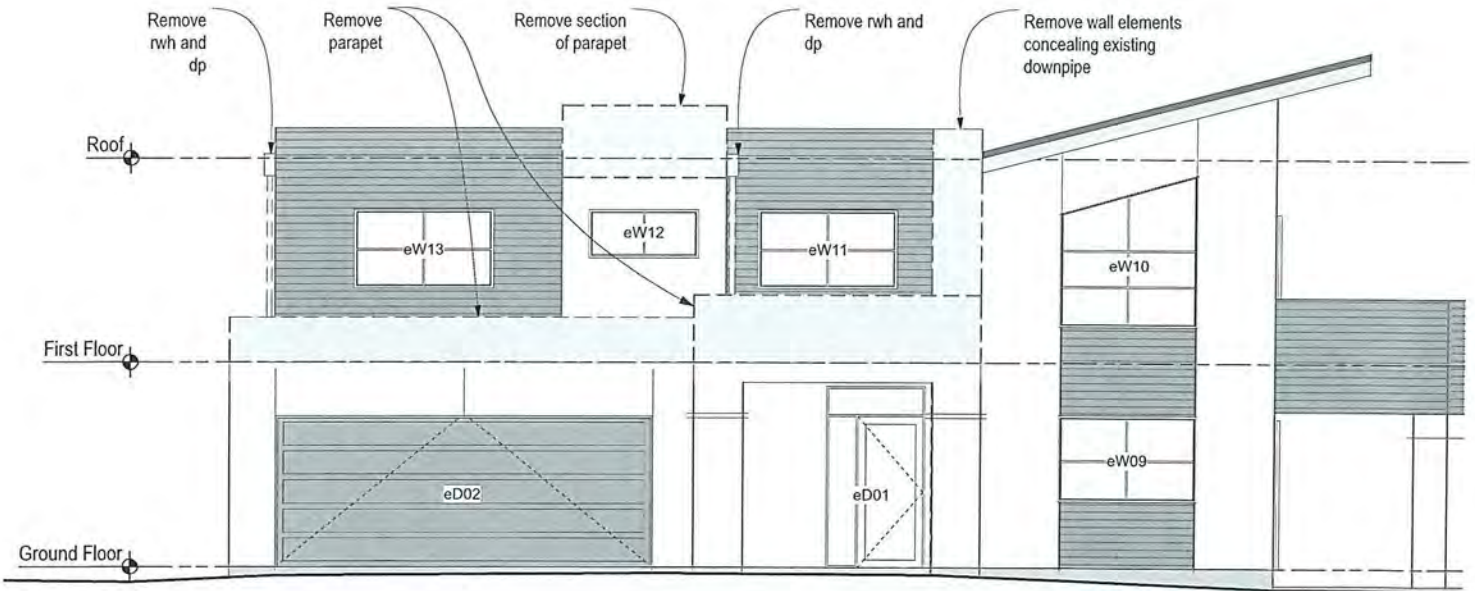
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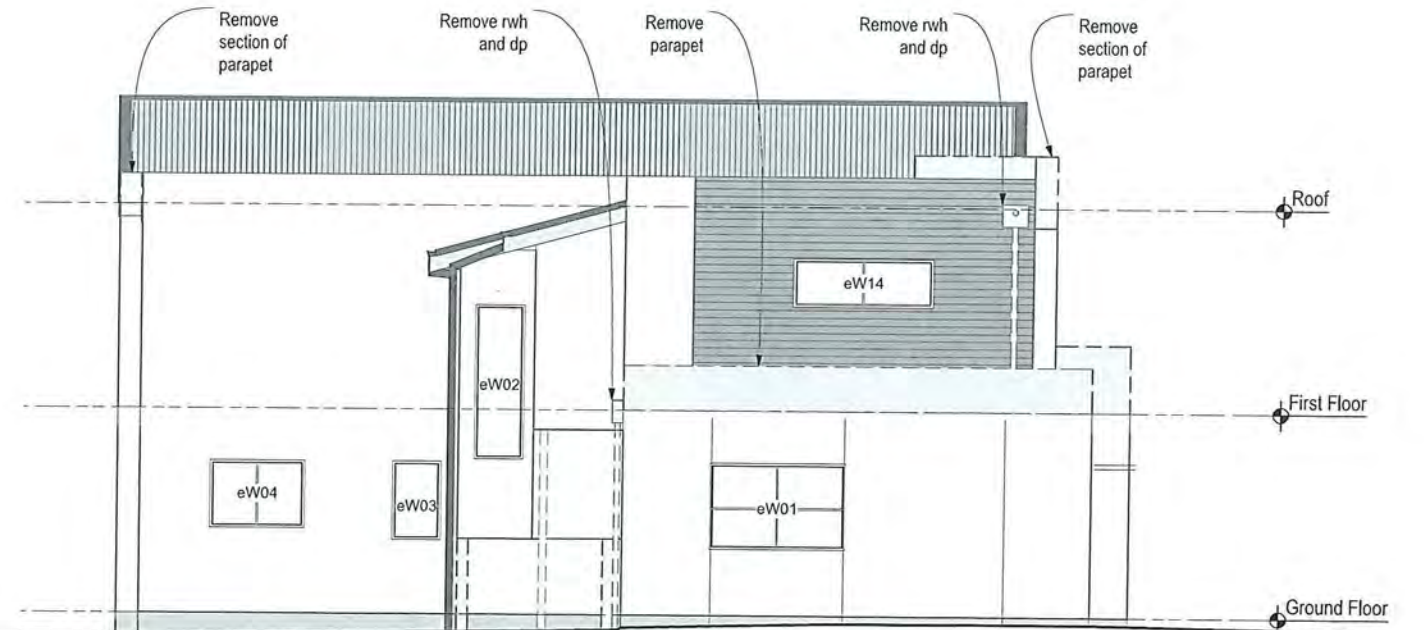
3 North West Elevation Demo 1:100



2 North East Elevation Demo 1:100



1 South East Elevation Demo 1:100



4 South West Elevation Demo 1:100

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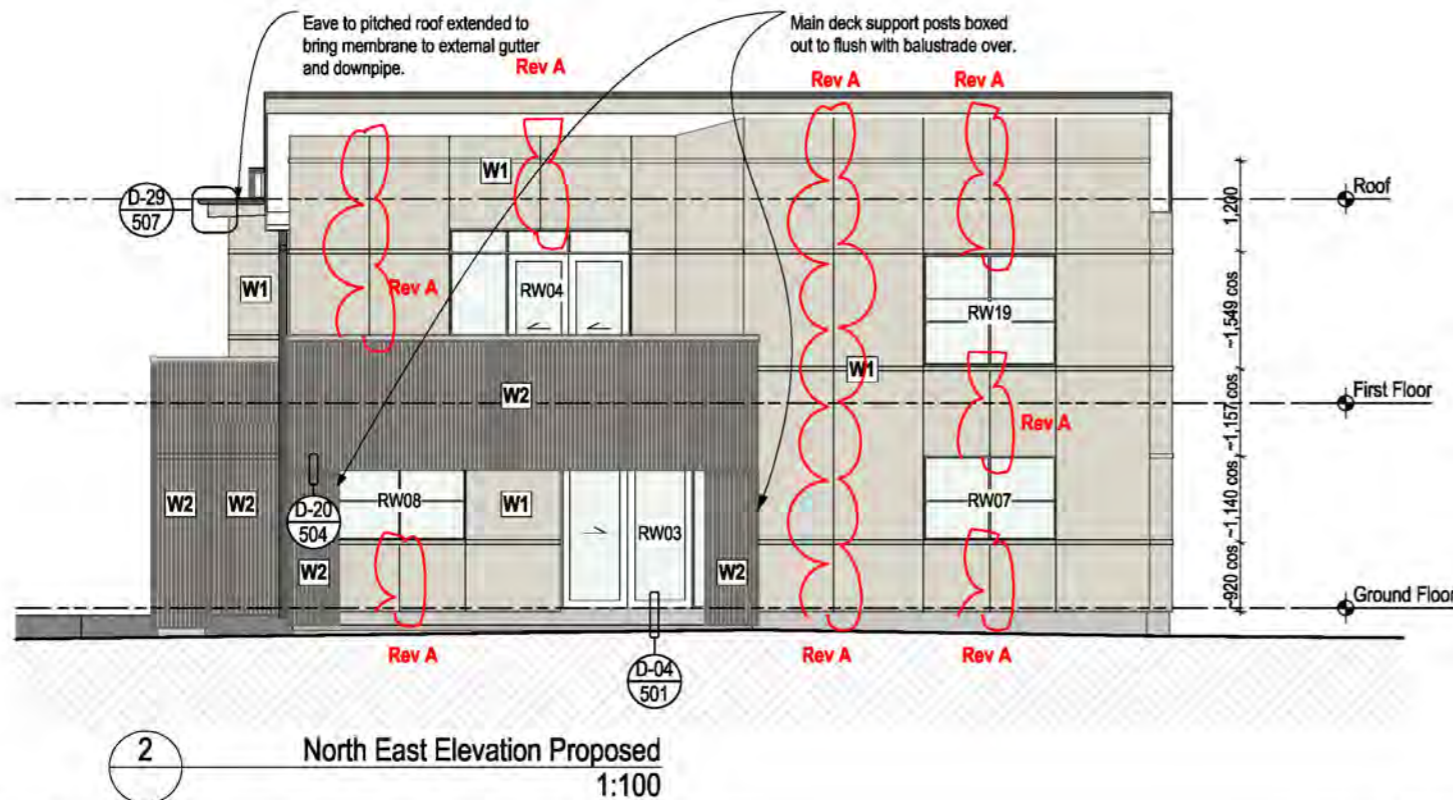
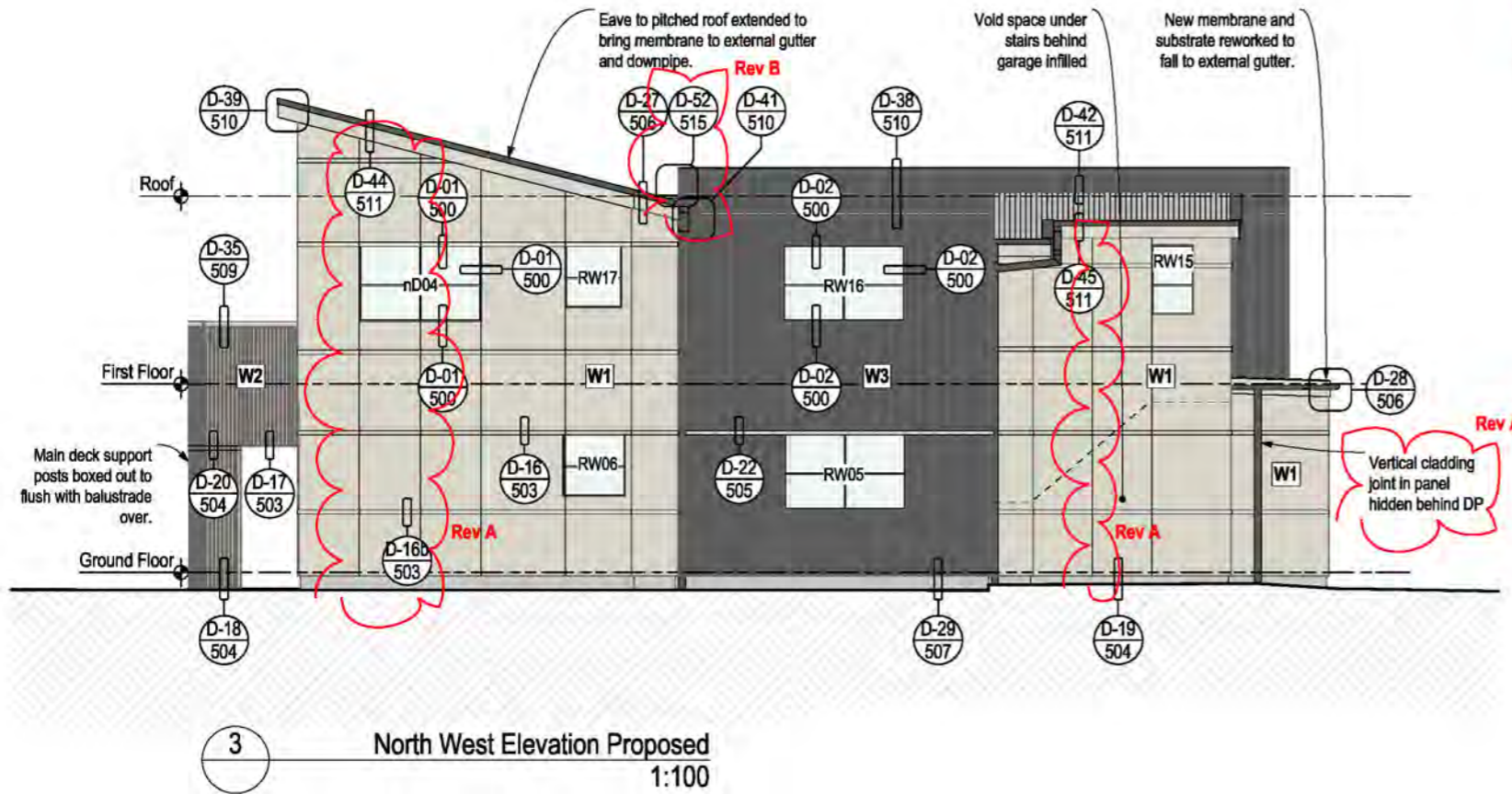
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Drawing Title:
Demolition Elevations
Project Number: R17104 | Status: BC and Tender
Date: 17/10/2017 | Scale: As Shown | Size: A3
Drawing No. **200** | Revision No.

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ELEVATIONS

- W1** 4223SC Shadowclad Plywood Cladding
Ultra Texture, on timber battens, on RAB board paint finish, with proprietary horizontal s/s flashings. s/s fixings
- W2** 4223SC Shadowclad Plywood Cladding
(with 40x40mm closed spaced vertical timber battens @ 100 c/s with 6x6 weathergrooves over sheet cladding) - Ultra Texture, on timber cavity battens, on RAB board paint finish. s/s fixings
- W3** 4241ME Metalcraft Espan 340 Cladding
Vertical profiled metal cladding, on cavity.
Coloursteel Maxx, fixings to manufacturer specifications & to meet corrosion zone D.

Fixings - Nail, Screw Fastenings

- Material, grade & positioning to cladding to manufacturers requirements & complying with NZS3604 Section 4 Durability

Cavity battens

Plywood: 40x19 H3.1 treated timber battens fixed with 60x2.8mm jolt head s/s nails or power driven 64x2.8mm s/s nails, all at 250mm ctrs. Spacing of batten, refer to cladding manufacturers

Metalcraft Espan 340: Cavibat Cavity Battens

NOTE: In a sea spray zone, use stainless steel fasteners to fix battens to frame
DO NOT HAVE STAINLESS STEEL IN CONTACT WITH GALVANISED STEEL OR ZINCALUME. Separate with separating layer. Refer to E2, "Compatibility of materials in contact."

Cavity closers: WANZ rigid PVC cavity closer

- Scribers: to match existing
- Soffits: to match existing
- Fascias: to match existing
- Barge: to match existing

4161 Wraps, Underlay and DPC & 4171E Ecoply Barrier Rigid Air Barrier System

- Rigid Air Barrier: 7mm Ecoply RAB system with proprietary flashing tape
- DPC: Thermakraft Supercourse 500
- Flashing Tape: Marshall Innovations Superstick Building Tape
- Roofing Underlay: Covertek 405, laid horizontal on roof mesh
- Air Seal/PEF Rod: Thermakraft window worm [varying sizes]

4821 Roof Flashings

Material: Powder coated zincalume to match extg (Coloursteel Maxx) Thickness: 0.55mm BMT

4281 Cladding Flashings

Material: Shadowclad: 304 Stainless Steel (General Flashings) Thickness: 0.45mm BMT
Metalcraft Espan 340: to match cladding Thickness: 0.55mm BMT
Marshalls PVC (Corner Flashings)

4281 Aluminium Joinery Flashings

Material: Aluminium Thickness: 0.9mm BMT

4281 Aluminium Saddle and Welded Flashings

Material: Aluminium Thickness: 1.6mm BMT

Note: USE ALUMINIUM FIXINGS to aluminium flashing and joinery, DO NOT USE STAINLESS STEEL FIXINGS THROUGH ALUMINIUM. Separate aluminium and s/s with separating layer. Refer to E2, "Compatibility of materials in contact."

Rev	Notes	Date
A	Extra vertical junctions in plywood cladding added	16/11/17
B	New detail marker added	20/12/17

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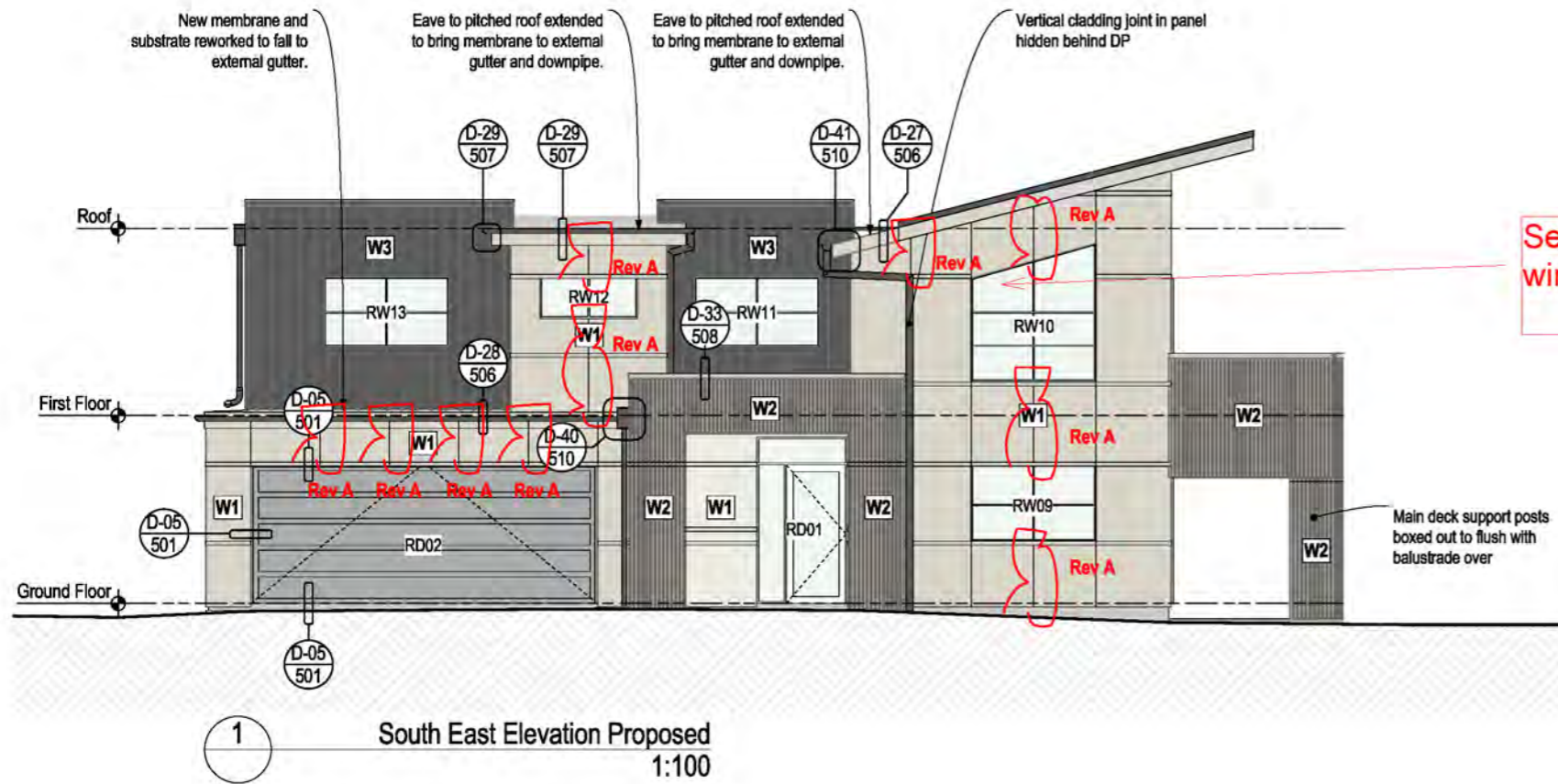
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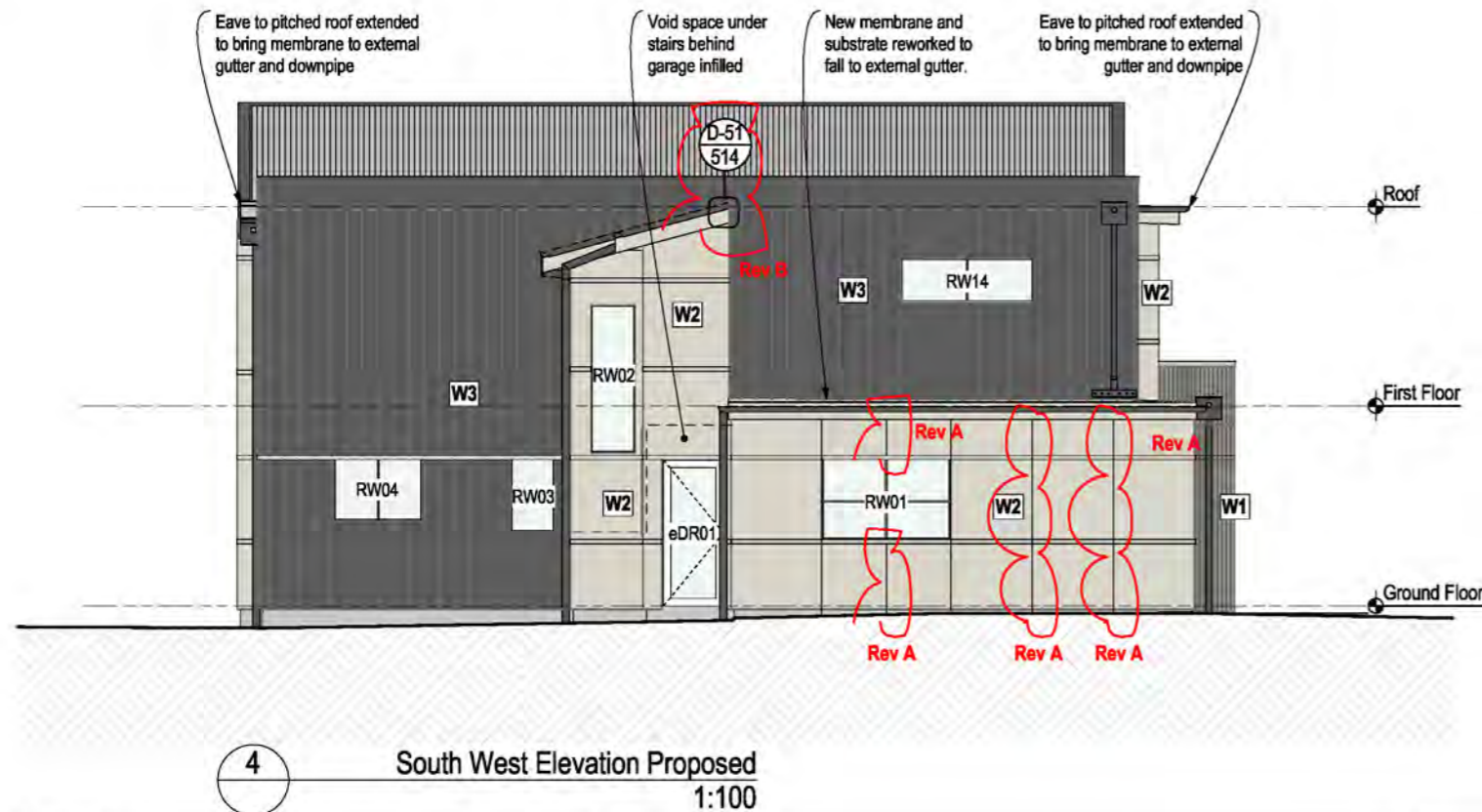
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Proposed Elevations Rev B
Project Number: R17104 Status: BC and Tender
Date: 20/12/2017 Scale: As Shown Size: A3
Drawing No. **210** Revision No. **B**

2017/12/20 11:17 AM 17104 Field Way Revised Option 1.rvt

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Sealed kick-out required to the lower end of the raking window head flashing



Rev	Notes	Date
A	Extra vertical junctions in plywood cladding added	16/11/17
B	New detail marker added	19/12/17

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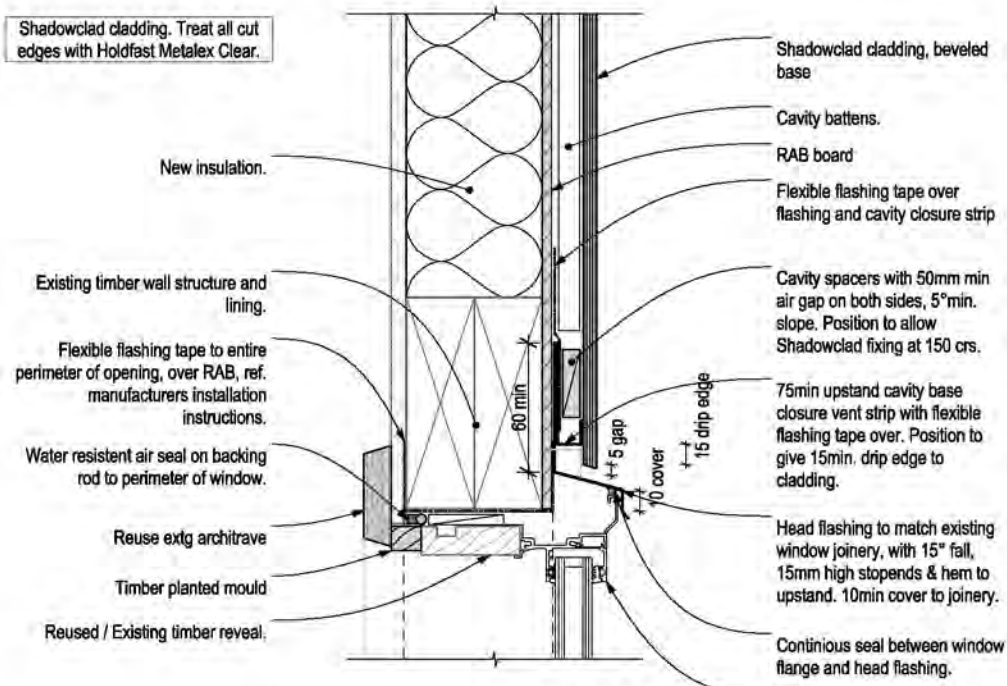
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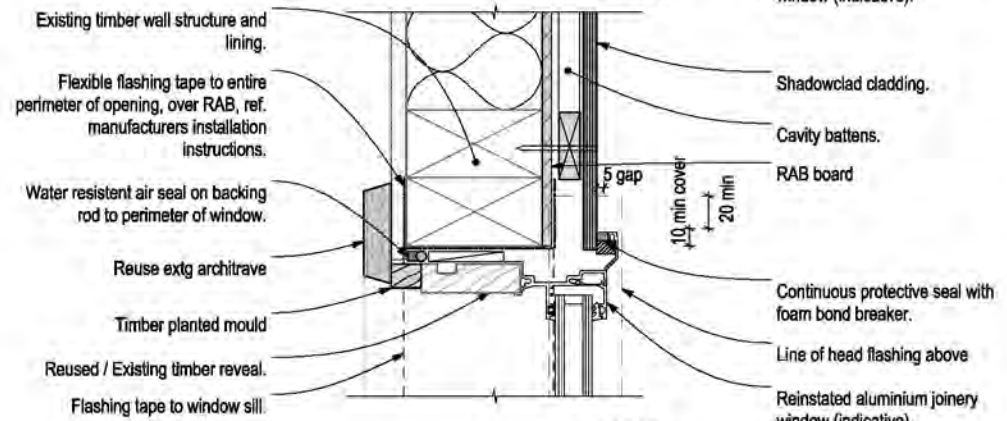
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Project Number: R17104	Status: BC and Tender
Date: 20/12/2017	Scale: As Shown Size: A3
Drawing No. 211	Revision No. B

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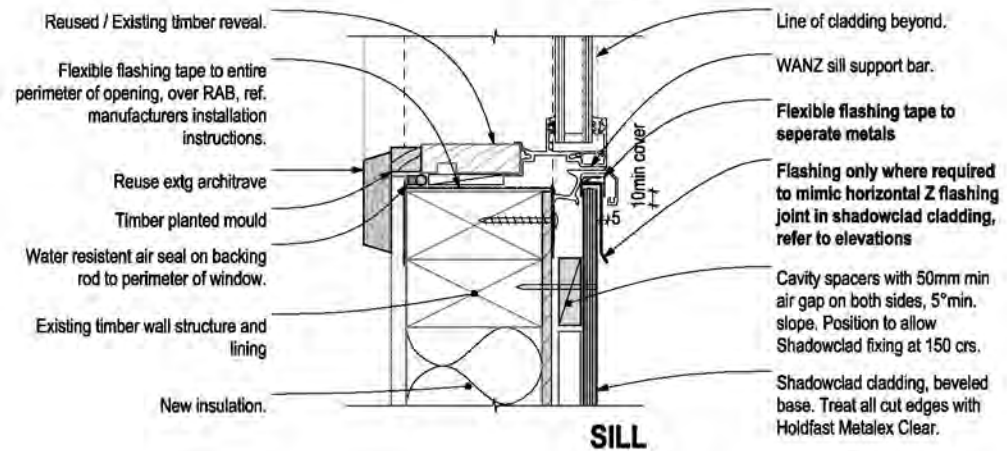
Shadowclad cladding. Treat all cut edges with Holdfast Metalex Clear.



HEAD

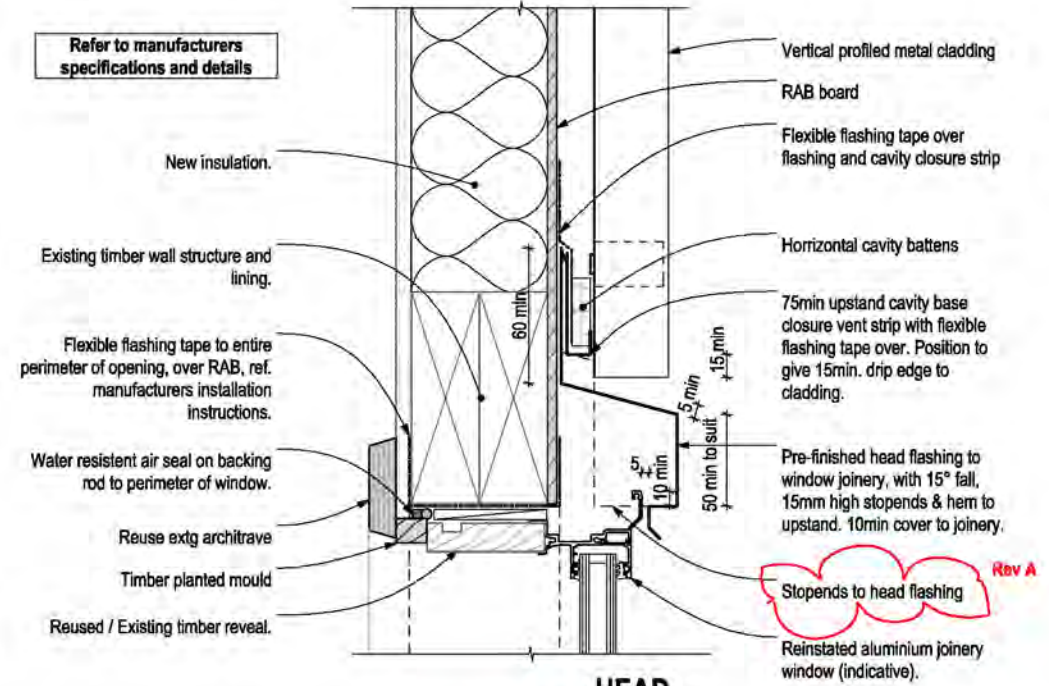


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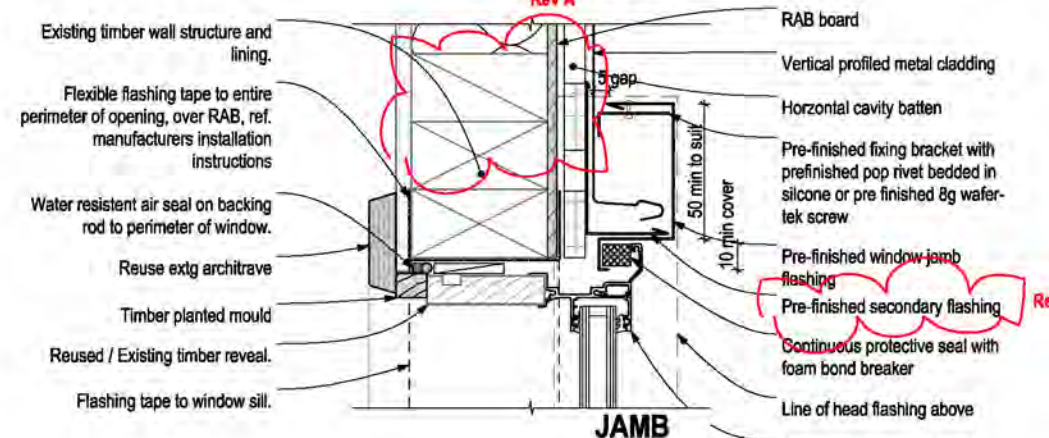


SILL

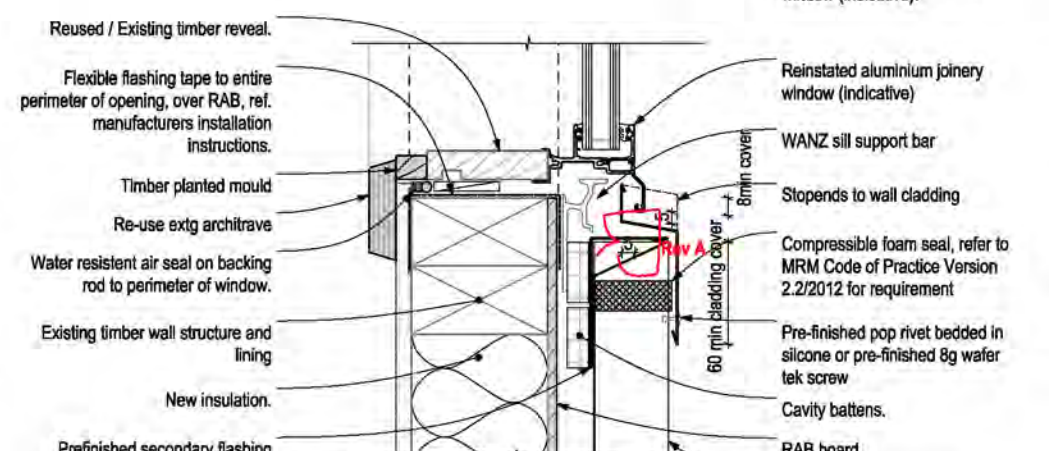
Refer to manufacturers specifications and details



HEAD



JAMB



SILL

D-01 Aluminium Joinery – Plywood Cladding A 1:5

D-02 Aluminium Joinery – Vertical P.M Cladding 1:5

Rev	Notes	Date
A	Notes updated	21/11/17

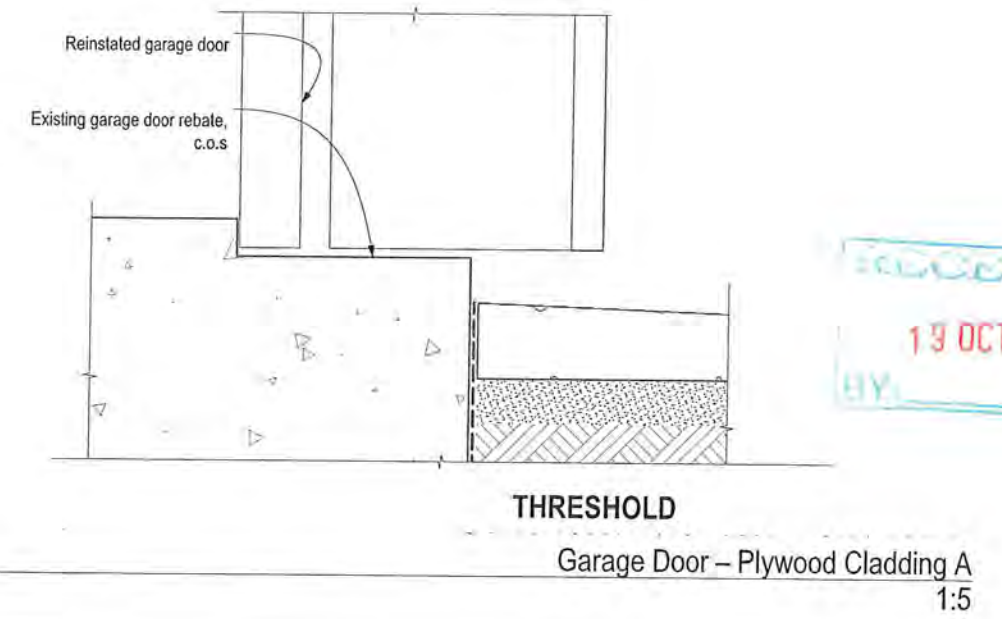
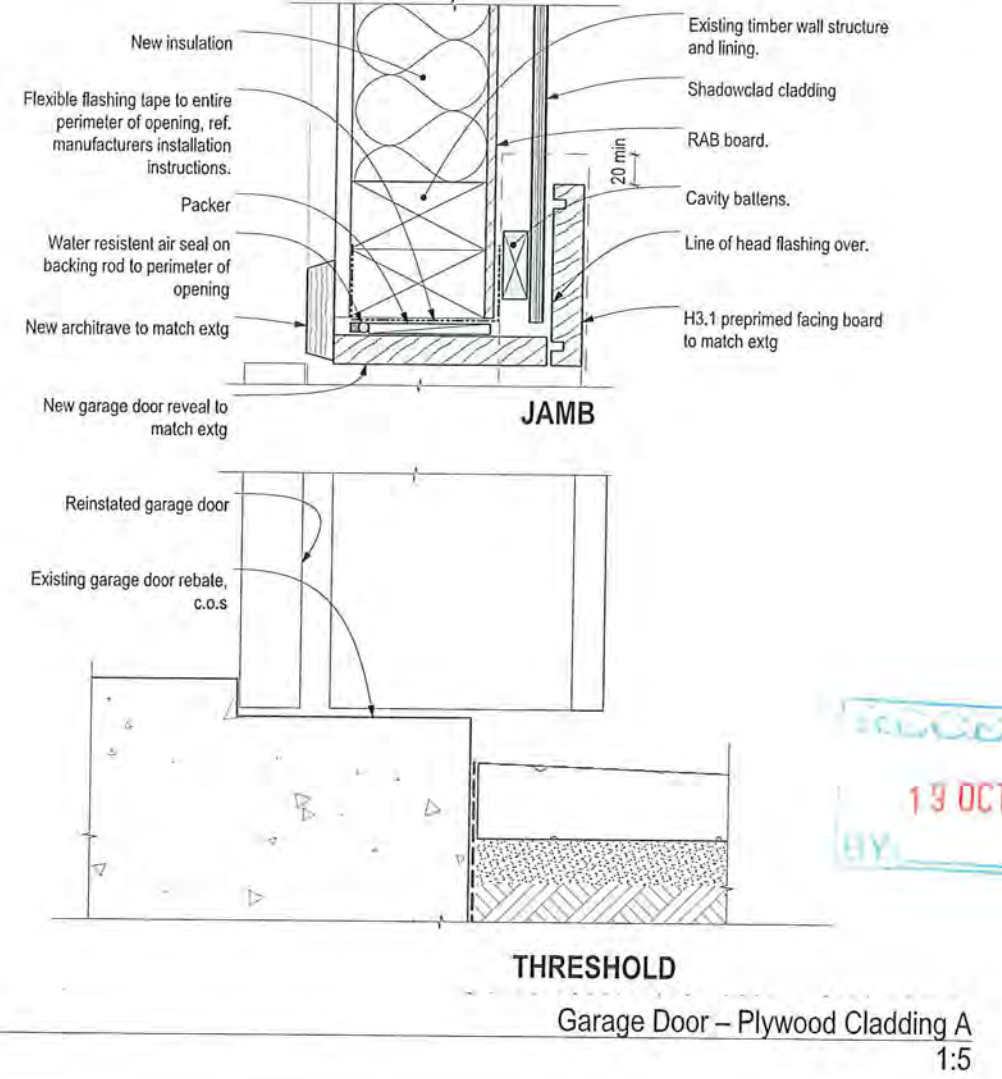
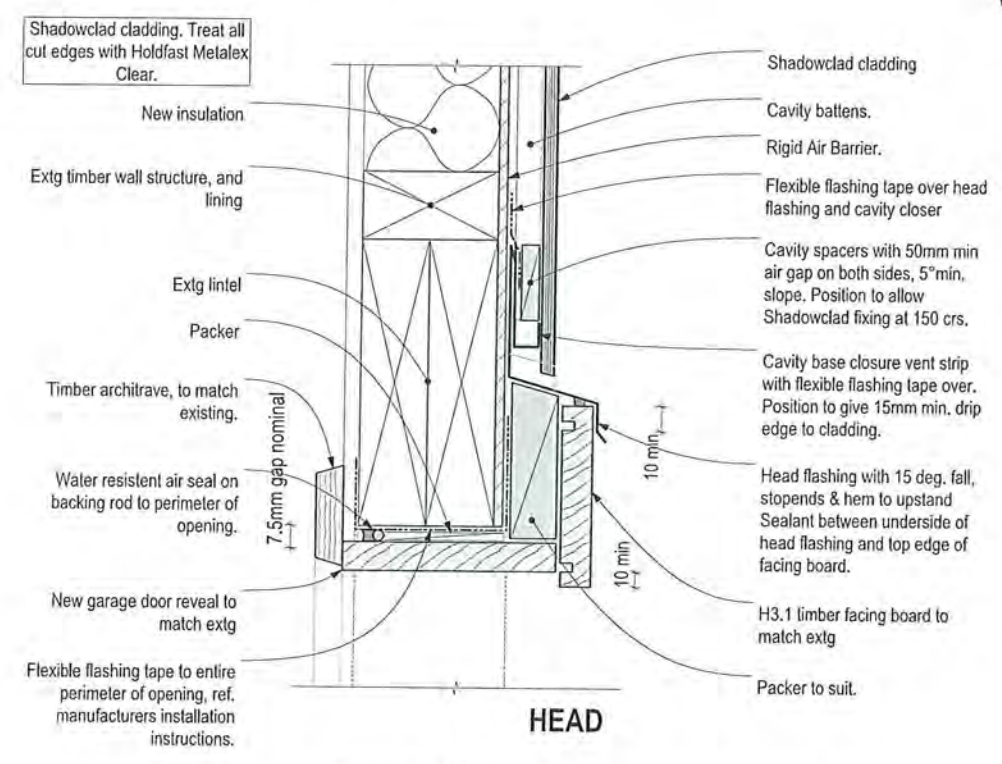
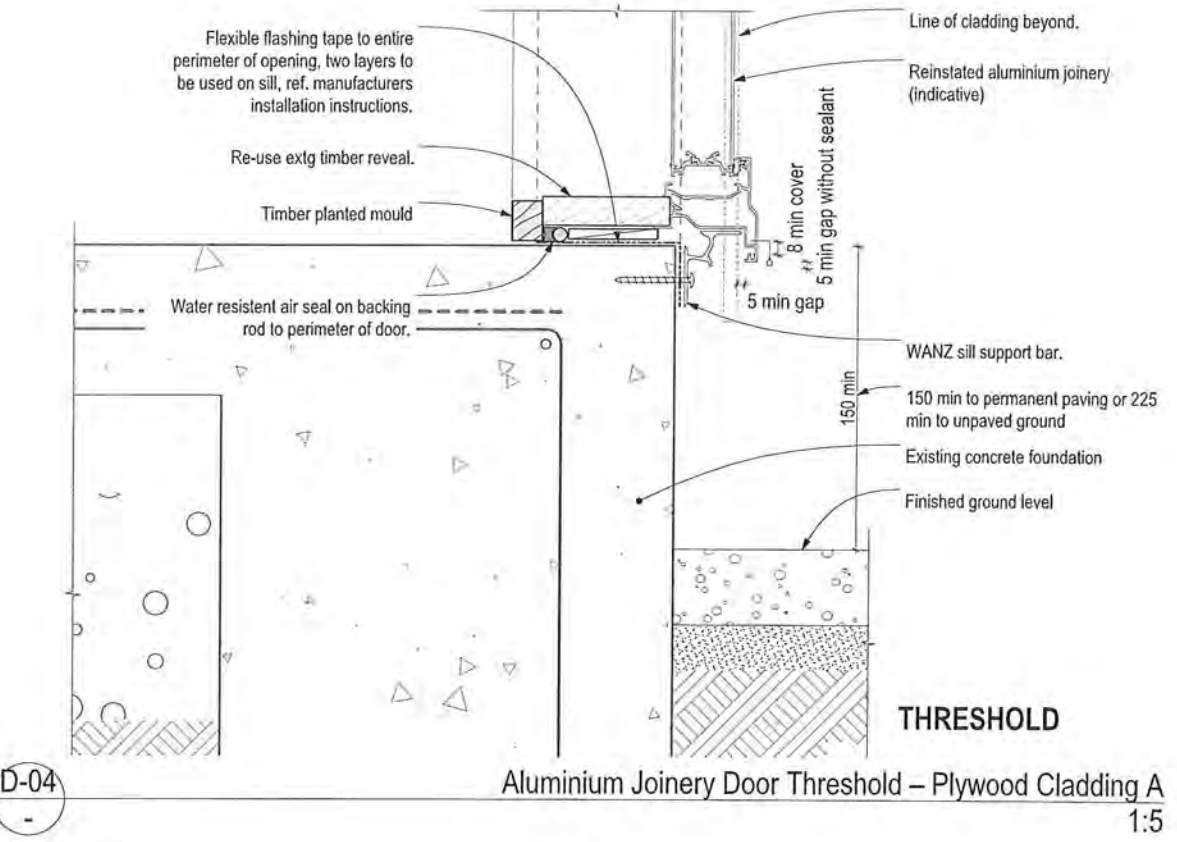
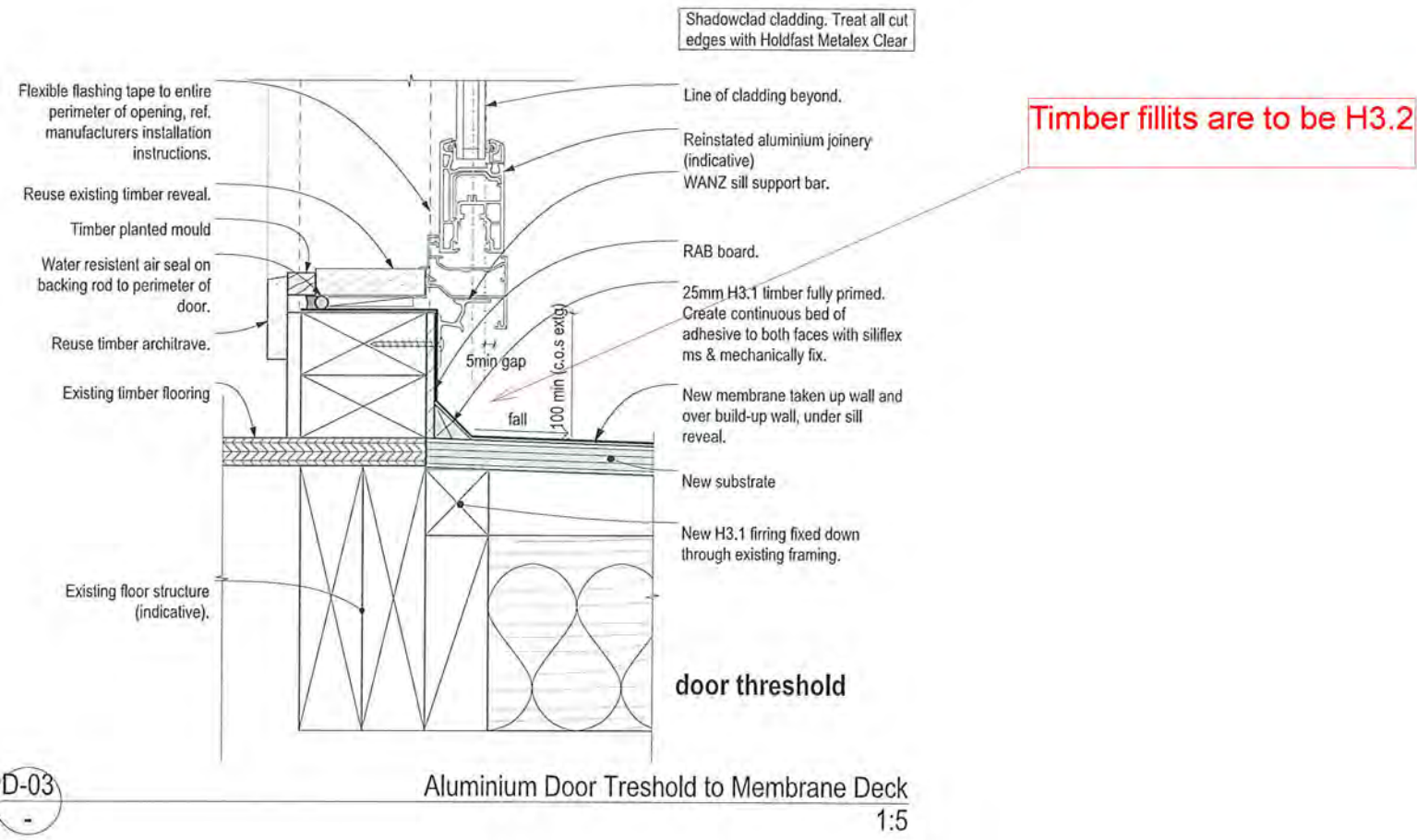
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Drawing Title:
Construction Details - Joinery Rev A
Project Number: R17104 Status: BC and Tender
Date: 23/11/2017 Scale: As Shown Size: A3
Drawing No. Revision No.
500 A

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Rev	Notes	Date

RESOLVE IT ARCHITECTS

LEVEL 1, 171 VIVIAN STREET, TE ARO
PO BOX 9792, WELLINGTON

RESOLVEITARCHITECTS.CO.NZ

Client:
Werner and Andrea Naef

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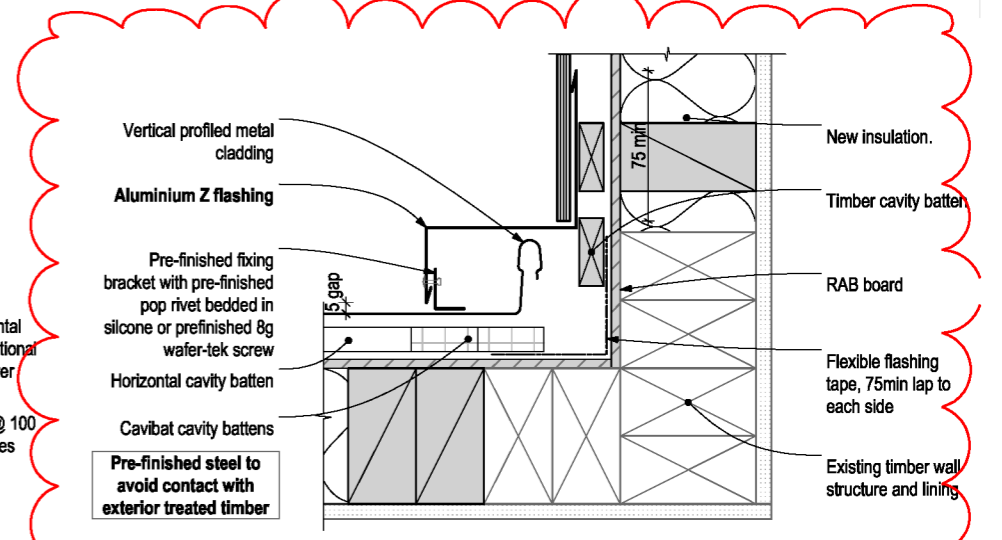
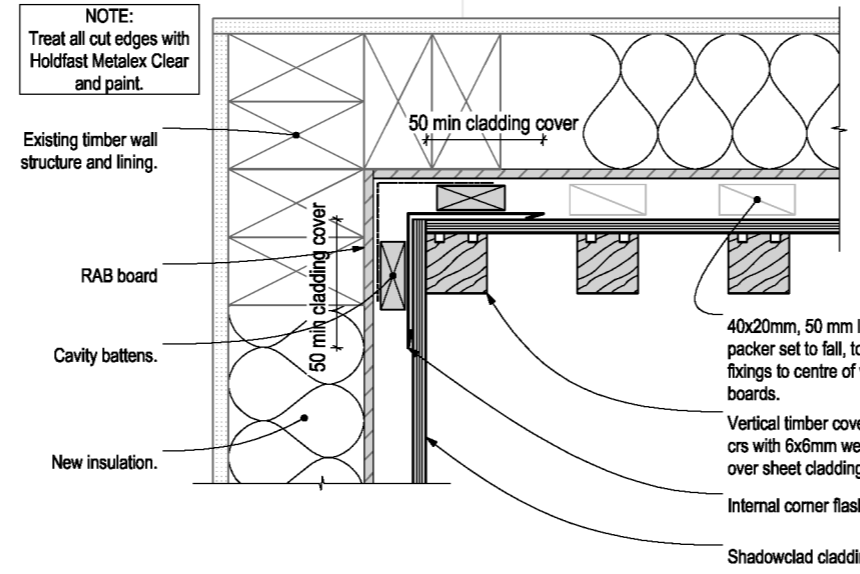
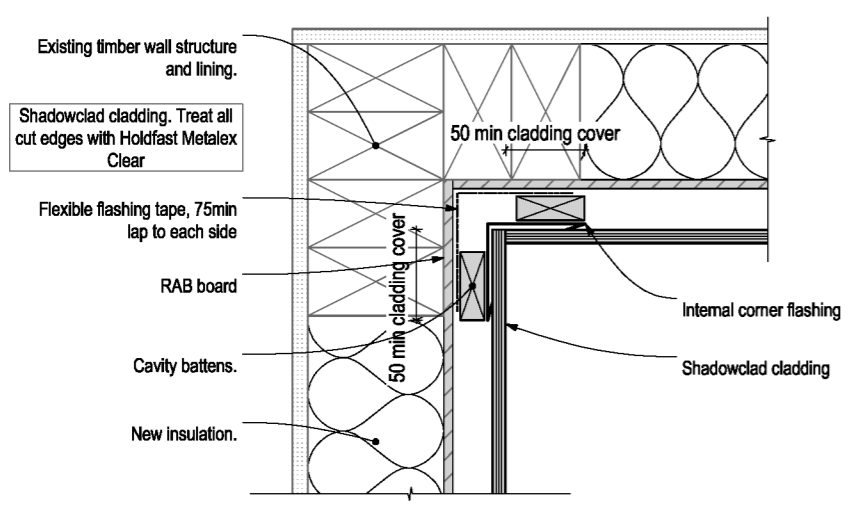
Project Name:
155 Field Way Cladding Remediation

Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Joinery

Project Number: R17104	Status: BC and Tender
Date: 17/10/2017	Scale: As Shown
Drawing No. 501	Revision No.

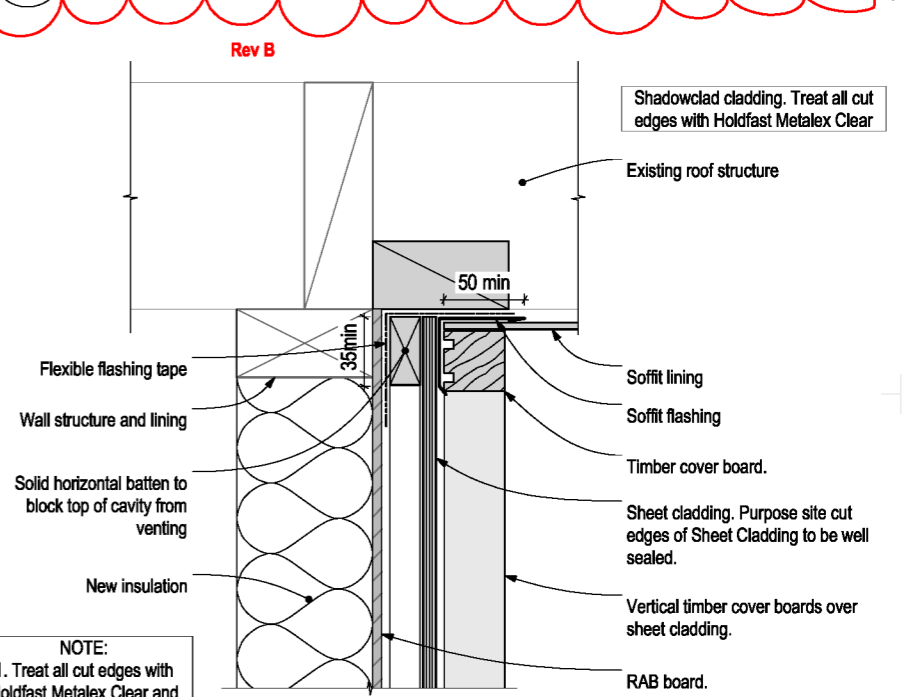
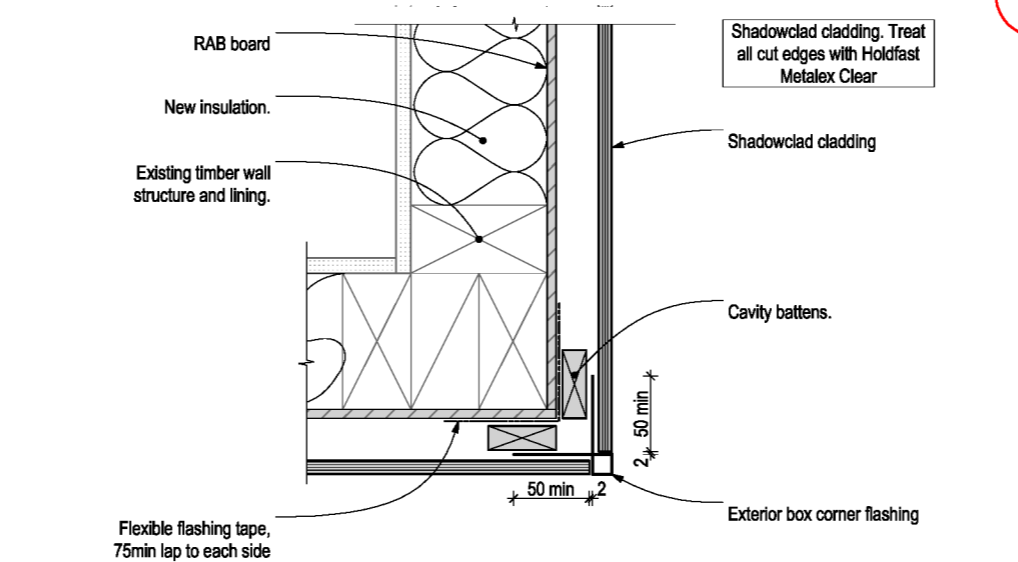
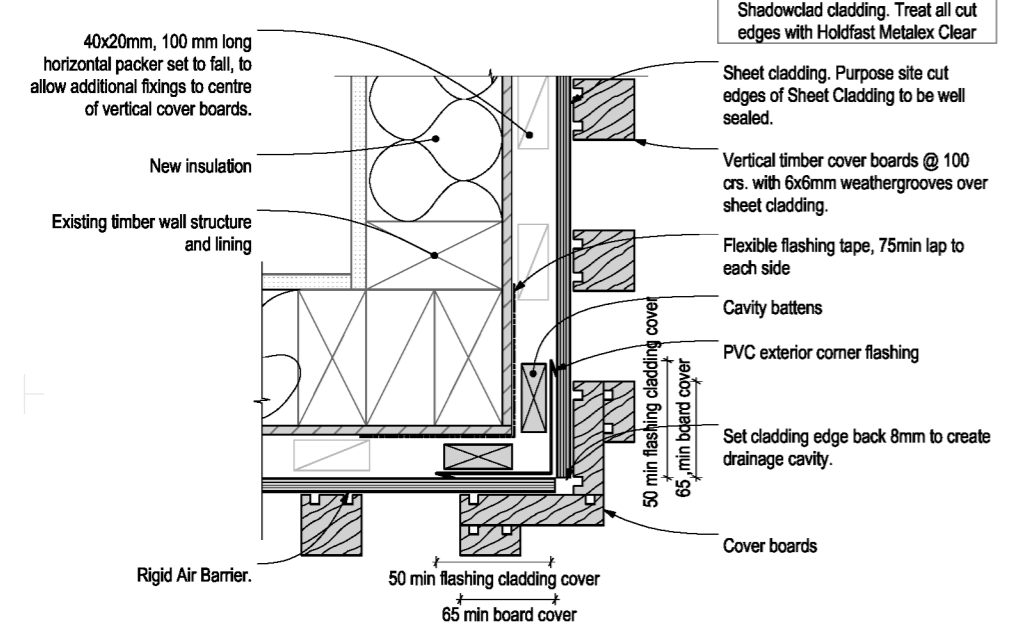
C:\Users\31177021\Documents\17104-155 Field Way\17104-155 Field Way Remediation\Option 1.dwg



D-06 - Plywood Cladding A – Internal Corner 1:5

D-07 - Plywood Cladding A to Plywood Clad B – Internal Corner 1:5

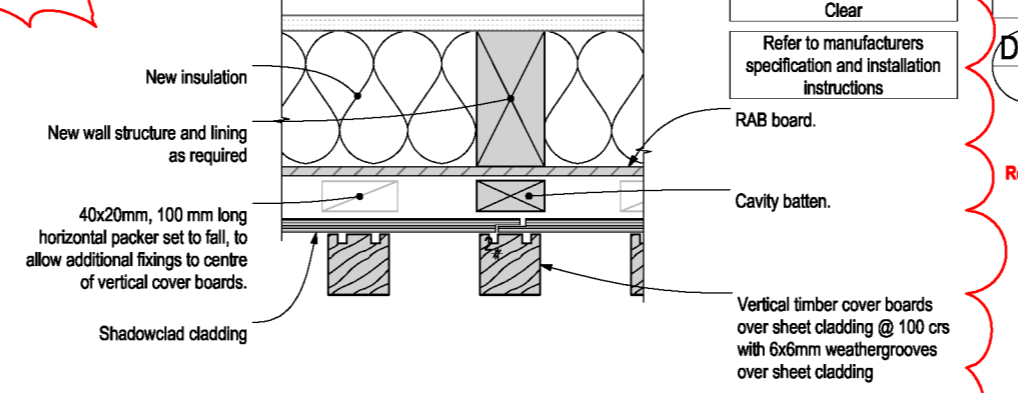
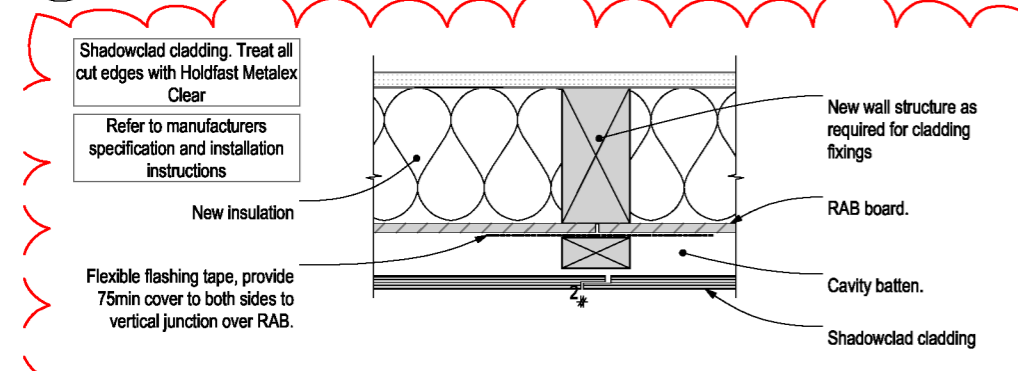
D-08 - Plywood Clad A to Vertical P.M Cladding – Internal Corner 1:5



D-09 - Plywood Cladding B – External Corner 1:5

D-10 - Plywood Cladding A – External Corner 1:5

D-11 - Plywood Cladding B – Top of Wall to Soffit 1:5



D-12 - Plywood Cladding A - Vertical Junction 1:5

D-13 - Plywood Cladding B - Vertical Junction Detail 1:5

170818
Further Information Received
21/12/2017

Rev	Notes	Date
A	Notes and details updated	21/11/17
B	D-08 Updated	20/12/17

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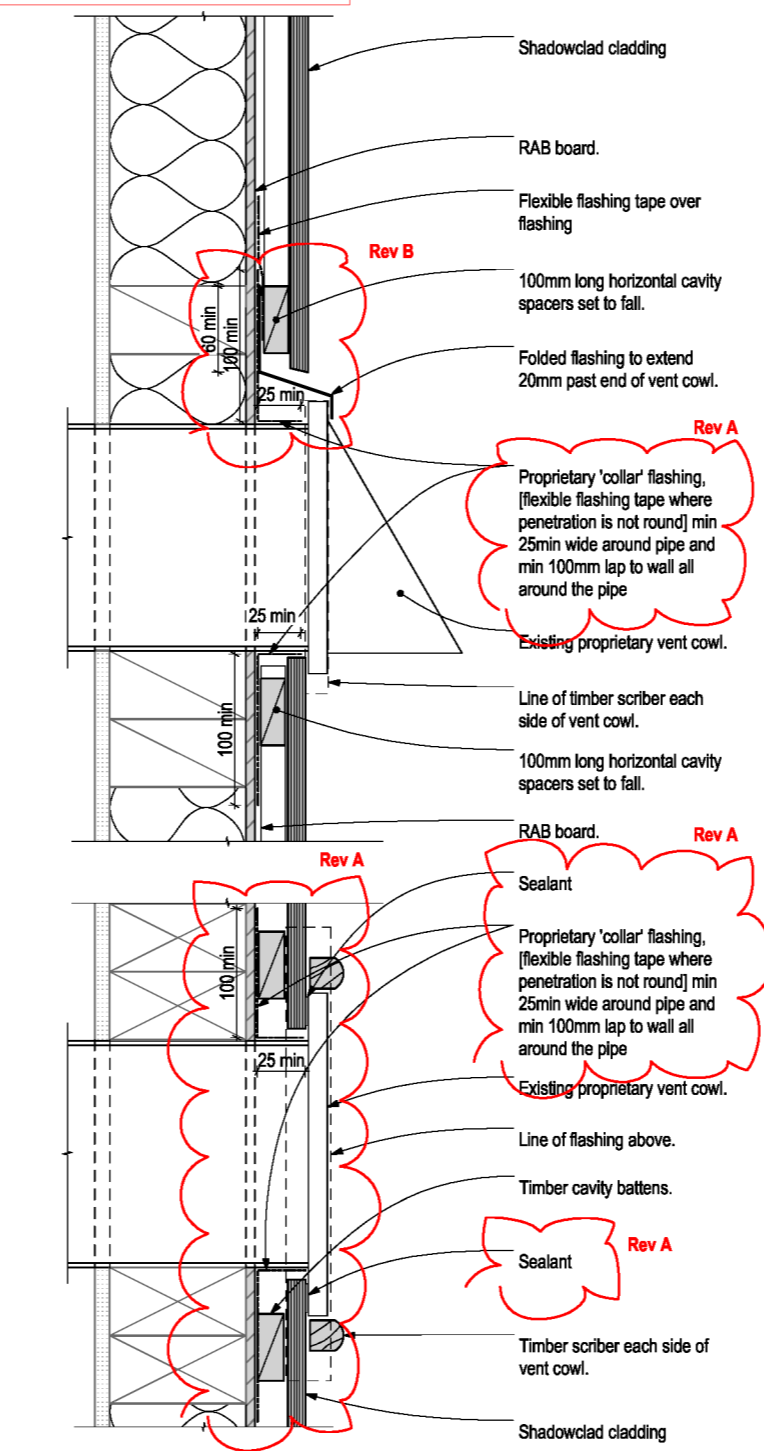
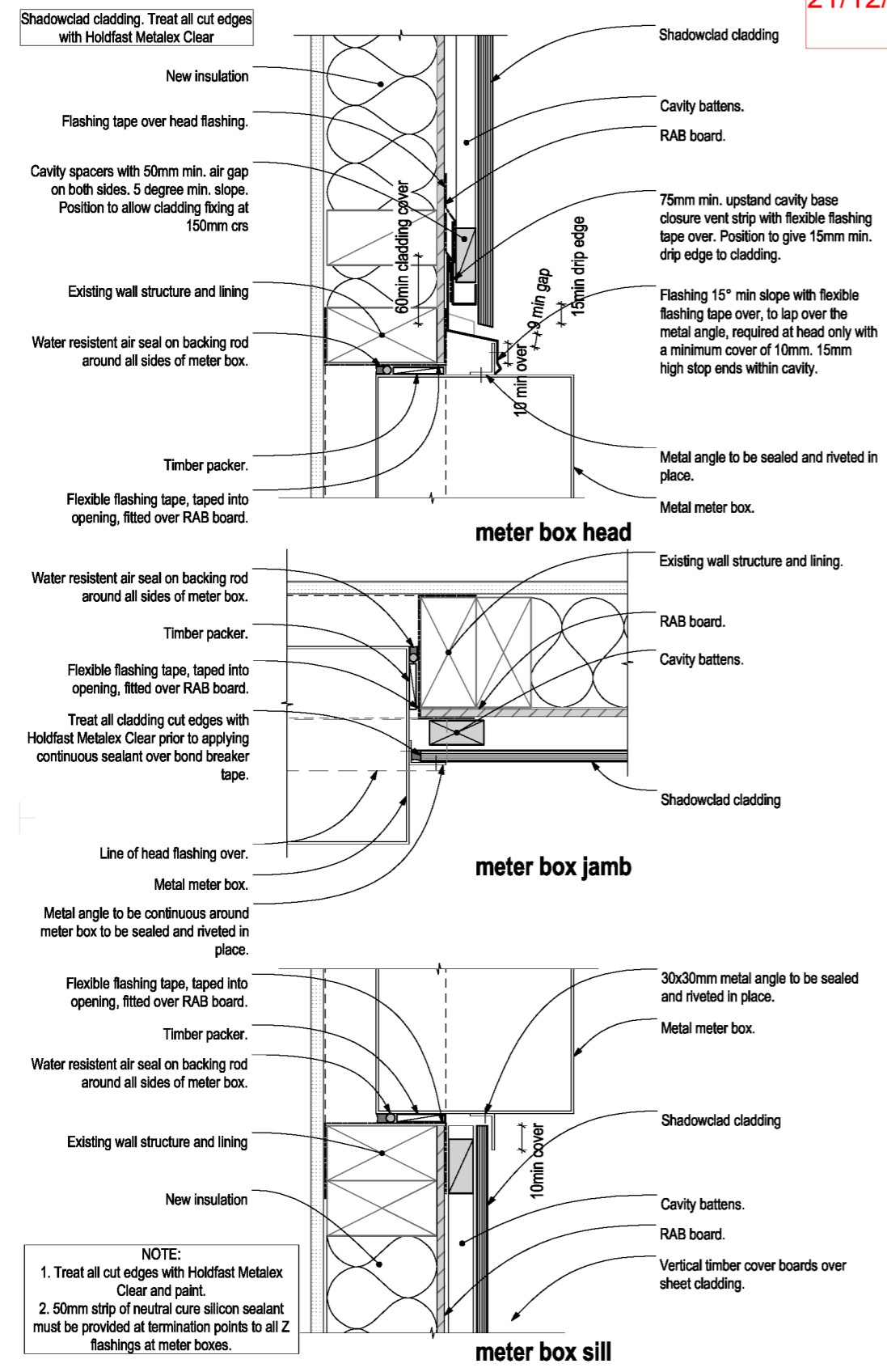
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155 Field Way Cladding Remediation
Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Cladding Rev B
Project Number: R17104 | Status: BC and Tender
Date: 20/12/2017 | Scale: As Shown | Size: A3
Drawing No. **502** | Revision No. **B**

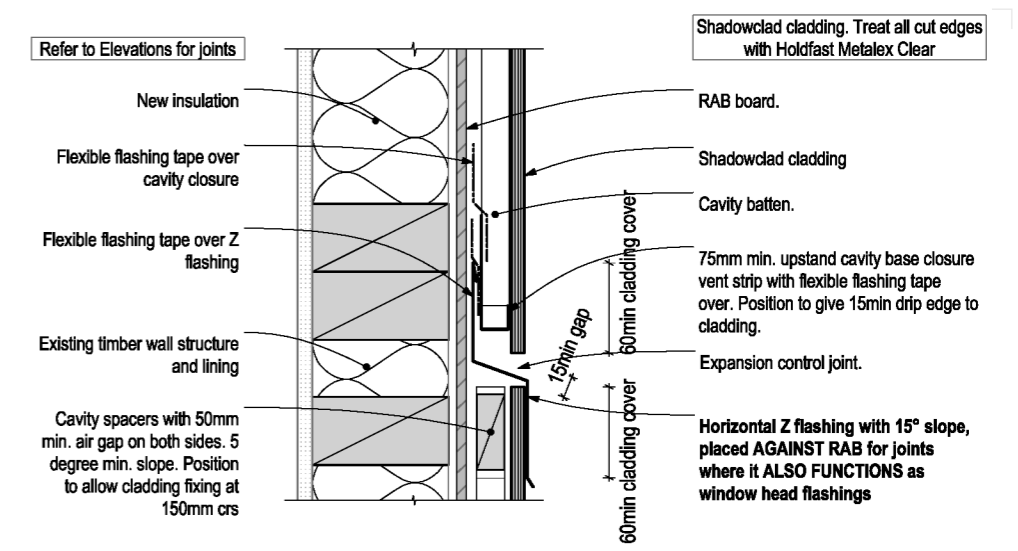
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Further Information Received
21/12/2017

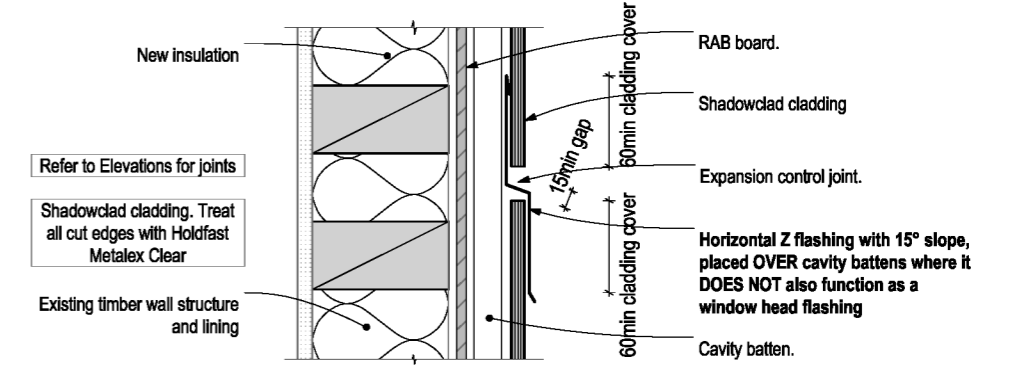
NOTE:
1. Treat all cut edges with Holdfast Metalex Clear and paint.



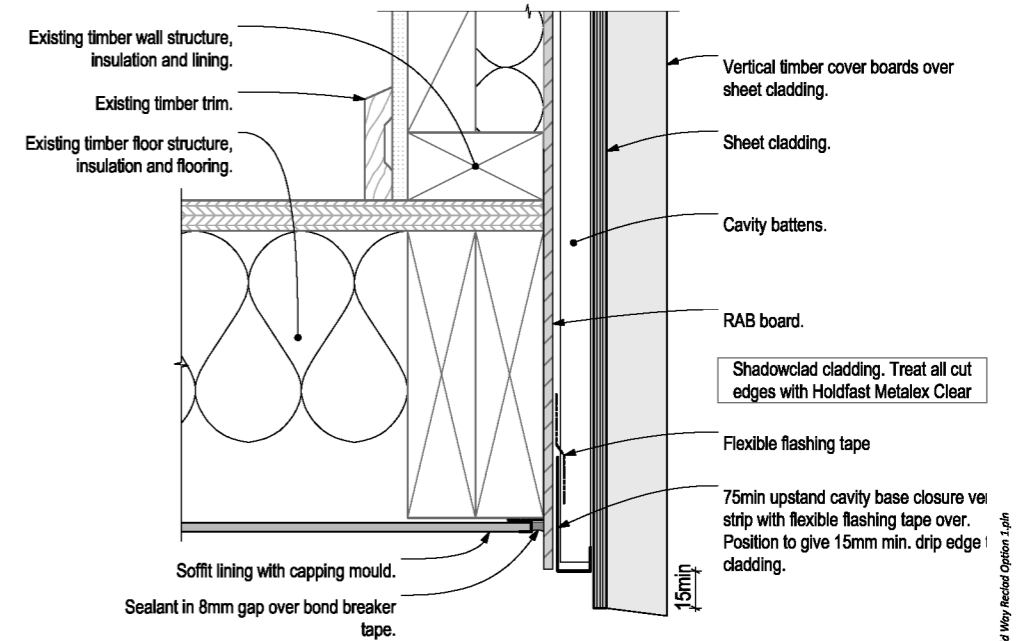
D-15 Plywood Cladding A - Typical Pipe Penetration Detail 1:5



D-16 Plywood Cladding A - Horizontal Junction A 1:5



D-16b Plywood Cladding A - Horizontal Junction B 1:5



D-17 Plywood Cladding B - Base of Wall to Soffit 1:5

D-14 Plywood Cladding A - Meterbox Detail 1:5

Rev	Notes	Date
A	Details/Notes updated	21/11/17
B	D-15 head flashing and tape updated	13/12/17

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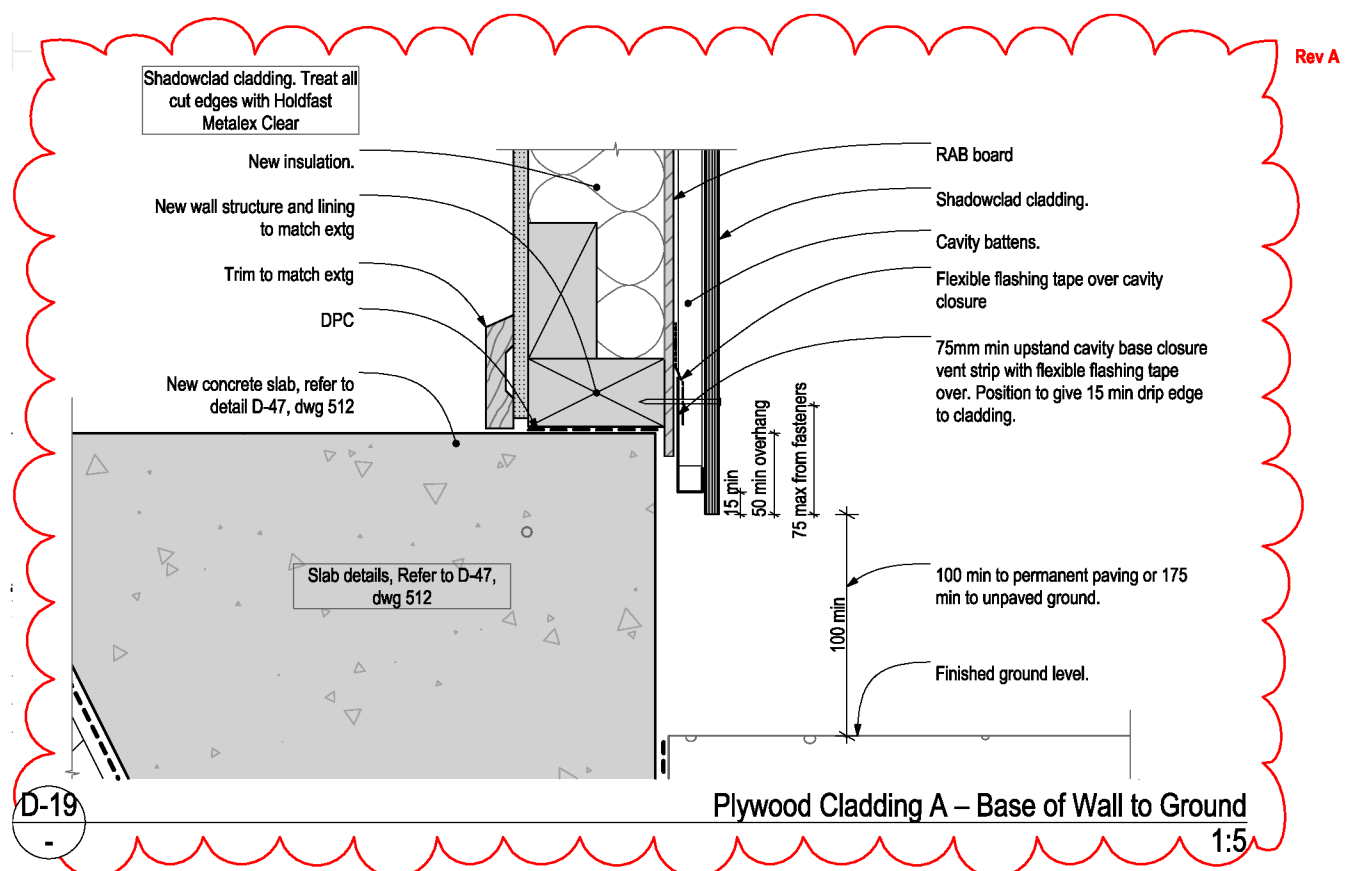
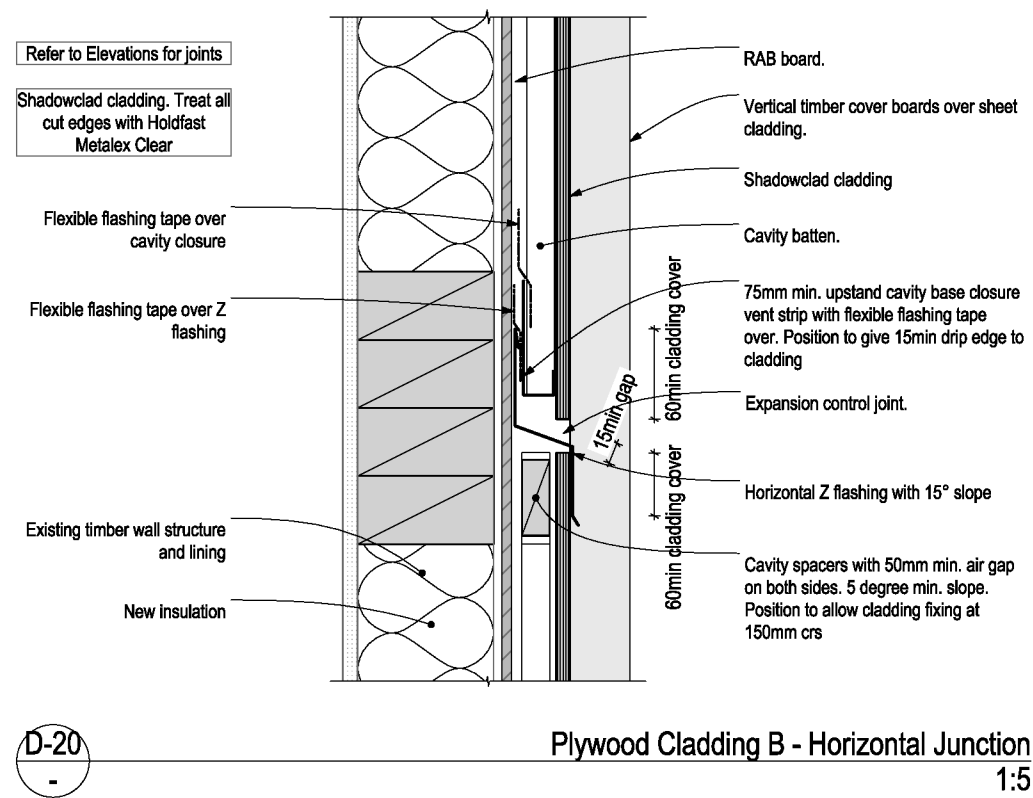
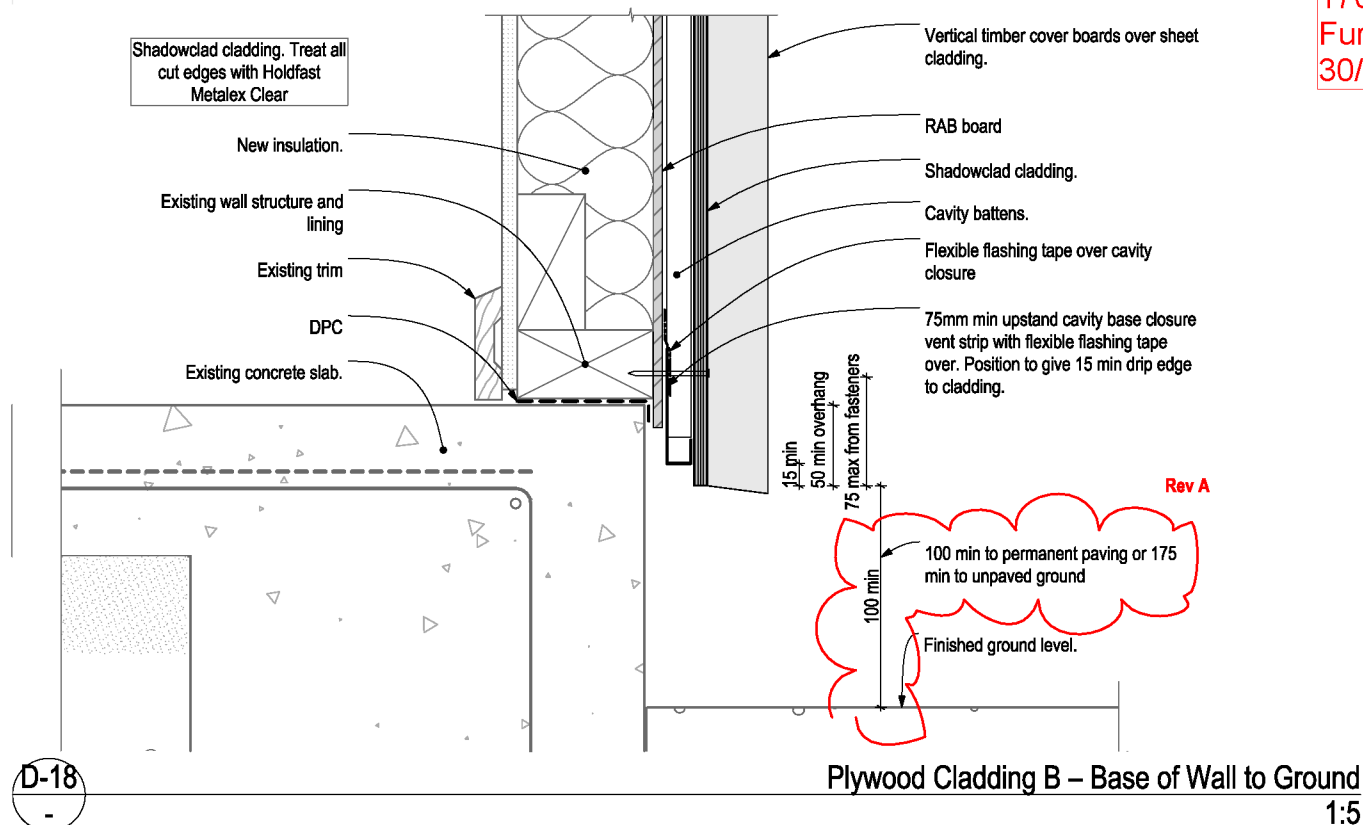
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Project Name:
155 Field Way Cladding Remediation
Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Cladding Rev B
Project Number: R17104 Status: BC and Tender
Date: 20/12/2017 Scale: As Shown Size: A3
Drawing No. **503** Revision No. **B**

D:\170818-155 Field Way\17104 Field Way Remediation Option 1.dwg

170818
 Further Information Received
 30/11/2017



Rev	Notes	Date
A	Details and notes updated	21/11/17

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Project Name:
155 Field Way Cladding Remediation

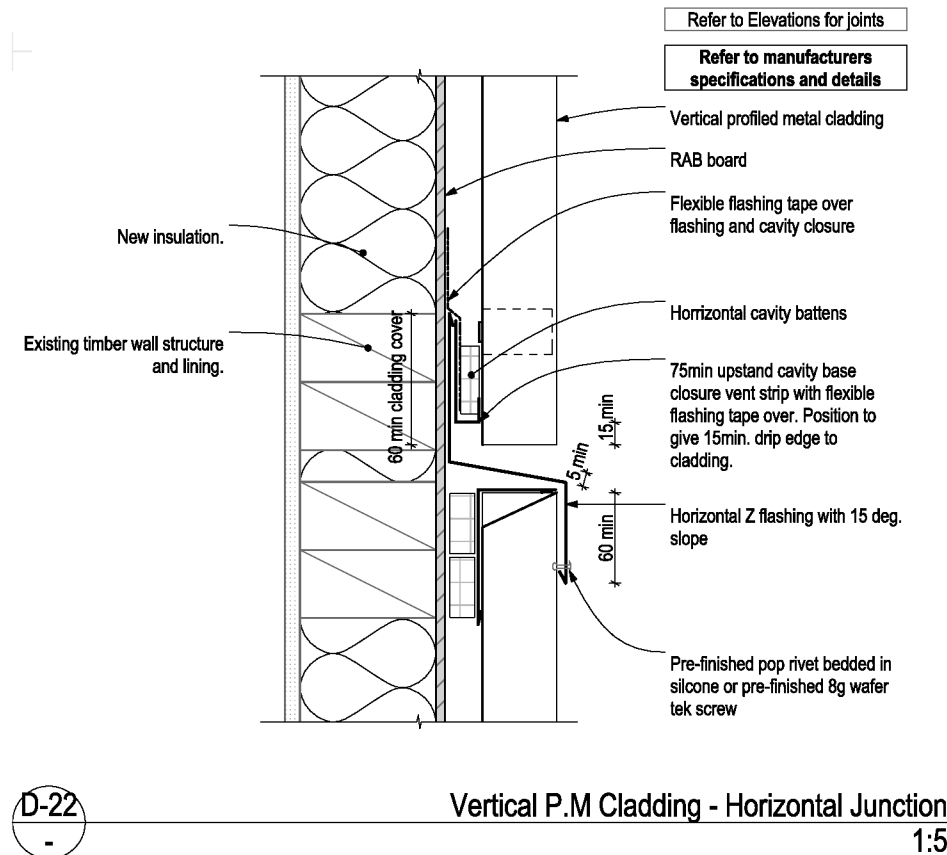
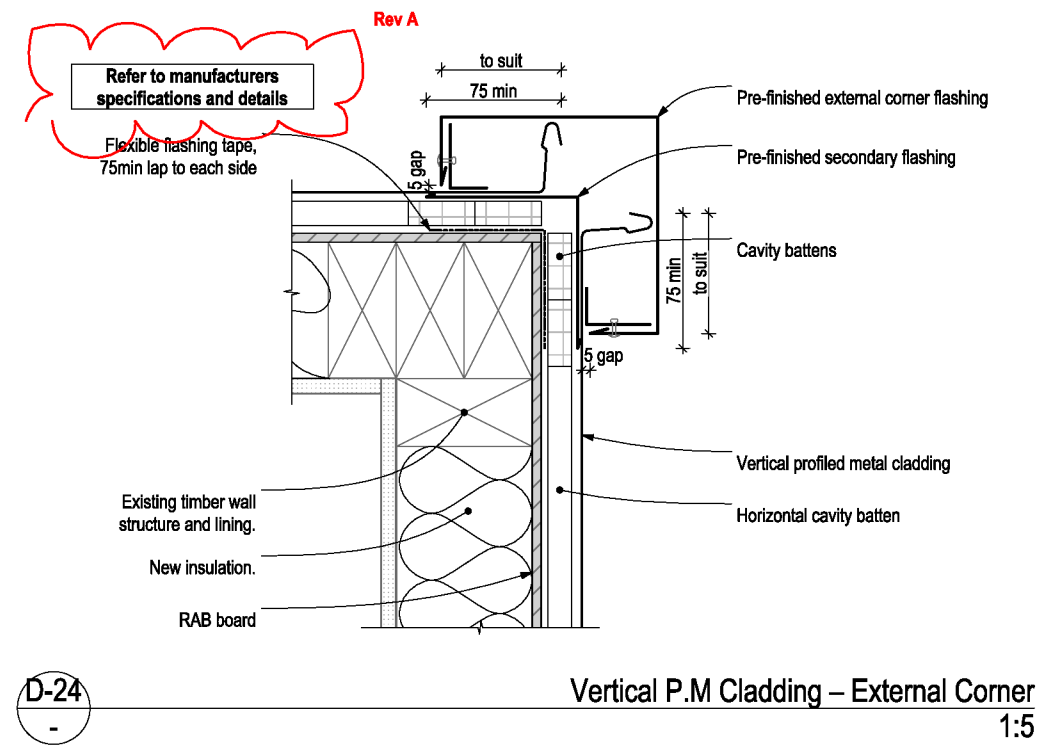
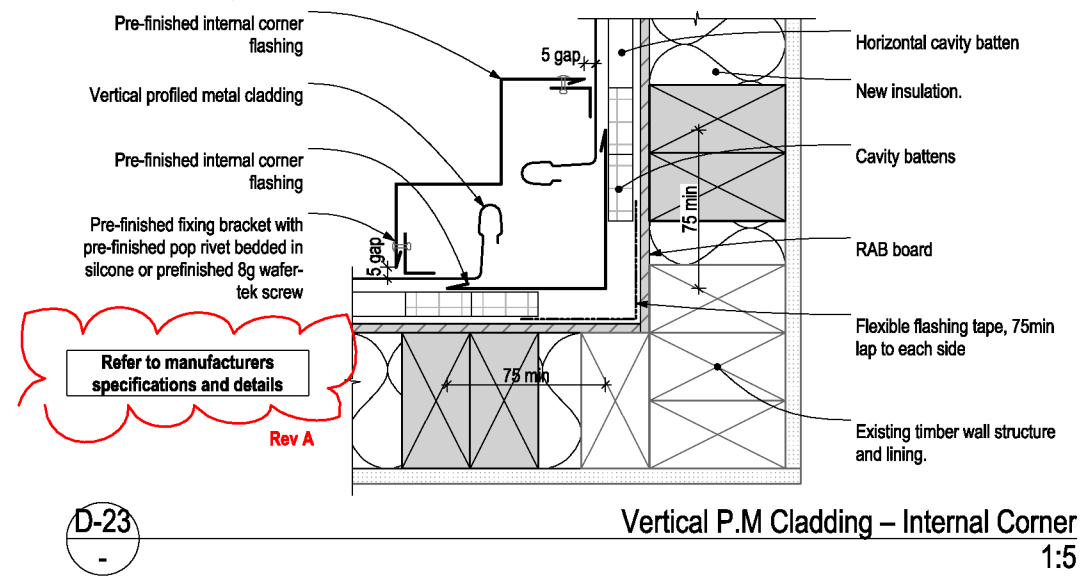
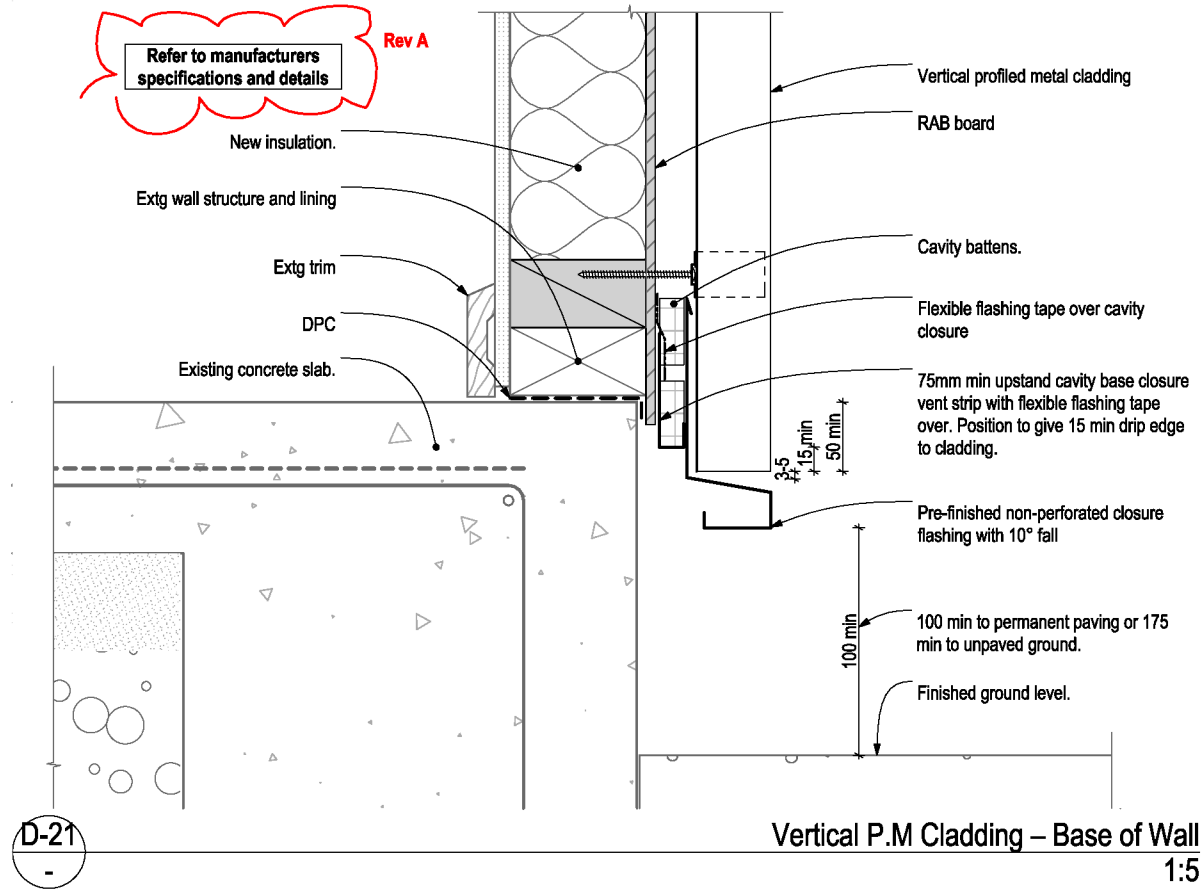
Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Cladding Rev A

Project Number: R17104 Status: BC and Tender
 Date: 23/11/2017 Scale: As Shown Size: A3

Drawing No. Revision No.
504 **A**

CAD File: S:\Projects\17104 - 155 Field Way\A-Cad\17104 Field Way Remed Option 1.rvt



Rev	Notes	Date
A	Notes updated	21/11/17

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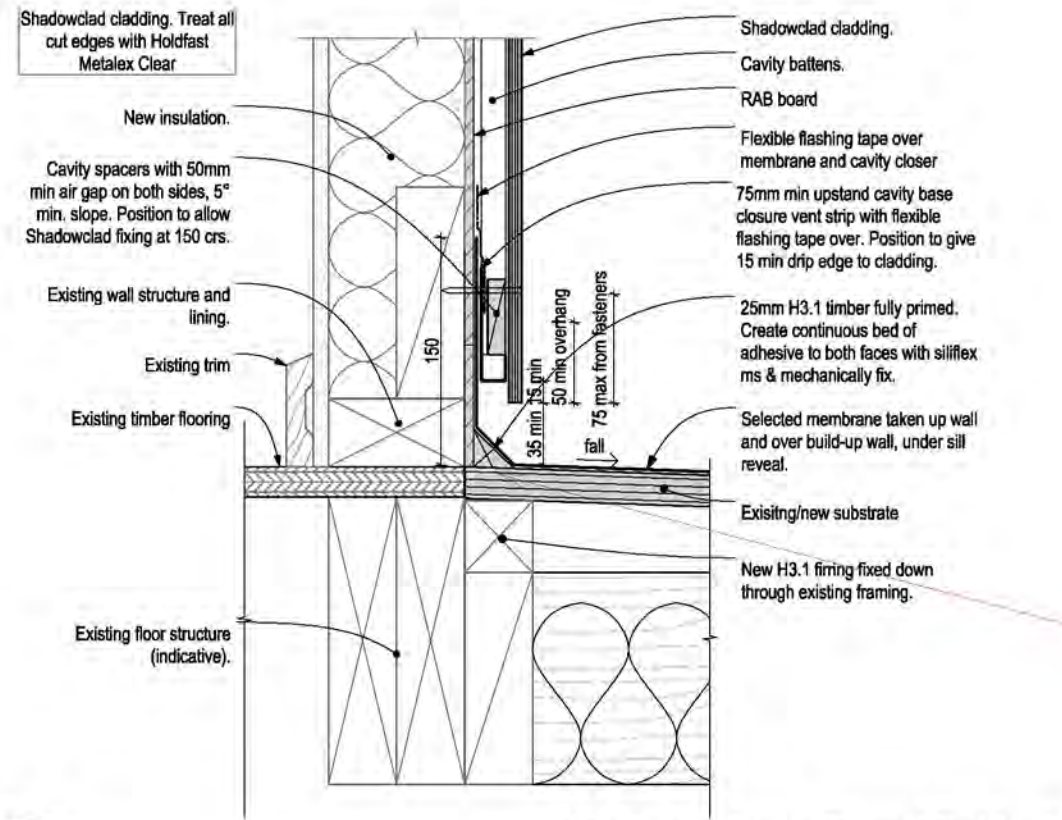
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155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Cladding Rev A

Project Number: R17104
Date: 23/11/2017

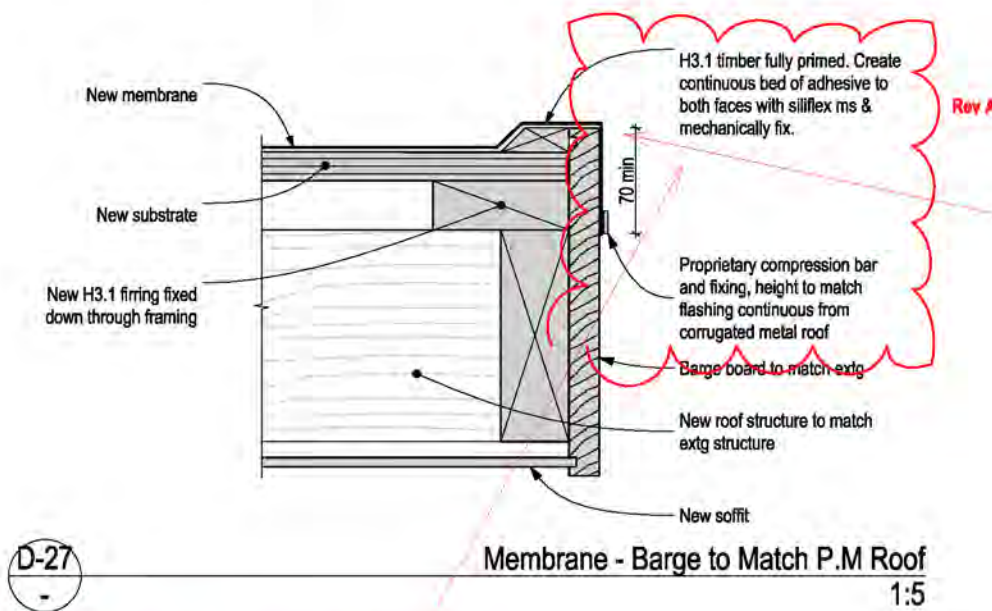
Status: BC and Tender
Scale: As Shown Size: A3

Drawing No. **505**
Revision No. **A**



Membrane - Apron - Plywood Cladding A
1:5

D-25



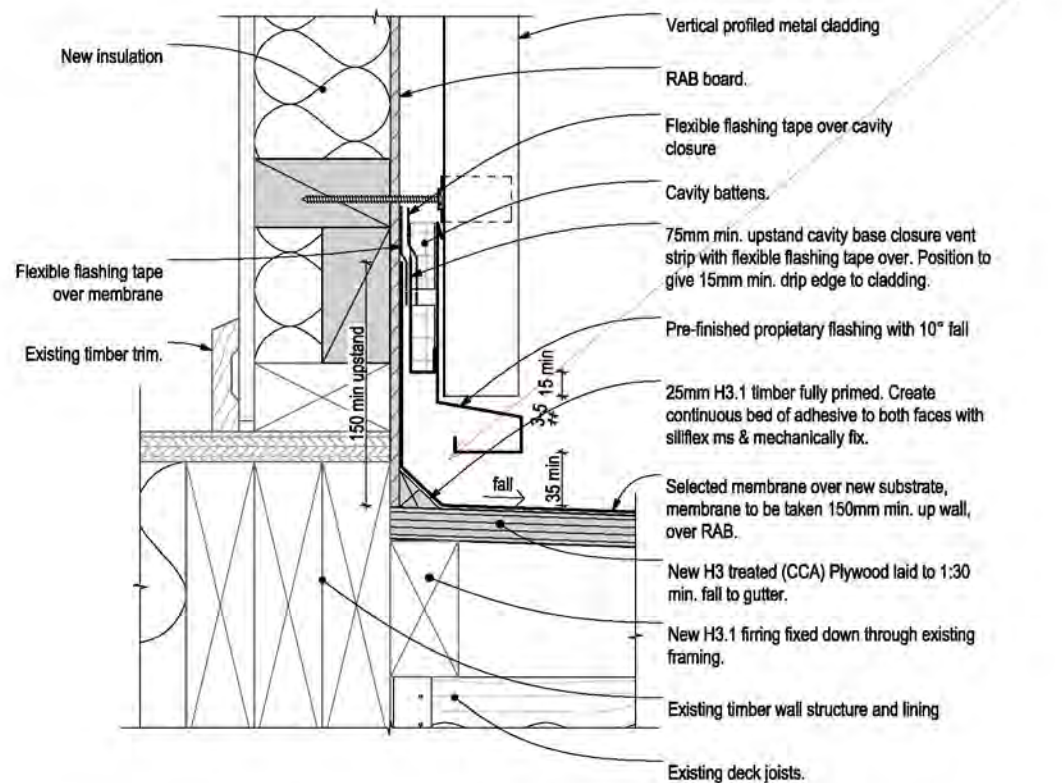
Membrane - Barge to Match P.M Roof
1:5

D-27

Timber fillets are to be H3.2

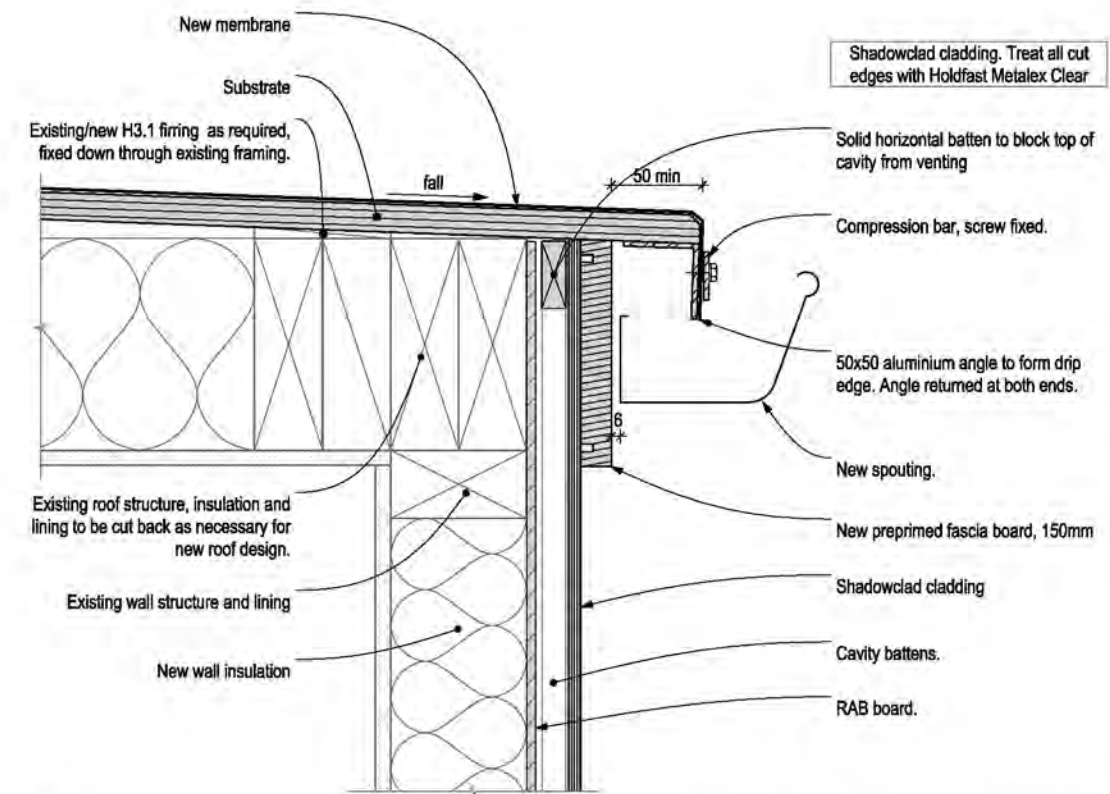
170818
Further Information Received
30/11/2017

edge to be chamfered



Membrane - Apron - Vertical P.M Cladding
1:5

D-26



Membrane - Eave - Flush - Plywood Cladding A
1:5

D-28

Rev	Notes	Date
A	Details and notes updated	21/11/17

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Project Address:
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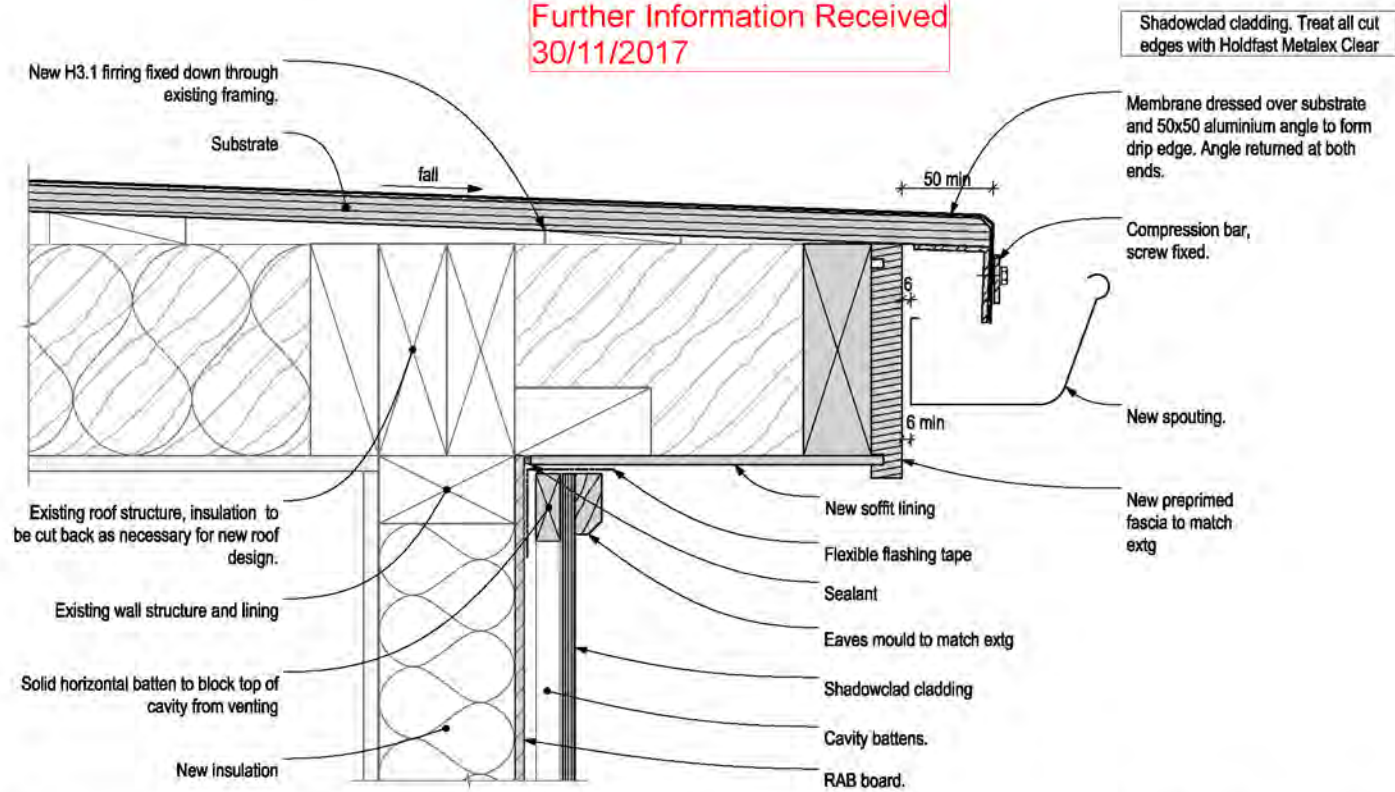
Drawing Title:
Construction Details - Roof Rev A

Project Number: R17104 Status: BC and Tender
Date: 23/11/2017 Scale: As Shown Size: A3

Drawing No. Revision No.
506 A

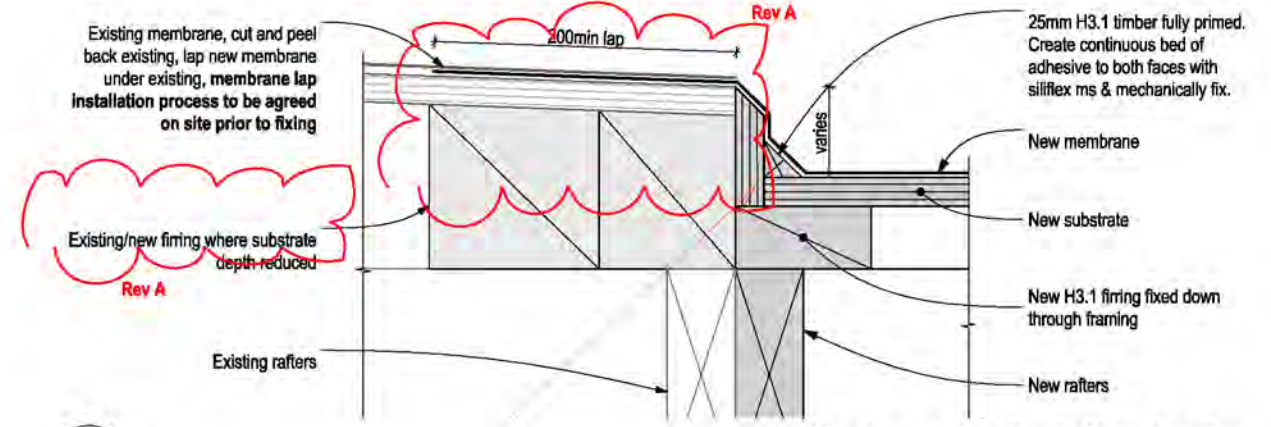
CAD File: S:\Projects\17104 - 155 Field Way\A-Cad\17104 Final Rev A.dwg

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30/11/2017



Membrane - Eave - Overhang - Plywood Cladding A
1:5

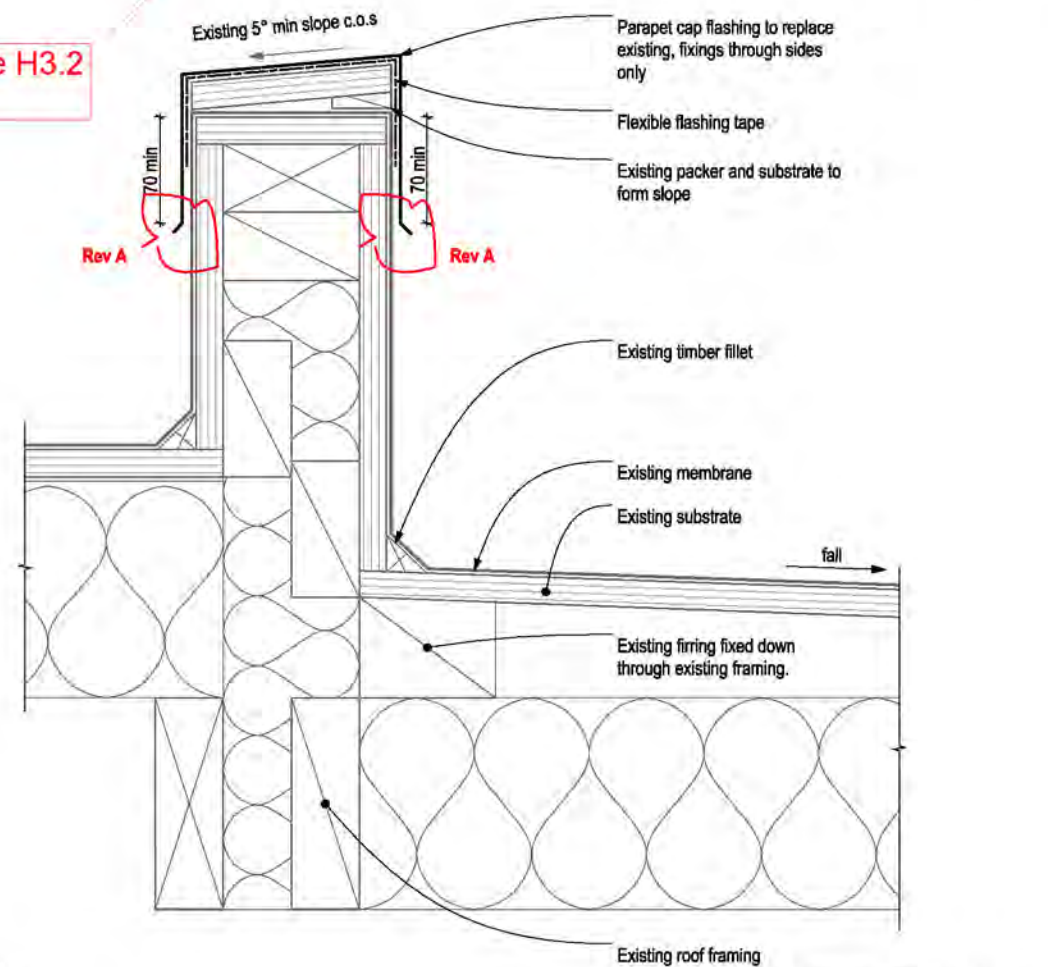
D-29



Membrane - Existing to New Junction
1:5

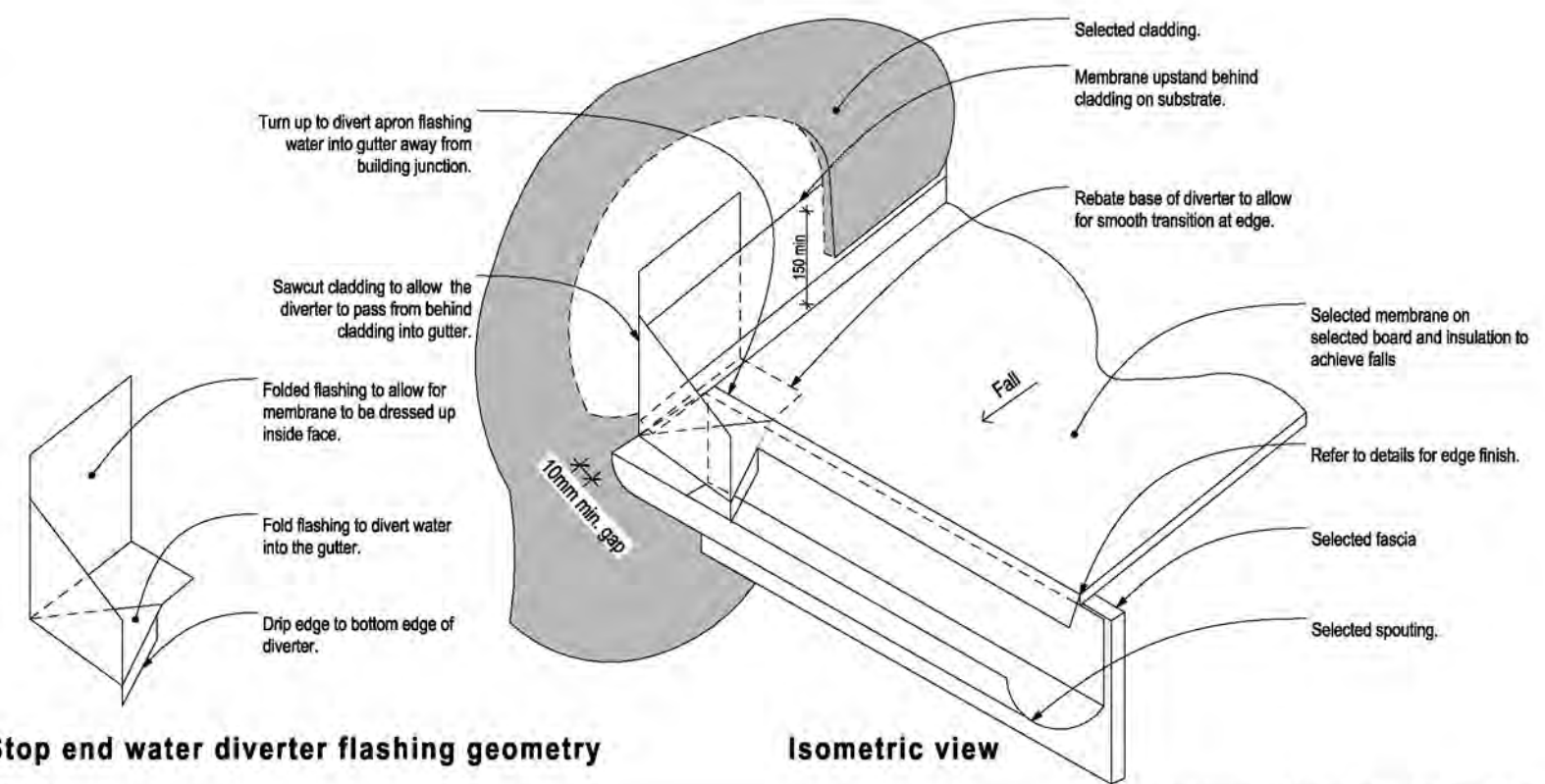
D-31

Timber fillets are to be H3.2



Membrane - Parapet - Membrane
1:5

D-32



Stop end water diverter flashing geometry

Isometric view

Membrane - Gutter to Wall Junction
1:5

D-30

Rev	Notes	Date
A	Details and notes updated	21/11/17

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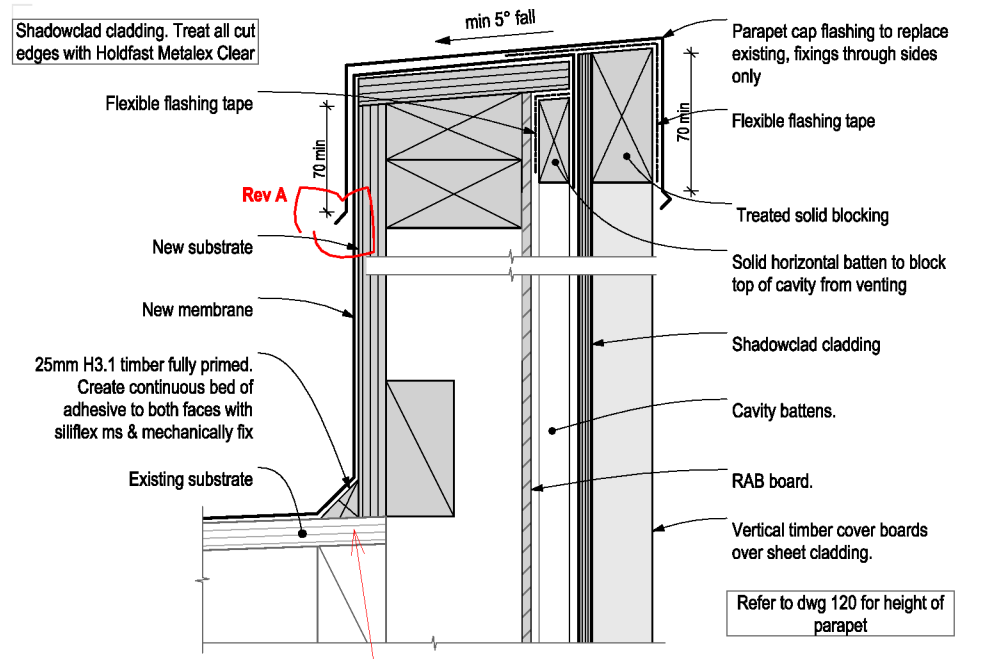
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Project Name:
155 Field Way Cladding Remediation
Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Roof Rev A
Project Number: R17104
Date: 23/11/2017
Drawing No. **507**
Status: BC and Tender
Scale: As Shown
Revision No. **A**

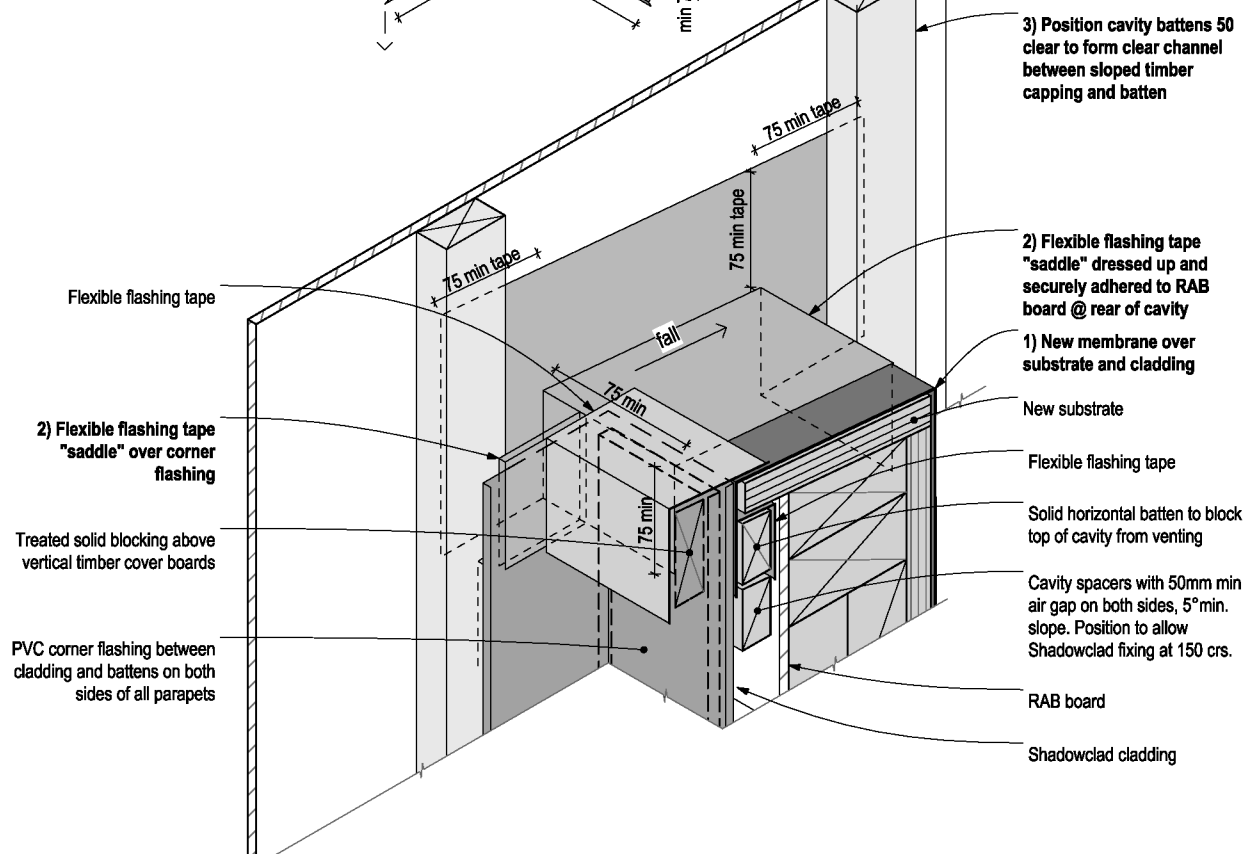
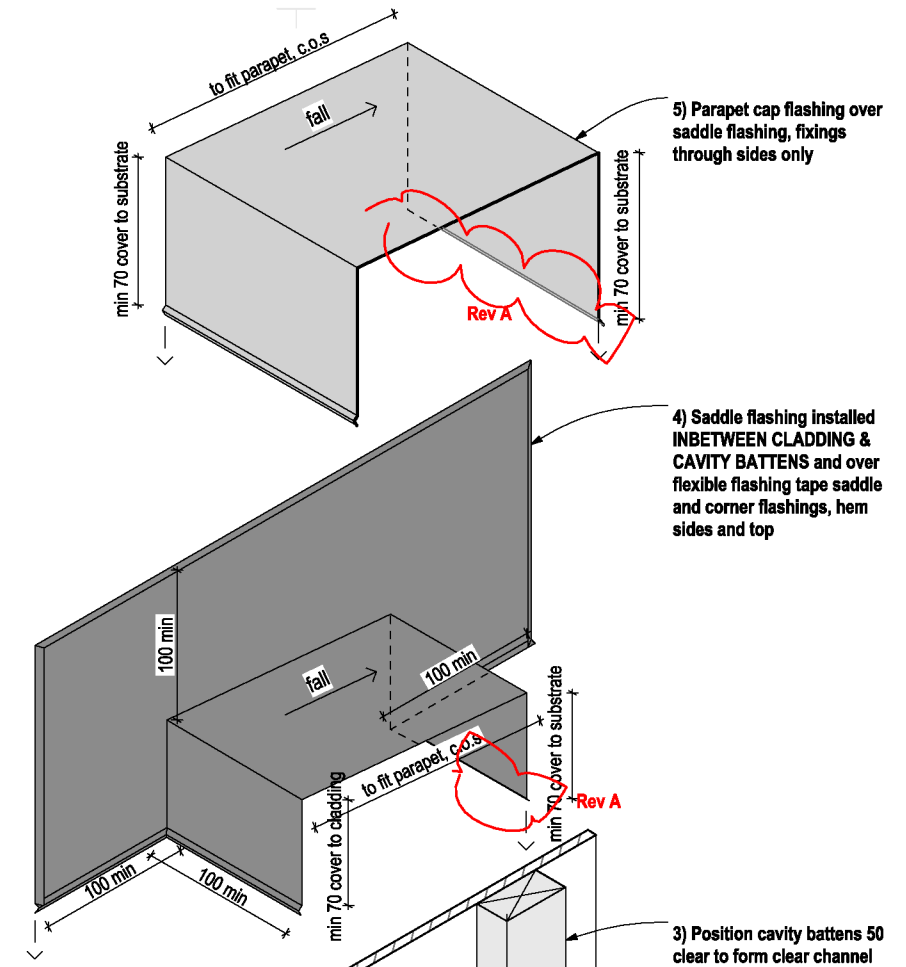
CAD File: S:\Projects\17104 - 155 Field Way\A-Cad\17104 Final Rev A.dwg

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30/11/2017



D-33
Membrane - Parapet - Plywood Cladding B
1:5

Timber fillets are to be H3.2



D-34
Membrane - Parapet - Saddle Flashing 1
1:5

Rev	Notes	Date
A	Details and notes updated	21/11/17

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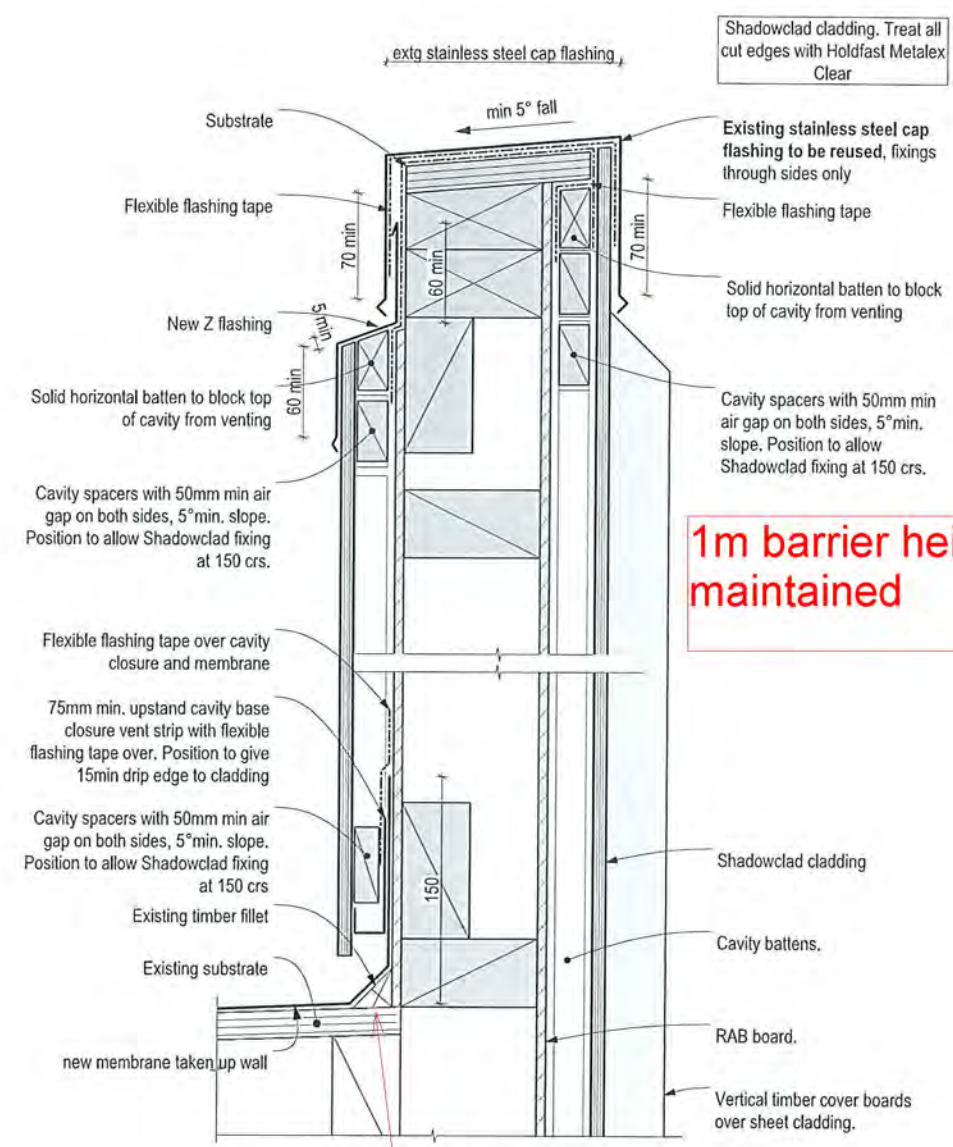
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Project Name:
155 Field Way Cladding Remediation
Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Roof Rev A
Project Number: R17104 | Status: BC and Tender
Date: 23/11/2017 | Scale: As Shown | Size: A3
Drawing No. **508** | Revision No. **A**

CAD File: S:\Projects\155 Field Way\A-Cad\155 Field Way Rev A Option 1.dwg

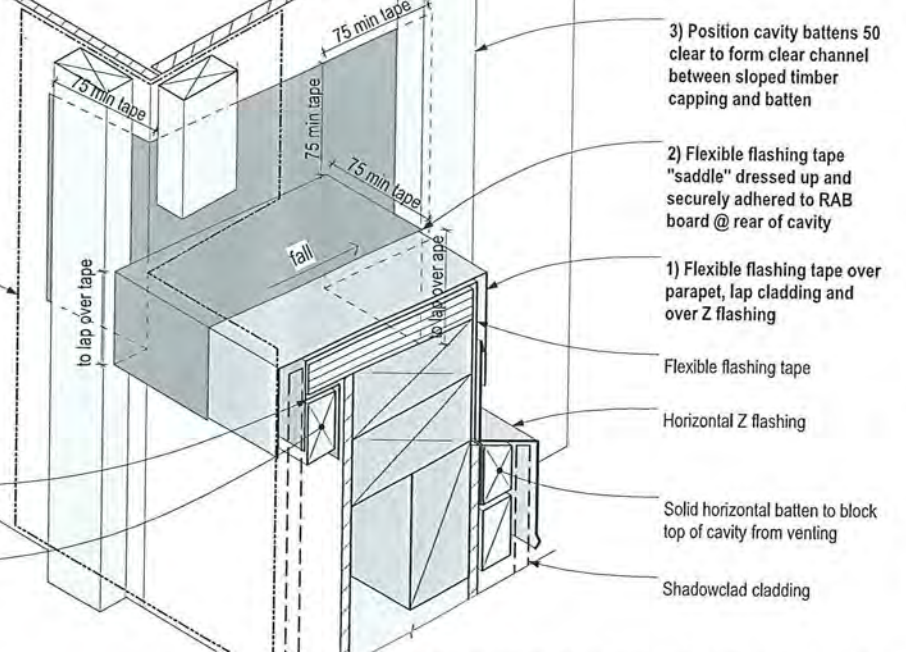
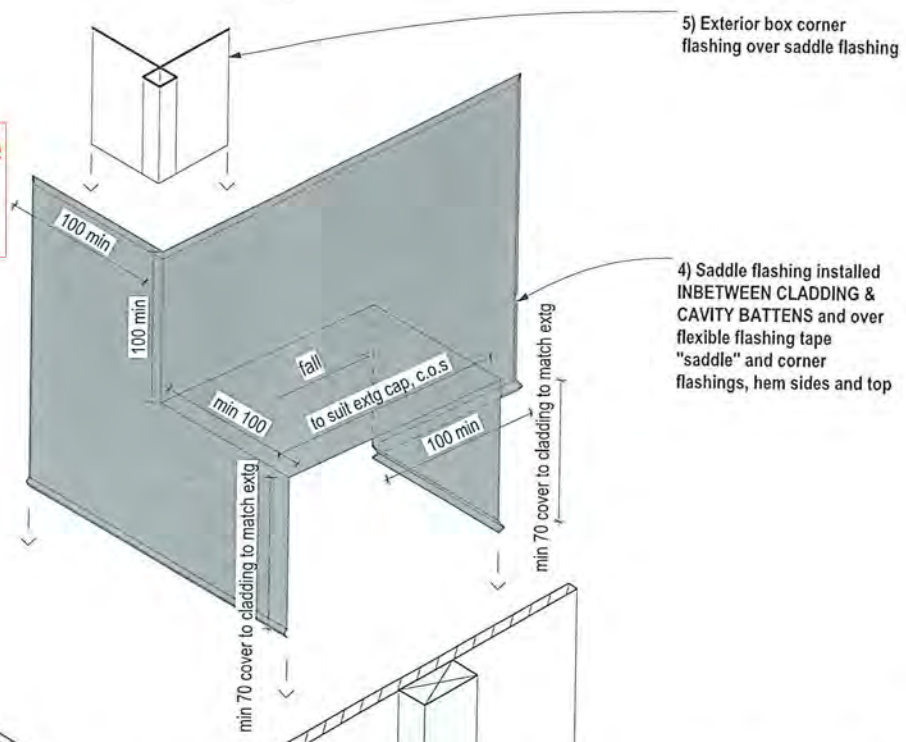
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19 OCT 2017



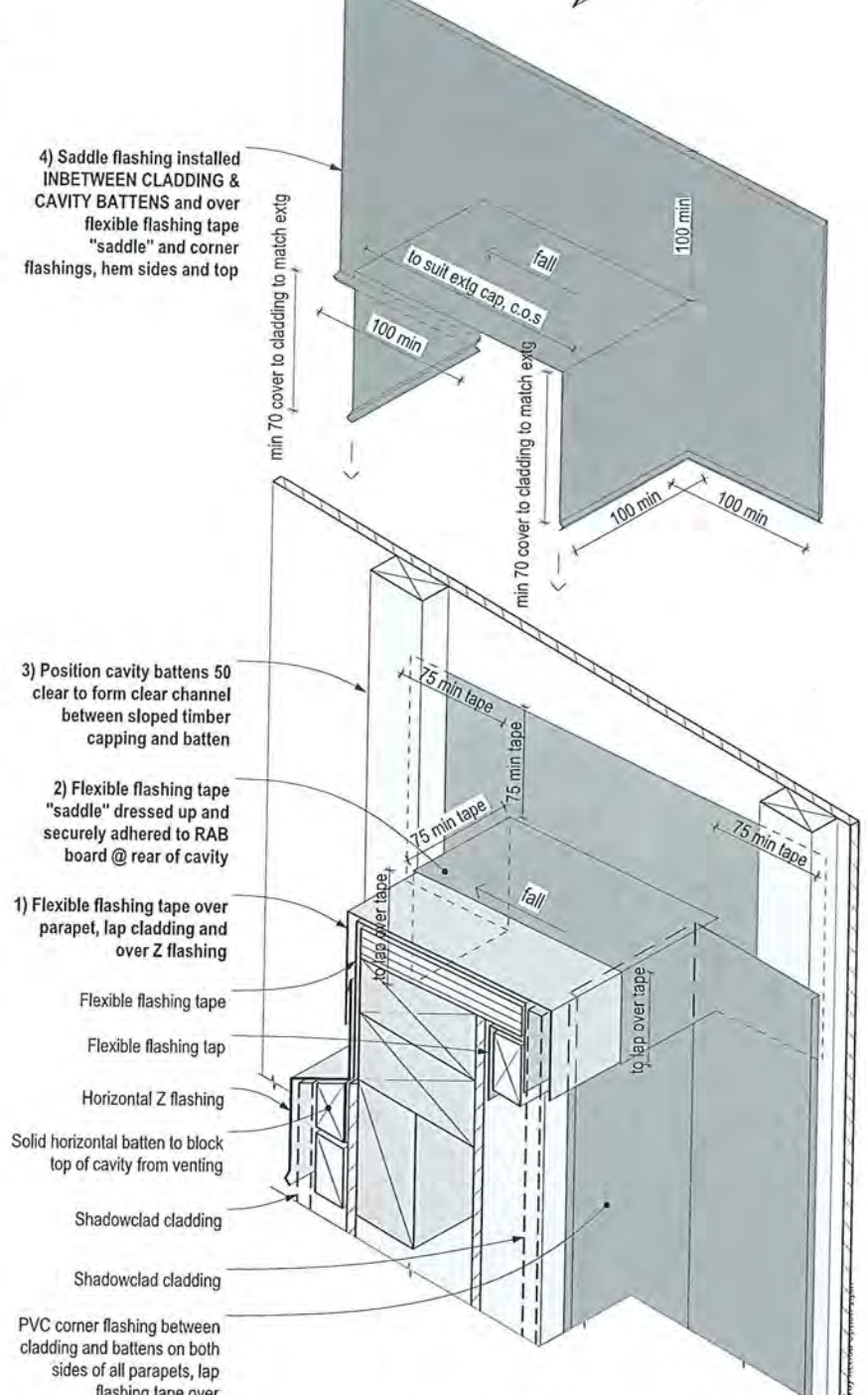
1m barrier height to be maintained

D-35 Membrane - Parapet - Plywood Cladding B (Reused Parapet Flashing) 1:5

Timber fillets are to be H3.2



D-36 Membrane - Parapet - Saddle Flashing 2 1:5



D-37 Membrane - Parapet - Saddle Flashing 1:5

Rev	Notes	Date

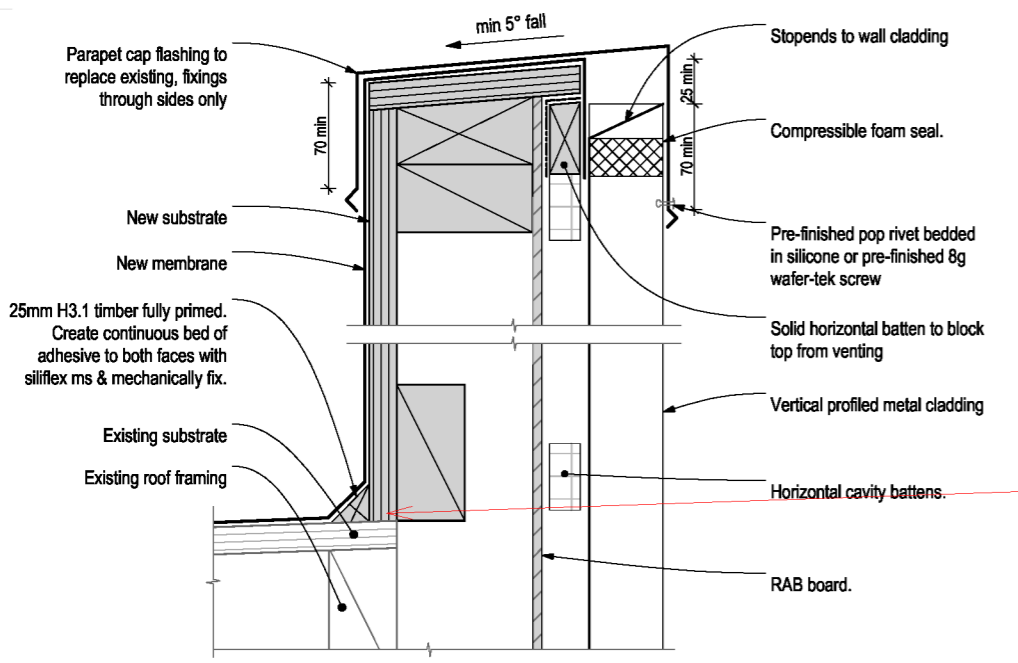
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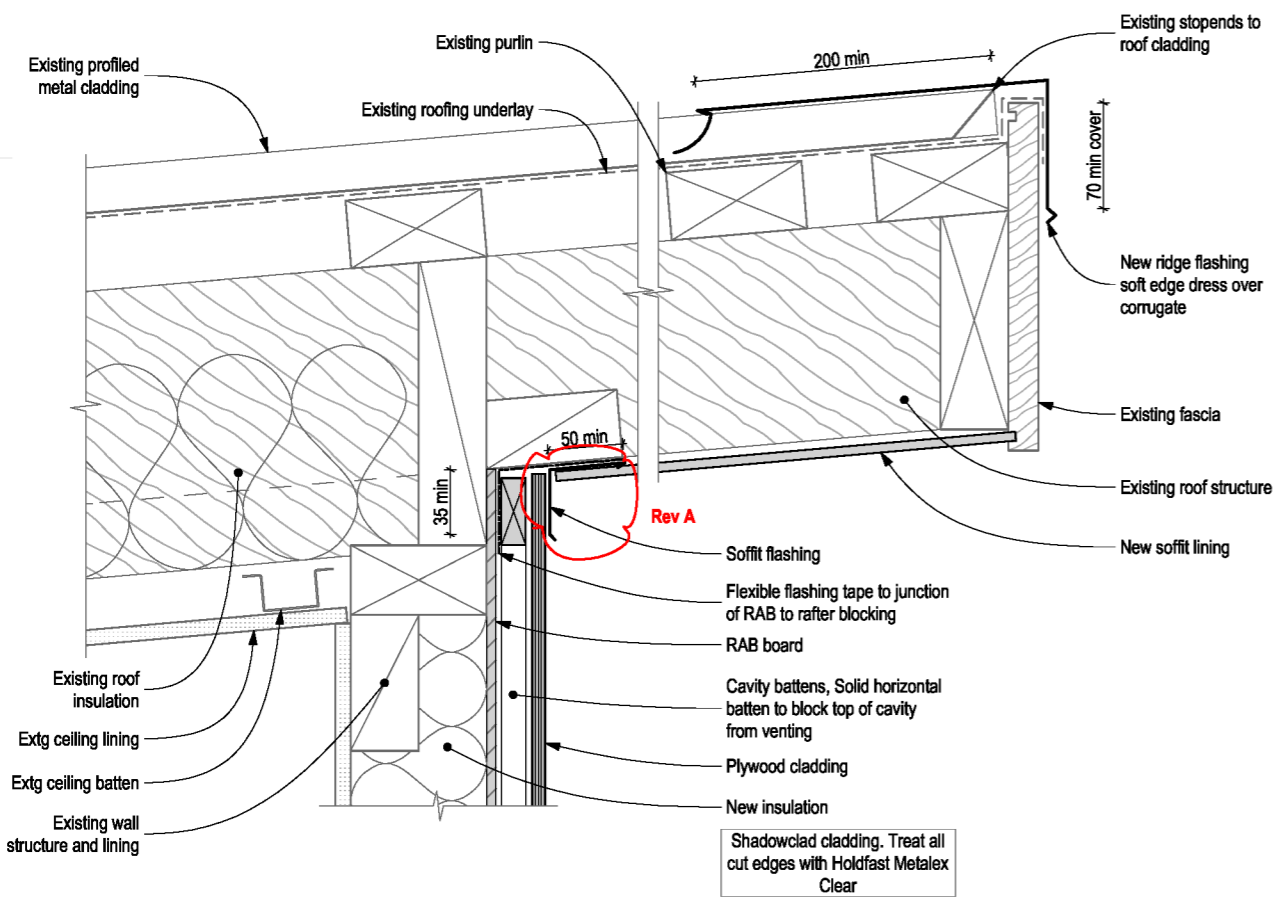
Drawing Title:
Construction Details - Roof
Project Number: R17104 Status: BC and Tender
Date: 17/10/2017 Scale: As Shown Size: A3
Drawing No. **509** Revision No.

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21/12/2017



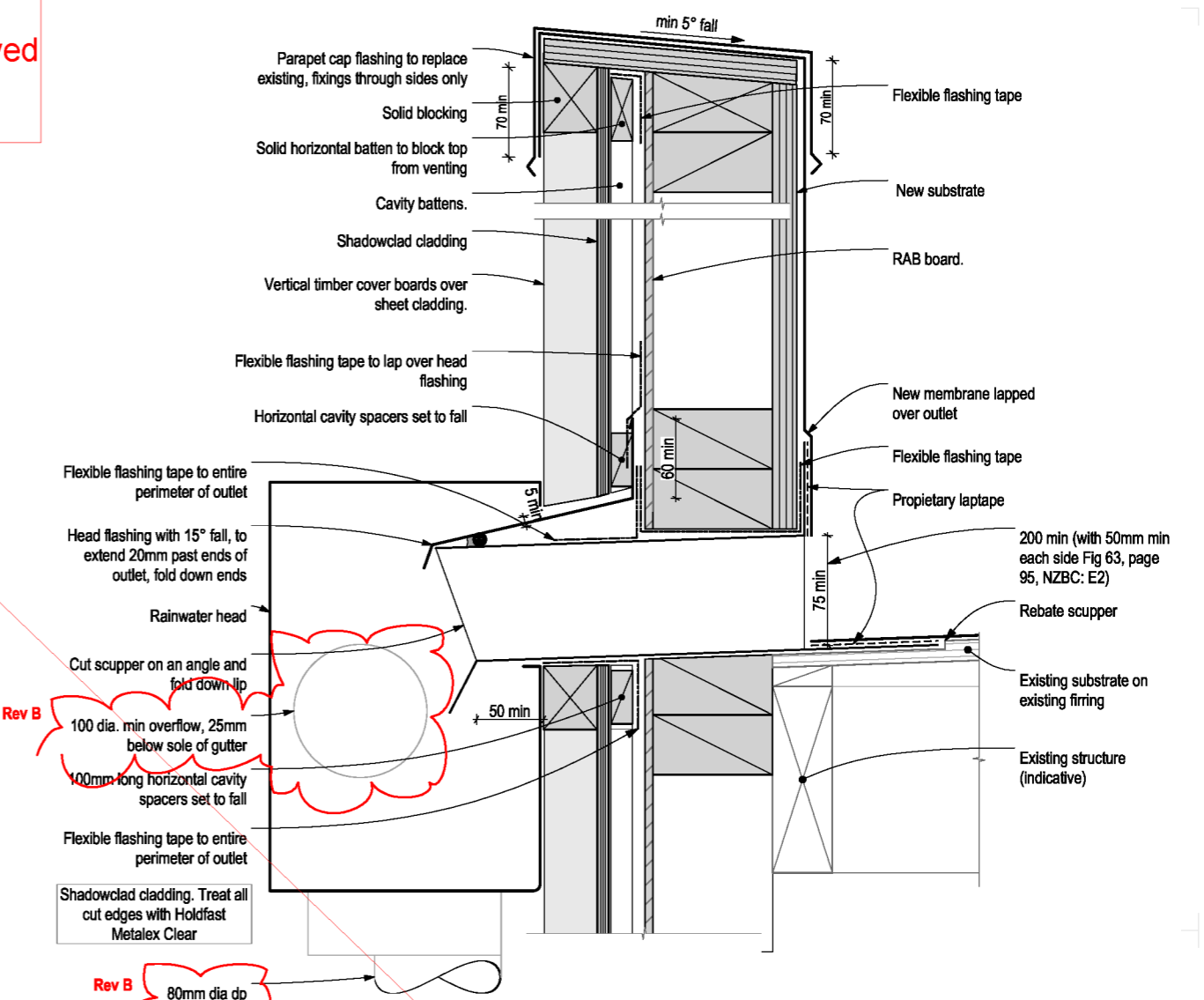
Timber fillets are to be H3.2

D-38 Membrane - Parapet - Vertical P.M Cladding 1:5

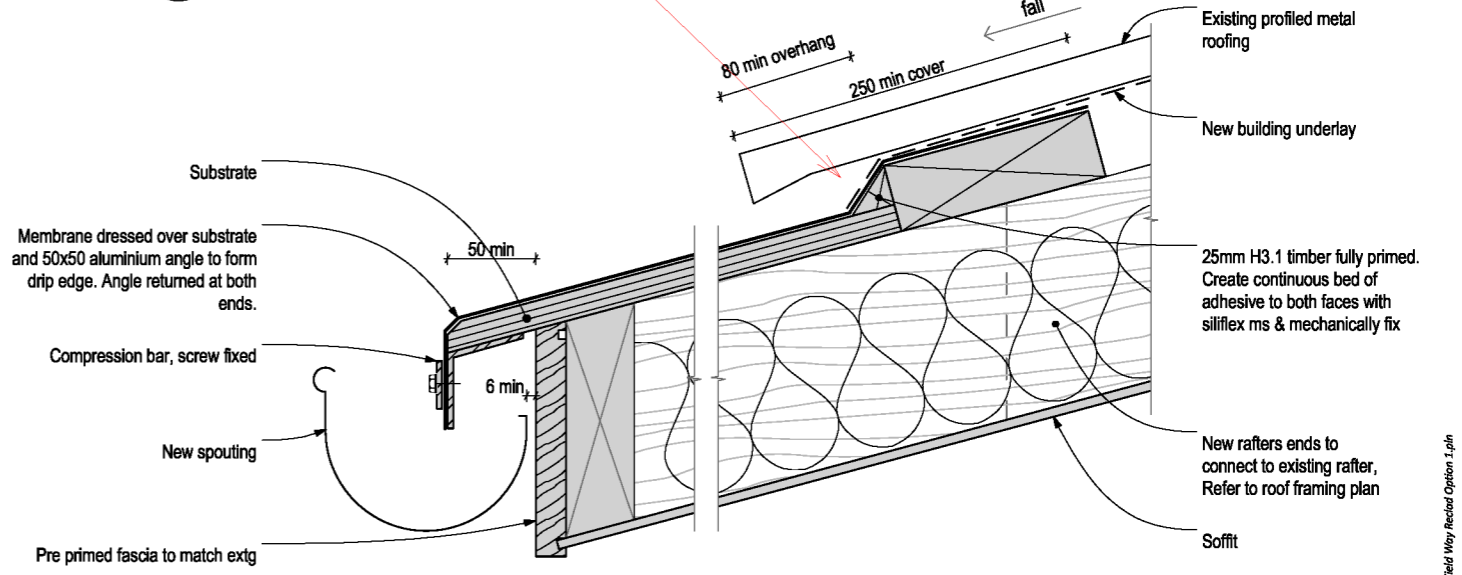


D-39 P.M Roof - Apex - Overhang 1:5

Rev	Notes	Date
A	D-39 updated, eaves mould removed	21/11/17
B	Size of rainwaterhead outlet show visually bigger and notes added	13/12/17



D-40 Membrane - Scupper & Rainwater Head 1:5



D-41 P.M Roof to Membrane Roof Junction & Eave 1:5

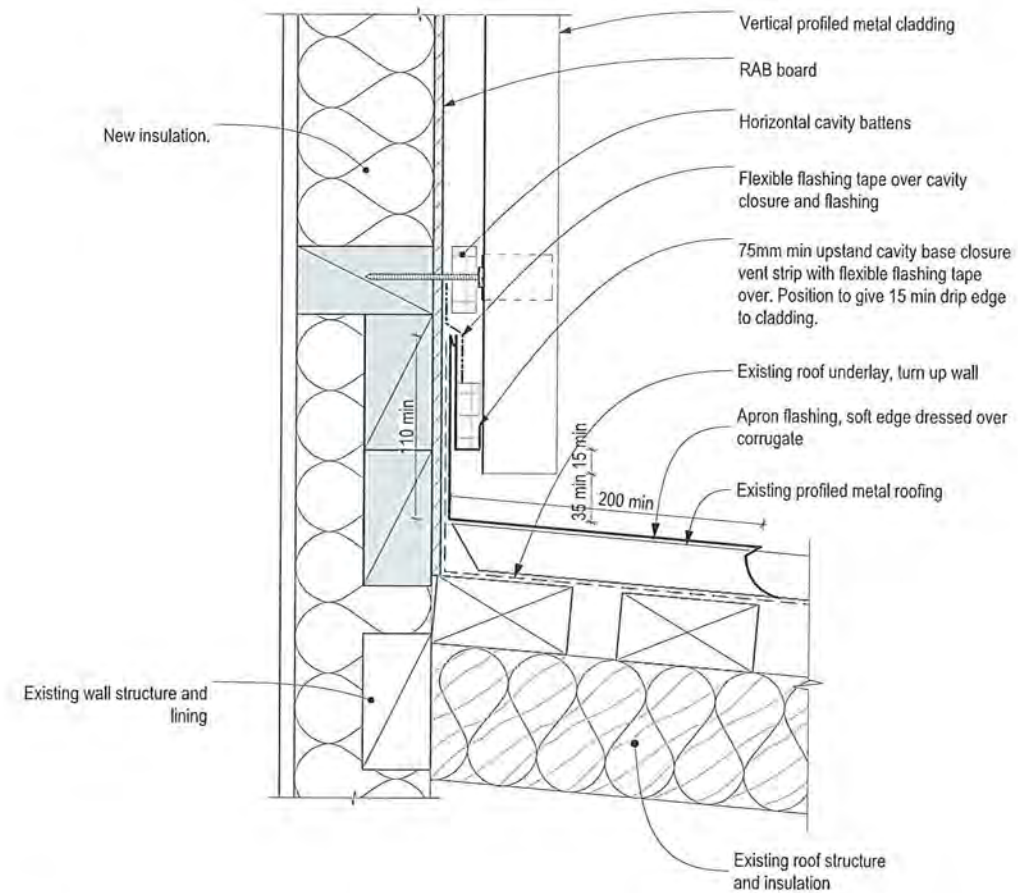
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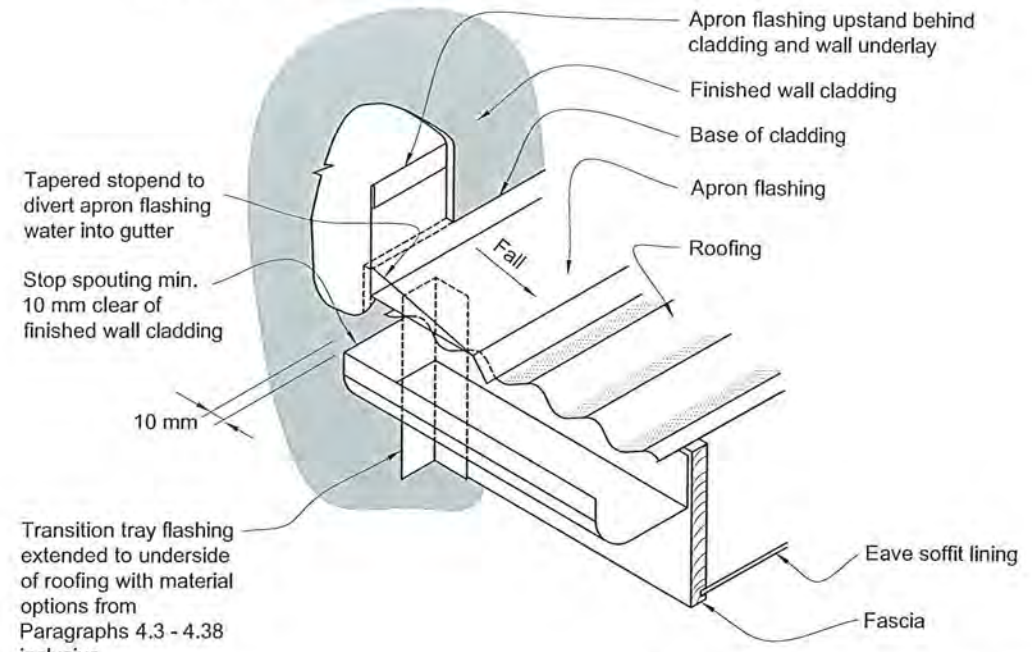
Drawing Title:
Construction Details - Roof Rev B
Project Number: R17104 Status: BC and Tender
Date: 20/12/2017 Scale: As Shown Size: A3
Drawing No. **510** Revision No. **B**

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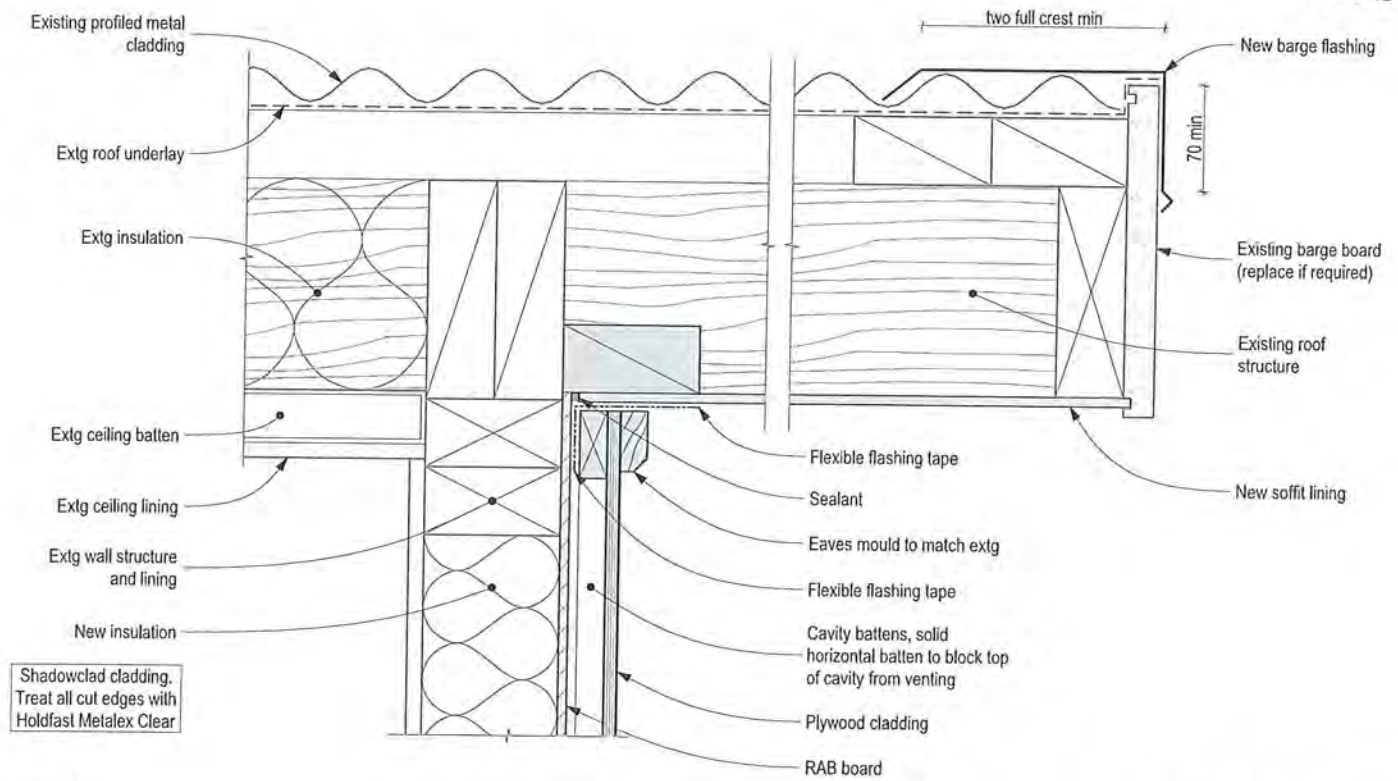


D-42
P.M Roof – Apron to Vertical P.M Cladding
1:5

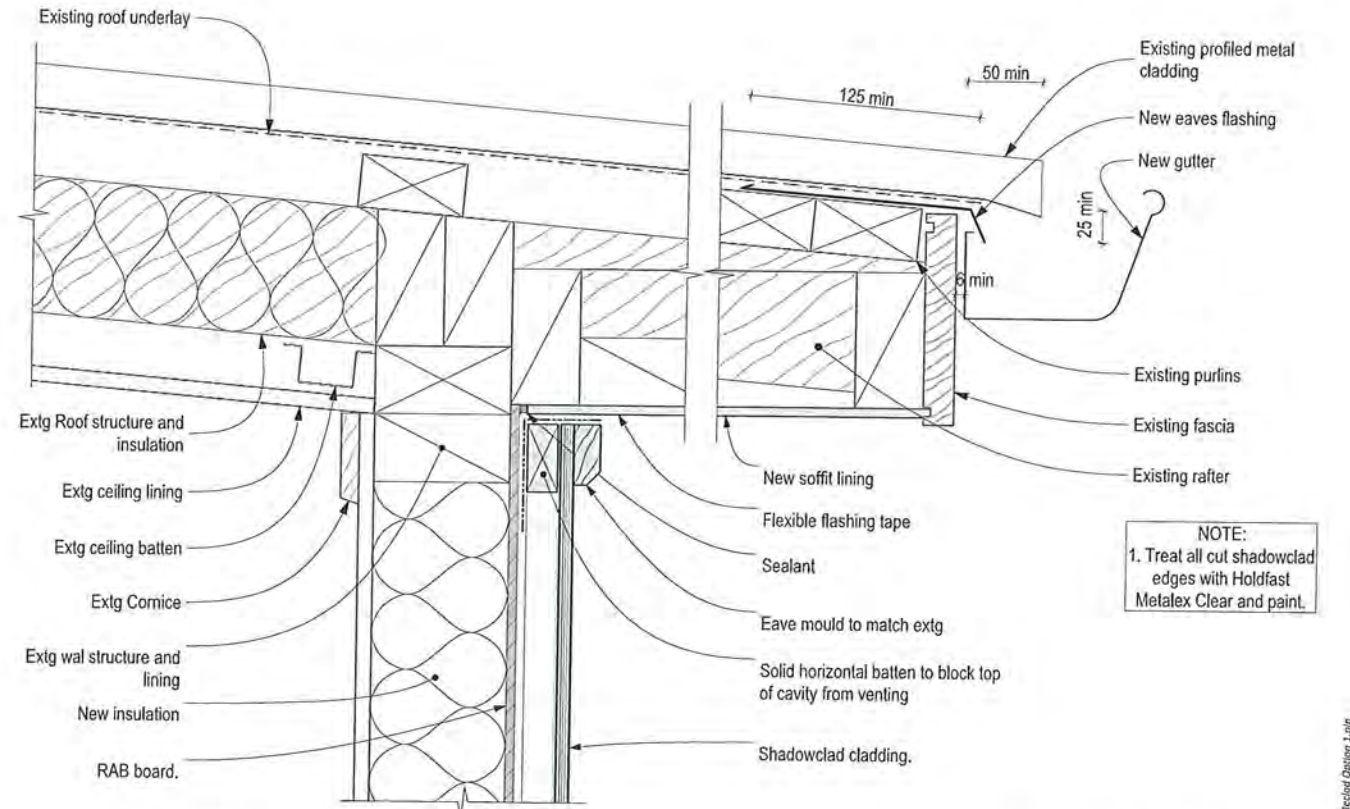
The upstand at the lower edge of the *apron flashing* may be preformed to a larger size and then trimmed on site to suit.
The transition *flashing* bridges gap at the end of the fascia to protect the soffit *framing*.
Wall underlay omitted for clarity.



D-43
P.M Roof – Gutter to Wall Junction
1:5



D-44
P.M Roof – Barge – Overhang - Plywood Cladding
1:5



D-45
P.M Roof – Eave – Overhang
1:5

NOTE:
1. Treat all cut shadowclad edges with Holdfast Metalex Clear and paint.



Rev	Notes	Date

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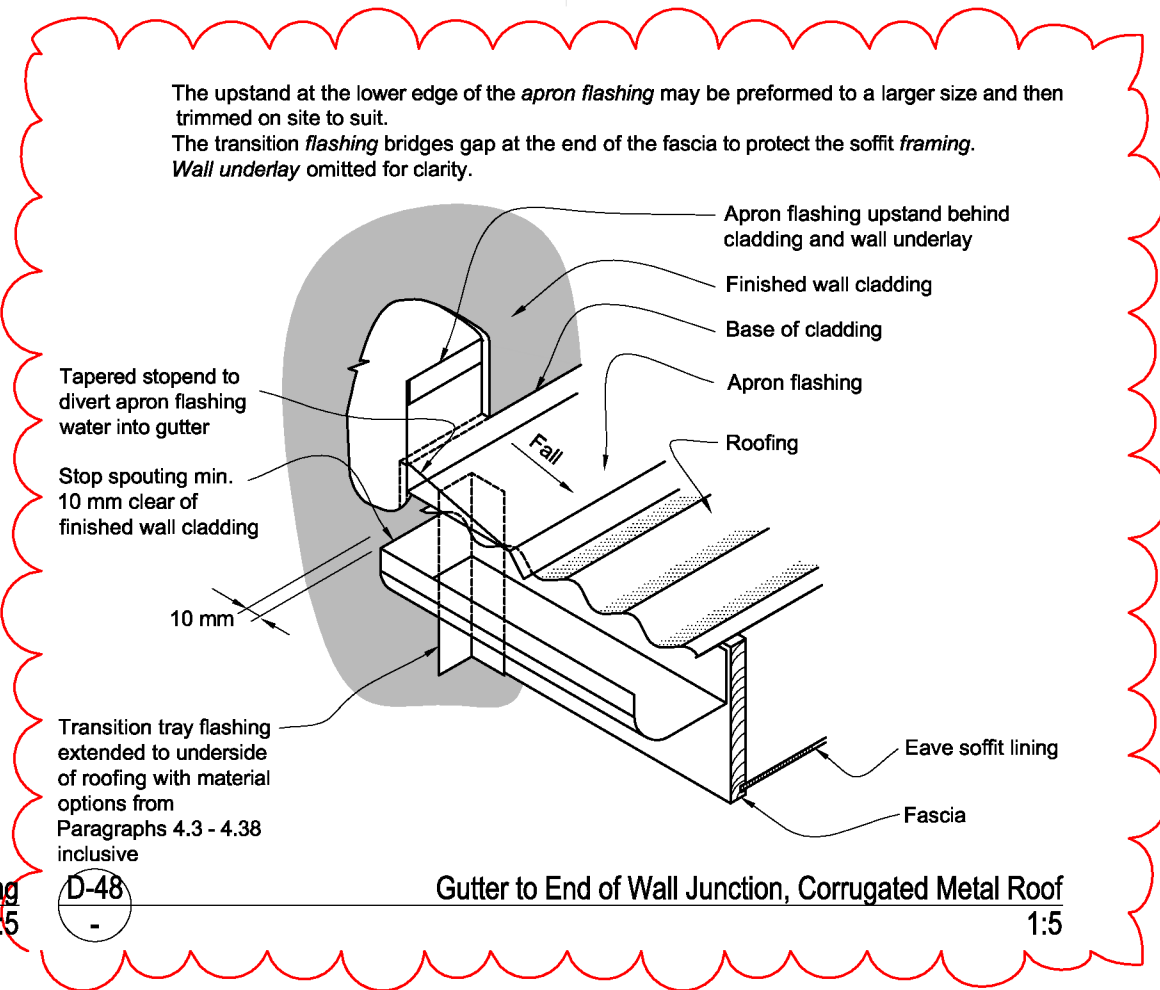
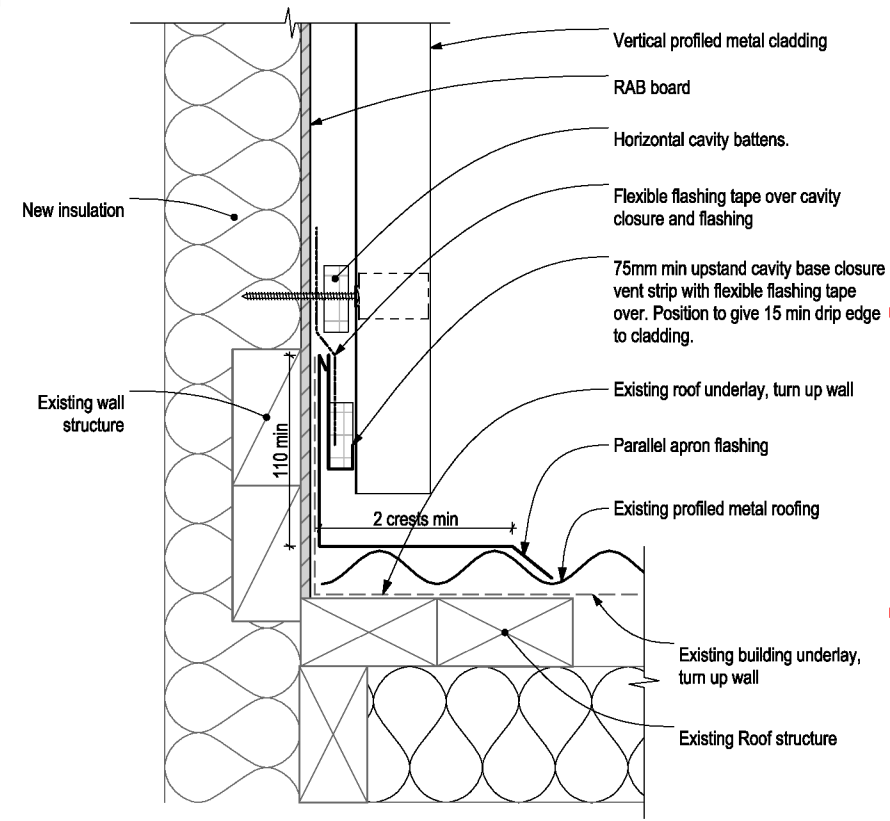
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Project Name:
155 Field Way Cladding Remediation
Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Roof
Project Number: R17104 Status: BC and Tender
Date: 17/10/2017 Scale: As Shown Size: A3
Drawing No. **511** Revision No.

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Further Information Received
30/11/2017



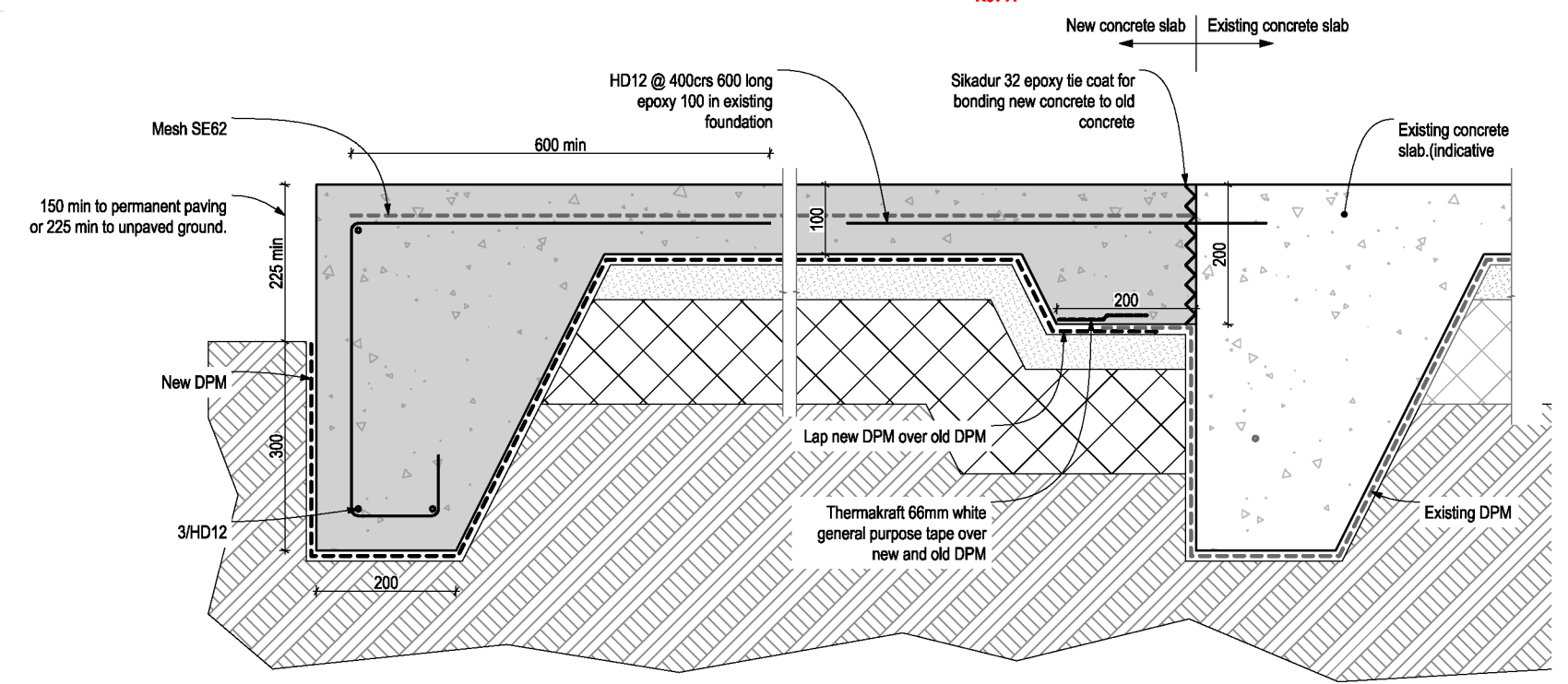
D-46
-

P.M Roof Parallel Apron Flashing
1:5

D-48
-

Gutter to End of Wall Junction, Corrugated Metal Roof
1:5

Rev A



D-47
-

Old to New Slab Connection
1:10

Rev	Notes	Date
A	New Detail	21/11/17

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ARCHITECTS

LEVEL 1, 171 VIVIAN STREET, TE ARO
PO BOX 9792, WELLINGTON

RESOLVEITARCHITECTS.CO.NZ

Client:
Werner and Andrea Naef

The contractor shall confirm all conditions and dimensions on site before proceeding with work. Do not scale dimensions off drawings, use figured dimensions only. Contractor is to report any discrepancies to the architect immediately. Plans to be read in conjunction with the spec.

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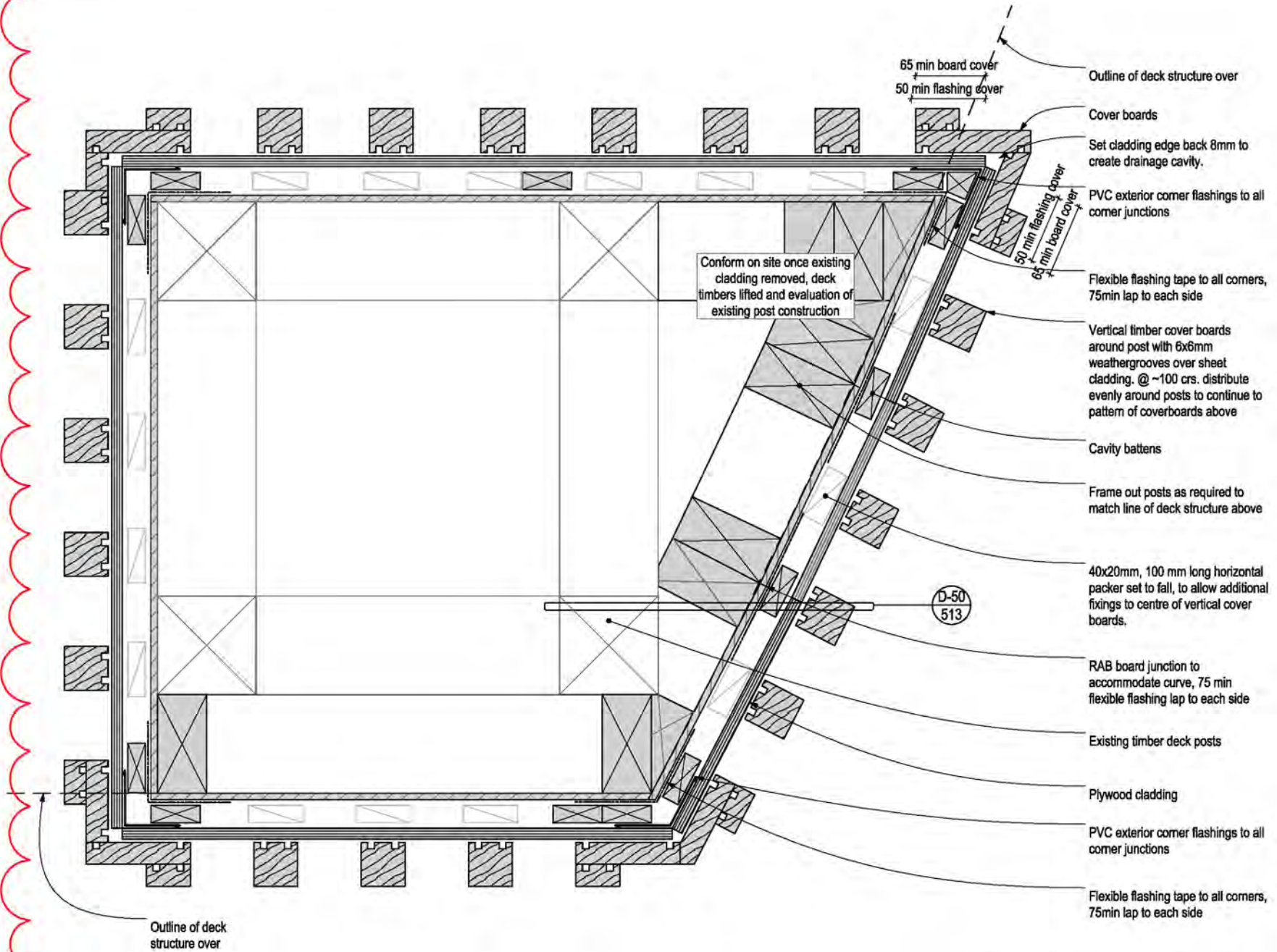
Project Name:
155 Field Way Cladding Remediation

Project Address:
155 Field Way Waikanae Beach

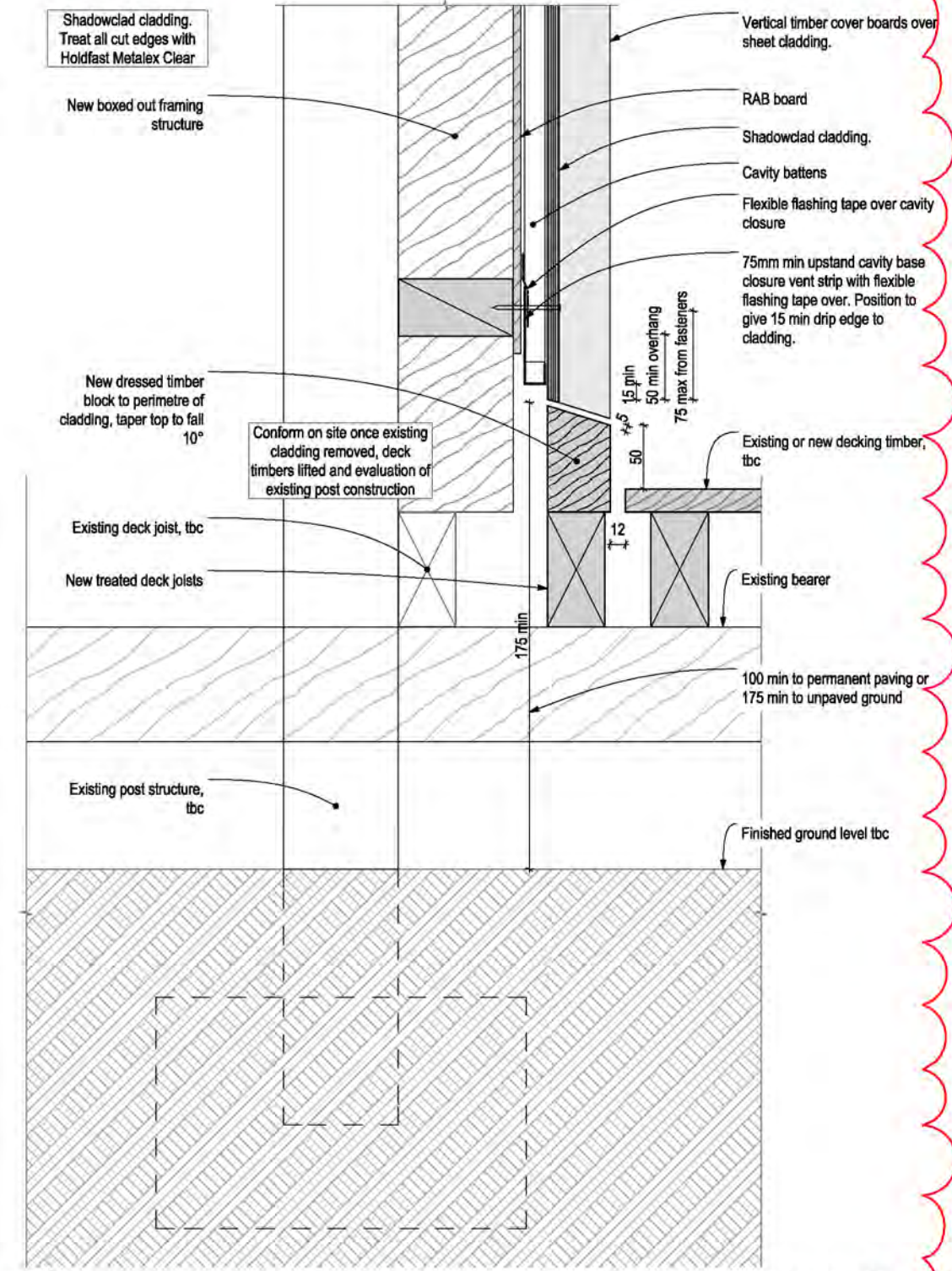
Drawing Title: Construction Details - Roof & Slab Rev A	
Project Number: R17104	Status: BC and Tender
Date: 23/11/2017	Scale: As Shown Size: A3
Drawing No. 512	Revision No. A

CAD File: S:\Projects\155 Field Way\155 Field Way\155 Field Way\Rev A\Rev A.dwg

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30/11/2017



Boxing Out Main Deck Post Detail
1:5



Boxing Main Deck Posts - Ground Clearance Detail (1)
1:5

D-49

D-50

Rev A

Rev	Notes	Date
A	New Detail Sheet with new details	21/11/17

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Project Name:
155 Field Way Cladding Remediation

Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Posts Rev A

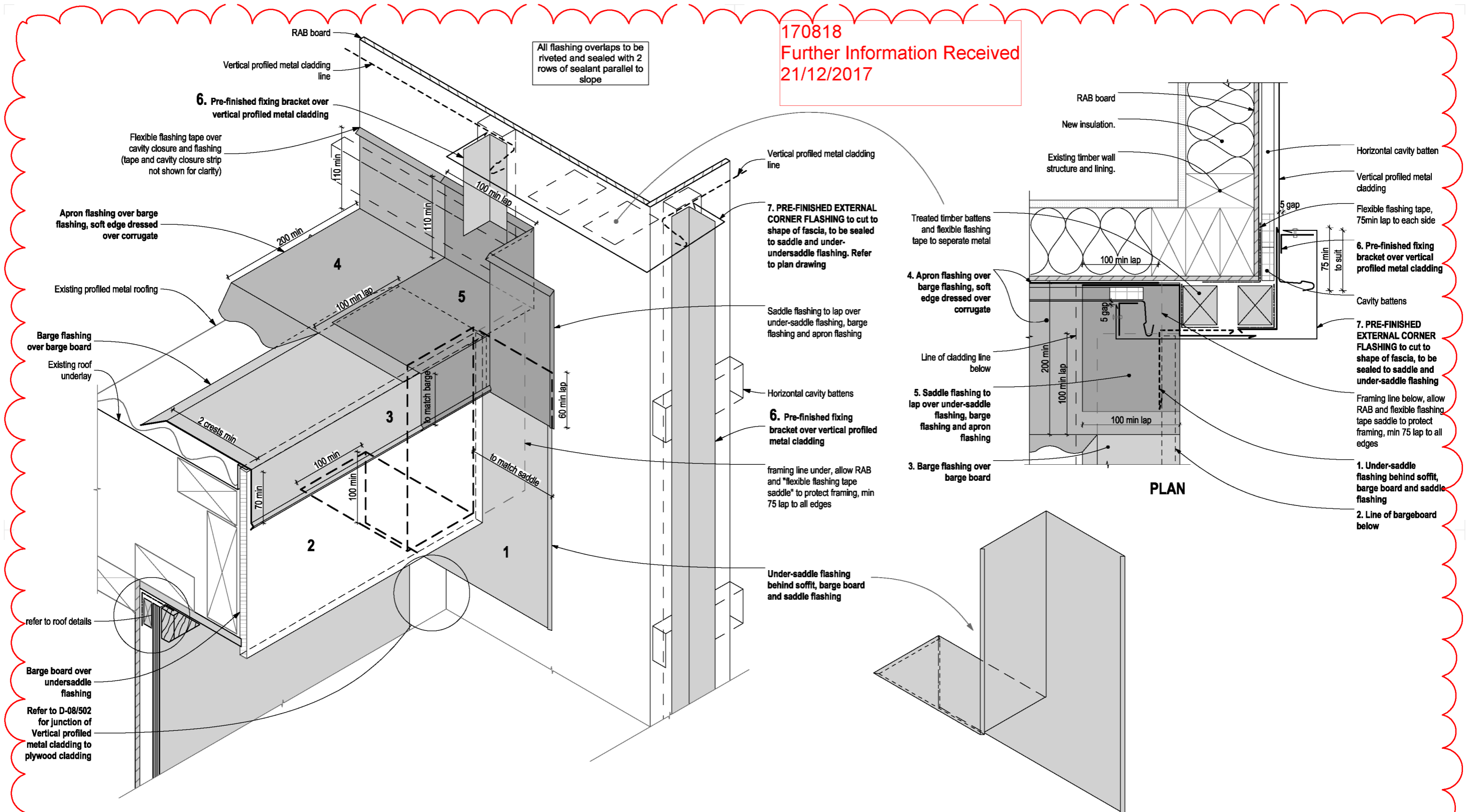
Project Number: R17104 Status: BC and Tender
Date: 23/11/2017 Scale: As Shown Size: A3

Drawing No. Revision No.
513 A

CAD File: S:\Projects\17104 - 155 Field Way\17104 - 155 Field Way\17104 - 155 Field Way - Rev A.dwg

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 21/12/2017

All flashing overlaps to be riveted and sealed with 2 rows of sealant parallel to slope



D-51

3D Cgtd metal Roof, Apron and Barge to Vertical P.M Wall cladding
 1:5

Rev A

Rev	Notes	Date
A	New Detail Sheet with new details	13/12/17

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Project Name:
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Project Address:
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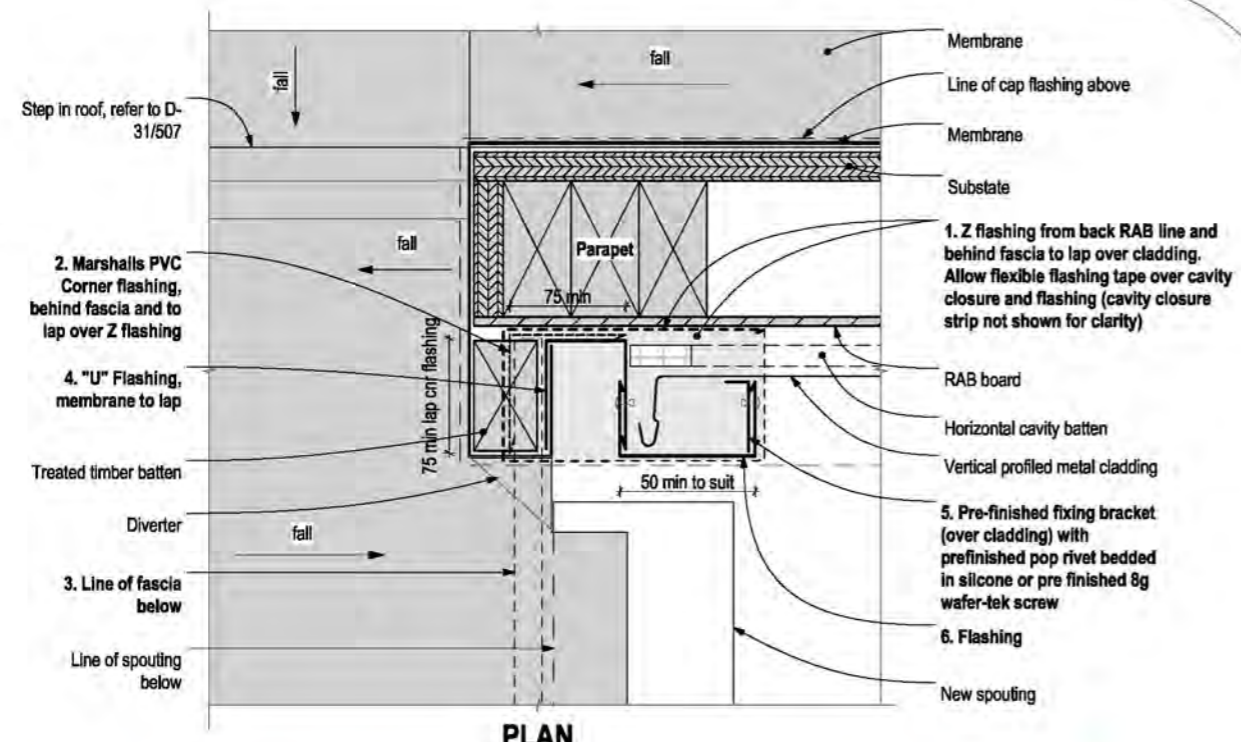
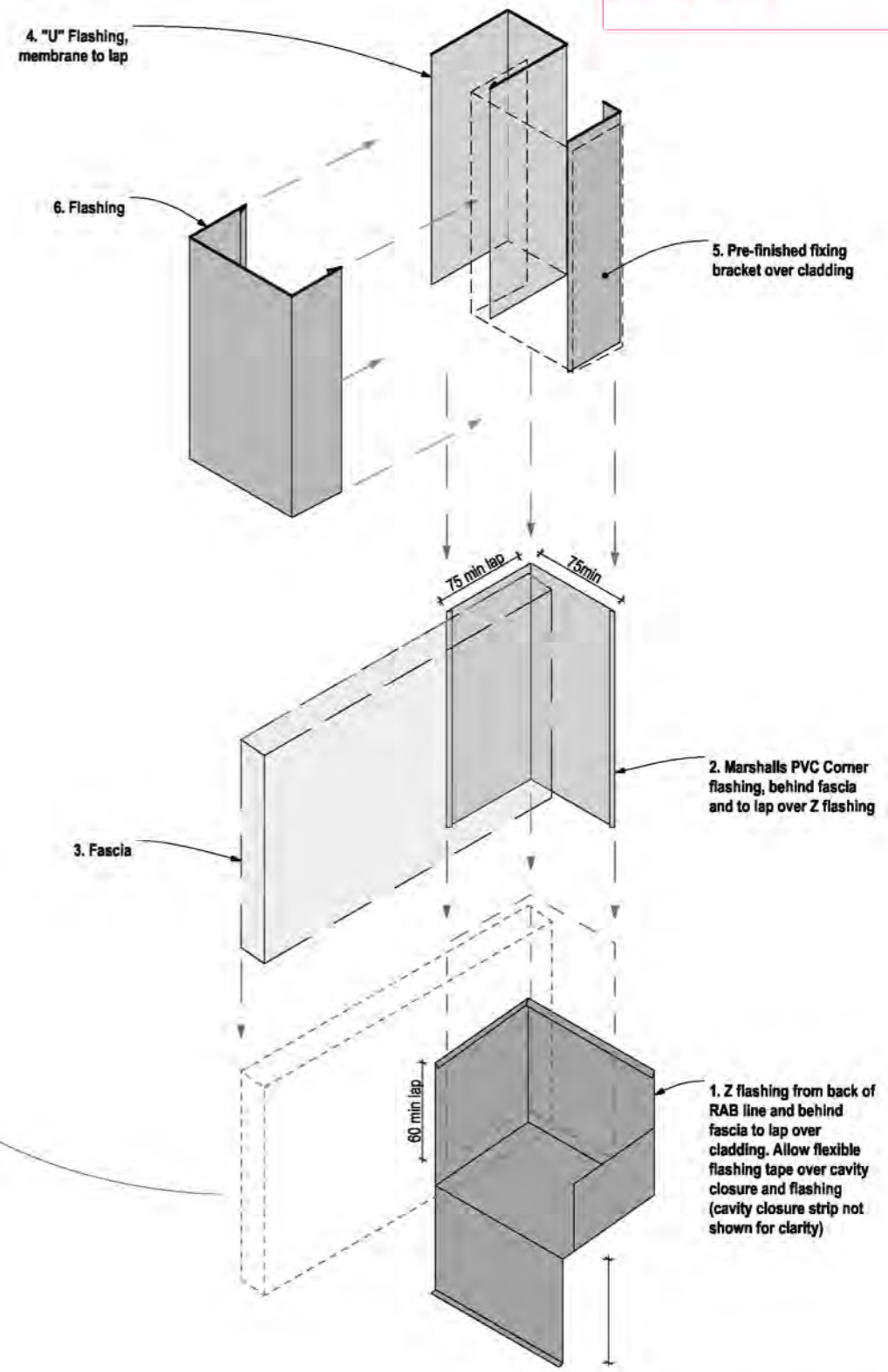
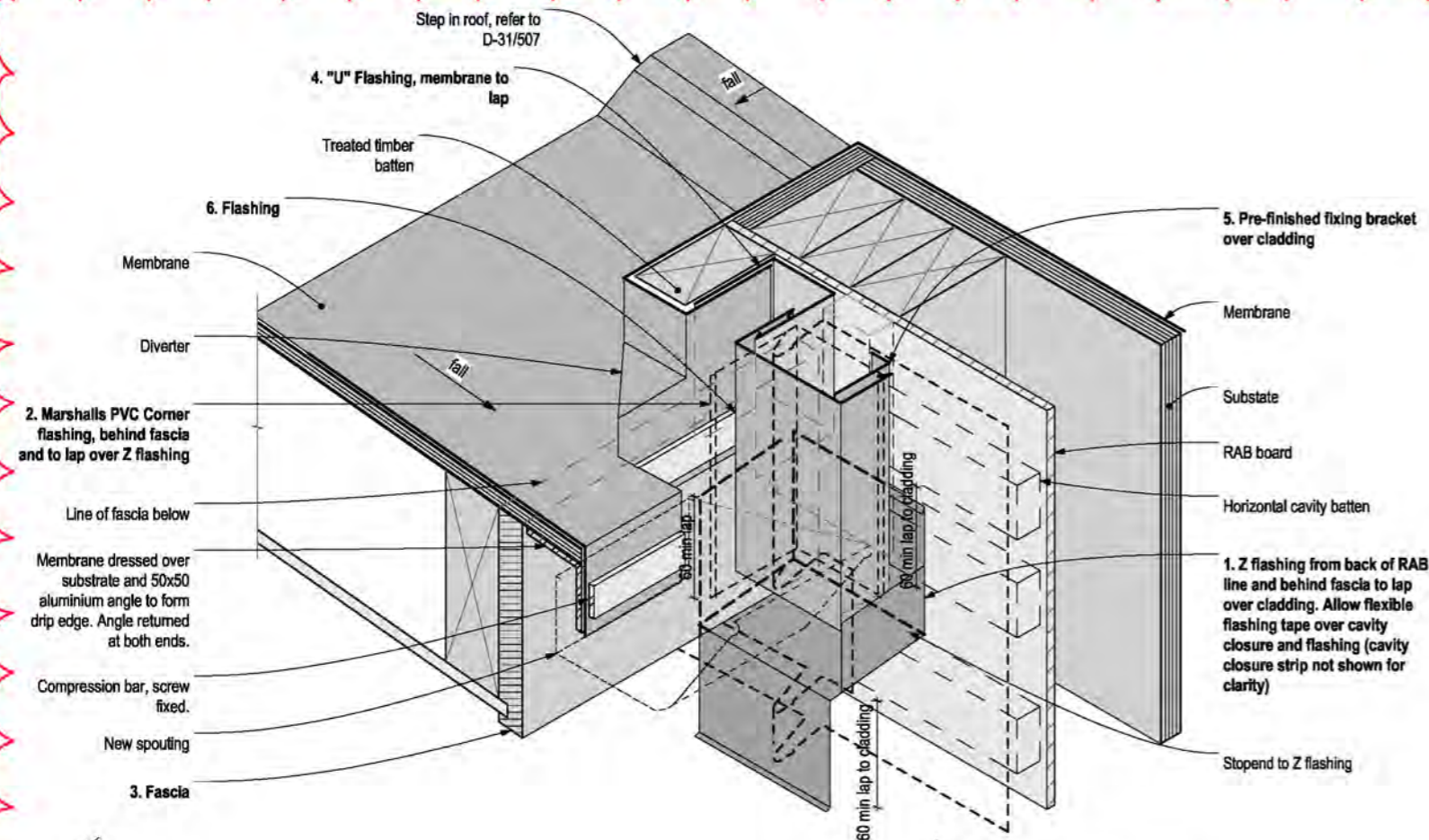
Drawing Title:
Construction Details - Roof Rev A

Project Number: R17104	Status: BC and Tender
Date: 20/12/2017	Scale: As Shown

Drawing No.	Revision No.
514	A

C:\01\Revit\17104\17104-155 Field Way\A-Conf\17104 Field Way Rev A Option 1.rvt

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 21/12/2017



PLAN

D-52

Rev A

Membrane Roof - Parapet Termination 1:5

Rev	Notes	Date
A	New Detail Sheet with new details	20/12/17

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Project Name:
155 Field Way Cladding Remediation

Project Address:
155 Field Way Waikanae Beach

Drawing Title:
Construction Details - Roof Rev A

Project Number: R17104 | Status: BC and Tender
 Date: 20/12/2017 | Scale: As Shown | Size: A3

Drawing No.	Revision No.
515	A

C:\Users\j17104\OneDrive\Documents\155 Field Way\17104 Field Way Rev A.dwg

JU024

BC170818

Quality Assurance Plan		Page 1 of 9
Site Address:	155 Field Way, Waikanae Beach	
Building Consent Number:	tbc	
Job Reference Number:	R17104	

Site Position on site	Full Name and Contact Details (eg address, phone number, email)	Registration # (eg LBP #, licensed applicator #, CPENG # etc)	Sample Signature
Supervising Architect	Mark Ansell – Resolve It Architects	3562	
Building Surveyor	Hayden Miller – Central Adjusters Ltd	Certified Weathertightness Surveyor	
Main Contractor			
Site Supervisor			

Existing Building	2 story timber framed residential house. Cladding mixture of direct fix board and batten and direct fix horizontal corrugated metal. Colorsteel roof. Roofs and decks including membrane and profiled metal
Scope of Work	Reclad of exterior, removing some parapets in existing roofs and rebuilding a small section of roof. Replacing flashings on existing corrugated metal roof. Replacing existing membranes and substrate in a few areas, new foundation for a storage room under the existing stairs.

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 19 OCT 2017
 BY: *UH*

Quality Assurance Plan		Page 2 of 9
Site Address:	155 Field Way, Waikanae Beach	
Building Consent Number:	tbc	
Job Reference Number:	R17104	

Photos of existing building



Street elevation (South East Elevation)



Entrance area (South East Elevation)



North East Elevation



North West elevation

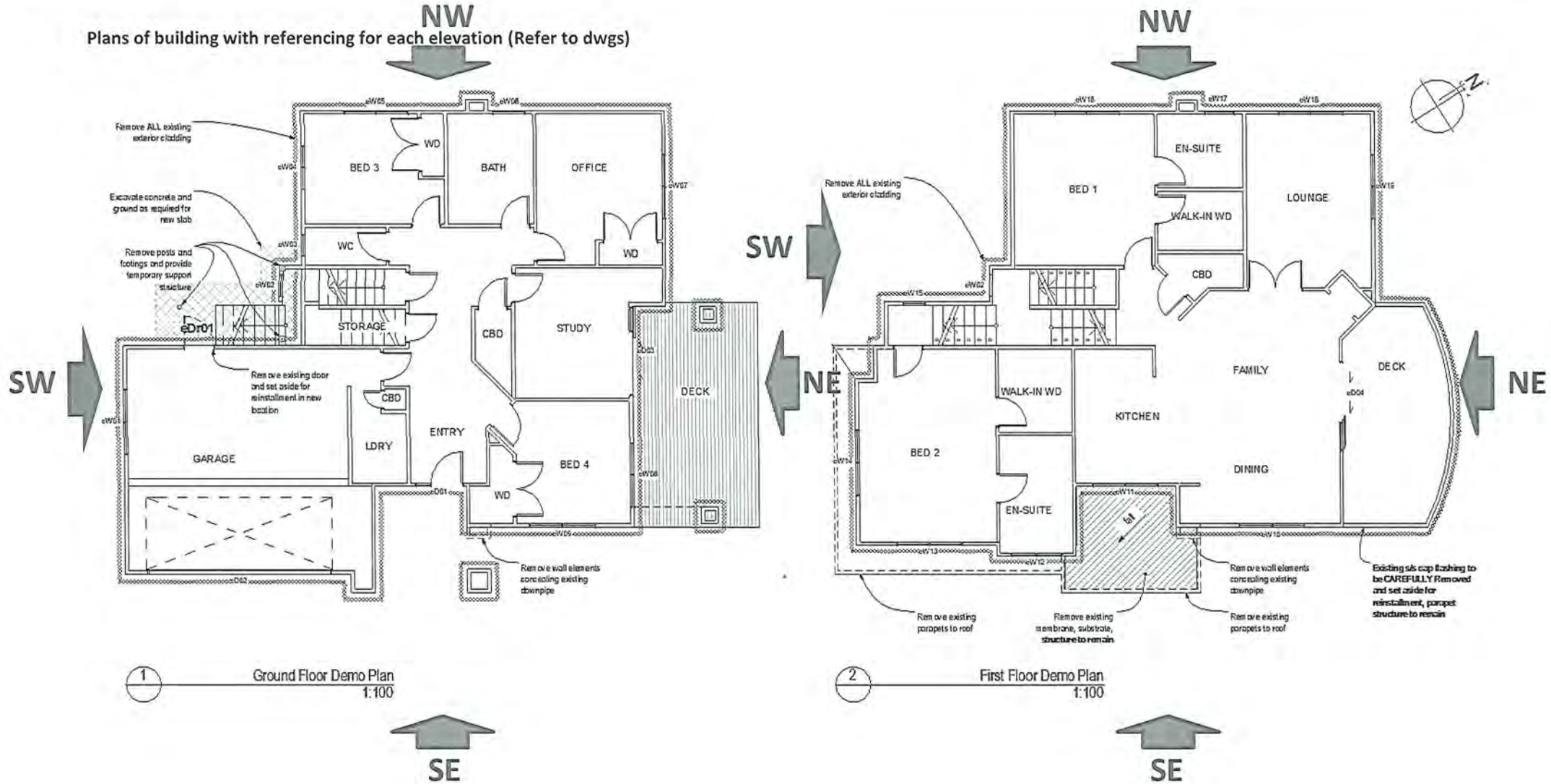


South West Elevation

Quality Assurance Plan

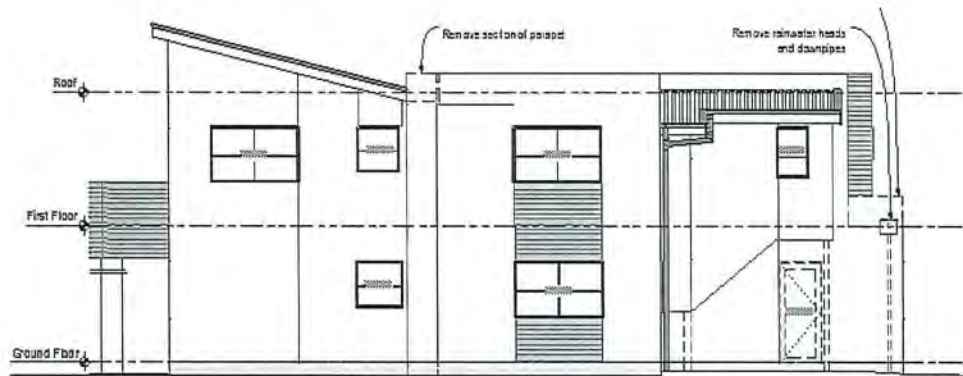
Site Address:	155 Field Way, Waikanae Beach
Building Consent Number:	tbc
Job Reference Number:	R17104

Plans of building with referencing for each elevation (Refer to dwgs)

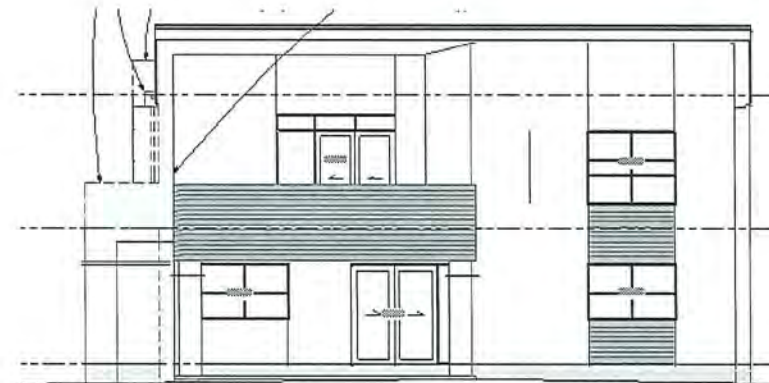


Quality Assurance Plan		Page 4 of 9
Site Address:	155 Field Way, Waikanae Beach	
Building Consent Number:	tbc	
Job Reference Number:	R17104	

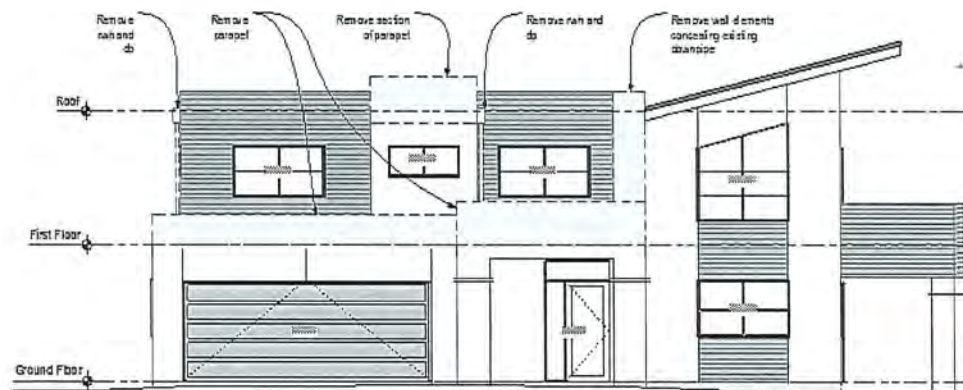
Elevations (Refer to dwgs)



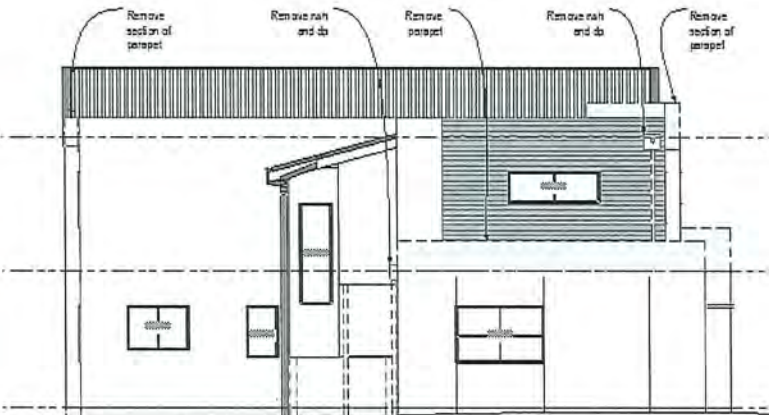
3 North West Elevation Demo
1:100



2 North East Elevation Demo
1:100



1 South East Elevation Demo
1:100



4 South West Elevation Demo
1:100

Quality Assurance Plan		Page 5 of 9
Site Address:	155 Field Way, Waikanae Beach	
Building Consent Number:	tbc	
Job Reference Number:	R17104	

Outline Summary of Recladding Steps	<u>Cladding.</u> Remove cladding as identified on demolition elevation drawings. Inspect timber framing and replace if found to be damaged. Fix new weatherboard cladding on cavity battens over RAB.	
Step 1	Existing cladding is removed for a section of wall and the timber framing inspected. Photographic record of existing timber framing to be made, defective timber identified and marked for removal. Procedure to be agreed at the meeting following removal of the first section with RIA, builder and WCC inspector present.	
Step 2	Cut out all affected timber identified to 300mm beyond affected areas	
Step 3	Treat remaining timber to 1.0m from cut areas (including cut ends) with ProTim Framesaver timber preservative (colour RED) to manufacturers specifications and instructions (2 liberal coats of ProTim Framesaver).	
Step 4	Replace cut out framing with treated timber to specification/NZS3604 and to match size and placement of existing. Cut bottom plates and replacement sections will be fixed to foundations to meet NZS3604 requirements. Photographic record made of replaced timber prior to recladding. Photos to be included in compliance package as record of timber framing prior to recladding.	
Step 5	Replace insulation with new R2.6 insulation to framing cavities as specified. WCC to conduct a preclad inspection.	
Step 6	Fix RAB to timber framing and cavity battens to manufacturers specification. RAB manufacturer representative to sign off that RAB and battens fixed to specification (for initial reclad section to establish standard for remaining sections). Signoff to be included in compliance package as confirmation that the cladding has been installed in accordance with approved plans and specification	
Step 7	If timber replacement is to a bracing wall then existing gib bracing to be replaced (full length of bracing element) with new Gib bracing to meet or exceed bracing capacity of existing gib bracing element.	
Step 8	Fix new cladding over cavity battens	
Step 9	Fit new roof/parapet cap/soffit flashings and eaves underflashings to reclad areas	

Quality Assurance Plan		Page 6 of 9
Site Address:	155 Field Way, Waikanae Beach	
Building Consent Number	tbc	
Job Reference Number	R17104	

Works Location and Scope	Completed by (full name)	Date completed	Checked by (full name)	Comments
North West Elevation				
Removal of existing cladding				
Framing evaluation for decayed timber	Haydon Miller			
Timber replacement				
Insulation				
Installation of RAB				
Installation of sill wraps as needed				
Installation on cavity batten				
Flashing junctions as needed				
Door and window flashings as per plan				
New wall cladding and flashings				
Reinstatement of bracing elements (if required)				
Membrane				
Installation of substrates				
Installation of membranes				
Parapet construction				
Detailing to spouting and barge edge				

Quality Assurance Plan		Page 7 of 9
Site Address:	155 Field Way, Waikanae Beach	
Building Consent Number	tbc	
Job Reference Number	R17104	

Works Location and Scope	Completed by (full name)	Date completed	Checked by (full name)	Comments
North East Elevation				
Removal of existing cladding				
Framing evaluation for decayed timber	Haydon Miller			
Timber replacement				
Insulation				
Installation of RAB				
Installation of sill wraps as needed				
Installation on cavity batten				
Flashing junctions as needed				
Door and window flashings as per plan				
New wall cladding and flashings				
Reinstatement of bracing elements (if required)				
Membrane				
Installation of membranes				
Up stands to wall				
Parapet construction				
Detailing to spouting edge				

Quality Assurance Plan

Site Address:	155 Field Way, Waikanae Beach
Building Consent Number	tbc
Job Reference Number	R17104

Works Location and Scope	Completed by (full name)	Date completed	Checked by (full name)	Comments
South East Elevation				
Removal of existing cladding				
Framing evaluation for decayed timber	Haydon Miller			
Timber replacement				
Insulation				
Installation of RAB				
Installation of sill wraps as needed				
Installation on cavity batten				
Flashing junctions as needed				
Door and window flashings as per plan				
New wall cladding and flashings				
Reinstatement of bracing elements (if required)				
Membrane				
Installation of substrates				
Installation of membranes				
Up stands to wall				
Parapet construction				
Detailing to spouting edge				

Quality Assurance Plan

Site Address:	155 Field Way, Waikanae Beach
Building Consent Number	tbc
Job Reference Number	R17104

Works Location and Scope	Completed by (full name)	Date completed	Checked by (full name)	Comments
South West Elevation				
Removal of existing cladding				
Framing evaluation for decayed timber	Haydon Miller			
Timber replacement				
Insulation				
Installation of RAB				
Installation of sill wraps as needed				
Installation on cavity batten				
Flashing junctions as needed				
Door and window flashings as per plan				
New wall cladding and flashings				
Reinstatement of bracing elements (if required)				
Membrane				
Installation of substrates				
Installation of membranes				
Up stands to wall				
Parapet construction				
Detailing to spouting edge				
Slab				
Waterproofing of slab				

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Espan 340™ / 470™

RESIDENTIAL VERTICAL CLADDING

DETAIL LIST

00 / 20	COVER SHEET
01 / 20	PARAPET AND BALUSTRADE CAPPING
02 / 20	SOFFIT
03 / 20	FLUSH WINDOW HEAD
04 / 20	FLUSH WINDOW SILL
05 / 20	FLUSH WINDOW JAMB
06 / 20	RECESSED WINDOW HEAD
07 / 20	RECESSED WINDOW SILL
08 / 20	RECESSED WINDOW JAMB
09 / 20	BUTT WINDOW HEAD
10 / 20	BUTT WINDOW SILL
11 / 20	BUTT WINDOW JAMB
12 / 20	METERBOX HEAD
13 / 20	METERBOX SILL
14 / 20	METERBOX JAMB
15 / 20	INTERNAL CORNER
16 / 20	EXTERNAL CORNER
17 / 20	SOAKER FLASHING
18 / 20	BOTTOM OF CLADDING (FLUSH)
19 / 20	BOTTOM OF CLADDING (RECESSED)
20 / 20	3D WINDOW FLASHINGS



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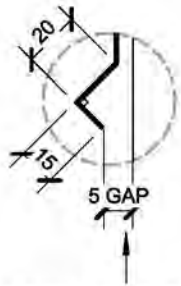
PRE-FINISHED PARAPET CAP FLASHING
 NO FIXINGS ON TOP OF FLASHING

BUILDING PAPER TO PROVIDE SEPARATION OF
 METAL CAPPING AND TIMBER SHOWN DASHED

CONTINUOUS TIMBER PACKING

STOPENDS TO WALL CLADDING

MIN. 5.00°



ALTERNATIVE OPTION
 BIRDS BEAK EDGE

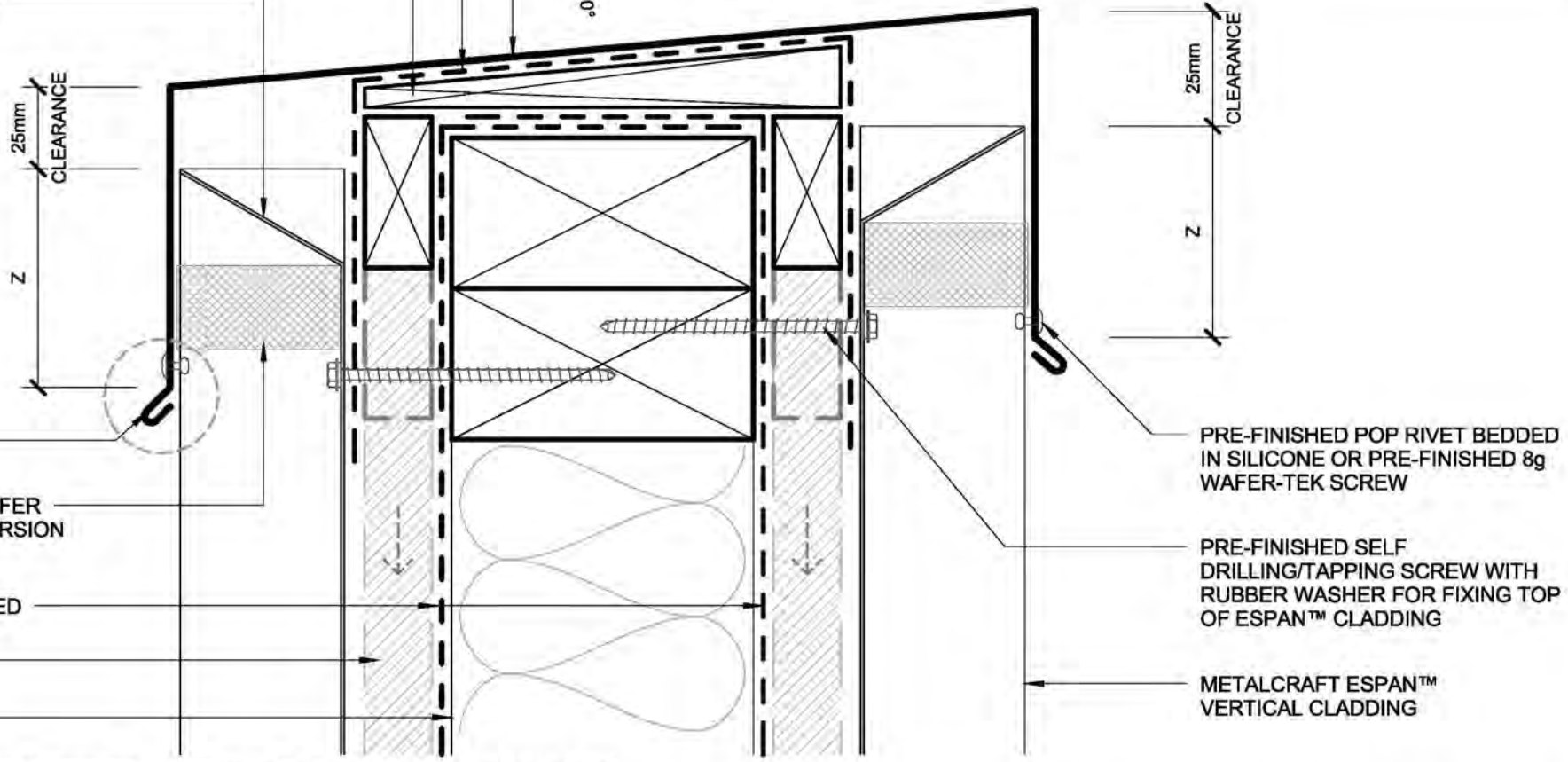
HEMMED EDGE

COMPRESSIBLE FOAM SEAL. REFER
 TO MRM CODE OF PRACTICE VERSION
 2.2 /2012 FOR REQUIREMENT.

BUILDING PAPER SHOWN DASHED

20mm CAVITY

WALL FRAMING



PRE-FINISHED POP RIVET BEDDED
 IN SILICONE OR PRE-FINISHED 8g
 WAFER-TEK SCREW

PRE-FINISHED SELF
 DRILLING/TAPPING SCREW WITH
 RUBBER WASHER FOR FIXING TOP
 OF ESPAN™ CLADDING

METALCRAFT ESPAN™
 VERTICAL CLADDING

CATEGORY A		CATEGORY B			
1. NORMAL EXPOSURE 2. ROOF PITCH >10°		1. EXPOSED (HIGHER RISK) & WIND LOAD EXCEEDS 1.5 kPa. 2. ROOF PITCH <10°			
Z	MIN. 50mm (VERTICALLY DOWN FACE - SMOOTH) MIN. 75mm (VERTICALLY DOWN FACE - PROFILED)	Z	MIN. 75mm (VERTICALLY DOWN FACE - SMOOTH) MIN. 100mm (VERTICALLY DOWN FACE - PROFILED)		
PLEASE REFER TO MRM CODE OF PRACTICE VERSION 2.2/2012 FOR FURTHER INFORMATION ON FLASHING COVER WIDTHS.					
SITUATION 1		SITUATION 2		SITUATION 3	
1. LOW, MEDIUM, HIGH WIND ZONES 2. ROOF PITCH ≥ 10°		1. VERY HIGH WIND ZONE 2. ALL ROOF PITCHES		1. EXTRA HIGH WIND ZONE 2. ALL ROOF PITCHES	
Z	MIN. 50mm	Z	MIN. 70mm	Z	MIN. 90mm
PLEASE REFER TO E2 FOR FURTHER INFORMATION ON FLASHING COVER WIDTHS.					

- BUILDING PAPER IS THE COMMON GENERIC NAME FOR PERMEABLE
 ROOF AND WALL UNDERLAYS. PLEASE REFER TO NZBC E2/AS1 AND
 MRM CODE OF PRACTICE VERSION 2.2 /2012.

- CAVITY SYSTEM FOR VERTICAL CLADDING : 20mm NOMINAL THICK
 (VERTICALLY DRAINING) HORIZONTAL CAVITY SYSTEM WITH BATTENS
 AS APPLICABLE TO SUPPORT CLADDINGS & FLASHINGS TO NZBC.

DISCLAIMER:
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 code of practice version 2.2 /2012, E2 and all other relevant building codes.
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PARAPET AND BALUSTRADE CAPPING
 RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

Date 2015

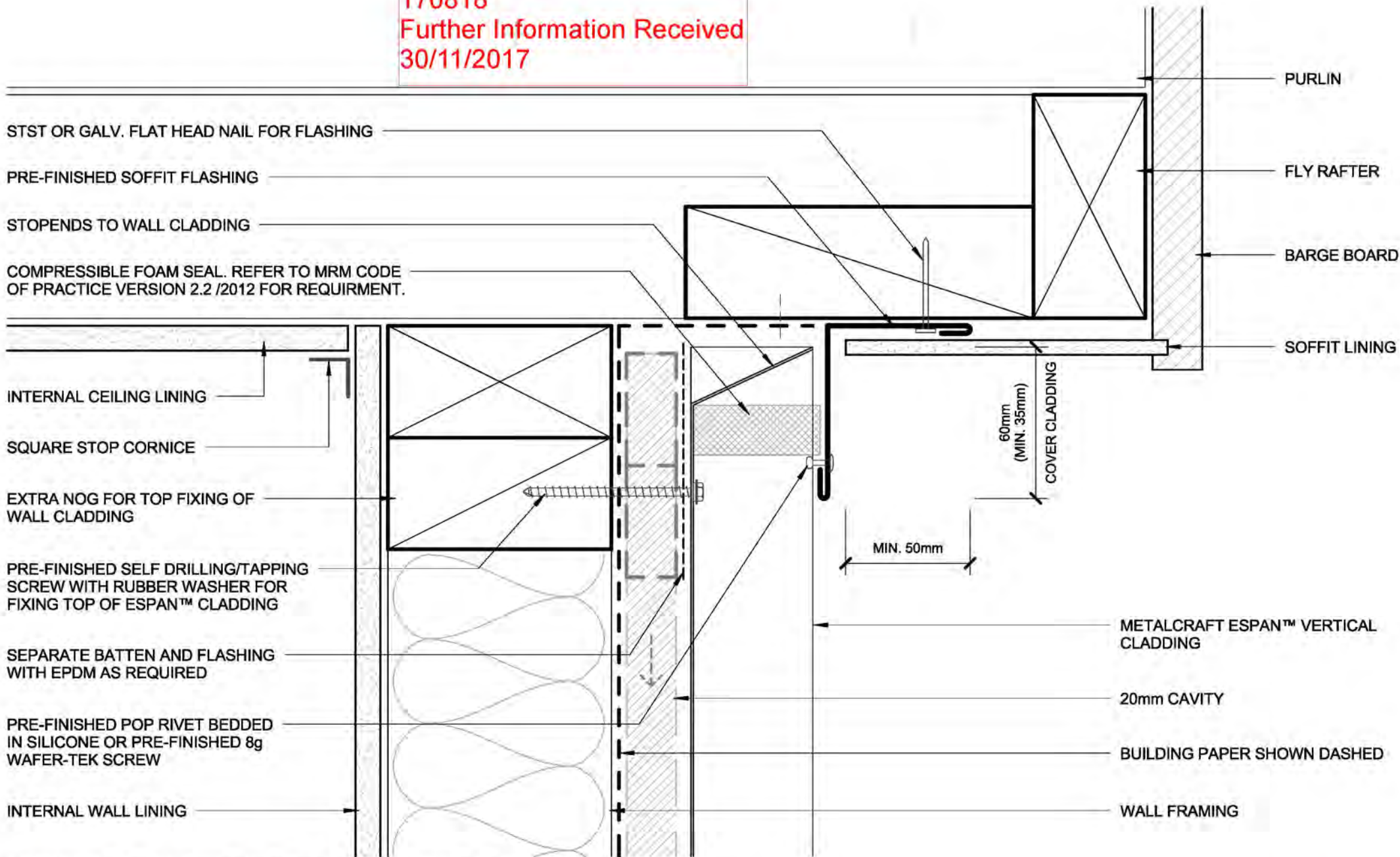
Scale 1 : 2

Sheet

01 / 20



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STST OR GALV. FLAT HEAD NAIL FOR FLASHING

PRE-FINISHED SOFFIT FLASHING

STOPENDS TO WALL CLADDING

COMPRESSIBLE FOAM SEAL. REFER TO MRM CODE OF PRACTICE VERSION 2.2 /2012 FOR REQUIRMENT.

INTERNAL CEILING LINING

SQUARE STOP CORNICE

EXTRA NOG FOR TOP FIXING OF WALL CLADDING

PRE-FINISHED SELF DRILLING/TAPPING SCREW WITH RUBBER WASHER FOR FIXING TOP OF ESPAN™ CLADDING

SEPARATE BATTEN AND FLASHING WITH EPDM AS REQUIRED

PRE-FINISHED POP RIVET BEDDED IN SILICONE OR PRE-FINISHED 8g WAFER-TEK SCREW

INTERNAL WALL LINING

PURLIN

FLY RAFTER

BARGE BOARD

SOFFIT LINING

60mm
(MIN. 35mm)
COVER CLADDING

MIN. 50mm

METALCRAFT ESPAN™ VERTICAL CLADDING

20mm CAVITY

BUILDING PAPER SHOWN DASHED

WALL FRAMING

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SOFFIT

RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

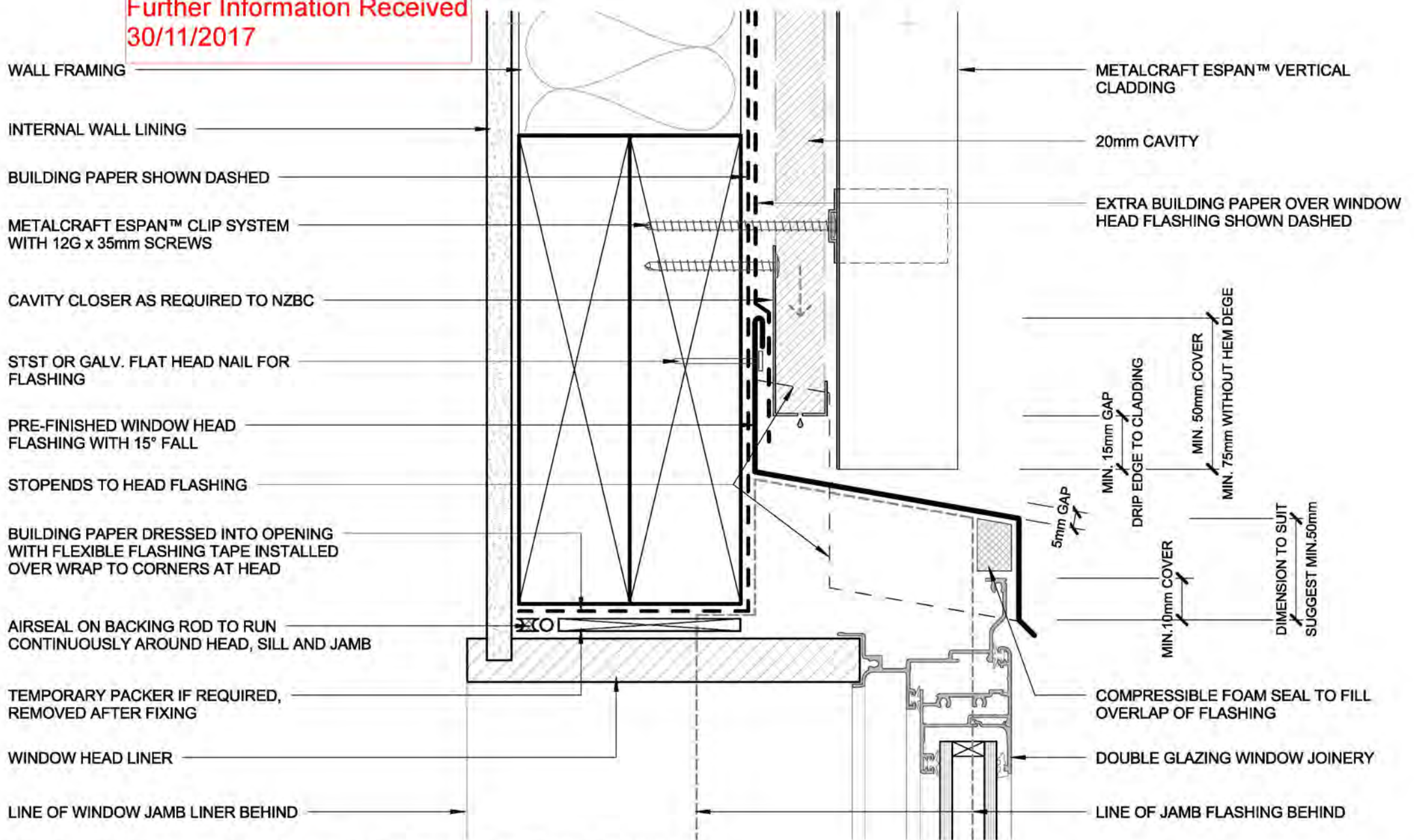
Date 2015

Scale 1 : 2

Sheet

02 / 20

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 30/11/2017



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FLUSH WINDOW HEAD
 RESIDENTIAL VERTICAL CLADDING



Espan 340™

Reference RVEP340

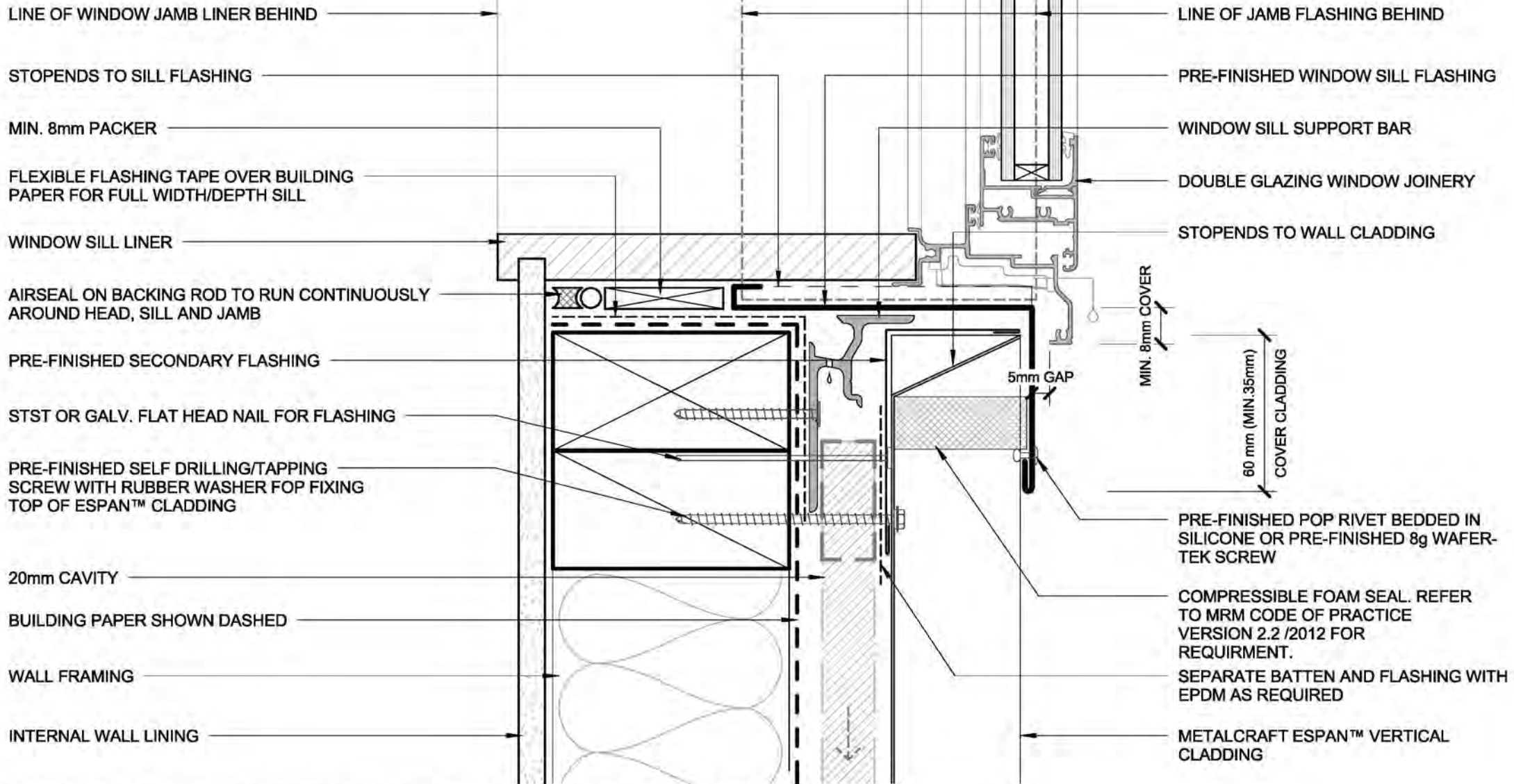
Date 2015

Scale 1 : 2

Sheet

03 / 20

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 30/11/2017



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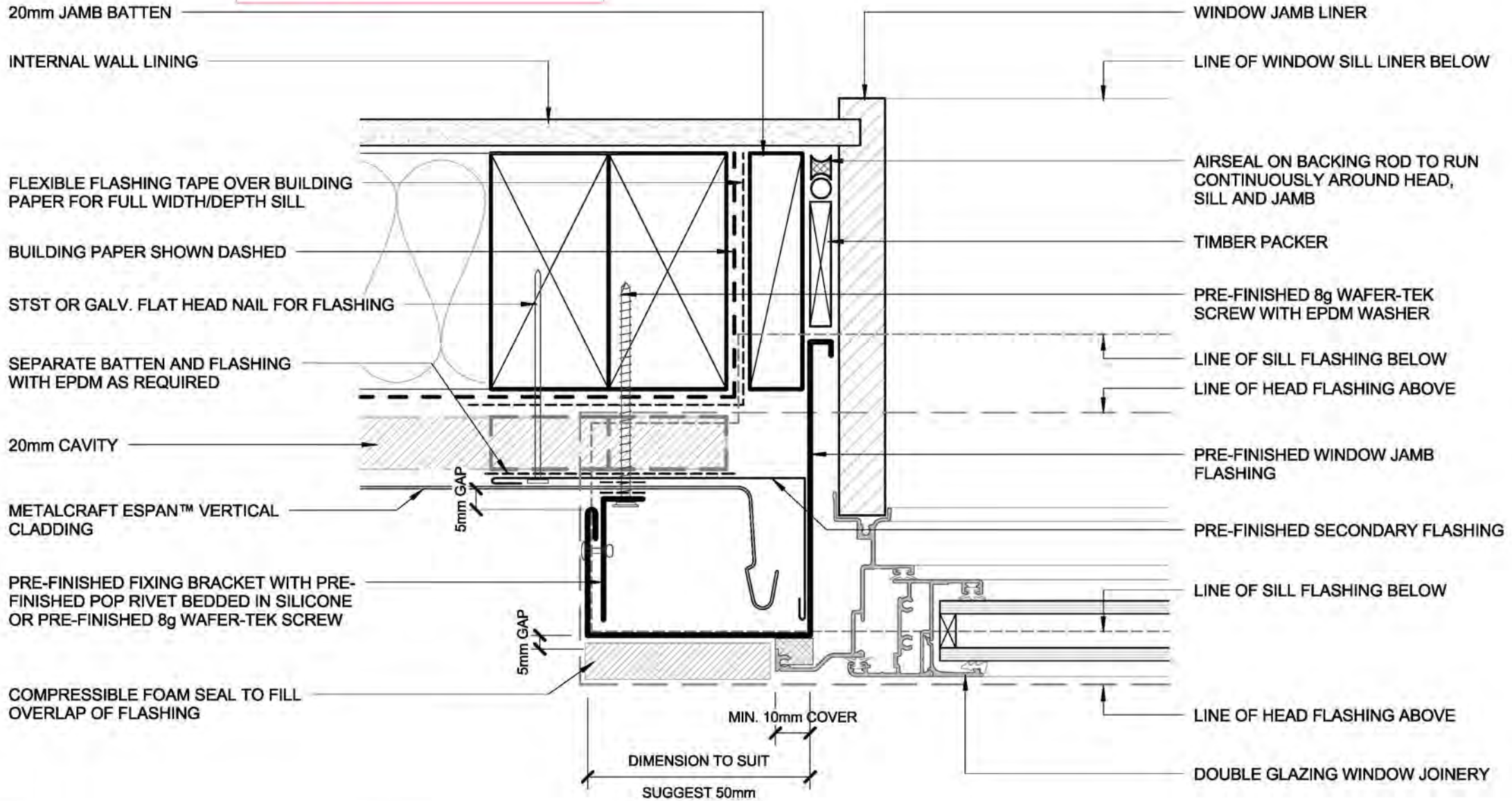
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Espan 340™
FLUSH WINDOW SILL
 RESIDENTIAL VERTICAL CLADDING

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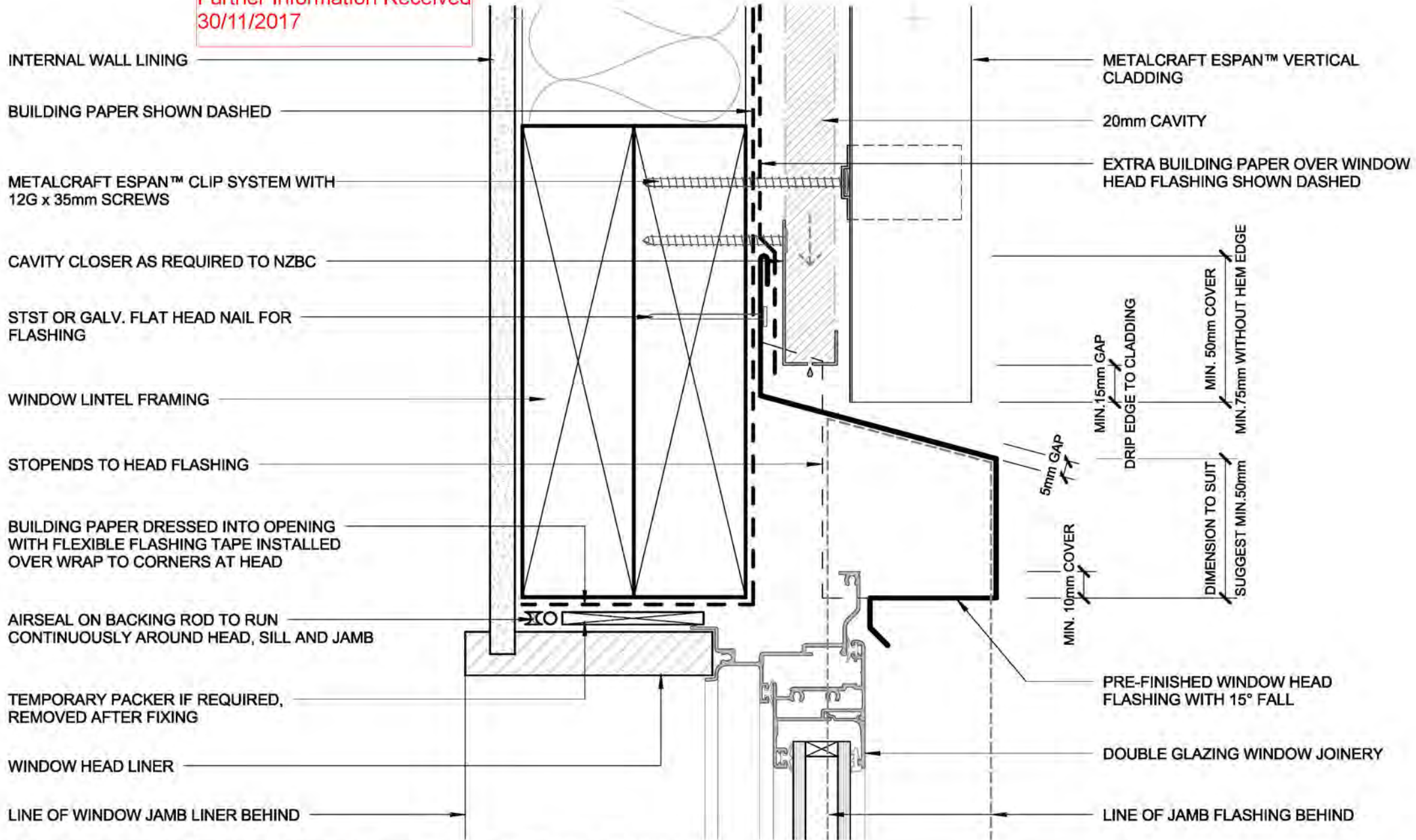


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Espan 340™

RECESSED WINDOW HEAD
 RESIDENTIAL VERTICAL CLADDING

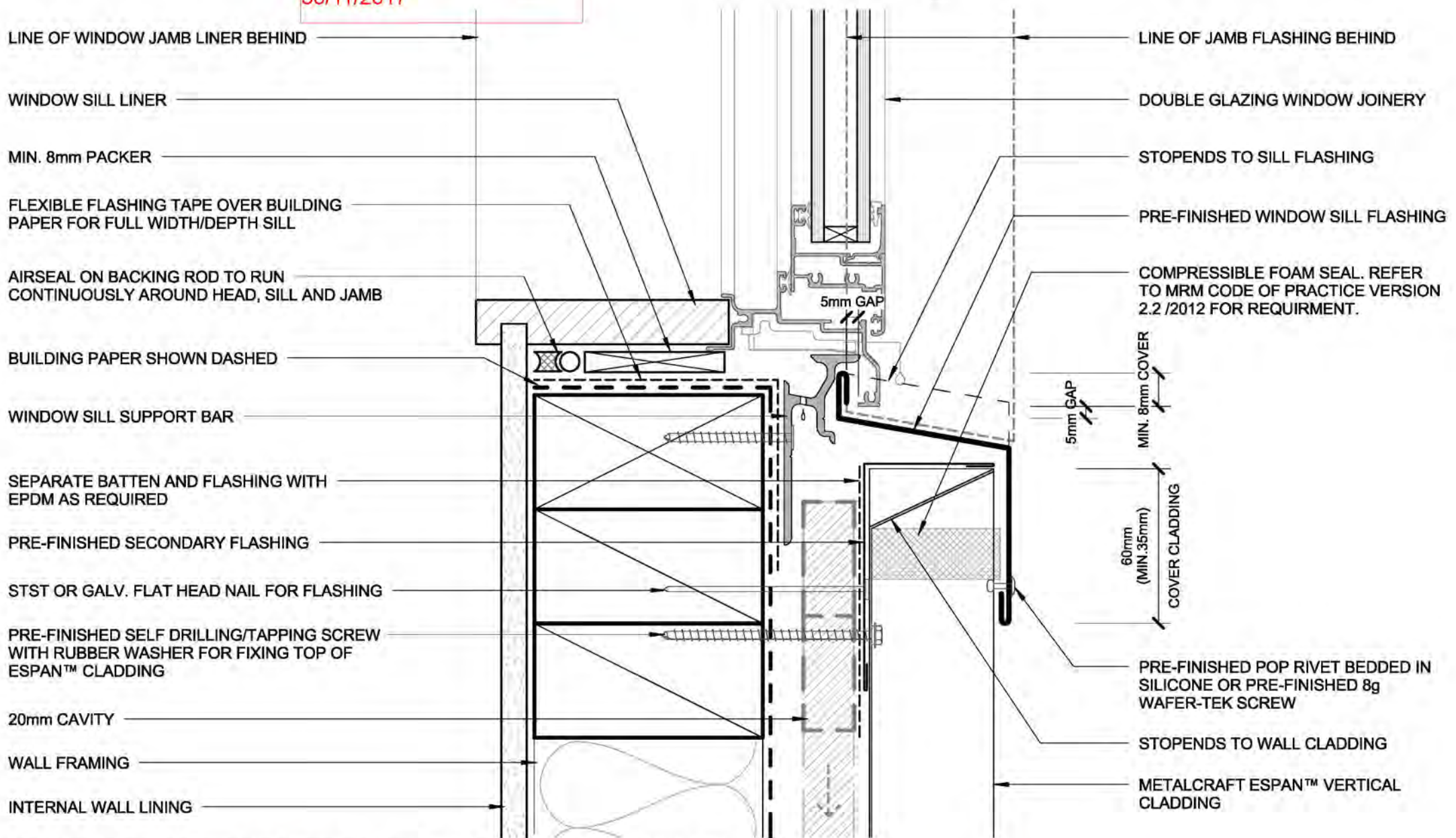
Reference RVEP340

Date 2015

Scale 1 : 2

Sheet

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Further Information Received
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RECESSED WINDOW SILL
RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

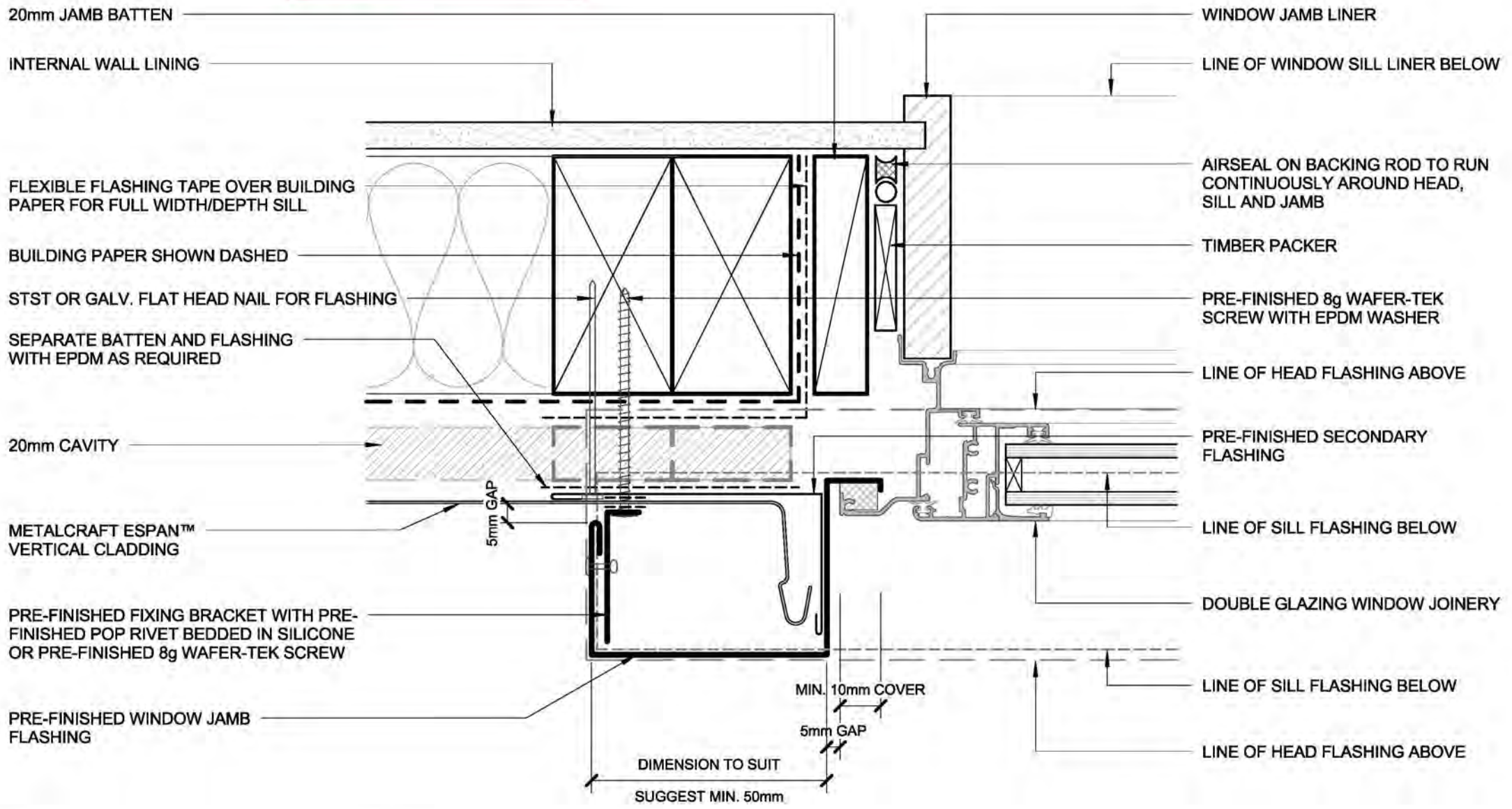
Date 2015

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 Further Information Received
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RECESSED WINDOW JAMB
 RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

Date 2015

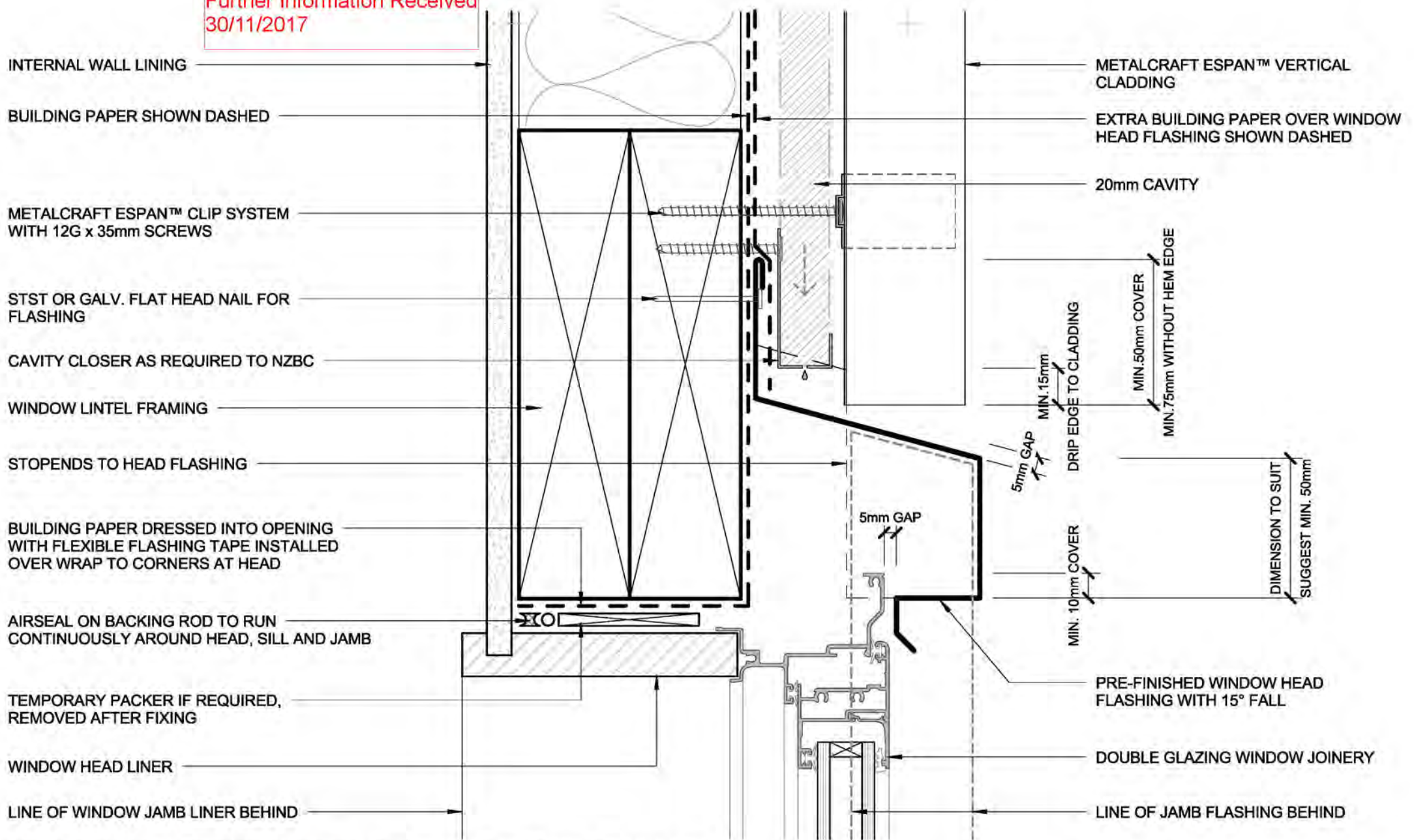
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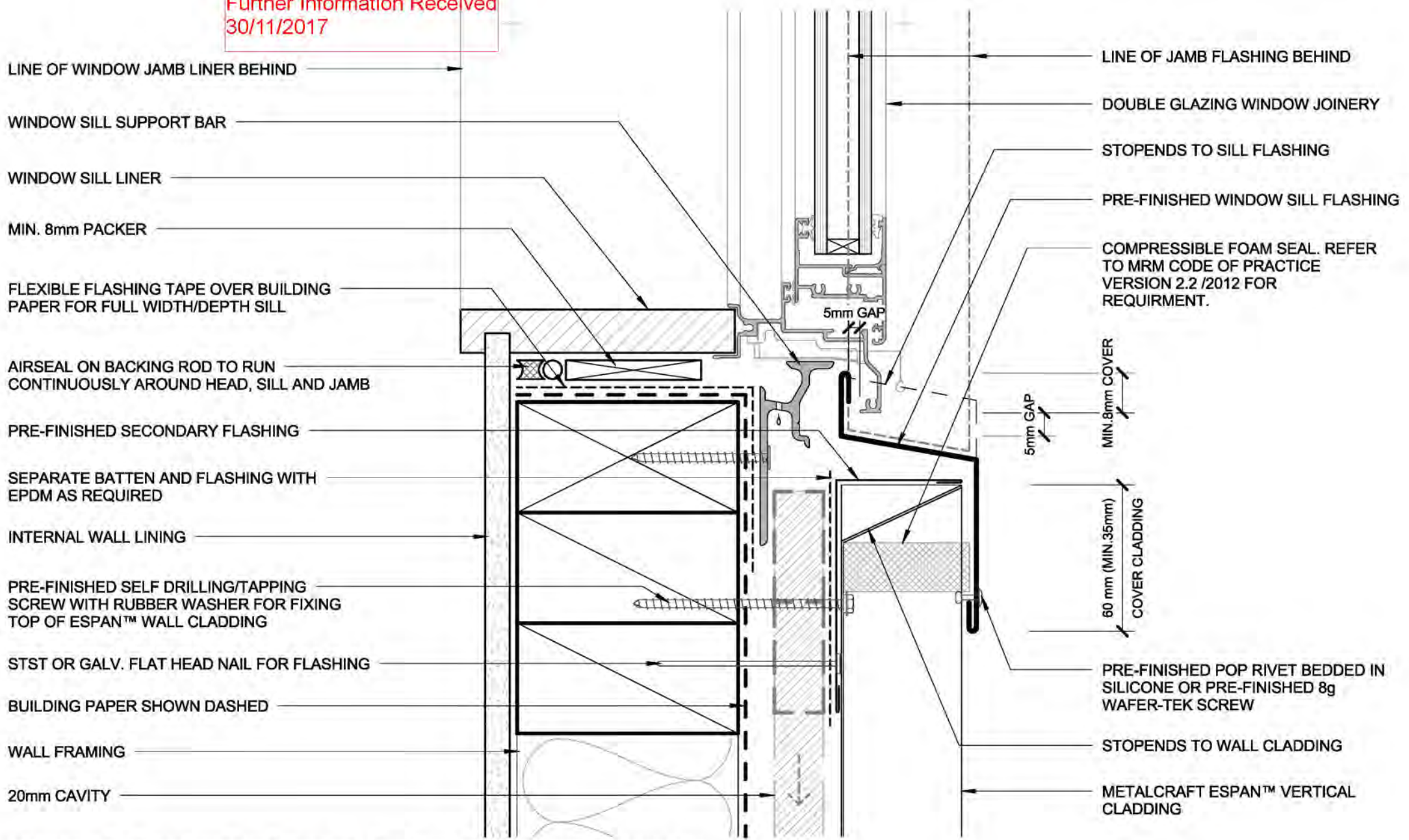
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Espan 340™
BUTT WINDOW HEAD
 RESIDENTIAL VERTICAL CLADDING

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Espan 340™

Reference RVEP340

Date 2015

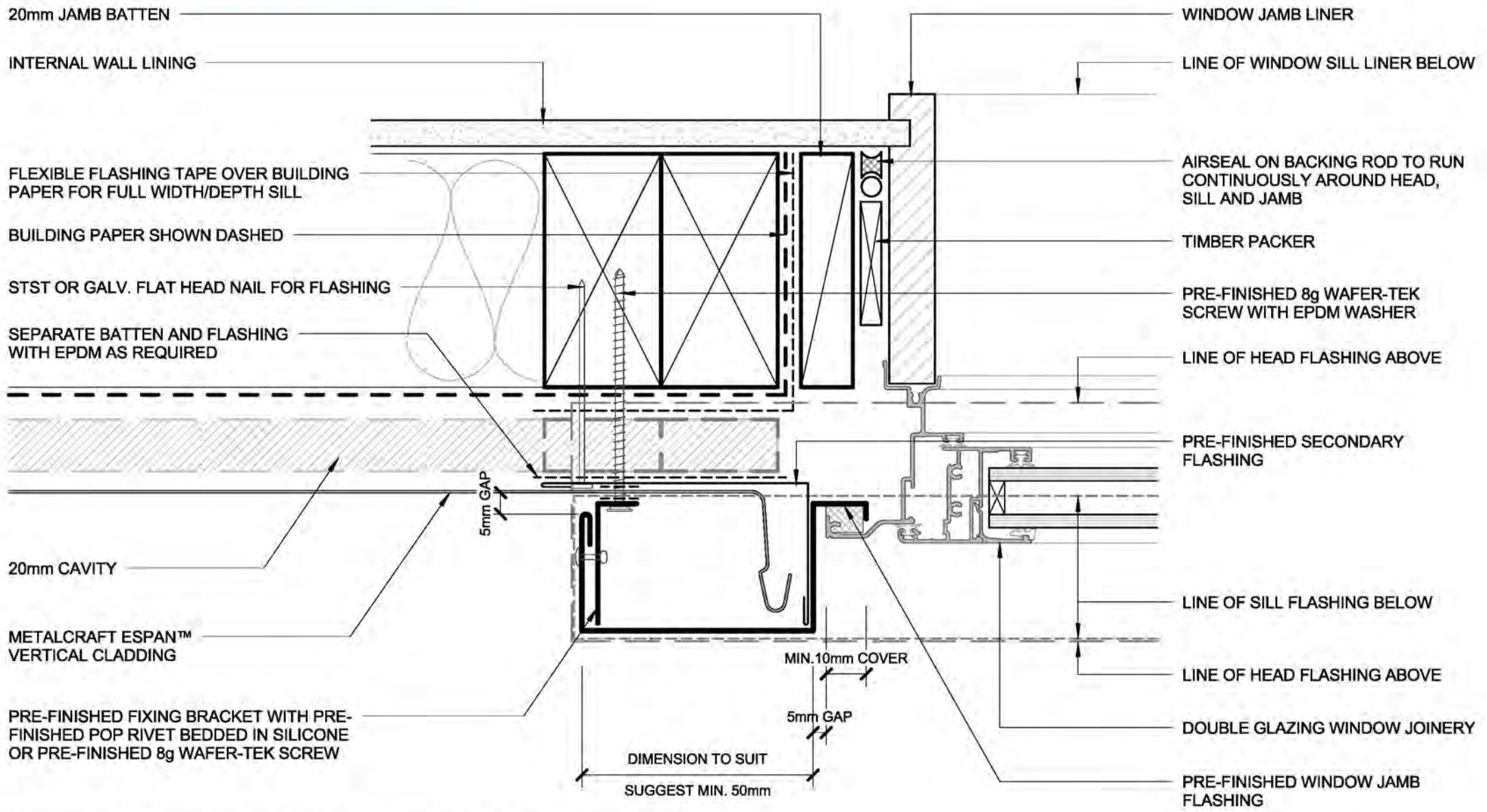
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BUTT WINDOW SILL
RESIDENTIAL VERTICAL CLADDING

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BUTT WINDOW JAMB
 RESIDENTIAL VERTICAL CLADDING



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INTERNAL WALL LINING

EXTRA BUILDING PAPER OVER WINDOW
 HEAD FLASHING SHOWN DASHED

METALCRAFT ESPAN™ CLIP SYSTEM WITH
 12G x 35mm SCREWS

CAVITY CLOSER AS REQUIRED TO NZBC

STST OR GALV. FLAT HEAD NAIL FOR FLASHING

PRE-FINISHED HEAD FLASHING WITH 15° FALL

METERBOX LINTEL FRAMING

BUILDING PAPER DRESSED INTO OPENING
 WITH FLEXIBLE FLASHING TAPE INSTALLED
 OVER WRAP TO CORNERS AT HEAD

AIRSEAL ON BACKING ROD TO RUN
 CONTINUOUSLY AROUND HEAD, SILL AND JAMB

TEMPORARY PACKER IF REQUIRED, REMOVED
 AFTER FIXING

METER BOX

METAL ANGLE TO BE CONTINUOUS
 AROUND METER BOX.

METALCRAFT ESPAN™ VERTICAL
 CLADDING

20mm CAVITY

STOPENDS TO HEAD FLASHING

MIN. 15mm GAP
 DRIP EDGE TO CLADDING
 MIN. 50mm COVER
 MIN. 75mm WITHOUT HEM EDGE

5mm GAP

PRE-FINISHED SELF DRILLING/TAPPING
 SCREW WITH RUBBER WASHER

PRE-FINISHED 'U' BRACKET FIXED TO
 METERBOX BEFORE INSTALLATION

LINE OF JAMB FLASHING BEHIND

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METERBOX HEAD

RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

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METAL ANGLE TO BE CONTINUOUS
AROUND METER BOX.

FLEXIBLE FLASHING TAPE OVER BUILDING
PAPER FOR FULL WIDTH/DEPTH SILL

METER BOX

MIN. 8mm PACKER

AIRSEAL ON BACKING ROD TO RUN
CONTINUOUSLY AROUND HEAD, SILL AND JAMB

BUILDING PAPER SHOWN DASHED

PRE-FINISHED SECONDARY FLASHING

PRE-FINISHED SELF DRILLING/TAPPING
SCREW WITH RUBBER WASHER FOR
FIXING TOP OF ESPAN™ CLADDING

STST OR GALV. FLAT HEAD NAIL FOR
FLASHING

INTERNAL WALL LINING

20mm CAVITY

WALL FRAMING

LINE OF JAMB FLASHING BEHIND

PRE-FINISHED SELF DRILLING/TAPPING
SCREW WITH RUBBER WASHER

STOPENDS TO SILL FLASHING

PRE-FINISHED SILL FLASHING

STOPENDS TO WALL CLADDING

COMPRESSIBLE FOAM SEAL. REFER
TO MRM CODE OF PRACTICE
VERSION 2.2 /2012 FOR
REQUIREMENT.

60 mm (MIN. 35mm)
COVER CLADDING

PRE-FINISHED POP RIVET BEDDED IN
SILICONE OR PRE-FINISHED 8g
WAFER-TEK SCREW

SEPARATE BATTEN AND FLASHING WITH
EPDM AS REQUIRED

METALCRAFT ESPAN™ VERTICAL
CLADDING

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Espan 340™

Reference RVEP340

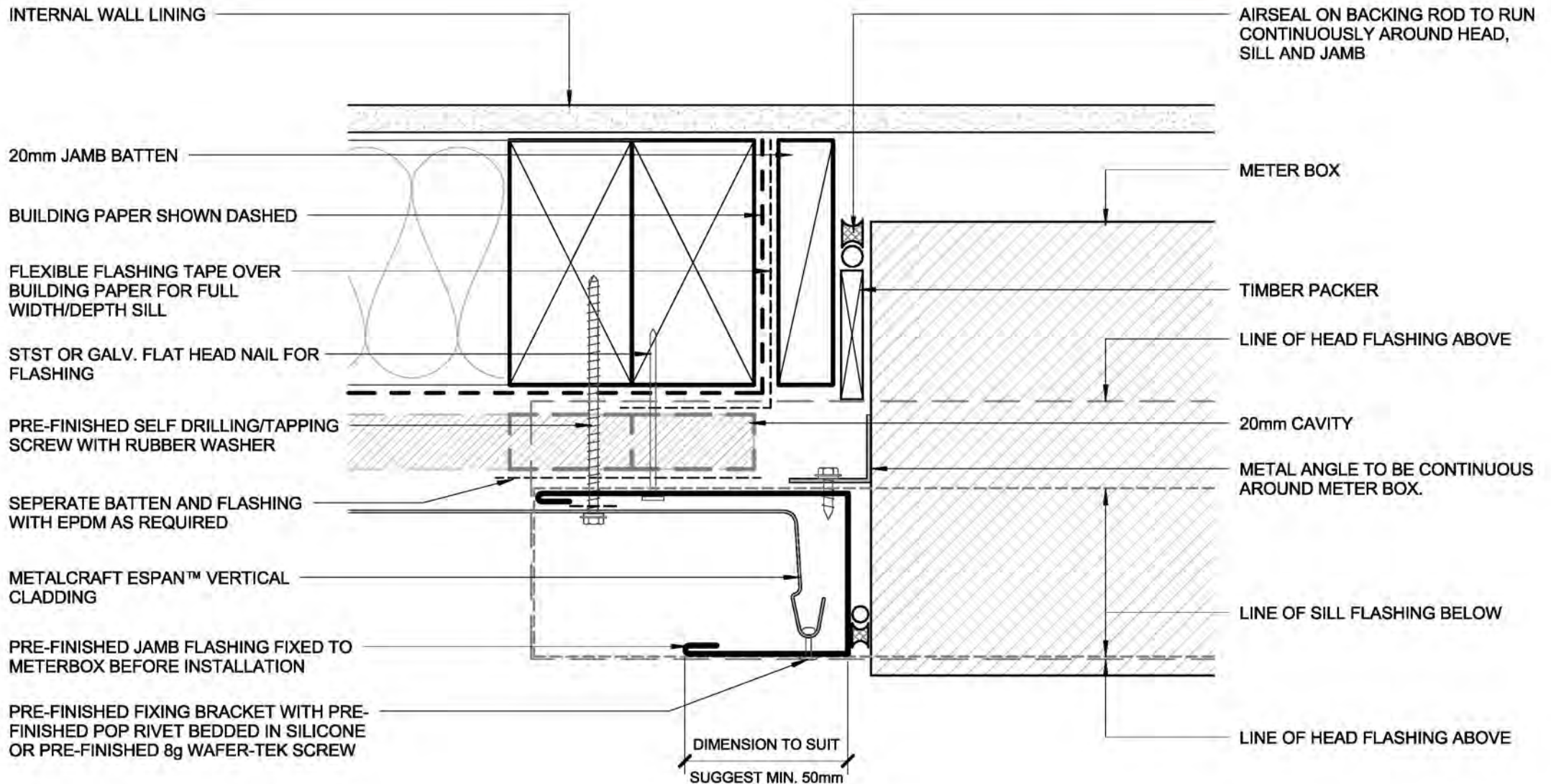
Date 2015

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METERBOX SILL
RESIDENTIAL VERTICAL CLADDING



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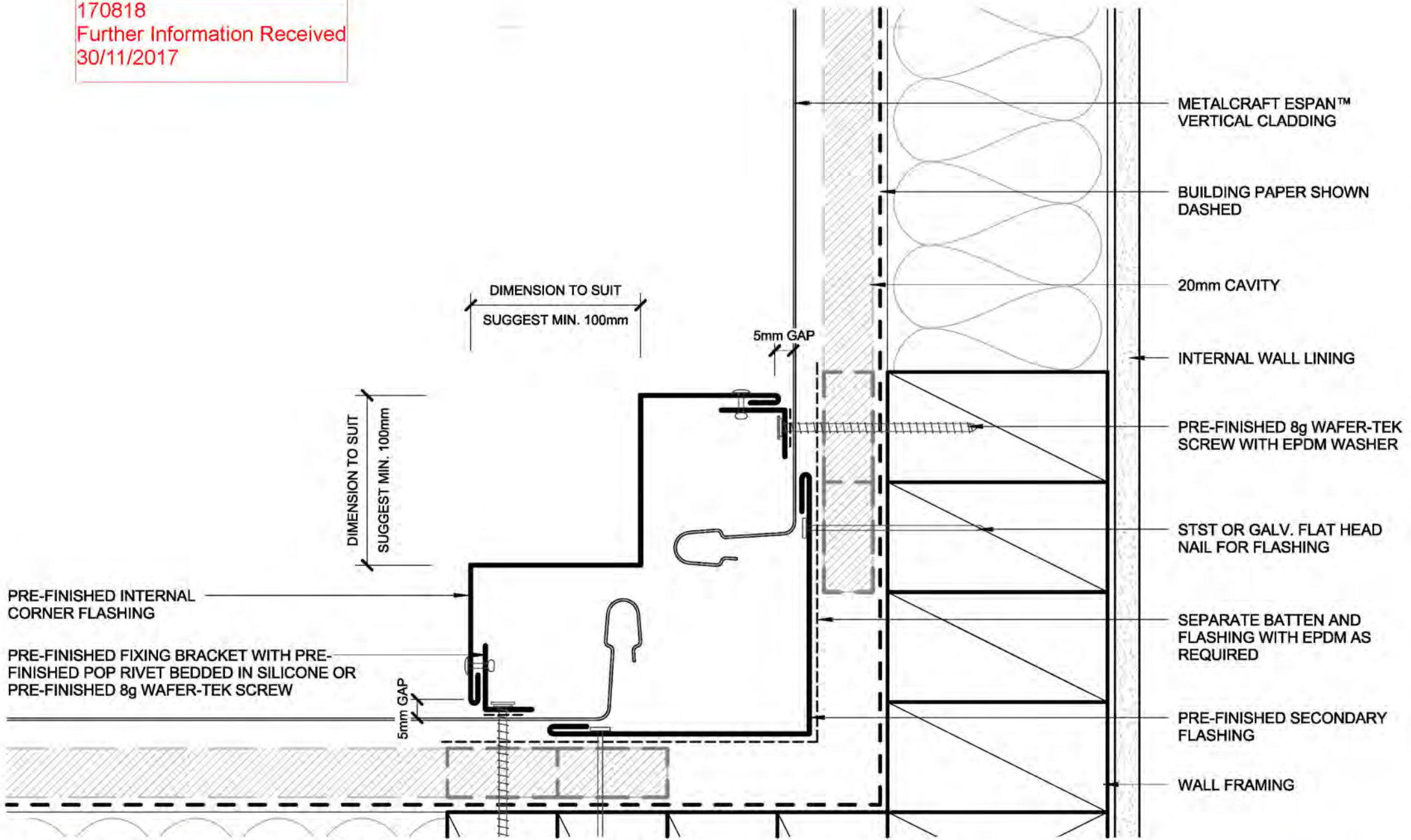
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Espan 340™
METERBOX JAMB
RESIDENTIAL VERTICAL CLADDING

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PRE-FINISHED INTERNAL CORNER FLASHING

PRE-FINISHED FIXING BRACKET WITH PRE-FINISHED POP RIVET BEDDED IN SILICONE OR PRE-FINISHED 8g WAFER-TEK SCREW

METALCRAFT ESPAN™ VERTICAL CLADDING

BUILDING PAPER SHOWN DASHED

20mm CAVITY

INTERNAL WALL LINING

PRE-FINISHED 8g WAFER-TEK SCREW WITH EPDM WASHER

STST OR GALV. FLAT HEAD NAIL FOR FLASHING

SEPARATE BATTEN AND FLASHING WITH EPDM AS REQUIRED

PRE-FINISHED SECONDARY FLASHING

WALL FRAMING

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INTERNAL CORNER
 RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

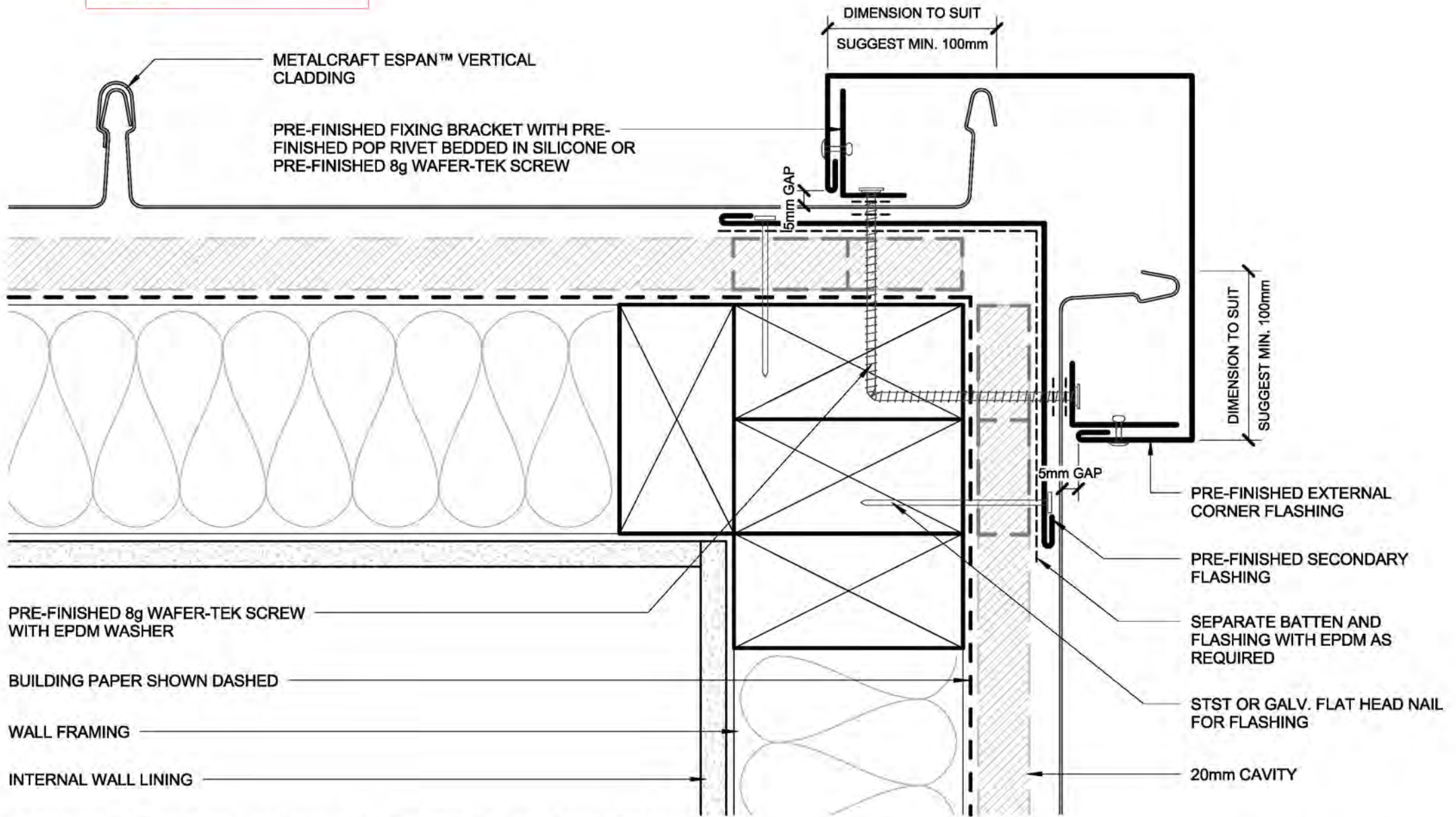
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PRE-FINISHED 8g WAFER-TEK SCREW WITH EPDM WASHER

BUILDING PAPER SHOWN DASHED

WALL FRAMING

INTERNAL WALL LINING

5mm GAP

5mm GAP

PRE-FINISHED EXTERNAL CORNER FLASHING

PRE-FINISHED SECONDARY FLASHING

SEPARATE BATTEN AND FLASHING WITH EPDM AS REQUIRED

STST OR GALV. FLAT HEAD NAIL FOR FLASHING

20mm CAVITY

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Espan 340™

EXTERNAL CORNER
RESIDENTIAL VERTICAL CLADDING

Reference RVEP340

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SEPARATE BATTEN AND FLASHING WITH EPDM AS REQUIRED

PRE-FINISHED SOAKER FLASHING TO LINE UP WITH WINDOW JAMB ABOVE

SOAKER FLASHING ONLY REQUIRED TO LINE UP WITH WINDOW JAMB ABOVE. REFER TO MRM CODE OF PRACTICE VERSION 2.2 /2012 FOR REQUIREMENT.

METALCRAFT ESPAN™ VERTICAL CLADDING

20mm CAVITY

BUILDING PAPER SHOWN DASHED

PRE-FINISHED FLAT HEAD WAFER-TEK SCREW WITH EPDM WASHER

INTERNAL WALL LINING

WALL FRAMING

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Espan 340™

SOAKER FLASHING
 RESIDENTIAL VERTICAL CLADDING

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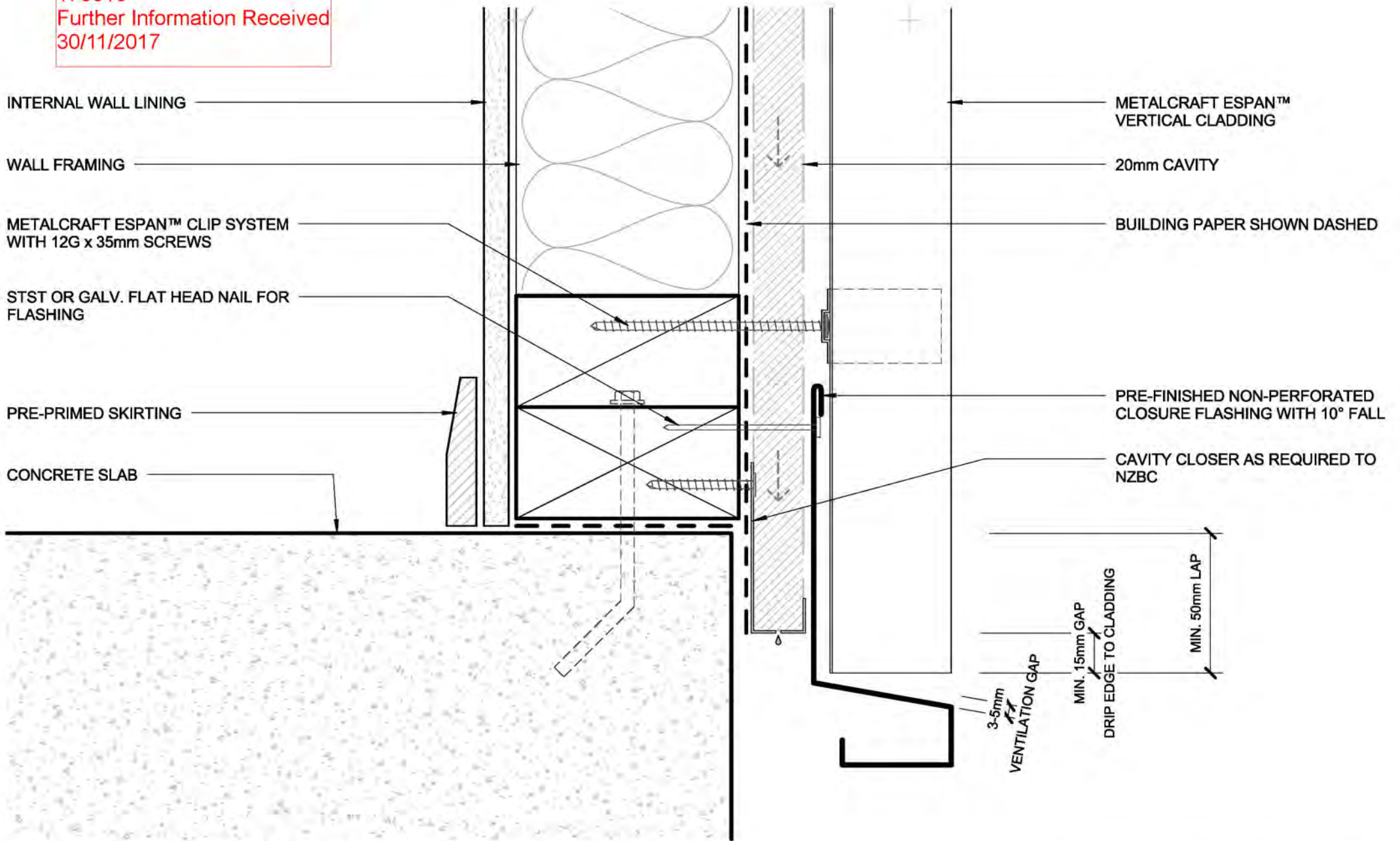
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BOTTOM OF CLADDING (FLUSH)
 RESIDENTIAL VERTICAL CLADDING

Espan 340™

Reference RVEP340

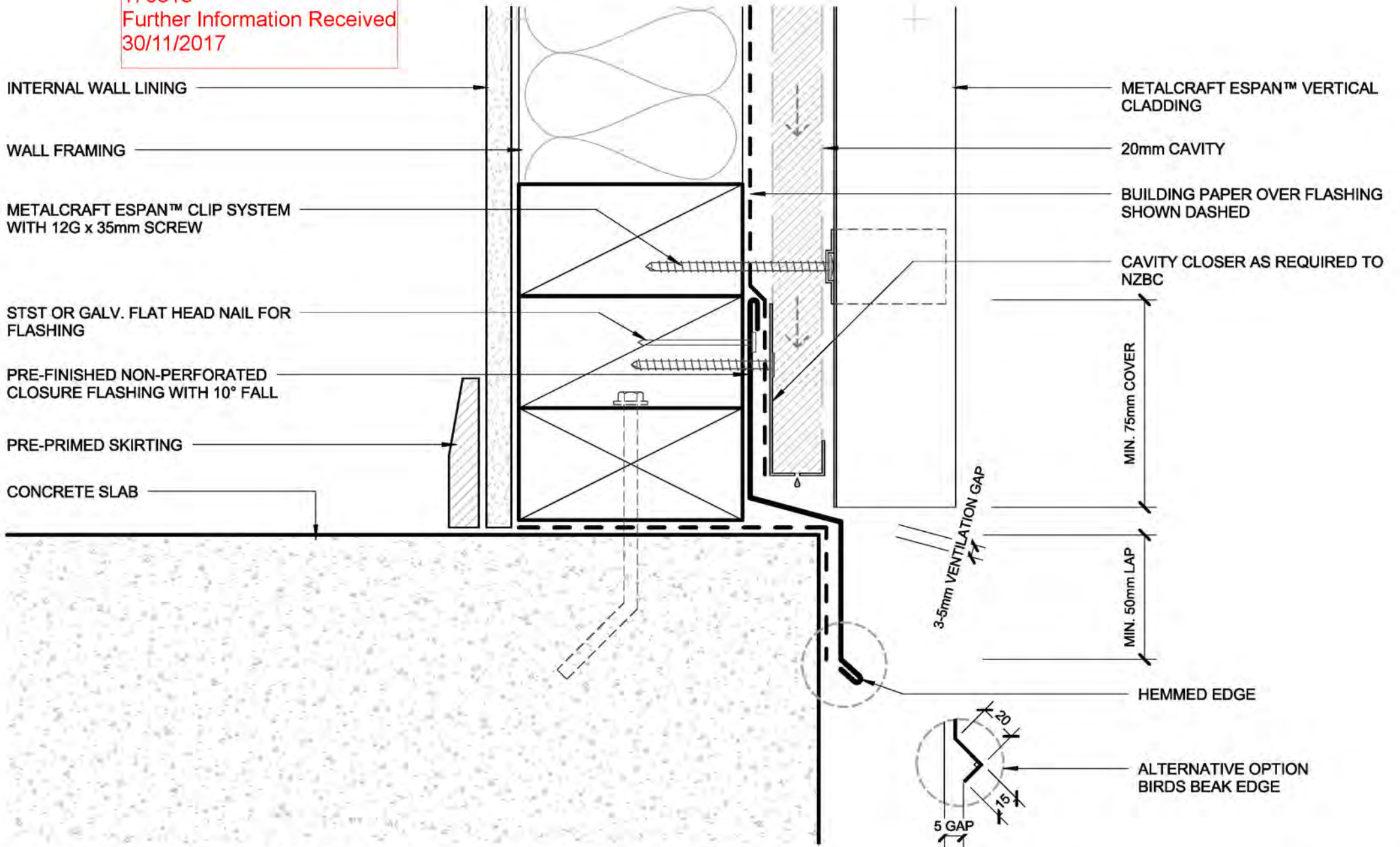
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BOTTOM OF CLADDING (RECESSED)
 RESIDENTIAL VERTICAL CLADDING

Espan 340™

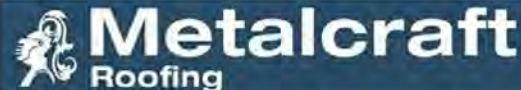
Reference RVEP340

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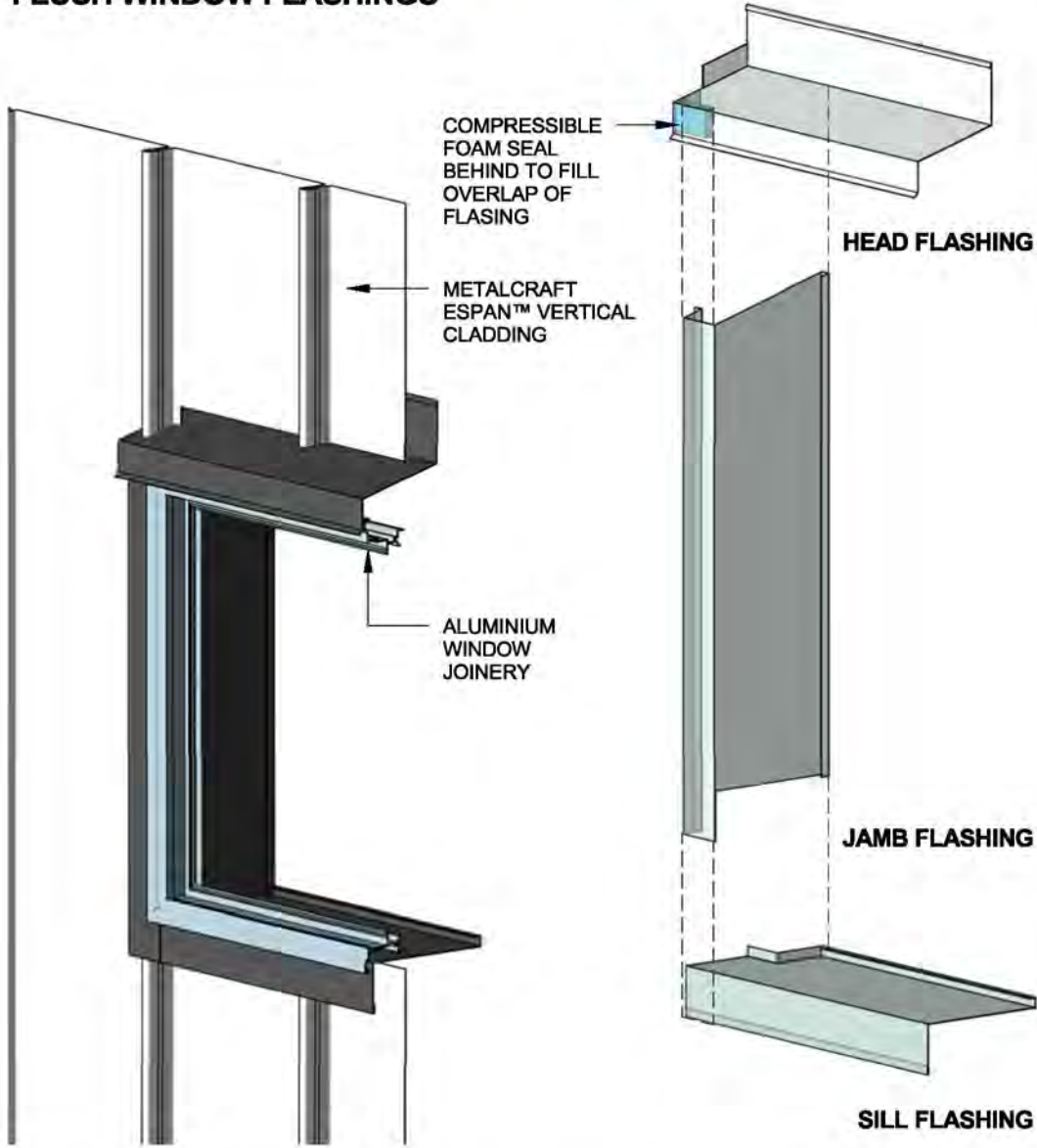
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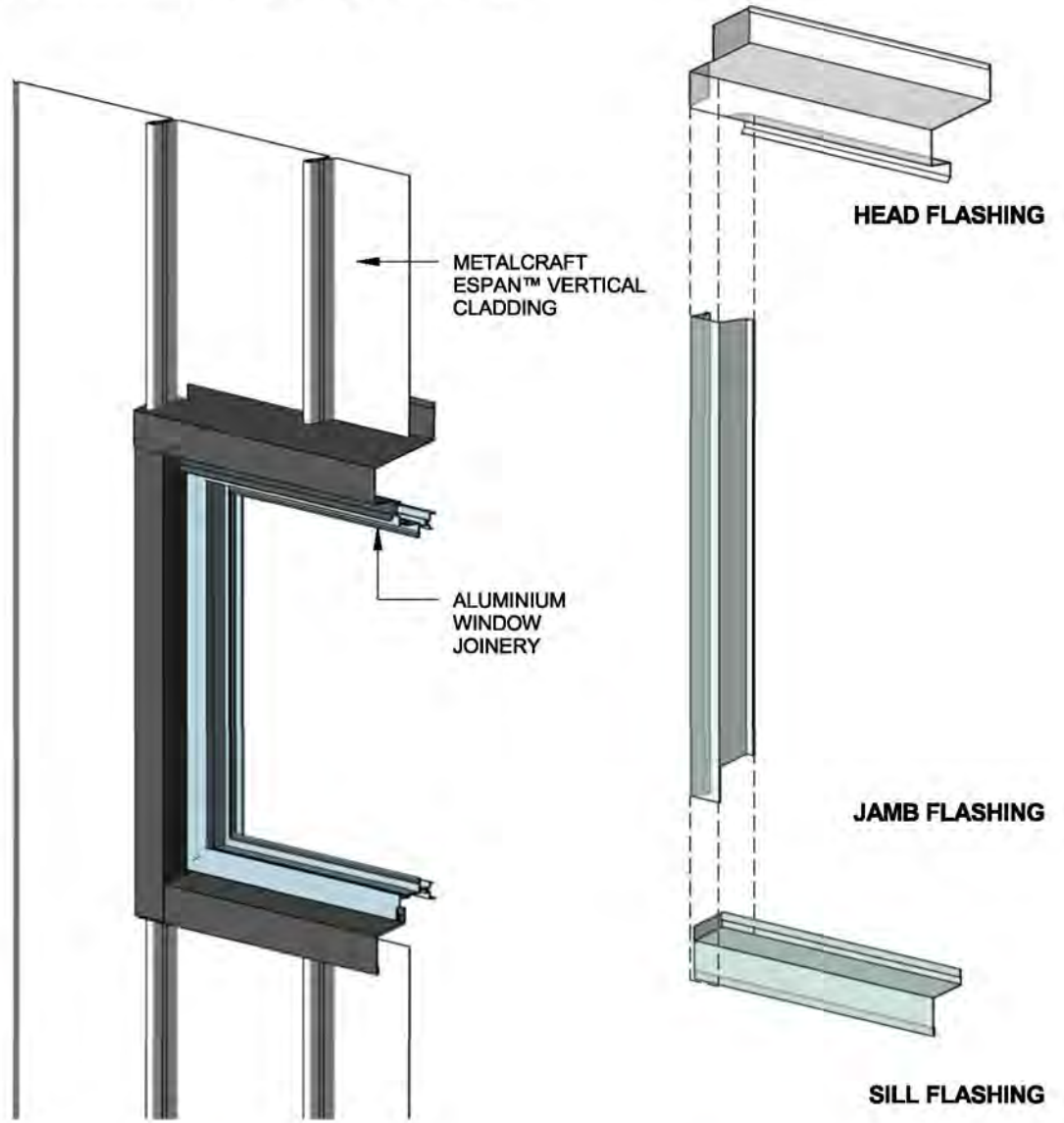
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FLUSH WINDOW FLASHINGS



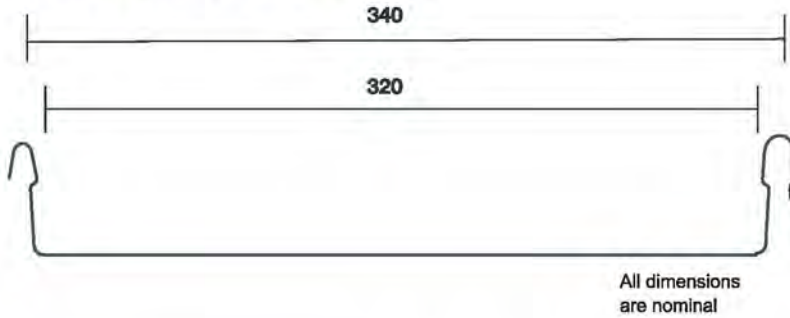
RECESSED WINDOW FLASHINGS



ESPAN® 340 LOADSPAN TABLE

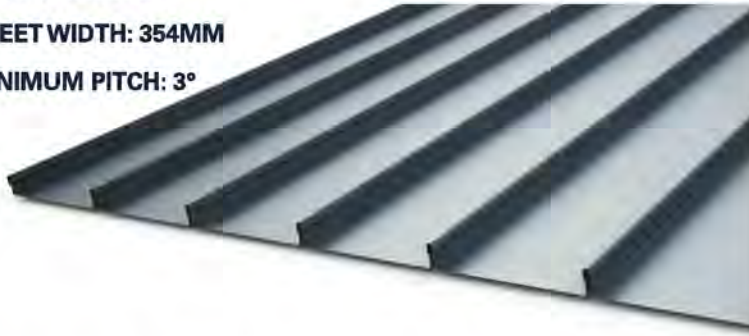
espan® 340 can be used as a residential or commercial roofing solution and is ideal for low pitches. espan® 340 employs a clip fixing system and can be used down to a minimum pitch of 3 degrees. espan® 340 is available in Zinalume, Galvsteel, Colorsteel Endura and Colorsteel Maxx.

PROFILE CROSS SECTION



Note: Oil Canning is an inherent characteristic of gauge cold formed metal products, particularly products with broad flat areas like espan(r). The architect, builder and homeowner needs to be aware that oil canning may affect the overall aesthetic outcome. Please refer to MRM NZ Metal Roof and Wall Cladding Code Of Practice - Section 2.3.5 for more information.(www.metalroofing.org.nz).

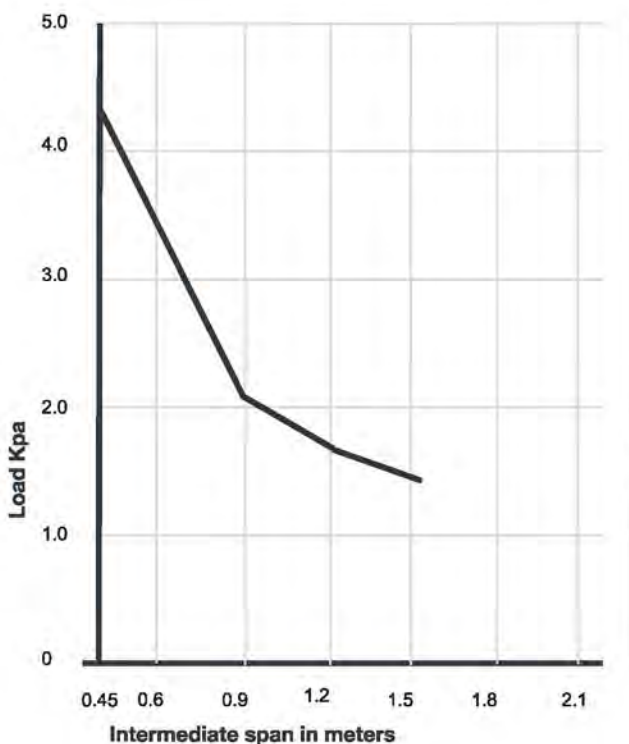
COVER: 340MM
SHEET WIDTH: 354MM
MINIMUM PITCH: 3°



RECOMMENDED FIXINGS

Fixing Patterns – 1 clip per sheet per Purlin

DESIGN LOAD G300 0.55MM BMT ESPAN®



TIMBER:

12G Length to suit -minimum embedment into structure to be 30mm and greater than 6 times the screw thread diameter. Use load spreading washers if required for expansion.

STEEL:

12G self-drilling fastener. Length to suit -minimum steel embedment should be 5 - 6mm beyond the drill point with a minimum of 3 threads beyond the drill point. Use load spreading washers if required for expansion.

NOTE:

The intermediate spans shown in the graph to the left is based on G300 Steel as the base metal. To calculate end spans please multiply the intermediate span by 0.66. Spans are based on unrestricted access and allow for a concentrated load of 1.32kN.

For alternative metals please contact your local Metalcraft Roofing branch.

MANUFACTURING LOCATIONS:

On-site Nationwide - Available to purchase from all Metalcraft Branch Locations.

espan is a revolution in roll forming, depending on project size and location the sheets can be run on site to any length. Please contact your nearest Metalcraft Branch for more information.



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Further Information Received
30/11/2017

Shadowclad® for Cavity Construction

Product Technical Statement

<p>Product Description</p>	<p>Shadowclad structural plywood panels are manufactured from New Zealand pine wood veneers. The Shadowclad range includes machined plywood panels, available un-treated (for internal use only) or treated to either a H3.1 or H3.2 level. It also includes a range of flashing solutions. The Shadowclad system has been tested to the requirements of E2/VM1 for use as a cladding solution installed on a cavity system complying with the New Zealand Building Code (NZBC).</p> <p>Shadowclad panels are available in either grooved or textured profiles and in either Natural or Ultra (Pre-Primed) finishes</p> <p>This Product Technical Statement relates specifically to Shadowclad used in cavity construction.</p>
<p>Scope of Use</p>	<p>Shadowclad panels are suitable for use as a cladding material for cavity construction when used as an external wall cladding for buildings within the following scope:</p> <ul style="list-style-type: none"> • The scope limitations of Acceptable Solution AS1 of E2, External Moisture • With a risk score less than or equal to 20 when calculated in accordance with Table 2, E2/AS1 • Specific design for ultimate limit states (ULS) wind pressures not exceeding 2.5 kPa <p>The durability of Shadowclad used in residential applications is subject to the requirements of NZS 3602 Timber and Wood Based Products for use in building (NZS 3602), in accordance with NZBC Clause B2 Durability.</p>
<p>Limitations / Disclaimer</p>	<p>Shadowclad for cavity construction must not be used in:</p> <ul style="list-style-type: none"> • Direct fix applications • With a risk score exceeding 20, when calculated in accordance with Table 2, E2/AS1 • Specific design for ultimate limit states (ULS) wind pressures exceeding 2.5 kPa <p>The site on which the building is situated must comply with the Acceptable Solution E1/AS1 of the Approved Document for the NZBC Clause E1 "Surface Water".</p> <p>Please refer to the current Shadowclad literature for information, limitations, and cautions regarding the storage, handling, installation, usage, and maintenance of Shadowclad.</p>
<p>Compliance with the New Zealand Building Code</p>	<p>Shadowclad, if employed in accordance with the Shadowclad Specification and Installation Guide for cavity construction, will assist in the building meeting the following provisions of the NZBC, provided it is correctly installed as part of an otherwise compliant exterior wall assembly.</p> <p>Clause B1 Structure: Performance B1.3.1, B1.3.2, B1.3.3 (a, c, h, j, q), B1.3.4(d)</p> <p>Shadowclad is Product Certified by the Engineered Wood Products Association of Australasia (EWPPA) as being manufactured in accordance with the joint New Zealand / Australian</p>

Information contained in this document is specific to Shadowclad Plywood Cladding and must not be used with any other plywood products no matter how similar they may appear. For further information contact Customer Services on 0800 326 759 or www.chhwoodproducts.co.nz

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Further Information Received
30/11/2017



Shadowclad® for Cavity Construction

Product Technical Statement

Standard AS/NZS 2269, Structural Plywood, and then bandsawn and grooved as required. The EWPA is accredited for product certification by the Joint Accreditation System of Australia and New Zealand (JAS -ANZ).

The Shadowclad flashing range has been tested in accordance with Verification Method E2/VM1 and Australian/ New Zealand Standard 4284 Testing of Building Facades (AS/NZS 4284) for compliance with NZBC requirements.

Clause B2 Durability: Performance B2.3.1(b), when used and treated to the requirements of NZS 3602

Shadowclad is manufactured to meet the requirements of the NZBC Clause B2 Durability. When treated to the required treatment levels prescribed in NZS 3602, it will form part of an Acceptable Solution complying with the requirements of the NZBC (Acceptable Solution B2/AS1, 3.2.1).

NZBC Clause B2 requires claddings which do not form part of bracing to achieve a minimum structural durability level of 15 years.

The Shadowclad Exterior Flashing Range is manufactured from extruded aluminium or folded from stainless steel (as applicable). The Shadowclad flashings range is purpose designed to complement Shadowclad panels used in exterior applications.

Independently tested for weather tightness and compliant with Table 20 of E2/AS1, Shadowclad flashings achieve a minimum of 15 years durability in all NZS 3604 exposure zones including Zone D.

Clause E2 External Moisture: E2.3.2, E2.3.3, E2.3.5

Shadowclad, together with the Shadowclad Flashing range, have been tested in accordance with Verification Method E2/VM1 and AS/NZS 4284 "Testing of Building Facades" for compliance with NZBC requirements.

Clause F2 Hazardous Building Materials: F2.3.1

Shadowclad meets this requirement and will not present a health hazard to people.

Clause H1 Energy Efficiency H1.3.1

External walls clad with Shadowclad, which has an R-value of 0.104 m².C/W, and together with internal linings and bulk insulation meet the requirements of Acceptable Solution H1/AS1.

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Shadowclad® for Cavity Construction

Product Technical Statement

<p>Quality Assurance</p>	<p>CHH Woodproducts (CHHWP) has strict quality assurance processes in place to monitor that Shadowclad is manufactured in a manner that meets both the structural and visual requirements of the specific product.</p> <p>Shadowclad is independently third party audited by the EWPA. The EWPA certifies Shadowclad manufactured by CHHWP at its Tokoroa mill.</p> <p>Participation and compliance with the requirements of the EWPA's process based quality control scheme includes product testing and monitoring of properties. It provides the basis for the EWPA's Product Certification of Shadowclad as conforming to the requirements of AS/NZS 2269.</p> <p>The EWPA's product certification scheme is accredited under JAS-ANZ.</p>
<p>Sustainability</p>	<p>Shadowclad is manufactured from plantation pine grown in New Zealand. It is grown on tree farms which are tended and harvested to provide wood for plywood manufacture and other applications. The crop is managed on a sustainable basis to yield millable trees. New Zealand plantations are managed in compliance with the New Zealand Forest Accord, a voluntary agreement signed in 1991 between New Zealand forest managers and environmental non-government organisations.</p> <p>Shadowclad is manufactured in New Zealand, at the CHH Woodproducts Tokoroa Plywood Mill. Shadowclad is available Forestry Stewardship Council (FSC) Certified on request (FSC-C012019).</p>
<p>Installation Requirements</p>	<p>Shadowclad must be installed in accordance with good building practice, sound design principles, and the requirements of the Shadowclad Specification and Installation Guide for cavity construction. The specifications and details are available at CHH Woodproducts web site www.chhwoodproducts.co.nz or ask CHH Woodproducts™ by calling 0800 326 759 for information.</p>
<p>Service Life</p>	<p>Shadowclad will continue to satisfy the performance requirements of the NZBC for 15 years, provided that all of the requirements set out in this Product Technical Statement and the current Shadowclad Specification and Installation Guide for Cavity Construction are followed.</p>
<p>Maintenance Requirements</p>	<p>All cladding materials, including Shadowclad, require careful and regular product maintenance by the building owner throughout the cladding's normal service life to ensure durability and to maintain visual aesthetics. It is important that you refer to, and follow, the requirements of the Shadowclad Specification and Installation Guide for Cavity Construction.</p>
<p>Product Support</p>	<p>CHHWP provides extensive product support for our full range of wood based building products. By visiting www.chhwoodproducts.co.nz you can access all the latest information regarding our products including Product Guides, Specification and Installation Guides, Technical Notes, Information Bulletins, CAD Drawings, Design Software and other useful information.</p>

Information contained in this document is specific to Shadowclad Plywood Cladding and must not be used with any other plywood products no matter how similar they may appear. For further information contact Customer Services on 0800 326 759 or www.chhwoodproducts.co.nz

170818
Further Information Received
30/11/2017



Shadowclad® for Cavity Construction

Product Technical Statement

	<p>In addition to this CHHWP have a team of Engineers and Technical Experts available to assist with any product enquiries. You can contact the team by calling 0800 326 759 or by emailing woodproducts@chhwoodproducts.co.nz</p>
Legal Disclaimer	<p>The information contained in this document is current as at July 2015 and is based on data available to CHHWP at the time of going to print.</p> <p>CHHWP reserves the right to change the information contained in this document without prior notice. It is your responsibility to ensure that you have the most up to date information available. You can call toll free on 0800 326 759 or visit www.chhwoodproducts.co.nz to obtain current information.</p> <p>CHHWP has used all reasonable endeavours to ensure the accuracy and reliability of the information contained in this document. However, to the maximum extent permitted by law, CHHWP assumes no responsibility or liability for any inaccuracies, omissions or errors in this information nor for any actions taken in reliance on this information.</p>



Viking Butylclad Membrane System Product Warranty

Viking Roofspec offers this Warranty for the Viking Membrane System for 20 years from the Warranty Commencement Date ("Warranty Period").

1. Viking Roofspec warrants that the Membrane System will, subject to the terms set out below, retain its waterproofing and weatherproofing for the Warranty Period provided that the Membrane System has been properly installed by a Viking Approved Applicator in accordance with all Viking Roofspec specifications current at the time of installation, including, but not restricted to the technical data and standard details as listed on the Viking Roofspec Website at www.vikingroofspec.co.nz and training provided by Viking Roofspec ("Viking Specifications").
2. This Warranty covers only materials supplied by Viking Roofspec as the Membrane System, including the membrane, proprietary accessories and adhesives; provided materials were new and unused at the time of installation and have not been disturbed thereafter.

3. Warranty Commencement Date _____
(Date of completion of Membrane System installation)

4. The Membrane System

Membrane type: Viking Butylclad

Membrane thickness: 1.0mm / 1.5mm

Membrane colour: Black / Grey

5. The Building

Project address _____

Area of application (e.g. roof, deck) _____

Installed by _____

6. This Warranty covers only the waterproofing and weatherproofing properties of the Membrane System. Viking Roofspec will not be liable for any failure of the Membrane System or damage resulting from any failure that has been caused in part or in whole by the Membrane System not being installed in accordance with the Viking Specifications. Viking Roofspec does not give any warranty as to the suitability of any installer and will not, in any circumstances be liable for the actions or omission of any installer. Viking Roofspec requires that all Viking Approved Applicators provide a separate Workmanship Warranty covering any defects in the installation of the Membrane System.

7. The Membrane System is not warranted against, and Viking Roofspec shall not be liable for loss of waterproofing properties or damage caused by:
- objects penetrating the sheeting, or mechanical damage;
 - chemical or substance (save those specifically approved for use by Viking Roofspec);
 - any shifting or altering of the Membrane System after installation;
 - infiltration or condensation of moisture in, around, or above the walls of the Building or the failure of other Building components;

- the lack of positive drainage (ponded water);
 - the lack of adequate ventilation;
 - environmental factors including dirt, pollutants and biological agents, fungi, bacteria or spores; accident or intentional or negligent acts, misuse, abuse, vandalism or civil disobedience or the like; or
 - Acts of God which include, but are not limited to, acts of nature without human intervention, such as earthquakes, storms, floods, lightning strikes, and explosions.
8. In addition to the above limitations, this Warranty will be void and Viking Roofspec will not be liable under it if;
- any alteration or repair is made on or through the Membrane System (including, but not limited to: structures, fixtures or utilities) without prior written authorisation from Viking Roofspec;
 - any alteration or repair is made to the Membrane System by a person other than a Viking Approved Applicator;
 - the owner of the Building fails to use reasonable care in maintaining the Membrane System, such maintenance to include (but not be limited to) those items listed in the Membrane Care and Maintenance information, as amended and updated from time to time. Current Membrane Care and Maintenance information is available from our website at www.vikingroofspec.co.nz. You acknowledge that Viking Roofspec has no obligation to notify you of changes to the Membrane Care and Maintenance information; or
 - the Building is moved from the site at which the Membrane System was originally installed.
9. Change in the aesthetics, colour or finish of the Membrane System, or "Tenting" of the Membrane System due to substrate movement, are not covered by this Warranty.
10. Viking Roofspec shall not be liable under this Warranty (or any implied warranties which are not excluded under clause 16) for any consequential, indirect or special loss or damage of any kind whatsoever, or loss of profits, whether under contract, tort or otherwise.
11. Viking Roofspec's liability is in any circumstances limited to (at the option of Viking Roofspec) either;
- providing for the repair of the original Membrane System,
 - or providing a credit to be applied towards the purchase of a new Membrane System, calculated pro rata, based upon the number of remaining months of the unexpired Warranty Period, using the current material prices for the Membrane System. The
 - maximum pro rata value allowed by Viking Roofspec for repair or credit shall not exceed the original purchase price of the product supplied.
12. The obligations under this Warranty shall only be enforceable against Viking Roofspec upon completion of the installation of the Membrane System; completion of the installation contract; and once payment in full has been received for the product supplied.
13. Should any defect occur which requires a remedy under the terms of this Warranty, then the defect must be notified to Viking Roofspec in writing within fourteen (14) days of discovery. By notifying Viking Roofspec you authorise Viking Roofspec to investigate the Warranty claim to assess whether it falls within the terms of this Warranty. Should our investigation of the claim find that the cause is outside the terms of this Warranty, then you acknowledge and agree that Viking Roofspec may charge you its reasonable investigation costs. You agree to provide Viking Roofspec free access to the Membrane System in order to investigate or to affect repairs under this Warranty during normal business hours.

14. Any remedial work required under this Warranty shall be as determined by Viking Roofspec and shall be carried out in accordance with the Viking Specifications by a contractor nominated by Viking Roofspec. Viking Roofspec does not accept liability for delay in sourcing or inability to match repair materials exactly to those originally installed.
15. Nothing in this Warranty shall require Viking Roofspec to shift any fixtures, plant, equipment, flashings or other items so as to allow access to part of any Membrane System to be repaired or replaced. Neither shall Viking Roofspec be liable for any costs involved in such shifting or reinstallation.
16. This Warranty represents the limit of Viking Roofspec's liability for the Membrane System. All other warranties, express or implied, are hereby excluded to the maximum extent permitted by applicable law.
17. Notwithstanding any other provisions of this Warranty, nothing in this Warranty is intended to limit any condition, warranty, right or remedy available under or imposed by any applicable legislation including, for the avoidance of doubt but without limitation, the Building Act 2004, the Fair Trading Act 1986 and the Consumer Guarantees Act 1993) except to the extent permitted by such legislation.
18. This Warranty shall be governed according to the laws of New Zealand and any disputes shall be decided in the courts of New Zealand.

Warranty Workmanship no

Viking Warranty No

For Viking Roofspec

Date issued

170818
Further Information Received
30/11/2017

Viking
Butylclad

Auckland Office
80 Alexander Crescent, Otara
PO Box 14-541, Panmure
Auckland 1741, New Zealand

Christchurch Office
2 Nazareth Avenue, Middleton
PO Box 9117, Tower Junction
Christchurch 8149, New Zealand

T. 0800 729 799
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info@vikingroofspec.co.nz
www.vikingroofspec.co.nz

Roofspec
Viking
Taking care of detail

170818
Further Information Received
30/11/2017



Taking care of detail

23/11/2016

To,
Henry Huang,
Resolve It Architects
Level 1, 171 Vivian Street, Te Aro,
PO Box 9792, Wellington, 6141, NZ.

Re 155 Field Way Waikanae Beach.

Dear Henry,

This letter is to confirm that I have reviewed the details pertaining to the adjoining of the existing membrane to the proposed membrane and the additional junction details supplied.

I can confirm that these do meet our supplier requirements and on completion and request from the Viking Roofspec approved applicator, Viking Roofspec will issue the standard 20-year product warranty for the project.

Please do not hesitate to contact me direct if you require any further clarification.

Kind Regards,

Chris Withers

Territory Manager, Lower North Island.

Sec/Treas WMAI New Zealand.





00025



of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

155 Field Way Cladding Remediation

(project name)

155 Field Way
Waikanae Beach
(project address)

Werner and Andrea Naef
(owner's name)

BUILDING CONSENT ISSUE

Job number: R17104
Date: October 2017

RESOLVEiT
ARCHITECTS

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1220 PROJECT

1 GENERAL

This general section describes the project including:

- A description of the work
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery

1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

Description of the work

1.2 SCOPE OF THE WORK

Reclad of exterior, removing some parapets in existing roofs and rebuilding a small section of roof. Replacing flashing on existing corrugated metal roof. Replacing existing membrane and substrate in a few areas, new foundation for a storage room under the existing stairs

1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Site

1.4 SITE

The site consists of: a single residential dwelling on an existing flat site
as shown on drawings refer to drawings

1.5 LEGAL DESCRIPTION

The site of the works, the street address and the legal description are shown on the drawings.

1.6 EXISTING BUILDINGS

Existing buildings consist of: a two story residential dwelling
Refer to drawing(s) no(s): DWG 000 Cover Sheet and Location Plan

1.7 EXISTING SERVICES

The following are the network utility services:

Electrical: existing
Telecommunication: existing
Water: existing
Gas: tbc
Stormwater: existing
Foul water: existing

1.8 SITE FEATURES

Refer to drawings

Site environment - Wind

1.9 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.
Building wind zone Very High (refer to NZS 3604, table 5.4)

Site environment - Durability

1.10 EXPOSURE ZONE

The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones and NZBC E2/AS1.
The site zone is: D

Site environment - Seismic

1.11 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

The zone is to NZS 3604, Section 5 Bracing design, 5.3 Earthquake bracing demand.
The earthquake zone 3
is:

Archaeological discovery

1.12 ANTIQUITIES AND ITEMS OF VALUE

Report the finding of any fossils, antiquities and other items of value, to the Contract Administrator.
All to remain undisturbed until approval is given for removal.

Pre-1900, items or evidence of human activity on the site, come under the Heritage New Zealand Pouhere Taonga Act 2014. If such items or evidence is discovered work must stop immediately and the Contract Administrator must be notified immediately. The site may be classified as an Archaeological Site under the Act, and the Contract Administrator or Owner must contact the Heritage New Zealand for authority to proceed.

Post-1900 items remain the property of the owner, pre-1900 items may remain the property of the owner or the Crown subject to what is found.

1222 PROJECT PERSONNEL

1 GENERAL

This general section provides a list of the parties who are involved with the project. Communications to these personnel are to be sent to them at the address as listed. Refer to the construction contract for:

- the roles that they have under the contract; and
- address details for notices being given under the contract.

Principal

1.1 PRINCIPAL

Name: Werner and Andrea Naef
Postal: 155 Field Way Waikanae Beach, Waikanae
Street: as above

Contractor

1.2 COMPANY

Name: tbc
Postal: tbc
Street: tbc
Represented by: tbc
Mobile: tbc
Email: tbc

Consultants

1.3 ARCHITECT

Practice: Resolve It Architects
Postal: PO Box 9792, Te Aro, Wellington
Street: 171 Vivian Street, Te Aro, Wellington
Telephone: 04 903 4976
Represented by: Mark Ansell
Mobile: 021 479 706
Email: marka@resolveitarchitects.co.nz

Territorial Authority

1.4 BUILDING CONSENT AUTHORITY

Name: Kapiti Coast District Council
Postal: Private Bag 60601
Street: 175 Rimu Road, Paraparaumu 5254
Telephone: 04 296 4700

1232 INTERPRETATION & DEFINITIONS

1 GENERAL

This general section relates to definitions and interpretation that are used in this specification.

Definitions

1.1 DEFINITIONS

Required: Required by the documents, the New Zealand Building Code or by a statutory authority.

Proprietary: Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.

Provide and fix: "Provide" or "fix" or "supply" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.

Review: Review by the contract administrator is for general compliance only. Review does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.

Working day: Working day means a calendar day other than any Saturday, Sunday, public holiday or any day falling within the period from 24 December to 5 January, both days inclusive, irrespective of the days on which work is actually carried out.

Workplace: Workplace means the place where work is being carried out, or is customarily carried out, for a business or undertaking including any place where a worker goes, or is likely to be, while at work (under Health and Safety at Work Act 2015).

Hold point: A stage of the construction where the Contract administrator requires notice to be given that particular work is to be carried out. Work may not proceed on that particular part until the Contract administrator or other nominated person has advised that work can continue. A notice period of 2 Working Days is required unless stated otherwise.

Notification point: A stage of the construction where the Contract administrator requires notice to be given that particular work is to be carried out. Work may continue and the Contract administrator may choose whether or not they wish to witness the particular work being carried out. A notice period of 2 Working Days is required unless stated otherwise.

1.2 PERSONNEL

Owner: The person defined as "owner" in the New Zealand Building Code.

Principal: The person defined as "principal" in the conditions of contract.

Contractor: The person contracted by the principal to carry out the contract.

Contract administrator: The person appointed by the principal to administer the contract on the principal's behalf. Where no person has been appointed by the Principal, it means the Principal or the Principal's representative.

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

AAMA	American Architectural Manufacturers Association
AS	Australian Standard
AS/NZS	Joint Australian/New Zealand Standard
ASTM	American Society for Testing and Materials
AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc.
BCA	Building Consent Authority
BRANZ	Building Research Association of New Zealand
BS	British Standard
COP	Code of practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HERA	Heavy Engineering Research Association
LBP	Licensed Building Practitioner
MBIE	Ministry of Business, Innovation and Employment
MPNZA	Master Painters New Zealand Association Inc
NZBC	New Zealand Building Code
NZS	New Zealand Standard
NZS/AS	Joint New Zealand/Australian Standard
NZTA	New Zealand Transport Agency
NUO	Network Utility Operator
PCBU	Person Conducting a Business or Undertaking (under Health and Safety at Work Act 2015)
OSH	Occupational Safety and Health
TA	Territorial Authority
TNZ	Transit New Zealand (Transit New Zealand is now New Zealand Transport Agency NZTA - some specifications are still prefixed TNZ)
RBW	Restricted Building Work
SARNZ	Scaffolding and Rigging New Zealand Inc
SED	Specific Engineering Design

1.4 DEFINED WORDS

Words defined in the conditions of contract, New Zealand Standards, or other reference documents, to have the same interpretation and meaning when used in their lower case, title case or upper case form in the specification text.

1.5 WORDS IMPORTING PLURAL AND SINGULAR

Where the context requires, words importing singular only, also include plural and vice versa.

1233 REFERENCED DOCUMENTS

1 GENERAL

1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various New Zealand Building Code Compliance Documents (NZBC __), acceptable solutions (__ AS_) and verification methods (__ VM_) for criteria and/or methods used to establish compliance with the New Zealand Building Code.

Reference is also made to various standards produced by Standards New Zealand (NZS, AS/NZS, NZS/AS), overseas standards and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents.

1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

NZBC F4/AS1	Safety from falling
NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1170.2	Structural design actions - Wind loads
AS/NZS 3012	Electrical installations - Construction and demolition sites
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3404:1997	Steel structures standard
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
NZS 6803	Acoustics - Construction Noise
Building Act 2004	
Building Regulations 1992	
Health and Safety at Work Act 2015	
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016	
Health and Safety in Employment Regulations 1995 (reprint 4 April 2016)	
New Zealand Building Code	
Heritage New Zealand Pouhere Taonga Act 2014	
Resource Management Act 1991	
Smoke-free Environments Act 1990	
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe NZ	Good Practice Guidelines - Excavation Safety
WorkSafe NZ	Scaffolding in New Zealand - Good Practice Guidelines
SARNZ	Best practice guideline for scaffolding in New Zealand

1234 DOCUMENTATION

1 GENERAL

This general section relates to documentation required by the Territorial Authority/Building Consent Authority for compliance with the New Zealand Building Code. It also includes documentation relating to:

- Substitutions
- Manufacturers documents

Building Consent Authority documentation

1.1 BUILDING CONSENT

Obtain the building consent forms and documents from the owner and keep them on site. Liaise with the BCA for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

1.2 BUILDING CONSENT COMPLIANCE

It is an offence under the Building Act 2004

- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

The resolution of matters concerning building code compliance to be referred to the contract administrator for a direction and then if required to the BCA for consent.

Where any alteration is requested by the territorial authority or any other authority, do not undertake such alteration until the matter has been referred to the contract administrator for direction.

1.3 PROJECT PERSONNEL

Provide names and contact details of the contractor's key personnel and tradespersons who are involved with the project. Review the list once a month and reissue it if changes have been made.

Licensed Building Practitioner documentation

1.4 LICENSED BUILDING PRACTITIONERS

Provide LBP details. Provide names, LBP numbers, areas of practice and contact information. Provide this information to the BCA before commencing work on the Restricted Building Work in the form required by the BCA. Advise the BCA of any change to an LPB previously advised.

Include the following as applicable

- Site LBP
- Carpenter
- Foundations 1 Concrete foundation walls and concrete slab-on-ground constructor
- Foundations 2 Concrete or timber pile foundations constructor
- Roofing 2 Profiled metal roofer and/or wall cladding installer
- Roofing 4 Membrane roofer

Also provide names and contact details of the following

- Registered plumber

1.5 PRODUCER STATEMENTS

When producer statements verifying construction are required, provide copies to both the Building Consent Authority and the Contract Administrator. Provide producer statements in the form required by the BCA.

1.6 RECORD OF WORK

Where Restricted Building Work is carried out by a LBP, on completion provide a Record of Work. Provide copies to both the BCA and the Contract Administrator.

Compliance information

1.7 DOCUMENTATION REQUIRED FOR CODE COMPLIANCE

Information may be required either as a condition of the contract documents or as a condition of the building consent. It may include the following:

- Applicators approval certificate from the manufacturer / supplier
- Manufacturer's / supplier's warranty
- Installer / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction review from an acceptable suitably qualified person

Refer to the general sections for the requirements for compliance information to be provided by the contractor.

Refer to the building consent for the requirements for compliance information to be provided by the contractor.

Obtain required documents from the relevant parties for delivery to the contract administrator after the final inspection has been carried out by the BCA.

1.8 DOCUMENTATION REQUIRED ON COMPLETION

As soon as practicable after completion of the building work, provide in writing the following information and documentation to the client and the relevant territorial authority.

Information and documentation relating to:

- The identity of the building contractor and the subcontractors who carried out the work.
- Maintenance requirements for any products incorporated in the building.

If applicable also provide any guarantee or insurance obtained by the building contractor in relation to the building work.

Substitutions

1.9 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.10 NO SUBSTITUTIONS

Where specifically stated in a section, substitutions are not permitted to any of the specified systems, components and associated products listed in that section.

1.11 PROPOSED SUBSTITUTIONS

A substitution may be proposed where specified products are not reasonably available. A substitution may also be proposed by the contractor where the contractor considers a proposed substitution to be an alternative to the specified product. Except where a specified product is not available, the contract administrator is not bound to accept any substitutions. Where branded work sections are included in this specification, substitution of those products or systems will not be allowed.

1.12 NOTIFICATION OF SUBSTITUTIONS

Notify proposed substitution of specified products. Notification to include but not be limited to:

- Product identification
- Manufacturer's name, address, telephone number, website and email address
- Detailed comparison between the properties and characteristics of the specified product and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties

Plus an assessment of:

- Any changes required to the programme including any extension of time required
- Any consequential effects of the proposed substitution
- Any effect the substitution may have on Health & Safety requirements
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

and if requested:

- All current manufacturer's literature on the product
- Accreditations and appraisals available
- Reference standards
- Product limitations
- Samples
- List of existing installations in the vicinity of the project

1.13 ACCEPTANCE OF SUBSTITUTIONS

The Contract administrator must advise of acceptance of substitutions in writing.

Variations to issued Building Consent

1.14 CONTRACTOR VARIATION TO BUILDING CONSENT

Where the contractor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.

The contractor must:

- Obtain approval for substitutions from the contract administrator.
- Prepare and provide to the BCA all documentation required for the variation.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

1.15 PRINCIPALS VARIATION TO BUILDING CONSENT

Where the principal is proposing a substitution or a variation which requires an amendment to the Building Consent, the contractor must provide to the principal information that the contractor has that is required for the amendment.

The principal will:

- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

Manufacturer's documents

1.16 MANUFACTURER'S AND SUPPLIER'S INSTALLATION REQUIREMENTS

Manufacturers and supplier's requirements, instructions, specifications or details means those issued by them for their particular material, product or component and are the latest edition.

1.17 CONTRACTOR TO OBTAIN CURRENT DOCUMENTATION

Where manufacturer's installation, application and execution requirements are referred to in this specification, the Contractor must ensure they are fully aware of this documentation. Whenever necessary obtain and keep on site the relevant latest version of such documentation and make it available to workers carrying out that part of the work.

1.18 DOCUMENTATION PROVIDED FOR BUILDING CONSENT

Documentation including manufacturer's installation instructions, specification data sheets, producer statements, BRANZ and similar appraisals may be included in the issued Building Consent. These documents have been provided only to demonstrate compliance with the NZBC.

Branded work sections

1.19 BRANDED WORK SECTIONS

Branded sections may be included in this specification relating to specific products and systems to be installed as part of the contract works. Where branded sections are included, substitutions to the branded products and systems will not be allowed.

1.20 CROSS REFERENCED WORK SECTIONS

If any related work is cross referenced to a generic work section, but only the equivalent branded section is included in the specification, use that branded section. Confirm with the contract administrator if there is any doubt.

1237 WARRANTIES

1 GENERAL

This general section refers to the requirements for warranties/guarantees as listed in this section, as referred to within the body of this specification, and as referred to within separate specifications/documents relating to this project. It includes:

- Warranties for parts of the work required by the principal in a required form
- Installer/applicator warranties for parts of the work in the installer's/applicator's standard form
- Manufacturer/supplier warranties provided with products, appliances and the like in the manufacturer's/supplier's standard form
- Guarantees provided by contractor in the contractor's standard form

These guarantees/warranties are in addition to any warranties, implied warranties, or guarantees that are required by the Building Act, the Building Regulations, or the building consent.

Warranties

1.1 PROVIDE WARRANTIES

Provide executed warranties in favour of the principal in respect of, but not limited to, materials, components, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability under the terms of the warranty called for in that specified section of work.

- Conform to the WARRANTY AGREEMENT form included in the specification/conditions of contract.
- Commence warranties from the date of practical completion of the contract works (unless otherwise stated).
- Maintain their effectiveness for the times stated.
- Provide executed warranties prior to practical completion.

1.2 WARRANTIES - INSTALLER/APPLICATOR

Where installer/applicator warranties are offered covering execution and materials of proprietary products or complete installations, provide such warranties to the contract administrator. These warranties may be provided in lieu of the warranties that are otherwise required provided that these warranties are subject to similar conditions and periods.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

1.3 WARRANTIES - MANUFACTURER/SUPPLIER

Where warranties are offered covering materials, equipment, appliances or proprietary products, provide all such warranties to the contract administrator.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

Submission

1.4 REVIEW BY CONTRACTOR

Obtain the warranties from the installers, applicators, manufacturers and suppliers at the earliest possible date and review to ensure that they are correctly filled out and executed. Where warranties are executed as a deed, ensure that a duplicate copy is provided for execution by the owner/principal. Keep safe and secure until required for submission.

1.5 WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY

Obtain copies of warranties required as a condition of the building consent in the form required for submission to the BCA. Keep safe and secure until required at the time of the BCA final inspection and Code Compliance Certificate.

1.6 WARRANTIES - REQUIRED BY CONTRACT

Obtain copies of warranties listed in the contract documents. Provide all warranties at the same time. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information. If no operations and maintenance documentation provision exists, present the warranties to the contract administrator in a loose-leaf binder with a contents index suitably labelled and including the project name and details. Provide a title on the binder edge "Warranties for (project name)"

1.7 WARRANTIES - SUBMISSION NZIA SCC CONTRACT

Refer to the contract conditions for any requirement relating to the time for submission for warranties and guarantees. Submit all warranties to the architect no later than the date of the contractor's advice of achieving practical completion.

2 SELECTIONS

Weathertightness and watertightness warranty

2.1 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

A warranty is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general warranty is in addition to any specific warranties required.

Provide this warranty in favour of the principal. The terms and conditions of this warranty in no case negate the minimum remedies available under common law as if no warranty had been offered.

Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

- Conform to the standard form WARRANTY AGREEMENT included in the contract documents.
- Commence the warranty from the date of Practical Completion,
- Maintain its effectiveness for the time stated.

3 SCHEDULES

Schedule of work section warranties

3.1 SCHEDULE OF WORK SECTION WARRANTIES

The following work sections have warranty and guarantee requirements, refer to these sections for details:

4241ME	Metalcraft Espan Cladding
4422VB	Viking Butylclad & Epiclad Membrane Roofing
4710P	Pink Batts & Pink Batts Silencer Insulation
6700R	Resene Painting General
7411MA	Marley Rainwater Disposal Systems

Schedule of additional items

3.2 SCHEDULE OF ADDITIONAL ITEMS

The following documents have warranty and guarantee requirements, refer to these documents for details:

~

1237WA WARRANTY AGREEMENT

1 WARRANTY AGREEMENT

Contract for: ~
(the contract works)

Contractor: ~
(the contractor)

Principal: ~
(the principal)

Warrantor: ~
(name of contractor, subcontractor or materials supplier)

Warranted works: ~
(the warranted works)

Warranted materials: ~
(the warranted materials)

Warranty period: ~ years from the date of practical completion of the contract works.
The principal has entered into a contract (the contract) with the contractor for carrying out the contract works. The warranted works / materials are part of the contract works.

The contractor has agreed to arrange for the provision of a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty.

The warrantor has agreed to provide a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty.

2 IT IS HEREBY AGREED

The warrantor warrants to the principal that the warranted work performed / materials supplied shall be as required in the contract. If not specified the work shall be of good trade practice with materials and fittings of merchantable quality.

This warranty shall be in addition to and shall not derogate from any manufacturer's warranty or any warranty implied by law, attaching to any part of the warranted works.

2.1 WARRANTOR'S OBLIGATIONS

The warrantor agrees that if the warrantor is advised by the principal in writing of any defect in the warranted works / materials within the warranty period for which the warrantor is liable under the terms of this warranty, the warrantor will promptly take steps to remedy the defect / replace defective materials.

2.2 REMEDIAL WORK / REPLACEMENT OF DEFECTIVE MATERIALS

Any remedial work / replacement of defective materials which the warrantor is liable to undertake / provide under this warranty shall be carried out:

- to the standard required by the contract; and
- in a prompt and timely manner; and
- without unnecessary inconvenience to any occupants; and
- at the warrantor's cost; and
- subject to reasonable access being provided to the warrantor for the purpose of carrying out the remedial work.

2.3 REPAIR, REPLACEMENT AND/OR COMPENSATION

Where the cost of replacement of work and/or materials is out of all proportion to the consequences of the defect, or where the defect may not be reasonably capable of rectification without substantial expense which is out of all proportion to the cost of the contract works, the warrantor may:

- where the defect or defective material is reasonably rectified by repair rather than by replacement, the warrantor's obligation under this warranty shall be only to repair or otherwise make good the defect or
- propose reasonable monetary compensation in lieu of remedying the defect or
- propose a combination of both repair and compensation.

The principal must consider the warrantor's reasonable proposals and the parties must endeavour in good faith to reach agreement. Where agreement cannot be reached the dispute shall be resolved in accordance with the disputes clause in this warranty.

2.4 FAILURE BY WARRANTOR TO PERFORM REMEDIAL WORK

If the warrantor fails to promptly, adequately and satisfactorily carry out the remedial work or to propose acceptable repair/compensation, the principal may then arrange for the remedial work to be carried out by others.

If the warrantor fails to promptly, adequately and satisfactorily provide replacement materials or to propose acceptable repair/compensation, the principal may then arrange for the replacement materials to be supplied by others.

The principal must first give the warrantor 10 working days notice to carry out and complete the remedial work / supply replacement materials. If the warrantor does not complete this work / supply replacement materials within the time, the principal must then advise the warrantor in writing that the work will be carried out / materials will be supplied by others.

In such event the warrantor is not released from obligations under this warranty, which continues in full force and effect, except in respect of the defect remedied / materials supplied by the principal or by another person contracted by the principal. The reasonable cost of the remedial work carried out / materials supplied by such other persons including all reasonable costs of the principal is to be paid to the principal by the warrantor on demand.

2.5 EXCLUSIONS

The principal agrees that the warrantor is not liable for any defect or damage caused by:

- wilful act or negligence of the principal or any person other than the warrantor; or
- fire, explosion, earthquake, war, subsidence, slips, faulty materials or workmanship other than caused by the defect in the warranted work; or
- any force of nature which the warrantor could not reasonably foresee; or
- any neglect or unnecessary delay by the principal in giving notice to the warrantor of a defect in the warranted works becoming apparent; or
- design faults, errors or discrepancies, unless the warrantor undertook the design of the part of the warranted works the subject of the defect; or
- unintended use of the warranted works by the principal or any occupant thereof; or
- failure by the principal or any occupant thereof to maintain the warranted works in accordance with good practice and any manufacturer's stated or recommended instructions or requirements.

2.6 ASSIGNMENT

The principal may assign the benefit of this warranty to any person.

2.7 DISPUTES

Any dispute or difference between the principal and the warrantor arising out of or in connection with this warranty, or the subject matter of this warranty, including any question about its existence or validity, will be referred to arbitration by a sole arbitrator to be agreed upon by the parties. If the parties are unable to agree upon the identity of an arbitrator within 10 working days from the date upon which notice of the dispute is given, then the arbitrator will be appointed by the Registrar of the Building Disputes Tribunal (NZ) Ltd upon the application of either party.

2.8 NOTICES

Notices given to the warrantor are deemed to have been effectively served on the warrantor if given in accordance with the contract.

3 EXECUTED BY

Signed by the warrantor:

on this: d a y o f
(day) (month) (year)

(And where required to be executed as a deed) signed in the presence of:

Witness signature

Name:
(print)

Address:
(print)

Occupation:
(print)

Signed by the principal:

on this: d a y o f
(day) (month) (year)

(And where required to be executed as a deed) signed in the presence of:

Witness signature

Name:
(print)

Address:
(print)

Occupation:
(print)

NOTE - Where the warrantor is not the contractor the warranty agreement must be executed by the warrantor and the principal in the manner required for execution of a deed.

Any of these parties which are a company must execute the warranty by having it signed, under the name of the company, by two or more directors. If there is only one director, it is sufficient if the warranty agreement is signed under the name of the company by that director, but the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address. Alternatively, companies may execute under power of attorney. Any party which is a body corporate (other than a company) must execute by affixing its seal, which must be attested in the manner provided for in the rules of, or applicable to, the body corporate.

In the case of a party who is an individual, the party must sign and the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address.

1240 ESTABLISHMENT

1 GENERAL

This general section relates to site establishment including:

- Notices and approvals
- Inspections
- Site preparation
- Signage
- Temporary construction

Notices and approvals

1.1 STATUTORY OBLIGATIONS

Comply with all statutory obligations and regulations of regulatory bodies controlling the execution of the works.

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS

Attend on Building Consent Authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

1.3 NOTIFY NETWORK UTILITY OPERATORS

Notify all network utility operators of proposed works before commencing site operations. Ascertain location of services or confirm that none exist in the vicinity of the works. Take all necessary precautions to avoid damage to existing services.

Site preparation

1.4 SITE ACCESS

Access to the site is limited to: the boundaries of the existing site

1.5 WORKING AREA

Limited to the following designated working areas on the site:
the boundaries of the existing site

Existing buildings

1.6 ALTERATIONS

Control access and working areas within existing buildings. Liaise with building owner to establish site limitations.

1.7 TEMPORARY ACCESS

Liaise with the building owner to arrange access to areas of the existing building which are not normally part of the contract.

Temporary construction

1.8 TEMPORARY BUILDINGS

Provide as necessary temporary sheds, offices, lunch rooms, sanitary accommodation and other temporary buildings required for storage, management of the works, for the use of workers while on site and as required by Acts and Regulations.

1.9 HOARDINGS, GANTRIES, LIGHTING

Provide temporary fencing, hoardings, planked footways, guard rails, gantries and lighting as necessary to protect the public and others, for the proper execution of the works and to meet the requirements of territorial or other authority.

1250 TEMPORARY WORKS & SERVICES

1 GENERAL

This general section relates to temporary works and services required for the construction of the contract works. It includes

- Temporary works and services including temporary fencing and hoardings
- Scaffolding and shoring
- General care and protection

Temporary works

1.1 COMPLY WITH NEW ZEALAND BUILDING CODE

Refer to New Zealand Building Code clauses and approved document paragraphs for the criteria and/or methods that must be used in this section to establish compliance with the code.

1.2 COSTS RELATING TO TEMPORARY WORKS

Pay all rates/fees in respect of temporary works.

1.3 MAINTENANCE OF TEMPORARY WORKS

Maintain alter, adapt and move temporary works and services as necessary. Clear away when no longer required and make good.

1.4 SAFEGUARD THE SITE, THE WORKS AND MATERIALS

Take all precautions to prevent unauthorised access, including access outside working hours, to the site, the works and adjoining property. Safeguard the site, the works, materials and plant from damage and theft.

1.5 SITE FENCING - NON-PUBLIC AREAS

Provide and maintain a 1 metre high site fence to non-public areas. Construct using:

- warratah stakes at 1.5 metre centres fitted with safety caps
- plastic safety mesh

1.6 PROVIDE CONCRETE WASHWATER RUN OFF PROTECTION

Provide appropriate measures to prevent cement/concrete washwater or slurry run off to; drains or waterways, landscaped areas new or remaining and adjoining public or private properties. Comply with territorial and other authority requirements relating to cement/concrete washwater.

Control run off from:

- Cement/concrete based material production, placing and finishing.
- Hosing down and cleaning of, tools and equipment, fresh material, and spilt or surplus material, pumps and mixers etc.
- Wet cutting or grinding.
- Slab watering etc.
- Water cleaning of new concrete elements, fresh used formwork etc.

Small project with relatively large exposed ground areas - prevent run off by:

- directing small amounts of washwater onto the area of ground closest to the work.
- very small amounts of washwater with no aggregate and only a small amount of sand may be spread over existing lawns.

Spilt or surplus material:

- if possible allow to set and either use or dispose of as hardfill.

Pump washwater away from drains, waterways and adjoining property.

1.7 EXCAVATION SAFETY

To the Health and Safety at Work Act 2015.

Carry out excavation to WorkSafe NZ, Good Practice Guidelines - Excavation Safety. This may include, deep excavation, trenching, and areas behind unfilled retaining walls.

Carry out excavation using plant and equipment suitable for the purpose.

Temporary works - Existing Buildings

1.8 OCCUPIED BUILDINGS

Buildings which remain occupied during the construction must have temporary works agreed with the occupier/owner in advance.

1.9 DUST SCREENS

Provide and maintain full height temporary dust screens as shown on the drawings. Construct the screens from;

- dust proof flexible membrane with taped joints
- timber battens for fixing membrane to edges of building fabric

Temporary services

1.10 WATER

Provide clean, fresh water for the works and make arrangements for distributing about the site.

1.11 ELECTRICITY

To AS/NZS 3012.

Nominate the person to install and be responsible for the complete temporary electrical installation.

The name and designation of the person responsible is to be displayed prominently and close to the main switch or circuit breaker.

Inspect and overhaul the installation at such intervals as are prescribed by the network utility operator but not exceeding three monthly intervals.

Scaffolding and shoring

1.12 GENERAL SCAFFOLDING

Provide as necessary general scaffolding for the efficient execution of the works. Placement, erection and structure to be by certified suppliers/erectors and approved by the WorkSafe NZ inspectors before being used.

Comply with:

- Health and Safety at Work Act 2015
- Health and Safety in Employment Regulations 1995 (reprint 4 April 2016)
- SARNZ - Best practice guideline for scaffolding in New Zealand
- WorkSafe - Scaffolding in New Zealand - Good Practice Guidelines

Care and protection

1.13 PROTECT EXISTING BUILDINGS

Protect existing buildings and other designated features which are to remain in position during the execution of the works.

1.14 PROTECT ACCESS ROUTES

Protect access routes through the building and areas adjacent to the work area that are to remain in place. These include lifts and stairs. Comply with all fire egress requirements at all times.

1.15 PROTECT EXISTING SERVICES

Protect existing services and parts of service systems that are to remain in place during the execution of the works. Provide temporary caps or covers to prevent the ingress of dust and other contaminants into the systems, ducts, pipes etc.

1.16 MAKE GOOD EXISTING SERVICES

Make good all damage to existing roads, footpaths, grounds, sewers or other services, caused in carrying out the contract works.

1.17 PROTECT EXISTING TREES

Protect existing trees, fences, gates, walls, gardens and other designated site features which are to remain in position during the execution of the works.

Construct a temporary fence at the outer edge of the drip line of trees to be protected. Comply with territorial authority requirements.

1.18 CONSTRUCTION KEYING AND SECURITY

Provide locksets with temporary keying, or install with the cylinders removed.

1.19 TEMPORARY STORAGE

Provide temporary storage areas and protective covers and screens. Fillet stack and protect all framing and structural members from moisture and contamination. Completely protect finishing materials from the weather and damage and store in accordance with the manufacturer's requirements. Protect fabricated elements from the weather and damage, and store in accordance with suppliers' requirements.

1.20 PERIODIC SITE CLEANING

Carry out periodic site cleaning during the contract period. Place waste material in appropriate storage pending removal from the site.

1.21 PERIODIC RUBBISH REMOVAL

Maintain on site appropriate means for the storage and removal of construction waste material. Where required or appropriate provide for the separate storage of recyclable waste and other materials requiring special disposal. Keep food waste separate from construction waste.

1270 CONSTRUCTION

1 GENERAL

This GENERAL section relates to common requirements for construction issues including: -

- Quality assurance
- Noise and nuisance
- Set out
- Common execution requirements
- Common materials requirements
- Supply of spare materials
- Common requirements for samples and tests
- Final presentation and cleaning
- Commissioning

Quality control and assurance

1.1 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy, including:

- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

Where any material, quality or dimension falls outside specified or required tolerances, obtain written direction from the contract administrator. Where building consent approval is affected, confirm remedial action with the Building Consent Authority.

Provide all materials, plant, attendances, supervision, inspections and programming to ensure the required quality standards are met by all project personnel.

Noise and nuisance

1.2 LIMIT CONSTRUCTION NOISE

Minimise the effects of noise generation by including in the planning of the work such factors as placing of plant, programming the sequence of operations and other management functions. Limit construction noise to comply with the requirements of NZS 6803, the requirements of the Resource Management Act sections 326, 327 and 328 and the Health and Safety in Employment Regulations clause 11.

1.3 ACCEPTABLE NOISE LEVELS

Refer to NZS 6803 Tables 2 and NZS 6803, tables 3 for the upper limits of construction work noise in residential and industrial areas over the various time periods, particularly 0730 to 1800 hours. Note also the allowed adjustments and exemptions in NZS 6803, 6. Do not exceed these limits.

1.4 PROVIDE INFORMATION TO NEIGHBOURS

Provide information to neighbours of any noise generation from the site liable to constitute a problem. Explain to them the means being used to minimise excessive noise and establish with them the timings most suitable for the noise generating work to be carried on.

Discuss with any complainant the measures being used to minimise noise. Where possible modify these measures to accommodate particular circumstances. Finally, determine the sound level at the location under discussion using methods and observation reporting as laid down in NZS 6803. If the noise level is above the upper limits of NZS 6803, tables 2 and NZS 6803, tables 3, cease the noise generating operation and remedy the problem.

1.5 INCONVENIENCE TO OTHERS

When the works are to be carried out in or around occupied premises, ascertain the nature and times of occupation and use. Carry out the works in a manner to minimise inconvenience, nuisance and danger to occupants and users.

1.6 DIRT AND DROPPINGS

Remove dirt and droppings deposited on public or private thoroughfares from vehicles servicing the site to the satisfaction of the appropriate authorities and the contract administrator.

1.7 DAMAGE AND NUISANCE

Take all precautions to prevent damage and nuisance from water, fire, smoke, dust, rubbish and all other causes resulting from the construction works.

Set-out and tolerances

1.8 CHECK DIMENSIONS

Check all dimensions both on drawings and site, particularly the correlation between components and work in place. Take all dimensions on drawings to be between structural elements before linings or finishes, unless clearly stated otherwise.

1.9 TOLERANCES

All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:

Concrete construction:	To NZS 3109 Concrete construction Clause 3.9 Tolerances for reinforcement Table 5.2 Tolerance for in situ construction To NZS 3114 Concrete surface finishes
Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances

Refer to work sections for tolerance requirements for finishes.

Execution

1.10 EXAMINE PREVIOUS WORK

Before commencing any part of the work carefully examine the previous work on which it may depend. Report in writing to the contract administrator defects that may affect the quality of the proposed work and obtain instructions. Commencing work on any part means that previous work is accepted as being satisfactory for work of the required standard.

1.11 WORKER QUALIFICATIONS

All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

1.12 MINIMISE DELAYS DUE TO WEATHER

Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

Materials

1.13 NEW PRODUCTS AND MATERIALS

Materials and products to be new unless stated otherwise, of the specified standard, and complying with all cited documents.

1.14 COMPATIBILITY OF MATERIALS AND FINISHES

Ensure all parts of a construction or finish are compatible and their individual use approved by the manufacturers and suppliers of other parts of the system. Source all parts of a system from a single manufacturer or supplier.

1.15 STORING PRODUCTS AND MATERIALS

Take delivery of and store products, materials and components in accordance with codes of practice and the product manufacturer's or supplier's stated requirements. Maintain the proper condition of any protective packaging, wrappings or supports during delivery, unloading and storage.

1.16 HANDLING PRODUCTS AND MATERIALS

Handle products, materials and components in accordance with codes of practice and the manufacturer's or supplier's stated guidelines. Avoid distortion and any contact with potentially damaging surfaces or conditions.

1.17 SUBSTRATE CONDITIONS

Ensure substrate conditions are within the manufacturer's or supplier's stated guidelines both before and during the installation of any material, product or system. Obtain written instructions on the necessary action to rectify unsatisfactory conditions.

1.18 INSTALLING PRODUCTS AND MATERIALS

Install in accordance with the manufacturer's or supplier's technical literature. Ensure that all installers are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques.

1.19 COMPLY WITH STANDARDS

Comply with the relevant and/or cited Standard for any material or component. Obtain certificates of compliance when requested by the contract administrator.

1.20 CONDITION OF MATERIALS AND COMPONENTS

To be in perfect condition when incorporated into the work.

1.21 INCOMPATIBLE MATERIALS AND METALS

Separate incompatible materials and metals with separation layers, sleeves or gaskets of plastic film, bituminous felt or mastic or paint coatings, installed so that none are visible on exposed surfaces.

Final presentation and cleaning

1.22 REMOVE TEMPORARY PROTECTION

Remove all temporary markings, coverings, labels and protective wrappings unless instructed otherwise.

1.23 REPLACE DAMAGED MATERIALS

Replace all materials or component damaged during the works to the standard of and integral with the original.

1.24 COMPLETE ALL SERVICES

Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.

1.25 CLEANING BY CONTRACTOR

Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:

- Wipe all surfaces to remove construction dust
- Clean out service ducts and accessible concealed spaces
- Clean out all gutters and rainwater heads
- Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass.
- Remove adhesive residue left by labels and other temporary protection/markings
- Wash down external concrete including driveways and concrete masonry. Take care when waterblasting to not cause damage to the surface or allow water to enter the building.
- Remove rubbish and building material from the area immediately adjacent to the contract works

Commissioning

1.26 MOVING PARTS

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

1.27 SECURITY AT COMPLETION

Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.

2111 DEMOLITION

1 GENERAL

This section relates to the demolition of existing buildings and structures to the extent necessary to carry out the contract works.

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS2-AS7	Protection from fire
NZBC F5/AS1	Construction and demolition hazards
NZS 6803	Acoustics - Construction noise
NZDAA	Best practice guidelines for demolition in New Zealand
Health and Safety at Work Act 2015	
Health and Safety in Employment Regulations 1995 (reprint 4 April 2016)	

Requirements

1.2 QUALIFICATIONS

Carry out demolition:

- only under the supervision of a suitably experienced person, using only operators and drivers trained for this work
- using only experienced certified construction blasters for explosives demolition
- calling upon engineering expertise in those areas of demolition required by the NZDAA Best practice guidelines for demolition in New Zealand.

1.3 NOTIFIABLE WORK

Notify the appropriate WorkSafe NZ office of work that is notifiable under the Health and Safety in Employment Regulations 1995, 24 hours before starting the work.

1.4 NOISE

Refer to NZS 6803 tables 2 and 3 for the upper limits of construction work noise in residential and industrial areas over the various time periods, particularly 0730 to 1800 hours and plan the work using silenced and noise insulated plant to comply with those requirements. Do not exceed these limits, or any more stringent limits imposed by the territorial authority.

1.5 HEALTH AND SAFETY

Comply with the Health and Safety at Work Act 2015 in general, NZBC F5/AS1 and NZDAA Best practice guidelines for demolition in New Zealand, in particular section 4.8 Site-specific health, safety and environmental (HSE) plan and 4.9 Hazard management and recording

1.6 EXPLOSIVES

Do not use explosives except with the written approval of the territorial authority/WorkSafe NZ.

Comply with their safety requirements and use construction blasters holding a current, Certificate of Competence issued under the Health and Safety in Employment Regulations 1995 or the appropriate Approved Handler Certificate and Controlled Substance Licence issued by WorkSafe NZ.

1.7 EXISTING FIRE SAFETY SYSTEMS

During partial demolition work any existing fire safety systems must be maintained and in demolition areas progressively deactivate affected parts of systems as demolition advances.

During full demolition any existing building hydrant system must be maintained and progressively deactivated as demolition advances. Once below the appropriate limits prescribed in NZBC C/AS2 to C/AS7 section 2.2, the whole remaining system can be removed.

Compliant temporary facilities may be required during this work.

Performance

1.8 BUILDING CONSENT REQUIREMENTS

Demolition work to be carried out to building consent requirements

1.9 INSPECTIONS

Inspection of the demolition work to take place at each of the stages as scheduled in the building consent. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection.

Obtain and pay for any required inspections which are additional to the building consent.

1.10 PLAN APPROVAL

Provide copies of the demolition drawings and/or plan for review by the architect/engineer before proceeding. Also submit the drawings and/or plan to WorkSafe NZ when required under the NZDAA: Best practice guidelines for demolition on New Zealand.

2 PRODUCTS

Materials

2.1 ELEMENTS FOR DEMOLITION AND DISPOSAL

Demolish, remove from site and dispose of elements and components to be demolished which are not otherwise to be salvaged or re-used.

2.2 ELEMENTS FOR SALVAGE

Carefully dismantle, remove and store on site where directed. Protect from damage and weather. Dispose of salvaged elements and components.

2.3 ELEMENTS FOR RE-USE

Carefully dismantle, remove and store on site where directed. Protect from damage and weather until required.

2.4 REMAINING ELEMENTS

Store all elements not scheduled for salvage or re-use on site until convenient for removal.

2.5 REMOVAL OF DEMOLITION MATERIAL FROM SITE

Remove demolished material and elements continually from the site through the period of the demolition.

3 EXECUTION

Conditions

3.1 EXISTING SERVICES

Notify the network utility operators and arrange for them to locate the position of all services adjacent to and entering the site. Disconnect and seal off services before work commences. Protect services adjacent to the site.

3.2 USE THE CHECK LISTS

Use the checklists included in the NZDAA Best practice guidelines for demolition in New Zealand,

- Appendix A: Demolition hazards
- Appendix B: Excavator checklist
- Appendix C: Pre-demolition checklist
- Appendix D: Demolition safety checklist

to ensure that all major points in this contract are covered.

3.3 SITE INSPECTION

Visit and check the site, the building or structural work being demolished and any contents for likely hazards.

3.4 ADJOINING BUILDINGS

Check the relationship and condition, including the contents of adjoining buildings to ensure they will not be adversely affected by the demolition work.

3.5 PLANS AND DESCRIPTIONS

Carefully examine all available plans of the building, including those of the territorial authority and the network utility operators, all descriptions and past uses, and become totally familiar with the past and present condition and use of the building and its services.

3.6 LOADINGS

If intending to use heavy plant and machinery or load debris on roofs and floors, allowable loadings must first be calculated by a suitably qualified person. Use propping or strengthening if necessary.

3.7 EXAMINE STRUCTURE

Examine roofs, walls, cantilevered structures and basements as required by the Approved code of practice for demolition and follow their requirements.

3.8 SAFETY DURING DEMOLITION

Refer to NZBC F5/AS1 and the NZDAA Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in section 5 Demolition safety in respect of:

- instability
- supervision
- plant, tools and equipment
- personal protective equipment
- protection of the public
- unauthorised access to site.

3.9 DEMOLITION PROCEDURES

Refer to NZDAA Best practice guidelines for demolition in New Zealand. Carry out demolition to the requirements laid down in section 6 methods of demolition including:

- scaffolding
- health
- disposal of debris and waste material
- fire protection.

3.10 BUILDINGS

Refer to NZDAA Best practice guidelines for demolition in New Zealand. Carry out the requirements in respect of:

- buildings
- prestressed concrete structures
- storage tanks
- underwater demolition
- fire-damaged buildings.

3.11 HAND TOOL AND PERSONAL PROTECTIVE EQUIPMENT

Refer to the NZDAA Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in section 5.14 Plant, tools and equipment and section 5.32 Personal protective equipment (PPE) and clothing (PPC), for:

- hand tools
- power tools
- personal protective equipment
- cutting and welding.

Application

3.12 CARRY OUT DEMOLITION

Carry out all demolition to the requirements of the WorkSafe NZ Approved code of practice for demolition.

3.13 DIG OUT

Dig out foundations, footings, basement, floor slabs, paths, drains, cesspits and manholes that are part of or service the demolished building. Leave the voids that result. Do not backfill.

Completion

3.14 MAKE GOOD

Make good damage to adjoining buildings or property caused by demolition work.

3.15 REINSTATE

Reinstate where any damage is caused by this demolition to those parts of the existing building, other buildings and the remainder of the site being retained.

3.16 LEAVE

Leave work to the standard required by following procedures.

3.17 TAKE AWAY

Take away from the site all plant, tools and equipment, temporary access works, and demolished materials and elements, to leave the site completely clean and tidy.

4 SELECTIONS

4.1 ELEMENTS FOR DEMOLITION AND DISPOSAL

Element/component	Location
Refer to the drawings	

2361 STRIP FOOTINGS

1 GENERAL

This section relates to the supply and installation of concrete strip footings of non-specific design to NZS 3604 and NZS 4229, including;

- formwork, reinforcement, concrete mixes and the placing of concrete

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3121	Water and aggregate for concrete
NZS 3604	Timber-framed buildings
NZS 4431	Code of practice for earth fill for residential development
AS/NZS 4671	Steel reinforcing materials

Requirements

1.2 QUALIFICATIONS

Concrete workers to be experienced, competent and familiar in the fabrication and erection of formwork and with the materials and the techniques specified.

All work to be installed or supervised by a Registered Mason or licensed building practitioner (LBP): Licensed for Bricklaying and Blocklaying 2: Structural Masonry. RBW must be supervised by an LBP.

1.3 QUALITY RECORDS

Do not place concrete/grout until all excavations, formwork/blockwork and reinforcing have been inspected and passed by the Building Consent Authority.

2 PRODUCTS

2.1 NORMAL CONCRETE

Normal concrete 17.5, 20 or 25 MPa grade (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Retain delivery dockets listing mix and despatch details.
Mass concrete 10 MPa grade.

2.2 REINFORCEMENT

To AS/NZS 4671 Grade 300E deformed mild steel except for ties in plain round mild steel and as detailed.

2.3 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.4 WATER

To NZS 3121. Water from a territorial authority/NUO water supply is acceptable.

2.5 SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC.

3 EXECUTION

3.1 STORAGE

Handle and store reinforcing steel and accessories without damage or contamination. Store on timber fillets on hard ground in a secure area clear of any building operation. Lay steel fabric flat.

Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

3.2 SOIL BEARING

To NZS 3604 or NZS 4229, Section 3, **Site Requirements**.

All soil bearing surfaces of footings shall be horizontal and may be stepped to accommodate variations in cleared ground level. Bearing shall be upon solid bottom in undisturbed good ground to NZS 3604 or NZS 4229, or firm fill with a "Statement Of Suitability...." to NZS 4431.

3.3 DEPTH OF FOOTINGS

As shown on drawings with minimum depth of footings below cleared ground level, to NZS 3604 or NZS 4229, clause 3.4.2.

- 200mm.

3.4 WIDTH OF FOOTINGS

Footing to be centred on foundation wall above. Refer to drawings or SELECTIONS for minimum dimensions.

3.5 FORMWORK

Use formwork of sufficient strength to retain and support the wet concrete to the required profiles and tolerances. Select formwork finish to produce the specified finished quality. Water blast to clean formwork. Keep formwork wet before concrete is placed.

3.6 REINFORCEMENT

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109. Do not rebend bars. Where rebending is approved, use a purpose built tool, proper preparation and preheating.

Longitudinal reinforcing and ties, refer to SELECTIONS for size and quantity.

Stepped footings to NZS 4229, at least 50% of the lower footing reinforcement shall be turned up the step to a minimum of 450mm beyond the rebar intersection, and at least 50% of the upper footing reinforcement shall be carry on into the lower foundation wall to a minimum of 450mm (350 with hook) beyond the rebar intersection.

3.7 REINFORCING LAPS

To NZS 3604, 6.11.7, **Foundation wall reinforcement**. Horizontal reinforcing bars lapped 500mm minimum.

To NZS 4229, 6.6.3, 40 diameter laps for deformed bars.

Tie all lapping bars to each other.

3.8 STARTER BARS

Vertical starter reinforcement to NZS 4229, to match vertical wall reinforcement in size, type, location and spacing. Starters to penetrate foundation wall by 600mm minimum, and in the footing to be bent through 90° and tied to longitudinal reinforcing.

3.9 COVER

Minimum cover 75mm.

3.10 OPENINGS

Footings to be continuous under openings unless shown otherwise.

3.11 PUMPING CONCRETE

Set up and supervise pump operation, placing and compaction of the mix to, NZS 3109:

7.4 Handling and placing and **7.6 Compaction**, advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

3.12 STRIKE FORMWORK

Strike formwork without damaging or overloading structure to NZS 3109. Do not remove formwork before the following minimum periods under average temperature conditions:

12 hours: Sides of beams, walls and columns

Completion

3.13 PROGRESSIVE CLEANING

Clean off concrete spills as they occur, making good any damage at the same time.

3.14 FINAL CLEANING

Clean down exposed walls and remove waste material from adjoining surfaces at completion.

- 3.15 REMOVE
Remove from the site materials not used.

4 SELECTIONS

4.1 CONCRETE

Normal concrete: 17.5 MPa

4.2 FOOTING SIZE AND REINFORCING

The following are minimum requirements.

Location: refer to the drawings

Footing width: refer to the drawings

Footing height/depth: refer to the drawings

Longitudinal steel: refer to the drawings

Stirrups: R6 ties @ 600mm centres minimum (to NZS 4229 table 6.2)

3102 CONCRETE WORK - STANDARD

1 GENERAL

This section relates to formwork, reinforcement, concrete mixes and the placing of concrete.

1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

DPM	Damp proof membrane
MPa	Megapascal
CCANZ	Cement and Concrete Association of New Zealand

The following definitions apply specifically to this section:

ACRS	Australian Certification Authority for Reinforcing Steels - An independent certification scheme for reinforcing steel and structural steel, by product and manufacturer/processor. Certifies compliance with Australia/New Zealand Standards. Web site - www.steelcertification.com
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Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1/AS1	Structure
NZBC B1/VM1	Structure
NZBC E2/AS3	External moisture
AS 1478	Chemical admixtures for concrete, mortar and grout - Admixtures for concrete.
AS/NZS 2269.0	Plywood - Structural - Specifications
NZS 3101.1	Concrete structures standard
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3112.1	Methods of test for concrete - Tests relating to fresh concrete
NZS 3114	Specification for concrete surface finishes
NZS 3121	Water and aggregate for concrete
NZS 3122	Specification for Portland and blended cements (General and special purpose)
NZS 3125	Specification for Portland-limestone filler cement
NZS 3604	Timber-framed buildings
NZS 3631	New Zealand timber grading rules
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4672.1	Steel prestressing materials - General requirements
AS/NZS 4858	Wet area membranes
CCANZ CP 01	Code of practice for weathertight concrete and concrete masonry construction

Requirements

1.3 QUALIFICATIONS

Workers to be experienced, competent trades people familiar with the materials and techniques specified.

Performance

1.4 TESTING

Carry out sampling and concrete acceptance tests during construction to NZS 3109.9. **Concrete acceptance tests during construction.** Conduct 7 day strength tests. After a 7 day test result of less than 60% of the specified strength, stop concrete placement until it is shown that the suspect concrete complies with the specification.

Carry out slump tests, yield tests and air content tests to NZS 3112.1, sections 4, 5 and 9, and evaluate to NZS 3104.2.15. **Control tests and their evaluation.** Make available all test records to the contract administrator on request.

1.5 STEEL REINFORCING COMPLIANCE

Steel reinforcing and steel prestressing materials for concrete to AS/NZS 4671 or AS/NZS 4672.1, respectively. Steel to be manufactured in New Zealand, or by an overseas manufacturer holding a current valid NZ S Mark or ACRS certificate for that type of steel. Confirm compliance and provide evidence if requested.

Steel that fails to meet these requirements is not to be used (or ordered) without the contract administrators written approval, further proof and/or testing may be required.

1.6 QUALITY ASSURANCE

Carry out the whole of this work to the requirements of NZS 3109.

Quality assurance procedures to include all aspects of concrete construction including;

- Formwork quality
- Reinforcing steel placing
- Cast in items
- Concrete quality
- Concrete finishes
- Construction tolerances

Advise the name of the suitably qualified and experienced representative who is responsible for quality control of the concrete work. The representative is to sign a written quality control checklist for each on-site concrete pour. Provide a copy to the construction reviewer in sufficient time for a pre-pour inspection on request.

2 PRODUCTS

Materials

2.1 CEMENT

Portland cement to NZS 3122.

2.2 CEMENT, FILLER

Portland limestone filler cement to NZS 3125.

2.3 SAND

To NZS 3121.

2.4 COARSE AGGREGATE, NORMAL CONCRETE

To NZS 3121, except as modified by NZS 3104: clause 2.4.3, Coarse aggregate. The total mass of reactive alkali in the concrete mix to not exceed the requirements of section 2 of the Cement and Concrete Association, Alkali Aggregate Reaction publication.

2.5 WATER

To NZS 3121.

Concrete

2.6 NORMAL CONCRETE

Normal concrete 17.5, 20, 25 MPA up to 50 MPa grade, (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Provide delivery dockets listing mix and despatch details.

Reinforcement

2.7 GRADE 300E STEEL

To AS/NZS 4671. Round bars are shown by symbol "R" and deformed bars by symbol "D", followed by the diameter in millimetres.

2.8 GRADE 500E STEEL

To AS/NZS 4671. Round bars shown by symbol "HR" and deformed bars by symbol "HD" followed by diameter in millimetres.

2.9 WELDED WIRE FABRIC

Hard drawn steel wire spot welded with correct gauge to AS/NZS 4671 Class E, smooth or deformed and to the spacings and dimensions either specified or shown on the drawings. 500E mesh to AS/NZS 4671 as modified by NZS B1/VM1.

2.10 MESH FOR SLABS TO NZS 3604 OR NZS 4229

For slabs on ground mesh to be welded reinforcing mesh to AS/NZS 4671 as modified by NZS B1/VM1, Class E, minimum to NZBC B1/AS1 - Grade 500E, 2.27kg/m² (1.14kg/m² in each direction).

2.11 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.12 SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC to approval. Where concrete spacer blocks are used in exposed concrete work use blocks similar to surrounding concrete.

Formwork

2.13 TIMBER BOARDS

Dressing or merchantable grade radiata pine to NZS 3631 for shutter face, to obtain the concrete finish specified.

2.14 TIMBER FALSEWORK

No. 2 framing radiata pine or as required to construct the required formwork.

2.15 RELEASE AGENT

A release agent that will not stain or adhere to the concrete, contaminate reinforcing steel or construction joints, or have a detrimental effect on any finished surface or applied finishes.

Damp proof membrane

2.16 DAMP-PROOF MEMBRANE

0.25mm minimum polyethylene to NZS 3604, 7.5.4, **Damp-proof membrane.**

Accessories

2.17 CELLULAR POLYSTYRENE INSULATION

Proprietary polystyrene foam board to AS 1366.3. Refer to SELECTIONS.

2.18 WATERPROOFING FOR EXTERIOR OPENINGS

Unreinforced wet area membrane to AS/NZS 4858 for waterproofing around openings for windows, doors, meters and other services openings, at or above floor level, also parapets and ends of masonry walls abutting other claddings to CCANZ CP 01. Refer to SELECTIONS.
Do not use bituminous coatings.

3 EXECUTION

3.1 HANDLE AND STORE

Handle and store reinforcing steel and accessories without damage or contamination. Store on timber fillets on hard ground in a secure area clear of any building operation. Lay steel fabric flat. Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

Fix formwork

3.2 LOADINGS

Design and construct formwork and falsework in accordance with sound engineering principles to withstand the worst combination of:

- dead loads of formwork, reinforcement, concrete and precast elements such as floor planks
- construction loads including dynamic effects of placing, compacting and construction traffic
- wind and snow loads

3.3 PROVIDE ALL FORMWORK

Provide all formwork necessary to support and confine the concrete and shape it to the required dimensions. Fabricate in a manner permitting its easy removal without damage to the concrete. Provide a 20mm x 20mm chamfer to all corners unless detailed otherwise. Protect corners from damage during and after stripping.

Keep absorbent formwork wet before concrete is placed. Clean formwork by waterblasting.

3.4 FALSEWORK

Carry strutting down to a construction sufficiently strong and stable to afford the required support without permissible stress or deflections being exceeded. Prop through to other floors if the construction load on a particular suspended floor exceeds the design load.

3.5 ACCURACY

Unless stated otherwise on the drawings permissible deviations from established lines, grades, dimensions and cambers to remain within the tolerances laid down in NZS 3109: table 5.1, **Tolerances for precast components** and table 5.2, **Tolerances for in situ construction**.

3.6 TOLERANCES OF CONCRETE SURFACE FINISHES

Unless stated otherwise on the drawings, permissible abrupt, offset and gradual deviations for the specified surface finish to remain within the tolerances laid down in NZS 3114: table 3, **Tolerances for abrupt deviations or offsets and gradual deviations**.

3.7 EXPOSED CONCRETE

Formwork linings and surface finishes as nominated for both fair face and concealed or exposed surfaces. Unless detailed, obtain written confirmation of the type and pattern of all joints.

3.8 JOINTS IN FORMS

Construct joints to prevent loss of grout between joints in form linings, as well as between forms and completed work. Column forms to have full height linings so that no horizontal joints occur on exposed faces.

3.9 CAMBERS

Cambers shown on the drawings or specified, relate to the concrete immediately before formwork is struck. Unless otherwise shown on drawings, construct forms to achieve the following:

- maximum deflection of face materials between strutting: 1/240th of span, but not exceeding 6mm.
- maximum deflection of beams: 1/900th of span
- maximum deflection of cantilevers supporting construction loads: 1/300th of cantilever length.

3.10 STRIKING FORMWORK

Ensure the safe removal of all or any part of the formwork. Remove without shock, vibration or damage to the concrete and in such a manner as to take the imposed stresses gradually to NZS 3109.5.4. Stripping times to NZS 3109 table 5.3.

Install damp proofing

3.11 INSTALL DAMP-PROOF MEMBRANE

Install to NZS 3604.7.5.6 Polyethylene (polythene) sheet damp proof membranes. Bring granular hardfill to a suitable surface to receive the dpm using maximum 25mm sand blinding.

Lay the dpm on prepared basecourse with 150mm laps between sheets. Seal laps and penetrations with 50mm wide pressure sensitive plastic tape.

Refer to drawings for perimeter details.

Install insulation

3.12 INSTALL UNDERSLAB POLYSTYRENE INSULATION

Install polystyrene insulation system to manufacturer's requirements.

Install reinforcing

3.13 CUT AND BEND

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3101.1, 8 and NZS 3109: 3.3 **Hooks and bends**. Minimum radii of reinforcement bends to NZS 3101.1, 8 and NZS 3109: table 3.1, **Minimum radii of reinforcement bends**. Do not rebend grade 500E bars. Where rebending is necessary for grade 300E bars, use a purpose built tool, proper preparation and preheating.

3.14 ADJUSTMENTS

Use a purpose built tool for on site bending and to deal with minor adjustments to steel reinforcement.

3.15 TOLERANCES, BENDING

To NZS 3109, 3.9, Tolerances for reinforcement.

3.16 SECURE REINFORCEMENT

Secure reinforcement adequately with tying wire and place, support and secure against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing as dimensioned, or if not shown, to the clear distance minimums in NZS 3109, 3.6, **Spacing of reinforcement**.

3.17 LAPPED SPLICES

Length of laps where not dimensioned on the drawings in accordance with the SELECTIONS. Provide laps only where indicated on the drawings. Tie all lapping bars to each other. Plain bars lapped splices must be hooked
Wire mesh laps to NZS 3101.1, lap one mesh square plus 50mm minimum (do not count bar extension beyond the outermost wire).

3.18 MESH LAPS FOR SLABS TO NZS 3604 OR NZS 4229

For slabs on ground the welded reinforcing mesh to be lapped such that the outermost wires overlap by the greater of:

- the spacing of the cross wires plus 50mm
- 150mm or
- manufacturer's requirements

Do not count bar extensions beyond the outermost cross wire

3.19 REINFORCEMENT COVER TO NZS 3101.1

Minimum cover to all reinforcing bars, stirrups, ties and spirals, as shown on drawings. Where cover is not shown on drawings provide minimum cover to NZS 3101.1, table 3.6, **Minimum required cover for a specified intended life of 50 years**. Sub-soil cover to NZS 3101.1, to suit soil and groundwater conditions. Fix chairs for top reinforcement in slabs at 1.0 metre centres or to ensure adequate support. Cover tolerances to NZS 3109, 3.9, Tolerances for reinforcement.

3.20 REINFORCEMENT COVER TO NZS 3604 OR NZS 4229

For in-situ concrete, foundations and interior slabs on ground, to NZS 3604 or NZS 4229, the reinforcement and welded mesh cover to be:

Location, cover to	NZS 3604	NZS 4229
Footing, to earth	75mm	75mm
Footing, to DPM	75mm	50mm
Foundation, to edge	75mm	75mm
Slab, to slab top	30mm	30mm
Slab, to slab edge	50mm to 75mm	50mm to 75mm

3.21 CASTING IN

Build in all grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required by all trades and as shown on the drawings, prior to pouring the concrete.

Do not use grounds exceeding 100mm in length. Location and form of conduits to be approved in writing by the Contract Administrator. Minimum cover 40mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar.

Form all pockets, chases and flashing grooves as required by all trades and as shown on the drawings.

Wrap all pipes embedded in concrete with tape to break the bond and to accommodate expansion. Do not embed pipes for conveying liquids exceeding a temperature of 50°C in concrete.

3.22 CONSTRUCTION JOINTS

Locate and construct as shown on the drawings or in accordance with NZS 3109, 5.6, Type B.

Place concrete

3.23 PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

3.24 UNFAVOURABLE CONDITIONS

Do not place concrete in high winds or other unfavourable conditions. Refer to NZS 3109: 7.2 Unfavourable conditions, for when concrete may not be placed. Remove and make good concrete damaged by frost, dry and wet conditions.

3.25 PROTECT CONCRETE WORK

Protect formwork, reinforcement, "build in" items and fresh concrete from damage, as the pour is placed, making good any damage if it occurs.

3.26 TRANSPORT CONCRETE

Transport concrete from agitator to final placement as quickly as possible using means that avoid segregation.

3.27 PUMPING CONCRETE

Set up and supervise pump operation, placing and compaction of the mix to NZS 3109, 7.4, Handling and placing and NZS 3109, 7.6, Compaction Advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

3.28 PLACE CONCRETE

Place concrete in layers not more than 500mm deep, compacted and vibrated. Do not place fresh concrete against the preceding layer after more than 45 minutes, or such lesser time as required by the circumstances, to NZS 3109: clause 7.4, Handling and placing.

3.29 COMPACT CONCRETE

To NZS 3109: clause 7.6, **Compaction**. Compact by vibration of the concrete to expel entrapped air and until settlement of the concrete is visibly evident over all areas of the surface. Maintain vibration until settlement ceases and coarse aggregate at the surface is embedded. Do not continue vibration beyond reaching this condition.

3.30 VIBRATORS

Use sufficient immersion vibrators, with one spare for emergency, to ensure that vibration is achieved throughout the entire volume of each layer of concrete, and until complete compaction is reached, to NZS 3109: clause 7.6, **Compaction**.

Floor slabs

3.31 FLOOR SLABS TO NZS 3604

Generally for slabs on ground to NZS 3604 as modified by NZBC B1/AS1 and NZBC E2/AS3. Construct to NZS 3604, 4.5 **Concrete and concrete masonry** and NZS 3604, 7.5, **Concrete slab-on-ground floors in timber buildings** as modified by NZBC B1/AS1, 3.0 **Timber**. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish. Tolerance on flatness: maximum 3mm gradual deviation over a 3 metre straight-edge, to NZS 3114, 304, **Surface tolerances**.

Allow for free joints maximum 24m centres to NZBC B1/AS1, 3.1.13 **NZS 3604 New clause**.

Finishing

3.32 SCREED THE SURFACE

Screed the concrete surface by straight edge or vibrating screed immediately after compaction and to tolerances in NZS 3109: table 5.2, Tolerances for in situ construction.

3.33 SURFACE FINISHES

To NZS 3114, 105, **Specification of finishes**, for off the form finishes and to NZS 3114, Part 3, **Floors, exterior pavements, and inverts**, for slabs and pavements. Refer SELECTIONS.

3.34 SAW CUTS TO NZS 3604 OR NZS 4229

Cut slabs where indicated on the drawings as required to control shrinkage cracking. Form by saw cutting the slab (blade width approximately 5 mm) to a quarter of the depth of the slab after it has hardened (saw cutting shall take place no later than 24 hours after initial set for average ambient temperatures above 20 °C, and 48 hours for average ambient temperatures below 20 °C).

3.35 SAW CUTS

Cut slabs where indicated on the drawings and as required to control shrinkage cracking. Carry out cutting as soon as possible, without causing tear-out of aggregate and before shrinkage cracking has occurred, generally within 24 hours of pouring. Where saw cuts are to be made, cut out 100mm of every second wire of the mesh for a length of 50mm each side of the saw cut position. Saw cuts: 1/3rd slab depth or 30mm minimum

3.36 SPACING OF SAW CUTS

Floor situation	Maximum spacing of sawcuts both ways
Industrial floor	5m
Architectural, exposed floor, thin finishes, rigid finishes	4m
Carpet on underlay flooring	6m
Supermarket floor	5m

Curing

3.37 CURING PERIOD

Cure all concrete of normal cement type and mixing proportions for a minimum of 7 days. Keep time between placing of concrete and the start of curing to an absolute minimum. Ensure curing is continuous.

3.38 CURING METHOD

Notify the curing method to be used for this work. Select from the following methods;

- Ponding
- Sprinkling
- Wet coverings
- Plastic sheet
- Curing compound

3.39 KEEP ABSORBENT FORMWORK MOIST

Keep formwork left in place continuously moist by sprinkling with water over the curing period. Continue sprinkling the exposed surface if the formwork is removed before the end of the curing period.

3.40 SECURE COVERINGS

When covering with sheet materials, ensure that edges are well secured throughout the specified curing period, to prevent draughts passing over the surfaces of the concrete.

3.41 COLD WEATHER

Do not use coverings employing water at times of freezing weather.

Protect

3.42 PROTECT PLASTIC CONCRETE

Protect plastic concrete from indentation and surface marking.

3.43 PROTECT HARDENED CONCRETE

Protect surfaces of stripped concrete from damage especially at arrises.

3.44 PROTECT EXPOSED SURFACES

Protect from rust marks and other surface disfigurements.

Defects

3.45 DEFECTS

Reject concrete with structural defects. Immediately after stripping formwork, identify all defects and obtain direction. Do not carry out any repair work until directed and then only in accordance with the direction. Repair defects by cutting out, making good and replacing, or otherwise as directed.

3.46 SURFACE DEFECTS

Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with 1:2 mortar or plaster, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

Exterior wall openings to CCANZ CP 01

3.47 WATERPROOFING EXTERIOR OPENINGS

Apply waterproofing to the exposed face of openings for windows, doors, meters etc, also if necessary the top of parapets/balustrades and ends of masonry walls abutting other claddings. To CCANZ CP 01, waterproofing manufacturer's requirements and as detailed. Provide temporary protection from direct sunlight.

Completion

3.48 CLEAN OUT

Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

3.49 REMOVE

Remove all unused materials and all concrete and reinforcing debris from the site.

4 SELECTIONS

4.1 SURFACE FINISHES FLOOR SLABS

Surface finish class to NZS 3114: table 2, Classes of floor, exterior pavement and invert finishes.

Finish class	Location
U3	new slab

4.2 REFER TO THE DRAWINGS

3820 CARPENTRY

1 GENERAL

This section relates to the supply and erection of timber framing, as a framed structure, or as partitioning. It includes prefabricated timber and engineered wood.

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3640	Chemical preservation of round and sawn timber
BRANZ BU 582	Structurally fixed cavity battens

***A copy of NZS 3604 Timber-framed buildings, must be held on site.**

1.3 QUALIFICATIONS

Workers to be experienced, competent trades people familiar with the materials and techniques specified.

1.4 DIMENSIONS

All timber sizes except for battens are actual minimum dried sizes.

2 PRODUCTS

2.1 TIMBER FRAMING, TREATED

Species, grade and in service moisture content to NZS 3602, NZBC B2/AS1 and treatment to NZS 3640, NZBC B2/AS1. Structural grade (SG) to NZS 3604, NZS 3622 with properties to NZS 3603.

2.2 EXTERIOR CAVITY WALL BATTENS - TIMBER - NON-STRUCTURAL

H3.1 or H3.2 Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. Temporary fix battens before being fixed into the framing with the cladding fixings. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.3 EXTERIOR CAVITY WALL BATTENS - PROPRIETARY - NON-STRUCTURAL

Extruded polypropylene battens, size approximately 45mm wide x 18mm thickness. Temporary fix battens before being fixed into the framing with the cladding fixings. To the scope limitations of NZBC E2/AS1, and NZS 3604 Building Wind Zones up to, and including "Extra High".

Components

2.4 NAILS

Type to NZS 3604, section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.

2.5 BOLTS AND SCREWS

Bolts and screws of engineering and/or coach type complete with washers, to the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10.

2.6 NAIL PLATES

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.

2.7 CONNECTORS

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

2.8 CORROSION RISKS

For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.

For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89).

2.9 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3 EXECUTION

3.1 EXECUTION GENERALLY

To NZS 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

3.2 SEPARATION

Separate all timber framing timbers from concrete, by:

- a full length bituminous damp-proof membrane overlapping timber by at least 6mm; or
- a 12mm minimum free draining air space

3.3 ATTENDANCE

Provide and fix blocks, nogs, openings and other items as required by other trades.

3.4 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings for framing to which linings are attached.

Framing at erection: 24% maximum

Framing at enclosure: 20% maximum

Framing at lining: 16% maximum

3.5 SET-OUT

Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.

3.6 FRAMING FLOORS

Framed and fastened to NZS 3604, section 7, **Floors**.

3.7 FRAMING WALLS

Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 8, **Walls**.

3.8 FRAMING ROOFS

Frame to required loading and bracing complete with valley boards, ridge boards and purlins.

Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 9, **Posts** and 10, **Roof framing**.

3.9 FRAMING CEILINGS

Frame to required loading and bracing complete with runners and battens set out to support ceiling lining. All fabricated and fastened to NZS 3604, section 13, **Ceilings**.

3.10 INSTALLING WALL UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.11 FIT CAVITY BATTENS

Fit and fix 20mm cavity battens over rigid air barrier, fully nail to timber studs to the requirements of the manufacturer or to NZS 3604. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc.).

3.12 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

4 SELECTIONS

4.1 FLOOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Mid floor joists:	Radiata pine	SG8	H1.2
Boundary joists:	Radiata pine	SG8	H1.2

4.2 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Parapets:	Radiata pine	SG8	H1.2
Enclosed decks and balconies:	Radiata pine	SG8	H1.2
Wall battens (not cavity):	Radiata pine	Merch	H1.2
Jamb battens:	Radiata Pine	Merch	H3.1

4.3 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Non Structural:	Radiata pine	Merchantable	H3.1
Proprietary - non structural:	Cavibats		
Cavity closer:	WANZ rigid PVC		

4.4 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Rafters:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2
Valley boards:	Radiata pine	Merchantable	H1.2
Skillion roof framing:	Radiata pine	SG8	H1.2
Enclosed flat roof framing:	Radiata pine	SG8	H1.2

4.5 INTERIOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Non structural walls:	Radiata pine	SG8	H1.2
Structural and braced walls:	Radiata pine	SG8	H1.2

3897 REPLACEMENT & TREATMENT OF DECAYED TIMBER

1 GENERAL

This section relates to identification and testing of decayed timber and for its replacement and/or treatment to NZBC B1 and NZBC B2. It includes;

- Decay due to rot from fungal and mould growth

1.1 RELATED WORK

Refer to the appropriate timber framing section for additional timber work.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

BAE Boric acid equivalent

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

MBIE	Dealing With Timber In Leaky Buildings - A guide for Builders and Building Professionals
NZBC B1/AS1	Structure
NZBC B2/AS1	Durability
NZS 3604	Timber-framed buildings
MBIE	Workplace Health Bulletin No. 17 - Risks to Health from Moulds and Other Fungi

Health and Safety at Work Act 2015

Note;

- MBIE (Ministry of Business, Innovation and Employment) document, Dealing With Timber In Leaky Buildings, was a DBH document and is available at: www.building.govt.nz/assets/Uploads/building-code-compliance/e-moisture/e2-external-moisture/guide-timber-in-leaky-buildings.pdf
- The Workplace Health Bulletin No. 17 is an archived document available at: <http://web.archive.org/web/20130210081950/http://osh.govt.nz/order/catalogue/pdfs/healthi017.pdf>

Requirements

1.4 QUALIFICATIONS

Work to be carried out by trades people experienced and familiar with identifying, treating and replacing decayed timber. Workers to be familiar with the health and safety requirements relating to this work.

1.5 COMPLIANCE INSPECTIONS - BCA

Where (fungi and mould) decayed timber has been identified as part of the Building Consent, arrange for required inspections. Where the decayed timber is identified after the Building Consent has been issued, agree with the BCA inspector the required identification, testing and replacement required.

1.6 COMPLIANCE INSPECTIONS - SEPARATE CONSULTANT

Where (fungi and mould) decayed timber has been identified and a specialist consultant is engaged or the building consent requires inspection and certification by separate consultants, arrange for and co-ordinate these inspections.

1.7 PHOTOGRAPHIC RECORD

Take a photographic record of all stages of the work including before work commences, after the decayed material has been removed and after replacement.

1.8 PROVIDE TEMPORARY PROTECTION

Provide temporary protection from weather and water for all interior parts of the building exposed by the work.

2 PRODUCTS

Materials

2.1 BRUSH ON TIMBER TREATMENT

Boron glycol type treatment, to a minimum concentration of 20% bae. For concealed timber, add coloured dye to help with even application.

3 EXECUTION

Removing fungi and mould affected timber

3.1 TAKING SAMPLES FOR TESTING

Take samples as required for testing. Samples must be of the required size and labelled to identify the source.

3.2 HEALTH AND SAFETY WHEN DEALING WITH MOULD

To Health and Safety at Work Act 2015.

Where moulds and fungi have to be removed as part of the repair, comply with relevant Health and Safety requirements. Ensure workers removing moulds and fungi in the building wear suitable protective equipment including disposable overalls, appropriate breathing masks and gloves. Refer to MBIE Workplace Health Bulletin No. 17 and WorkSafe NZ for further information.

Disturb moulds and fungi as little as necessary.

3.3 HEAVY MOULD GROWTH

Where materials have heavy mould growth on them, replace them rather than attempting to clean off mould. Wrap the materials in polythene or put in polythene bags, and seal to prevent them drying out. Clean mould from smaller isolated areas where it would be difficult or impractical to remove materials. This should be done by thorough washing and rinsing, and collecting the cleaning solution and rinse water for disposal. A wet dry vacuum cleaner is useful for this. If areas of mould need to be cleaned, this should be done before they dry out.

3.4 PROVIDE TEMPORARY COVERS

Once suitable temporary covers are in place, cladding can be removed with the linings still in place. This avoids any potentially dangerous moulds being released into the building. The lining also acts as a wind barrier reducing the wind load on the covers.

3.5 AVOID CONTAMINATION OF OTHER AREAS

Where internal remediation work is needed, avoid contaminating other areas of the house with mould. Advice should be sought from a specialist on how to keep the work area separate from the rest of the dwelling (for example with polythene sheets and taped joints and using a negative pressure environment). The work environment must be kept well-ventilated.

3.6 REMOVING DECAYED TIMBER

If a specialist consultant is engaged, follow their recommendations for timber removal, otherwise generally as follows.

Err on the side of caution when replacing untreated timber framing. If the timber has been adequately preservative treated, then it may be possible to remove less timber.

Particular care is needed where several pieces of timber are fixed together. The timber faces exposed after the cladding is removed may appear sound but there could be fungal decay on the hidden faces of the timber which can be difficult to detect. Examples of these are multiple studs, doubling or jack studs, boundary joists and lintels.

Where the timber shows obvious signs of failure (Refer MBIE Dealing With Timber In Leaky Buildings, photos 3 and 4) there is typically no need to test the decayed portions before removal. Testing should focus on identifying where the timber is sound. Cut out any timber at least one metre beyond the last visual signs of fungal decay on any individual piece of timber (Refer MBIE Dealing With Timber In Leaky Buildings, Figures 1 and 2).

Removed timber and debris, to be disposed of offsite.

3.7 DIFFICULT TO REACH TIMBER

Where timber members are difficult to replace such as floor joists running back into a building, it may be possible to reduce the recommended one metre distance by taking samples of timber at 150mm, 300mm and 600mm distances from the visible signs of decay and getting them analysed in a laboratory. The timber will only need to be removed as far back as the first sample that has no decay present.

Treating timber

3.8 REMOVE EXISTING COATINGS

Remove any existing coatings, paint, applied finishes etc, that will inhibit the absorption of the treatment into the timber.

3.9 TREATING SOUND TIMBER

Sound timber uncovered during repairs that is untreated or has a preservative treatment that does not meet B2/AS1, must be treated, where practical, with a brush-on preservative treatment.

To maximise the surface area of framing that can be treated, it is important to apply brush-on timber treatments after decay-affected timber has been removed, but before new treated timber is installed. Where localised repairs are carried out, any timber in the area of the repair should be treated.

3.10 BRUSH ON TREATMENT

Apply brush on timber preservative treatment to areas affected.

3.11 INJECTING TREATMENT

These methods apply to all fungi and mould treatment, but would only apply to major active insect infestation.

For studs where three faces cannot be accessed, a combination of two coats applied by brush and injection of boron glycol into holes drilled into the interface between studs is recommended. The holes to be 6mm in diameter and 80mm deep, sloping downwards (at approximately 30 degrees to the horizontal) at 300mm intervals (Refer MBIE Dealing With Timber In Leaky Buildings Figure 7). 10ml of treatment solution to be injected into the holes followed by a second 10ml injection 30 minutes later.

For double lintels, two coats of boron glycol to be applied by brush followed by injection of boron glycol into 6mm by 45mm deep holes drilled into the outer lintel 10mm below the top edge. A drill hole spacing of 100mm is recommended starting 75mm from the end of the lintel (Refer MBIE Dealing With Timber In Leaky Buildings, Figure 8). 15ml of treatment solution to be injected into the holes followed by a second 15ml injection 30 minutes later.

Temporarily clamp the lintel timbers together if there is a large gap between them. Apply adhesive tape to the bottom of the joint before injecting the treatment to minimise treatment running out the bottom of the lintel.

Because of the variability associated with the boron injection process, use this remediation method only where there is a high degree of confidence that there is no fungi or mould decay present between studs or lintel members.

While boundary joists have some similarities to lintels, this method of treatment cannot be relied on to achieve adequate levels of site preservative treatment because of more limited access to the timber surfaces. In addition, as boundary joists have less drying potential than lintels, hidden and difficult to find decay can occur. Accordingly, the removal of the boundary joist as shown in (Refer MBIE Dealing With Timber In Leaky Buildings, Figure 5) is required, which allows for preservative application and for any timber with decay to be identified and removed.

Replacing timber

3.12 REPLACING TIMBER

- Replacement of timber work must be done in dry conditions under cover.
- Existing timber framing must be supported and protected as necessary until the new framing is installed.
- Replacement timber must be preservative-treated to B2/AS1 to at least H1.2 for timber framing and H5 for ground contact.
- Dry storage must be provided on site for replacement timber before it is installed.

3.13 WALL FRAMING

For framing, select the most cost-effective technique to replace decayed timber in a particular area either;

- remove and replace the timber framing
- or cut out the decay and flitch in new framing.

Note, NZS 3604 does not allow the jointing of studs, so replace studs as necessary.

Where more than 40% of the timber in a particular section of the framing has to be removed, replace all framing.

3.14 FLOOR FRAMING

Where decay has affected floor joists, it may be possible to insert a new beam within the floor space to support the remaining length of joist and the replacement joists, usually by using joist hangers (Refer MBIE Dealing With Timber In Leaky Buildings, Figures 6a and 6b). The beam will need to be supported and the design must ensure loads are transferred to the foundations.

3.15 CLOSING IN

Do not close in timber framing until the moisture content is less than 20%. Note, some brush-on timber treatments can cause resistance moisture meters to read higher than the actual timber moisture content.

4 SELECTIONS

4.1 CONSULTANT INSPECTOR

Company: Central Adjusters
Person: Haydon Millar
Contact details: 027 444 5486

4.2 TESTING LABORATORY

Company: Beagle Consultancy
Person: Robin Wakeling
Contact details: 021 666 225

4161 UNDERLAYS, FOIL AND DPC

1 GENERAL

This section relates to the application of:

- DPC/DPM
- wall underlays includes Kraft based and synthetic wall underlays
- roofing underlays includes kraft based and synthetic roof underlays
- accessories

1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

NZMRM New Zealand Metal Roofing Manufacturers Inc.

The following definitions apply specifically to this section:

Wall underlay the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays
AS/NZS 4347.0	Damp-proof courses and flashings - Methods of test - General introduction, list of methods and test specimen requirements
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

Requirements

1.3 INSTALLATION SKILL LEVELS

Installers to be familiar with the manufacturer's technical literature and the NZMRM CoP NZ metal roof and wall cladding Code of Practice.

2 PRODUCTS

Materials

DPC

2.1 POLYETHYLENE DPC

Polyethylene film to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.0. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings to doors and windows.

DPM

2.2 DAMP PROOF MEMBRANE - CONCRETE FLOOR

Polyethylene sheet with minimum thickness of 0.25mm to NZS 3604, 7.5.6, **Polyethelene (polythene) sheet damp-proof membranes.**

Rigid Air Barriers

2.3 RIGID AIR BARRIERS

For rigid air barriers refer to 4171E

Roofing Underlay

2.4 SYNTHETIC NON-WOVEN SELF SUPPORTING ROOFING UNDERLAY

A non-woven self supporting roofing underlay, consisting of two spun-bonded polyolefin fabric layers bonded to a micro porous inner layer, designed for use as a water absorbent, breathable, water resistant roofing underlay for sloped roofs; with flammability index tested to NZS/AS 1530.2, AS/NZS 2295.

Accessories

2.5 WINDOW DOOR SEALING SYSTEM

Proprietary window and door flashing tape and accessories to E2/AS1, paragraph 4.3.11, **Flexible flashing tape**, paragraph 9.1.5, **Wall underlays to wall openings**.

2.6 WIRE NETTING

75mm galvanized hexagonal wire netting to AS/NZS 4534.

2.7 GUTTER AND UNDER FLASHINGS

Breather type underlay cut to width by manufacturer for use under valley, apron flashing and internal gutters. Soffit liner cut to width from breather type underlay.

2.8 ADHESIVE TAPE

Adhesive tapes to compliment the underlay.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZBC E2/AS1 Table 23 Properties of Roof Underlays and Wall Underlays; and manufacturers technical literature.

Note: Care should be taken not to expose the underlay to continuous wet and windy conditions.

3.2 STORAGE

Store wall and roofing underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION

Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlays and RAB.

Application - DPC

3.4 POLYETHYLENE DPC TO TIMBER

Lay polyethylene DPC under treated timber, of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 DPC BETWEEN DISSIMILAR MATERIALS

Lay DPC between dissimilar materials where required.

Application - DPM

3.6 DPM TO CONCRETE FLOOR

Lay DPM under concrete floor substrate over sand binding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier.

Application - Roofing Underlay

3.7 INSTALL WIRE NETTING

Lay 75mm galvanized wire netting at right angles across the purlins and drawn taut before fixing. Tie edges of netting together with galvanized wire clips.

3.8 ROOF UNDERLAY

Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins. When used vertically limit individual runs to 20 metres for synthetic roofing underlays. Do not lay vertically on roof pitches under 10°.

Lay horizontally across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations. Avoid prolong exposure by installing the roof immediately. UV exposure maximum 7 days.

3.9 GUTTER AND UNDER FLASHINGS

Lay breather type underlay cut to width by manufacturer for use as an underlay to valley, apron flashings, internal gutters and soffit liner. Lap under flashings with adjoining underlays. Fix soffit liner from top plate down 150mm past ribbon plate.

Completion

3.10 CLEAN UP

Clean up as the work proceeds.

3.11 LEAVE

Leave work to the standard required by following procedures.

3.12 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

Refer to drawings

4171E ECOPLY® BARRIER RIGID AIR BARRIER SYSTEM

1 GENERAL

This section relates to the use of **Ecoply® Barrier** as a rigid air barrier system in both residential and commercial buildings.

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1/AS1	Structure
NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 1604.3	Specification for preservative treatment - Plywood
AS/NZS 2269.0	Plywood - structural - specifications
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber Structures Standard
NZS 3604	Timber-framed buildings
IBC AC148	Acceptance Criteria for Flexible Flashing Materials.

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.2 MANUFACTURER'S DOCUMENTS

CHH Woodproducts documents relating to work in this section are:

Ecoply® Barrier Specifications and Installation Guide

Ecoply® Barrier Technical Notes

Ecoply® Barrier CAD Details

BRANZ Appraisal 827 - Ecoply® Barrier Rigid Air Barrier

Copies of the current product literature are available from Carter Holt Harvey Woodproducts Ltd

Web: www.chhwoodproducts.co.nz

Telephone: 0800 326 759

1.3 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

Performance

1.4 STRUCTURAL FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604 and the wind loads on various wall areas as given by AS/NZS 1170.2.

1.5 STRUCTURAL FIXINGS, EARTHQUAKE

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in NZS 3604 and as required by NZS 1170.5.

2 PRODUCTS

Materials

2.1 ECOPLY® BARRIER PLYWOOD

Radiata pine veneer ply to AS/NZS 2269.0, face sanded, DD A Bond structural grade, 7mm thick, H3.2 CCA treated to AS/NZS 1604.3, and sealed on the face and edges using a powder coating process.

Components

2.2 NAILS

Application	Minimum nail length
Ecoply® Barrier (not used as bracing)	40 x 2.5mm flat head stainless steel annular grooved nails, avoid contact with aluminium (Corrosion Zone D)

2.3 PVC FLASHINGS

PVC horizontal and PVC cavity closure flashings or acceptable flashings to NZBC E2/AS1 table 20 and 21.

2.4 FLEXIBLE FLASHING TAPE

Ecoply Barrier Sealing Tape to vertical sheet joints and internal/external corners. Rolls are 60mm wide x 30m long.

3 EXECUTION

Conditions

3.1 HANDLE

Handle sheets carefully and reject those with damaged faces or edges.

3.2 STORE

Store sheets flat in stacks clear of the ground, supported without sagging on evenly spaced horizontal bearers. Protect from damage and weather.

3.3 WALL FRAMING

Kiln dried timber framing sizes and set outs to NZS 3604 with stud and nog centres and timber widths to **Ecoply® Barrier** Specification and Installation Guide. Treatment to NZBC B2/AS1 and NZS 3602.

Application

3.4 SUPPORT EDGES AND JOINTS

Fully support edges and joints. Studs maximum 600mm centres and nogs maximum 1200mm centres with the framing width of 45mm at each **Ecoply® Barrier** sheet joint.

3.5 FASTENERS

Minimum 7mm from edge of the sheet, 150mm centres around perimeter and 300mm centres on intermediate supports of each sheet.

3.6 FIXING ECOPLY® BARRIER SHEETS

Fix sheets vertically. Sheets to overhang bottom plate by 50mm over timber and or concrete foundations. Allow 2-3mm expansion gap between sheets. Cut edges of sheet to be placed to the top. All other cuts and penetrations to be covered by a flexible flashing tape. Maintain ground clearance of 100mm minimum to decks and permanently paved ground and 175mm minimum to unprotected ground.

3.7 VERTICAL ECOPLY® BARRIER SHEET JOINTS

Seal vertical joints, internal and external corners, with 60mm wide Ecoply Barrier Sealing tape. Dust out joints before applying the tape. Where temperature is below 10° C warm up tape to ensure adhesion with the sheets.

3.8 HORIZONTAL ECOPLY® BARRIER SHEET JOINTS

Flash horizontal joints with Ecoply Barrier PVC Horizontal Z Flashing (RDZF7).

Completion

3.9 PROTECTION

Protect work from the weather until it is covered, coated or sealed.

3.10 REPLACE

Replace damaged or marked elements.

3.11 LEAVE

Leave work to the standard required by following procedures.

3.12 REMOVE

Remove all debris, unused materials and elements from the site.

4 SELECTIONS

4.1 ECOPLY® BARRIER PLYWOOD

Location: Refer to the drawings
Manufacturer: CHH Woodproducts
Brand/grade: Ecoply® Barrier DD A BOND
Stress grade: F8
Thickness: 7mm
Treatment: H3.2 CCA

4.2 FIXINGS

Application	Minimum nail length
Ecoply® Barrier as structural bracing	50 x 2.8mm flat head stainless steel annular grooved nails, avoid contact with aluminium (Corrosion Zone D)

4223SC SHADOWCLAD® PLYWOOD CLADDING

1 GENERAL

This section relates to the use of the CHH Woodproducts' Shadowclad® range of plywood exterior cladding on a drained cavity.

It includes:

- Shadowclad® Ultra Texture

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS/NZS 1604.3	Specification for preservative treatment - Plywood
AS/NZS 2269.0	Plywood - Structural - Specifications
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.2 MANUFACTURER'S DOCUMENTS

CHH Woodproducts documents relating to work in this section are:

Shadowclad® Specification and Installation Guide for Cavity Construction (Sept 2015)
BRANZ Appraisal 764 - Shadowclad® Ventilated Cavity Cladding System

Copies of the above literature are available at

Web: www.chhwoodproducts.co.nz

Telephone: 0800 326 759

Requirements

1.3 QUALIFICATIONS

Workers to be experienced, competent trades people familiar with the materials and techniques specified.

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

1.5 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1234 DOCUMENTATION for provision of the following general operation and maintenance information as electronic PDF format documents:

Shadowclad® Specification and Installation Guide for Cavity Construction (Sept 2015)

Performance

1.6 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations.

2 PRODUCTS

Materials

2.1 SHADOWCLAD® ULTRA TEXTURE CLADDING

Radiata pine veneer 12mm (nom) ply sheet to AS/NZS 2269.0. Treated CCA H3.2 to AS/NZS 1604.3. Pre-primed bandsawn surface finish and vertical ship lap joint.

Standard sheet cover width is 1200mm. Standard sheet lengths are 2440mm and 2745mm.

2.2 WALL UNDERLAYS

For rigid air barriers, refer to 4171E

2.3 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, nominal 20mm thick, 45mm wide and height to match timber framing studs. To NZS 3602, table 1, reference 1D.10. Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

2.4 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Shadowclad® cavity base closure with upstand one side 10mm and the other 75mm. Combined length to suit cavity. Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction. To NZBC E2/AS1: Vermin-proofing clause 9.1.8.3 and Cavity base closer figure 66.

2.5 EXTERIOR COVER BATTENS & TRIM

Radiata pine battens, trim and covers to profiles as required by the cladding manufacturer. Clears finger-jointed, treated H3.1.

- External corner cover battens minimum 65mm x 18mm with 6mm x 6mm weather grooves
- Refer to drawings for decorative cover battens

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

Components

2.6 NAILS

Refer to the **Shadowclad®** Specification and Installation Guide for Cavity Construction fixing requirements for size and use. Refer to SELECTIONS for material and type.

- Minimum 60mm x 2.8mm. stainless steel (hand driven)

When using rigid air barriers, increase fixing length by at least the thickness of that panel. Refer to power tool manufacturers for equivalent power driven nail size.

2.7 SCREWS

Refer to the **Shadowclad®** Specification and Installation Guide for Cavity Construction fixing requirements for size and use. Refer to SELECTIONS for material and type.

- Minimum No. 8 x 65mm countersunk stainless steel screws.

When using rigid air barriers, increase fixing length by at least the thickness of that panel.

2.8 FLASHINGS

Shadowclad® general flashings: G304 stainless steel. Note, stainless steel profiles are all 3000mm long.

Corner flashings: refer to drawings

To NZBC E2/AS1, Table 20 **Material Selection**. Refer to the **Shadowclad®** Specification and Installation Guide for Cavity Construction.

2.9 FLASHING TAPE

Flexible flashing tape to NZBC E2/AS1, 4.3.11 Flexible flashing tape, UV resistant for exposed applications.

Accessories

2.10 SEALANT

Refer to the plywood manufacturer's requirements for elastomeric sealant to waterproof penetrations.

2.11 TREATMENT OF SHEET CUTS

Holdfast® Metalex® Clear wood preservative applied to sheet cuts.

3 EXECUTION

Conditions

3.1 HANDLE

Handle sheets carefully and reject all those with damaged faces or edges.

3.2 STORE

Store sheets in stacks clear of the ground, supported without sagging on evenly spaced horizontal bearers. Protect from damage and weather.

3.3 TIMBER FRAMING

Ensure it is to NZS 3604 and the manufacturer's requirements.

3.4 SUPPORT

Fully support all edges and joints.

3.5 VERTICAL JOINT EXPANSION - SHADOWCLAD® TEXTURE

Provide 2-3mm gap at all vertical edges of cladding for sheet expansion. Maintain 2mm minimum expansion gap in the vertical shiplap joint to create an adequate expansion allowance. Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction

3.6 HORIZONTAL JOINT EXPANSION - SHADOWCLAD® 'Z' FLASHING

For horizontal joints using **Shadowclad®** 'Z' flashings, provide a horizontal 9mm gap between the 'Z' flashing and the sheet above at the outside face to create an adequate expansion allowance. Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.7 FRAMING MOISTURE CONTENT

Maximum moisture content 20% to NZS 3602. for general framing and cavity battens

Application

3.8 DRAINED CAVITY - 600 STUD SPACING

Confirm that drained cavity is installed as follows with 600mm stud spacing and 800mm max nog spacing.

20mm nominal thickness drained cavity to NZBC E2/AS1: 9.0 **Wall claddings**, with battens over rigid air barrier. Vertical cavity battens fixed at 300 centres, battens to each stud and one in between the two studs fixed to top and bottom plates and nogs. Do not fix the cladding to the battens fixed between studs. Top of the cavity is to be sealed. Cavity closer/vermin proofing should be used at the base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Horizontal cavity battens should not be used except when closing off the top of a cavity from all roof spaces and enclosed soffits to prevent entry of moist air.

Cavity spacers (i.e. short pieces of horizontal cavity batten) may be used to support the bottom sheet edge (or provide intermediate support where required eg above window openings) but must allow water drainage to the outside. The cavity spacers must be fixed at a 5° minimum slope with a 50mm minimum air gap at either side.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.9 PENETRATIONS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- wall/cladding underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

Refer to the WANZ Installation Guide. This covers the WANZ recommendations on the preparation of window/door openings, minimum clearances between rough openings and the window/door frame, dressing of the wall underlay into the prepared opening, application of flexible flashing tape to the sill and top corners of the opening, installation of window/door frames and flashings, sealing of the window/door frame into the opening to create a pressure equalisation cavity, installation of flashings and the maintenance of appropriate clearances between the frame and the surrounding construction.

3.10 TREATING CUT EDGES

Treat cut edges of plywood with Metalex Clear to Holdfast® requirements, before fixing. Also for **Shadowclad® Natural®** (not uncut **Ultra®**) seal bottom edge of sheet and back of sheet to height of 150mm.

Cut edges must be placed at the top of the sheet to avoid rain drips soaking in to cut end grain.

Note: For treated surfaces that need further finishes, Metalex has a drying period of 7 to 10 days before over painting or staining.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.11 PRE-PAINTING OR STAINING

Before installation pre-paint as appropriate, up to one finishing coat on exposed edges and surfaces that will be difficult to paint after installation.

Note: If Metalex treatment has been used, it has a drying period of 7 to 10 days before over painting or staining.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.12 INSTALL SHADOWCLAD® PLYWOOD CLADDING

Install to the requirements of **Shadowclad®** Specification and Installation Guide for Cavity Construction.

Ensure sheets are installed vertically, do not install horizontally.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.13 FIXING SHADOWCLAD® PLYWOOD CLADDING

Fix at 150mm maximum centres at sheet edges and no closer than 7mm to the sheet edge. Fix intermediate supports at 300mm maximum centres to studs and nogs. Sheets to be nailed off independently of each other, with nailing pattern and ship lap joint nailing to detailed requirements of **Shadowclad®** Specification and Installation Guide for Cavity Construction (in particular refer details SC003, SC006, SC007, SC008). Do not fix through grooves.

Finish fixings flush.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.14 INSTALL COVER BATTENS AND TRIMS

Install as detailed on the drawings and in accordance with the cladding manufacturer's requirements.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.15 INSTALLING FLASHINGS GENERALLY

Install flashings and covers as detailed on the drawings and in accordance with **Shadowclad®** recommended details, and to NZBC E2/AS1, 4.0 **Flashings**.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.16 INSTALLING SHADOWCLAD® 'Z' FLASHINGS - CONTINUOUS CAVITY

Install **Shadowclad®** standard Horizontal 'Z' flashing with the upstand over the cavity battens to **Shadowclad®** recommended details and as detailed on the drawings, also to NZBC E2/AS1, 4.0 **Flashings**, NZBC E2/AS1, 9.8 **Plywood Sheet**.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.17 INSTALLING SHADOWCLAD® 'Z' FLASHINGS - NON-CONTINUOUS CAVITY

Install **Shadowclad®** Inter-Storey 'Z' flashing with the upstand under the cavity battens along with **Shadowclad®** Cavity Base Closure, to **Shadowclad®** recommended details and as detailed on the drawings.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.18 JOINTING & TERMINATING SHADOWCLAD® 'Z' FLASHINGS

Horizontal 'Z' flashings shall be jointed as follows:

- Butt jointed over back flashing for aluminium flashings
- Overlapped by 150mm for stainless steel flashings

Horizontal 'Z' flashings shall have ends terminated as follows:

- 50 mm strip of neutral cure silicon or
- Stop ends
- End terminations not required butting into **Shadowclad®** metal corner flashings.

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

3.19 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.

Completion

- 3.20 REPLACE
Replace all damaged or marked elements.
- 3.21 LEAVE
Leave work to the standard required for following procedures.
- 3.22 REMOVE
Remove debris, unused materials and elements from the site.
- 3.23 PROTECTION
Protect this work as it proceeds, and when completed, from the weather and until it is covered, coated or sealed.

4 SELECTIONS

For further details on selections go to: www.chhwoodproducts.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

4.1 SHADOWCLAD® ULTRA TEXTURE PLYWOOD CLADDING

Cladding type: Shadowclad® Ultra Texture
Treatment: H3.2 CCA
Finish: Paint, colour tbc
Prime: for exposed edges (refer to appropriate painting section)
Thickness: 12mm (nominal)

4.2 CAVITY BATTENS

Timber species: Radiata pine
Timber grade: Merchantable
Treatment: H3.1
Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

4.3 SHADOWCLAD® FLASHINGS - STAINLESS STEEL

Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction. Refer to drawings and details

Location	Flashing
Horizontal joints:	Horizontal Z
Inter storey junction:	Inter-Storey Z
Internal angle:	Internal 90 angle (use PVC where 2 different claddings meet)
External angle:	External Box Angle

Fixings	Size	Material
Flat head nail	40mm x 2.5mm	Stainless Steel

4.4 FASTENINGS FOR CLADDING - STAINLESS STEEL

Type/size: Flat head nail 60x2.8mm stainless steel (confirm with manufacturer for RAB board)
Material: Stainless Steel
Note: Must be used with H3.2 treated timber and/or Stainless steel flashings only, increase length of fixing if rigid air barriers are used. Do not use with aluminium flashings.
Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

4.5 COVER BATTENS AND TRIMS

Location	Material	Size	Finish
Refer to drawings and details	Timber H3.1	65x18m for external corner 40x18mm for decorative battens	to match cladding

Finishing

4.6 PAINTING

Refer to the appropriate painting section(s).
Panels are to be Brush coated within 3 months of installation, over 3 months ensure panels are prepare to **Shadowclad®** Specification and Installation Guide for Cavity Construction, Section 5.0.

For paint and film forming stains ensure cover is at least 90 microns (Min 30 microns/coat). For penetrating stains follow stain manufacturer's requirements. Refer **Shadowclad®** Specification and Installation Guide for Cavity Construction.

4241ME METALCRAFT ESPAN™ CLADDING

1 GENERAL

This section relates to the supply and fixing of **Metalcraft Roofing** espan™340 (standing seam) profiled vertical cladding installed on a drained cavity, complete with accessories.

1.1 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silicone
LBP	Licensed Building Practitioner

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External Moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
ISO 9223	Corrosion of metals and alloys - Corrosivity of atmosphere - Classification determination and estimation
NZMRM - CoP	NZ Metal Roof and Wall Cladding - Code of Practice (CoP)

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Metalcraft Roofing espan™340 product literature

Manufacturer/supplier contact details

Company:	Metalcraft Roofing
Web:	www.metalcraftgroup.co.nz
Email:	frances.charles@unitedindustries.co.nz
Telephone:	09 274 0408

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

- 15 years for failure of coating adhesion
- 15 years for weatherproofing by material penetration

For Warranty requirements in excess of this contact Metalcraft Roofing.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:
5 years for workmanship

- Provide this warranty on the material manufacturers standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

Include a copy of the Metalcraft Roofing maintenance requirements with the warranty.
Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

1.7 QUALIFICATIONS

Wall cladding Installers shall be experienced, competent installers familiar with Metalcraft products. And for Restricted Building Work shall also be, an LBP or supervised by an LBP. Carry out work with experienced, competent installers familiar with the products being used and preferably with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding.

Performance - Wind

1.8 WIND - NON SPECIFIC DESIGN

Building wind zone:
Very High (refer to NZS 3604, table 5.4)
Refer to Metalcraft for "Wind Load Span Design Graphs" for load parameters.

1.9 FIXINGS, WIND

Design and use the fixings/fixing pattern appropriate for the wind design parameters and NZ Metal Roof and Wall Cladding - Code of Practice. Refer to Metalcraft espan™340 for profile details. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply. Fixing pattern to also take into account fixing method and purlin spacings.

Performance - General

1.10 PERFORMANCE

Install wall cladding materials in accordance with the NZMRM, NZ Metal Roof and Wall Cladding - Code of Practice, and Metalcraft espan™340 product literature, to form a weather-tight performance for the completed cladding system, including all penetrations through walls and parapets.

1.11 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the wall cladding. Ensure that all necessary members are positioned so that flashings can be fastened at both edges through the wall profile or cladding to the primary structure.

2 PRODUCTS

Materials

2.1 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, treated H3.1, minimum 20mm thickness, width and height to match timber framing studs to NZS 3602 table 1, reference 1D. 10, Requirements for wood-based building components to achieve a 50-year durability performance. Or ventilated uPVC battens with separation strips on wall underlay.

2.2 EXTERIOR CAVITY WALL BATTENS - WITH DRAINED CAVITY

Proprietary horizontal cavity batten system. Refer to drawings for selection

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC, or aluminium trays with upstands. Upstand one side 10mm and the other 75mm. Length and width to suit cavity.

2.4 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397.

Fixings

2.5 FASTENERS GENERALLY

Fixings and fasteners are to be compatible with all materials, the environment and meeting the requirements of the NZ Building Code. Installation is to be in accordance with E2/AS1 and/or the NZ Metal Roof and Wall Cladding - Code of Practice and Metalcraft espan™304 product literature. For fixing patterns refer to Metalcraft product literature for espan™340 profile.

2.6 FIXING CLIPS TO TROUGH SECTION CLADDING - ESPAN™ 340

Galvanized steel (powdercoated for aluminium) to suit the material and the espan™304 profile and location as required by Metalcraft for espan™304. Fixings to steel are 16mm x 12 gauge galvanized Wafertek self-drilling screws and fixings to timber are 35mm x 12 gauge galvanized screws or spiral shank nails. Increase length of fixings to suit depth of proprietary cavity batten system.

2.7 FIXING SCREWS

To AS 3566. Screws appropriate to the cladding material and the supporting structure, as required by Metalcraft and with a Class 4 or 5 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm. Screw fasteners to be head stamped identifying the manufacturer and class. Refer to SELECTIONS.

2.8 RIVETS

Sealed aluminium, minimum diameter 4.0mm. Refer to Metalcraft for requirements.

Components

2.9 FLASHINGS GENERALLY

To NZBC E2/AS1, 4.0, **Flashings**.

Formable grade 0.55 BMT for galvanized, aluminium/zinc, aluminium/zinc/magnesium - coated and pre-painted steel and 0.90 BMT for aluminium (or 0.9mm for small aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

2.10 WALL AND PARAPET FLASHINGS

To E2/AS1, 4.0, **Flashings**.

Supplied by the cladding manufacturer to match or to suit the cladding.

Accessories

2.11 SEALANT

Neutral curing MS sealant or polymer sealant as required by Metalcraft and used as directed.

3 EXECUTION

Conditions

3.1 INSPECTION

Inspect the wall framing and supporting structure to ensure that it is complete and fully braced ready for cladding and free from any misalignments or protrusions that could damage the cladding.

3.2 FRAMING TIMBER MOISTURE

When continuous metal cladding etc. Runs along a long continuous timber member and is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less. For flashings in this situation (sometimes called transverse flashings) the framing EMC to be maximum 16%, and preferably as low as 12%. Transverse flashings can be temporarily tacked in place and final fixing done when moisture content is acceptable.

3.3 STORAGE

Upon delivery visually inspect sheets for damage and accept packs of undamaged cladding. Reject all damaged material. Store on a level firm base clear of the ground, with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets. If sheet packs become wet, fillet or cross stack to allow air circulation and drying between sheets.

3.4 HANDLING

Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage.

3.5 SEPARATION

Isolate dissimilar materials in close proximity as necessary by painting the surfaces or fitting separator strips of compatible or inert materials. Place isolators between metals and treated timber and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized and aluminium/zinc-coated metals, or mixing of aluminium sheet with steel mesh.

Application

- 3.6 **FIX INSULATION**
Refer to thermal insulation sections.
- 3.7 **SET-OUT FOR VERTICAL CLADDING**
Set cladding to vertical plumb lines and maintain verticality. Set all exposed fixings with horizontal string lines. Carefully set out sheets with side laps away from the main line of sight, and with the widths of end sheets the same. Check during fixing to eliminate creep or spread and to keep fastenings in line.
- 3.8 **END LAPS**
End laps are not permitted, except where specifically detailed.
- 3.9 **THERMAL MOVEMENT**
Fix for Thermal Movement to Metalcraft requirements for thermal movement.
- 3.10 **FIXING GENERALLY**
Install and fix in accordance with the NZMRM - CoP recommendations, and to Metalcraft required fixing patterns and details for each area of the building roofing. Use only screws as required by Metalcraft. Paint colour matched fixings and accessories before installation.
- 3.11 **FIX UNDERLAYS**
To NZBC E2/AS1. 9.1.7. Fix to framing, with laps and fixing to Metalcraft requirements. Make good any damage before or during fixing of cladding before fixing continues.
- 3.12 **INSTALL DRAINED CAVITY - HORIZONTAL PROPRIETARY SYSTEM**
Drained cavity to NZBC E2/AS1, 9.0 **Wall claddings**, where required. Fix horizontal proprietary cavity battens to wall framing studs in accordance with manufacturer's requirements.
- 3.13 **PENETRATIONS**
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:
- RAB board and tape to openings finished and dressed off ready for the installation of window and door frames and other penetrations
 - claddings neatly finished off to all sides of openings
 - installation of flashings (those required to be installed prior to installation of penetrating elements).
- 3.14 **MARKING AND CUTTING**
Use ink pen, chalk line or coloured pencil for marking cladding sheets prior to cutting. Do not use lead pencil for marking Zinalume® and Colorsteel®. Cut by shear only, using nibblers or hand snips.
- 3.15 **FIX SHEETS - CONCEALED CLIP SYSTEM**
Fix sheets in place using the clip fixing system required by Metalcraft for espan™304 profile, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.
- 3.16 **INSTALL FLASHINGS**
Flash to penetrations, cap corners and edges to detail. Flashings to be installed on timber framing with moisture content of less than 20%. Where no detail is provided flash to NZ Metal Roof and Wall Cladding - Code of Practice recommendations and Metalcraft and NZBC E2/AS1 requirements. Cut accurately and fix using sealant and rivets to detail and to Metalcraft requirements to form a weatherproof cover. For visible flashings, plan joints/junction to take account of the aesthetic requirements.
- 3.17 **SEPARATION**
Separate metal sheeting from CCA treated timber with wall underlay or other suitable inert isolation material.
- 3.18 **USE OF SEALANTS**
Select and use sealants only as recommended by Metalcraft. Apply sealant in two narrow beads transversely across flashing intersections, close to the two edges. Avoid exposing sealant on outside surfaces.
- 3.19 **FLASHING PENETRATIONS**

Flash all penetrations through the wall. Fit pipe flashings with a proprietary collar flashing, with other penetrations flashed as detailed and to provide a weathertight installation.

Completion

- 3.20 REPLACE
Replace damaged or marked elements. Do not attempt to repair coatings by applying colour match paint to pre-finished surfaces.
- 3.21 LEAVE
Leave this work complete with all necessary flashings and capping all properly installed as the work proceeds so the finished cladding is completely weathertight.
- 3.22 REMOVE
Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.metalcraftgroup.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

Materials

Coating system

- 4.1 COATING SYSTEM - EXPOSURE ZONE D (CAT 4)
Project Exposure Zone D to NZS 3604, C 4 to ISO 9223.
Profile/location: Refer to drawings
Coating system: Colorsteel Maxx
Paint colour: tbc

Cladding

- 4.2 METALCRAFT ESPAN™ 340 TROUGH SECTION CLADDING
- | | |
|------------------|--|
| Location: | Refer to drawings |
| Manufacturer: | Metalcraft Roofing |
| Brand/type: | espan™ 340 |
| Dimensions: | Sheet width 354mm, cover 340mm, rib height 49mm, and roll formed to any length |
| BMT/material: | 0.55mm |
| Clips: | espan™ concealed fixing clip |
| Batten material: | PVC |

4422VB VIKING BUTYLCLAD & EPICLAD MEMBRANE ROOFING

1 GENERAL

This section relates to **Viking Butylclad** and **Viking Epiclad** EPDM sheet membrane systems:

- applied as a fully adhered single-ply waterproofing membrane
- bonded to timber or construction plywood

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1 External moisture
AS/NZS 2269.0 Plywood - Structural - Specifications

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Viking Waterproofing Membrane Systems manual
Viking Butylclad or Epiclad Plywood Substrate Checklist
Viking Concrete Substrate Checklist
Viking Butylclad or Epiclad Standard Details
Viking Butylclad or Epiclad Applicator Manual
BRANZ Appraisal 307 - Viking Butylclad, Epiclad & Epiclad FBS Roof Membrane Systems

Copies of the above literature are available from Viking Roofspec

Web: www.vikingroofspec.co.nz
Email: info@vikingroofspec.co.nz
Telephone: 0800 729 799
Facsimile: 0800 729 788

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

20 years: For **Viking Butylclad** Membrane

- Provide this warranty on the Viking Roofing standard form.
- Commence the warranty from the date of completion of fixing.

Refer to the section 1237 WARRANTIES for additional requirements.

1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years: For **Viking Butylclad** membrane when installed by Viking approved applicator

5 years: For **Viking Epiclad** membrane when installed by Viking approved applicator

- Provide this warranty in the Viking Rubber Membrane Product Warranty standard form.
- Commence the warranty from the date of completion of fixing.

Refer to the section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - VIKING FULL SYSTEM WARRANTY ON APPLICATION

Provide a Viking Full System Warranty for materials and installation:

20 years: For **Viking Butylclad** Membrane

- Register with Viking Roofspec prior to installation.
- Approved Applicator must hold a current Stage 3 Viking Roofspec Licence.

- Provide this warranty on the Viking Full System Warranty job completion form.
- Commence the warranty from the date of completion of fixing.

Refer to the section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

Installation of the membrane to be carried out by Viking Approved Applicators. Installation of substrates must be completed by suitably qualified persons in accordance with instructions given in Manufacturers Technical Literature and BRANZ Appraisal 307.

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Viking membrane waterproofing materials, or associated products, components or accessories.

Performance

1.8 TEST

Flood test horizontal applications with a minimum 50mm depth of water for 24 hours. Make good any lack of watertightness when the surface is completely dry.

1.9 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets. All penetrations comply with Viking Roofspec specifications and Standard Details.

2 PRODUCTS

Materials

2.1 BUTYLCLAD RUBBER MEMBRANE

Viking Butylclad, single ply, flexible synthetic butyl rubber membrane.

Components

2.2 CONTACT ADHESIVE - BUTYLCLAD

Viking BMA, Butylclad contact adhesive.

2.3 SOLVENT

Viking BMA Solvent.

2.4 LAP PRIMER

Viking HP 250 lap primer.

2.5 LAP TAPE

Viking Lap Tape - 76mm.

2.6 LAP SEALANT

Viking Lap Sealant, available in black only.

2.7 FLASHING TAPE

Viking Flashing Tape - 150mm.

Accessories

2.8 VENTS

Aluminium vent.

2.9 SCUPPER OUTLETS

Proprietary scuppers - (min 200 x 75mm to meet NZBC E2/AS1, 8.5.6, **Roof and deck drainage**).

3 EXECUTION

Conditions

3.1 GENERALLY

All work and materials to comply with current Viking Butylclad technical literature and standard details; NZBC and E2/AS1.

3.2 STORAGE

Take delivery of Viking membrane in rolls undamaged and include for site handling facilities where required. Provide dry storage for all products. Stack off the ground on a level surface and with accessories.

3.3 WEATHER

Lay membrane in fair weather, with ambient air temperature no less than 7°C.

Application - preparation

3.4 PRELIMINARY WORK

Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets and fixing of vents and outlets to levels, is complete and properly constructed to enable the system to work as intended. The substrate to be smooth, clean, dry and stable.

3.5 ACCEPTANCE OF SUBSTRATE

Confirm that the substrate, including fillets, outlets and projections, meets design specification and Viking Roofspec conditions. Ensure the falls meet a minimum of NZBC E2/AS1, 8.5.6, **Roof and deck drainage**.

3.6 PLYWOOD SUBSTRATE

Install to requirements of current Viking Roofspec Epiclاد or Butylclad Plywood Substrate Checklist. Plywood to be;

a minimum of 17mm thick and complying with AS/NZS 2269.0

- minimum CD structural grade with the sanded C side upwards

- H3.2 treated (CCA) and kiln dried.

Lay plywood with staggered joints (brick bond) with all edges of the sheets fully supported. Do not use tongue and groove plywood.

Leave a 3mm gap between all sheets.

Fix with 10 gauge x 50mm stainless steel countersunk head screws. Fix at 50mm from the corners, 150mm centres on edges and 200mm centres on intermediate supports.

Provide 20mm timber corner fillets at the base of all upstands.

Chamfer all external edges with a minimum radius of 5mm where the membrane is to be wrapped over.

Provide falls to a minimum of those stated in NZBC E2/AS1, 8.5.1, **Limitations**, 1:30 for roofs, 1:40 for decks and 1:100 for gutters.

Plywood and the timber substructure to have a maximum moisture content of 18% when the membrane is adhered.

Application - laying

3.7 GENERAL

Install to current Viking Roofspec Technical Literature installation instructions and Viking **Epiclاد** Applicators Manual. Tape all plywood joints with 25mm wide tape.

3.8 PRIME

Dilute the membrane adhesive at a ratio of 1:1 with BMA solvent, to create a primer. Apply the primer evenly to the entire surface and allow to dry.

3.9 POSITION

Membrane to be unrolled onto the prepared substrate and allowed to relax for at least 20 minutes prior to installation. Position the first length of sheet running across the fall of the deck starting from the lowest side of the substrate. Allow adequate material is allowed for edge details, and for vertical terminations to finish, to E2/AS1, 8.5, **Membrane Roofs and Decks**.

3.10 APPLY ADHESIVE

Fold the sheet as required. Apply proper adhesive to both the exposed membrane and the exposed substrate, one half at a time. Do not thin adhesive with solvent.

3.11 LAY SHEETS

When the adhesive is tack dry roll the sheet onto the substrate. Unfold the sheet and adhere to substrate working progressively from the centre towards the edge of the sheet. Do not allow the membrane to become stretched or under tension. Smooth out wrinkles with hands and sweep the laid surface with a soft bristle broom. Repeat the process for the other half of the sheet. Mark 76mm lap width on adhered sheet. Lay the next sheet with leading edge over the adhered sheet up to the marked line and repeat process.

3.12 LAP JOINS

Clean membrane area to be lapped, using BMA solvent. Apply HP250 lap primer to the lower sheet edge to be lapped. Apply the adhesive side of the 76mm laptape to the primed surface. Do not remove the plastic backing of the laptape. Roll the plastic backed laptape, covering the entire area to bond the laptape to the lower sheet. Prime the edge on the underside of the next sheet. When primer is dry, drop top sheet edge over the laptaped area. Remove the plastic backing from the laptape. Roll the membrane lap again; covering the entire area to ensure the laptape is bonded to both surfaces and flat.

3.13 CONSTRUCTION JOINTS

Tape construction joints with minimum 25mm self adhesive tape.

3.14 INSPECT

Inspect and test all membrane laps and details upon completion.

3.15 PENETRATIONS AND JUNCTIONS

Form and finish upstands, downturns, penetrations, outlets and vents to conform to current Viking Roofspec Standard Details. Confirm installation of all required flashings and terminations, to leave membrane watertight upon project completion.

3.16 VENTING - ROOF/DECK CAVITIES

Provide adequate ventilation to E2/AS1, 8.5.2, **General**. If applying roof mounted proprietary vents, install a minimum one Viking roof vent for the first 40m² of flat roof area and one vent per 90m² thereafter. Check that the cavity is cross ventilated to allow air movement across the entire cavity.

Finishing

3.17 FOOT TRAFFIC

Keep foot traffic to a minimum after laying the membrane. Lay protection as required for foot traffic or later works.

3.18 ACCESS BOARDS

Provide access boards for later operations and remove when no longer needed.

3.19 ACCEPTANCE

Inspect the completed work. Protect and maintain roofing until completion of the contract works.

3.20 SUBSEQUENT WORK

Make good any damage and repair to Viking Roofspec specifications.

Completion

3.21 CLEAN UP

Clean up as the work proceeds.

3.22 LEAVE

Leave work to the standard required by following procedures.

3.23 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 VIKING BUTYLCLAD RUBBER MEMBRANE

Location: Refer to drawings
Substrate: Plywood
Brand/type: **Viking Butylclad**
Size: refer drawings
Colour: tbc
Accessories: Scupper outlet, refer to detail on drawings for construction of angled end and lip

4710P PINK® BATTS® & PINK® BATTS® SILENCER® INSULATION

1 GENERAL

This section relates to Tasman Insulation **Pink® Batts®** insulation materials installed into residential buildings.

It includes:

Thermal:

- **Pink® Batts® Skillion Roof Insulation**
- **Pink® Batts® Wall Insulation (Pink® Batts® Ultra®)**

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218	Thermal insulation - Housing and small buildings
NZS 4220	Code of practice for energy conservation in non-residential buildings
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 60598.2.2:2001	Luminaires- Particular Requirements - Recessed luminaires

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Tasman Insulation New Zealand: Product Data Sheets and Installation Instructions
BRANZ Appraisal 238 - Pink® Batts® Insulation
BRANZ Appraisal 767 - Pink® Batts® Skillion Roof Insulation

Manufacturer/supplier contact details

Company: **Tasman Insulation New Zealand**
Web: www.pinkbatts.co.nz
Telephone: 0800 746 522

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

Lifetime Warranty	For Pink® Batts® insulation products
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- Commence the warranty from the date of practical completion of the contract works.
- Provide this Warranty on the **Pink® Batts® Lifetime Warranty Certificate** form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.4 QUALIFICATIONS, PINK® BATTS®

Installers to be **PinkFit® - Preferred Pink® Batts® installers**. A list of approved installers can be obtained from the web, by telephone or from the local building supplies merchant.

Web: www.pinkbatts.co.nz
Telephone: Freephone 0800 746 534

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Tasman Insulation **Pink® Batts®** insulation or associated products, components or accessories.

Performance - combustibility

1.6 FIRE PREVENTION

Pink® Batts® insulation materials are considered a non-combustible material to NZS/AS 1530.1 and need not be separated from heat sources such as fire places, heating appliances, flues and chimneys to NZBC C/AS1 to C/AS6, except if used in conjunction with, or attached to other heat sensitive materials.

2 PRODUCTS

Materials - thermal

2.1 PINK® BATTS® WALL INSULATION

Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®) is a light weight flexible bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.

2.2 PINK® BATTS® SKILLION ROOF INSULATION

Pink® Batts® Skillion Roof Insulation is bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R-values and thickness options.

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5. Pink® Batts® insulation meets this requirement.

Components

2.3 FASTENERS

Insul anchors complete with retaining washer.

2.4 TAPES

Proprietary plastic tape stapled across framing to retain insulation in unlined wall and ceiling locations.

2.5 ADHESIVE TAPE

Pressure sensitive adhesive tape.

3 EXECUTION

3.1 STORAGE

Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, compression, puncturing and damage to edges of materials. Do not use damaged or wet insulation materials.

3.2 HANDLING

Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

3.3 INSPECTION

Before starting installation of blankets and slabs, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall underlays and vapour barriers are in place.

Application - general

3.4 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Confirm with fireplace manufacturer for clearances; **Pink® Batts®** insulation need not be separated except if used in conjunction with, or attached to other heat sensitive materials. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.5 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to AS/NZS 3000, figure 4.9.
- Provide larger clearances where required by the light manufacturer.

Residential applications;

- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger clearance where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

Application, thermal insulation

3.6 INSTALL PINK® BATTS® WALL INSULATION

Ensure the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Fill gaps around windows and doors with off-cuts. Insulate around vents (not over them) to allow unhindered ventilation.

Fit **Pink® Batts® Wall Insulation** behind electrical wiring and plumbing. Ensure there are no gaps, folds or undesirable compression at edges.

Refer to NZS 4246 for installation guidelines and Pink® Batts® installation instructions for detailed information.

3.7 FIT PINK® BATTS® SKILLION ROOF INSULATION

Ensure that the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5mm-10mm to ensure a friction fit.

Completion

3.8 CLEAN UP

Clean up as the work proceeds, so no spare offcuts or any other matter or item remain behind claddings or linings.

3.9 LEAVE

Leave work to the standard required by following procedures.

3.10 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.pinkbatts.co.nz.

Substitutions are not permitted to the following, unless stated otherwise.

Refer to drawings

4821 FLASHINGS

1 GENERAL

This section relates to the fabrication and installation of flashing systems not forming part of a proprietary system.

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 2728	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
AS 3566	Self-drilling screws for the building and construction industries - General requirements and mechanical properties
NZS 3604	Timber-framed buildings
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

Requirements

1.2 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.3 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication.

Standards of performance

1.4 DURABILITY REQUIREMENTS

Design and install the flashings appropriate for the durability applications in accordance with NZBC B2/AS1. The Building Code B2, 3.2 requires that all hidden elements have at least the same durability as that of the element that covers it. Refer to NZBC B2/AS1 Table 1: Durability Requirements of Nominated Building Elements and NZBC E2/AS1 Table 20 Material selection.

1.5 COMPATIBILITY REQUIREMENTS

Each flashing material shall be selected in accordance with NZBC E2/AS1 Table 20 to minimise corrosion. Refer to either NZS 3604 Clause 4.2 or AS/NZS 2728 for the relevant exposure conditions. For compatibility of materials in contact and subject to run-off, refer to NZBC E2/AS1 table 21 and NZBC E2/AS1 table 22.

1.6 DESIGN

For flashings where there are no specific details or drawings, provide a full size mock-up of the flashing to integrate components into the weathertight system. Co-ordinate with the trades affected by the installation.

2 PRODUCTS

2.1 FLASHING MATERIALS

Acceptable materials for flashings are described in NZBC E2/AS1, 4.0. Material, grade and colour as detailed and scheduled. Ensure that materials used for flashings are compatible with the building and cladding materials and their fixings.

2.2 FLASHING FABRICATION

Fabricate flashings generally to NZBC E2/AS1, 4.0, from a ductile grade of metal designed for lateral strength by folding, stiffening or ribbing on external edges, having a maximum un-stiffened width of 300mm. Provide all hooks, hems, kick outs, bird's beaks, stop ends, soft edges and turn downs etc. to NZBC E2/AS1, 4.0, or as shown on the drawings.

2.3 FIXINGS

Rivets, screws, nails and cleats to be compatible with the materials being fastened. Fasteners complying with the corrosion requirements of AS 3566 are suitable for use with ZINCALUME® steel products. Use only low carbon non-conductive sealing washers.

2.4 JOINTS - SEALANTS

Neutral Curing silicone or MS polymer sealant as required, with low resistance to compression and be-able to withstand large temperature variations. MS polymer sealant to be used where the sealant is exposed and the surrounding surfaces are to be subsequently painted or coated.

3 EXECUTION

Conditions

3.1 DELIVERY

Keep flashings dry in transit. Take delivery of flashings in an undamaged condition. Reject all damaged materials.

3.2 STORAGE

Store materials and accessories on a level, firm base, in dry conditions, well ventilated, out of direct sunlight and completely protected from weather and damage. Ensure storage areas are away from current work areas. Cover to keep dry until fixed.

3.3 HANDLING

Avoid distortion and contact with potentially damaging surfaces/substances. Do not drag flashings across each other, or across other surfaces. Protect edges, corners and surfaces from damage.

3.4 SUBSTRATE

Do not commence work until the substrate is of the standard required by the installer for the specified flashings, level and in true alignment.

3.5 PROTECT

Protect surfaces, window and door joinery, and finishes already in place, from the possibility of damage during the installation process.

3.6 CONFIRM LAYOUT

Before commencing work confirm the proposed installation of the flashings and expansion joints and other visual considerations of the finished work.

3.7 CO-ORDINATE INSTALLATION

Co-ordinate installation of flashings with associated trades.

Application

3.8 INSTALLATION

Install flashings in accordance with NZMRM CoP and in compliance with NZBC E2/AS1, 4.0 Flashings. For very high wind zones and where the pitch of the roof is below 15° the flashing joint laps shall be sealed with sealant at each end of the lap to prevent the ingress of water.

Refer to NZBC E2/AS1 Table 7 for general dimensions of flashings.

3.9 FIXINGS

Fix flashings with fasteners appropriate to the situation. For fixing flashings with proprietary brackets or clips ensure they are aligned to allow for movement and are compatible with the flashing material.

Fix screws with the shank perpendicular to the surface of the flashing with the washer fitted firmly against the flashing. Screws to be compatible with the flashing material.

Rivets 'blind' or 'pop' are to be sealed when used. Aluminium rivets are compatible with zinc or AZ coated steel. Monel and stainless steel rivets can be used to fix galvanized steel flashings.

Minimum diameter of rivet to be used is 4.0mm. Drill hole 1mm larger than the rivet size. Seal head of rivet with neutral cured silicone.

3.10 JOINTING - SEALANTS

Clean surfaces to be lapped using a solvent ensuring all traces of the solvent are removed with a clean rag. Apply sealant by gun in a continuous bead of approximately 5mm diameter. Width of sealant when compressed should not exceed 25mm. Sealant joints shall be mechanically fixed for strength. Refer to NZMRM CoP for details.

3.11 FINAL INSPECTION

A final inspection by the installer to take place after completion of the flashing work. Any defects or subsequent damage to be made good.

Completion

3.12 PROTECT

Protect new work from damage.

3.13 REPLACE

Replace all damaged or marked elements.

3.14 LEAVE

Leave work to the standard required for following procedures.

3.15 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 FLASHINGS

Refer to the drawings for location, type, material and finish.

5113G GIB® PLASTERBOARD LININGS

1 GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber walls and ceilings to form:

- standard systems

1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

AWCINZ Association of Wall and Ceiling Industries New Zealand

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

- GIB® Site Guide (Dec 2014)
- GIBFix® Framing System (2016)
- GIB® Rondo® Metal Ceiling Batten Systems
- GIB-Cove®

GreenTag Certification WWLCG001-001-A-2015 - GreenTag™ GreenRate/Level C for:

- GIB® Standard (10mm & 13mm)

Copies of the above literature are available at

Company: Winstone Wallboards

Web: www.gib.co.nz

Telephone: 0800 100 442

Requirements

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

1.5 INSTALLER WORK SKILLS AND QUALIFICATIONS

GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:

- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

Performance

1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

- before applying sealer and
- before applying finish coatings or decorative papers,

so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

2 PRODUCTS

Materials

2.1 GIB® PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.

GIB® Standard plasterboard

2.2 GIB® COVING

GIB-Cove® plasterboard coving. Refer to SELECTIONS for profile and size.

Components

2.3 SCREWS

GIB® Grabber® drywall type screws as follows:

Grabber® type	Used for fixing:
High Thread	GIB Ezybrace® or Standard systems to timber
Self Tapping	Standard systems to light gauge steel or timber
Dual Thread Screws	GIBFix®, GIB Ezybrace®, or Standard systems, to light gauge steel or timber
Wafer Head Needle Tip	Light gauge metal to timber not directly under plasterboard
Pancake Head Drill Tip	Light gauge metal to light gauge metal directly under plasterboard

Refer to GIB® requirements for appropriate details.

2.4 NAILS

GIB® Nails (gold passivated).

Size: 30mm, 40mm

2.5 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims

GIB® Levelline® Tape on Trim

2.6 CONTROL JOINTS

GIB® Rondo® P35 control joints.

GIB® Goldline™ tape-on trims

Accessories

2.7 ADHESIVE

Timber frame

GIBFix® One ultra low VOC water based wallboard adhesive

GIBFix® All-Bond solvent based wallboard adhesive

2.8 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

2.9 JOINTING TAPE

GIB® paper jointing tape.

2.10 GAP FILLER

GIB® Gap Filler ultra low VOC multi-purpose acrylic flexible filler

3 EXECUTION

Conditions

3.1 STORAGE

Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (Dec 2014).

3.2 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE

Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB® plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS 2589**.

3.4 SUBSTRATE

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (Dec 2014).

3.5 TIMBER FRAME MOISTURE CONTENT

Maximum allowable moisture content to AS/NZS 2589 for timber framing at lining: 18% or less for plasterboard linings. Refer to NZBC E2/AS1 and GIB® Site Guide (Dec 2014).

3.6 PROTECTION

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Dec 2014).

Application

3.7 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide (Dec 2014). Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.8 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

3.9 INSTALL COVES

Install to GIB-Cove® literature using GIB-Cove® Bond.

3.10 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature

Finishing

3.11 FINISHING GENERALLY

To GIB® Site Guide (Dec 2014) and AS/NZS 2589.

Completion

3.12 REPLACE

Replace damaged sheets or elements.

3.13 CLEAN DOWN

Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.

3.14 REMOVE

Remove debris, unused materials and elements from the site.

3.15 LEAVE

Leave work to the standard required by following procedures.

4 SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Refer to the drawings for location and type of system to be used.

4.2 GIB® STANDARD SYSTEMS CEILINGS

Refer to the drawings for location and type of system to be used.

Accessories

4.3 GIB® COVE®

To match existing.

6700R RESENE PAINTING GENERAL

1 GENERAL

This section relates to the general matters related to **Resene** painting work.

1.1 RELATED WORK

Refer to 6721R RESENE PAINTING INTERIOR
Refer to 6711R RESENE PAINTING EXTERIOR

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

MPNZA	Master Painters New Zealand Association Inc.
SIPDS	Surface Information & Preparation Data Sheets

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

Health and Safety at Work Act 2015	
AS/NZS ISO 9001	Quality management systems - Requirements
MPNZA	Health and Safety Program

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Resene	Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at www.resene.co.nz)
Resene	Product Data Sheets (hard copy or at www.resene.co.nz)
Resene	Putting your safety first

Copies of the above literature are available from Resene
Telephone: 0800 RESENE (0800 737 363)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal conditions of use against failure referring to the Resene Promise of Quality in the Resene One-Line specifications and product data manual.

Requirements

This painting specification is written based on information available at the time of writing.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Resene coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator's own expertise and judgement an amendment to this specification is required, or where a substrate preparation, or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further.

1.7 QUALIFICATIONS

Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene coating systems and be members of the Master Painters New Zealand Association Inc.

The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

Painters to be selected from the Resene Eco.Decorator programme. The Resene Eco.Decorator programme is designed to recognise a nationwide network of environmentally responsible, quality focussed painting contractors.

Refer to www.resene.co.nz/ecodecorator.htm for a list of Eco.Decorators in your area.

1.8 PRIOR TO WORK COMMENCING

Before any work commences painters should verify, with Architects or specifying authority, that their paint matches a previously supplied standard card or panel. Differently coloured paints will vary in price, opacity and durability. Resene normally only specify two coats of colour but with certain colours, such as yellows and oranges, three coats may be needed. Refer to SELECTIONS for location and type.

1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:

Maintenance guide for Resene paint finishes www.resene.co.nz/comn/services/maintenance.htm.

Provide this information prior to practical completion.

1.10 HEALTH AND SAFETY

Refer to and comply with the requirements of the Health and Safety at Work Act 2015 including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Health and Safety Program.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.11 SAFETY DATA SHEETS

Obtain from Resene (phone 0800 RESENE, or www.resene.co.nz) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

Performance

1.12 RESENE INSPECTION

Permit representatives of Resene to inspect the work in progress and to take samples of their products from site if requested. Resene will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection.

1.13 INSPECTION OF THE WORK

Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made.

Agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2 PRODUCTS

Materials

2.1 MATERIALS GENERALLY

Do not combine paints from different manufacturers in a paint system.

Use only Resene products (which are guaranteed for consistency and performance under AS/NZS ISO 9001 and APAS) prepared, mixed and applied as directed in the Resene One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC and Environmental Choice approved products.

2.2 DARK COLOURS

Darker colours in areas of high sun exposure place significant stress on the coating and substrate. Resene 'CoolColour' technology reduces heat absorption of a wide range of colours. Contact your local Resene Representative or visit www.resene.co.nz for more information or visit www.resene.co.nz/coolcolour. View a list of Resene colours that can be made using Resene CoolColour technology at www.resene.co.nz/colourlibrary.

2.3 THINNERS/ADDITIVES

Use only if and when expressly directed by Resene for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin.

Accessories

2.4 ACCESSORIES

Contact your local Resene ColorShop for a full range of accessories and usage advice.

3 EXECUTION

Conditions

3.1 EXECUTION

To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual.

3.2 TREATED SURFACES

Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.3 ANCILLARY SURFACES

The descriptions of areas in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions before proceeding.

3.4 HARDWARE

Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal.

3.5 PROTECTION

Supply, lay and fix drop sheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

Application - preparatory work

3.6 SURFACE PREPARATION

Refer to the Resene Surface Information & Preparation Data Sheets (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.7 SHARP EDGES, CRACKS AND HOLES

Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness.

3.8 REMEDIAL WORK

If any substrate or surface, that even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

3.9 GAP FILLING

Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers.

3.10 OFF-SITE WORK

Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking. Specific instructions for transport to site to avoid damage to the factory applied paint system may be required particularly for metallic top coat paints.

3.11 PRIMING JOINERY

Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P. treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with Resene TimberLock (see Data Sheet D48) to improve the durability of subsequent coats.

Liberal coat end grain, allow to soak in and then recoat.

3.12 CONCEALED JOINERY SURFACES

Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

3.13 CONCEALED METAL SURFACES

Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

3.14 EXTERNAL DOORS

Prime or seal and paint bottom edges before hanging.

Application - generally

3.15 PAINTING GENERALLY

Comply with the Resene SIPDS Surface Information & Preparation Data Sheets or Resene One-Line specifications and product data manual data sheets and the additional requirements of this work section.

Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

3.16 MIXING

Although generally supplied ready to use, all paints must be thoroughly mixed to lift any settled pigment and ensure the paint is homogeneous.

3.17 ENVIRONMENT

Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews. Avoid painting in direct sunlight any surfaces that absorb heat excessively. As far as possible apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. Resene Hot Weather Additive can be added to most Resene waterborne top coats to extend open time when application is undertaken at elevated temperatures or conditions that will cause rapid loss of water from the applied wet film. Do not apply solvent borne paint if moisture is present on the surface.

3.18 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- Complete surface preparation before commencing painting.
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene.
- Allow the full drying time between coats laid down by Resene.
- Do not expose primers, undercoats and intermediate coats beyond Resene's recommendations before applying the next coat.
- Finish broad areas before painting trim.

- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items.

3.19 APPLICATION

Select brush, roller, or pad and apply coatings to the requirements of Resene to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

3.20 LIGHTLY SAND

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. A more thorough sanding to provide a mechanical key for the new paint system may be required depending upon the condition or age of the existing paint system..

3.21 DEFECTIVE WORK

Correct defective work immediately and recoat as required, following precisely the Resene system being applied. The same applies to transportation damage to site of factory painted items.

3.22 EACH COAT

Each coat of paint and the completed paint system to have the following qualities and properties:

- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, significant brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application.

Completion

3.23 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the Resene Washwise on site 'paint equipment clean-up water' reclamation system to minimise the environmental impact of cleaning paint application tools.

3.24 LEAVE

Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.25 REMOVE

Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.26 REPLACE

Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

3.27 DISPOSAL OF PAINTS AND THINNERS

Note: The use and disposal of paint and thinners represents a significant environmental hazard. Ensure all paint and thinners are disposed of in the following manner:

- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a Resene ColorShop as part of the Resene "Paintwise programme". Contact your local Resene ColorShop for details or view information online at www.resene.co.nz/paintwise.htm.
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or stormwater drains, sinks or into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

3.28 MAINTENANCE

Good maintenance of coating systems involves a routine of regular cleaning as well as regular inspections. Regular inspections of the coating systems are recommended to identify breakdown, accidental damage to or undesirable deterioration of the paint.

Wash down of exterior coatings should be undertaken on an annual basis using Resene Paint Prep and Housewash (see Data Sheet D812).

Refer the Resene Caring for your paint finish brochure and the Resene website, www.resene.co.nz/comn/services/maintenance.htm.

4 SELECTIONS

4.1 SELECTIONS

Refer to 6711R RESENE PAINTING EXTERIOR and 6721R RESENE PAINTING INTERIOR for selections.

6711R RESENE PAINTING EXTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using **Resene** architectural and decorative coating systems.

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6721R RESENE PAINTING INTERIOR for interior paint systems.

2 PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Paint system schedules

Resene exterior paint systems

Exterior timber - new

4.1 RESENE NEW EXTERIOR TIMBER - FACTORY PRIMED

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 2/1
1st coat:	Resene Wood Primer D40, Solvent-borne Primer (NEC)
2nd coat:	Resene Lumbersider D34, Low Sheen Acrylic
3rd coat:	Resene Lumbersider D34, Low Sheen Acrylic

Exterior fibre cement cladding - new

4.2 RESENE NEW EXTERIOR FIBRE CEMENT SOFFITS

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/1
1st coat:	Resene Concrete Primer D405, Acrylic Concrete Primer
2nd coat:	Resene Lumbersider D34, Low Sheen Acrylic
3rd coat:	Resene Lumbersider D34, Low Sheen Acrylic

6721R RESENE PAINTING INTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using **Resene** architectural and decorative coating systems.

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6711R RESENE PAINTING EXTERIOR for exterior paint systems.

2 PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Resene interior paint systems

Plasterboard - new

4.1 RESENE NEW INTERIOR PLASTERBOARD, WALLS - DRY AREAS (LEVEL 4 FINISH)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4967
1st coat:	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen
3rd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen

4.2 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - DRY AREAS (LEVEL 4 FINISH)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4967
1st coat:	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat
3rd coat:	Resene Ceiling Paint D305, Waterborne Flat

Where durable easily cleaned coating is required substitute 2nd & 3rd coats with:

Plasterboard - existing

4.3 RESENE EXISTING INTERIOR PLASTERBOARD, WALLS - DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime:	Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat:	Resene Zylone Sheen D302, Waterborne Low Sheen
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen

4.4 RESENE EXISTING INTERIOR PLASTERBOARD, CEILINGS - DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime:	Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat:	Resene Ceiling Paint D305, Waterborne Flat
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat

Interior timber - new

- 4.5 RESENE NEW INTERIOR TIMBER JOINERY - SKIRTING
To match existing.

Interior timber - existing

- 4.6 RESENE EXISTING INTERIOR TIMBER JOINERY, SKIRTING
To match existing.

7411MA MARLEY RAINWATER DISPOSAL SYSTEMS

1 GENERAL

This section relates to **Marley** rainwater disposal systems.
It includes;

- uPVC spouting and downpipes

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E1/AS1	Surface water
NZBC E2/AS1	External moisture
AS/NZS 4020	Testing of products for use in contact with drinking water

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Marley Rainwater Sales Brochures
Marley Product Catalogue
Marley - Spouting and Downpipe DIY Installation Guide
Marley Stratus Design Series® Sales brochure
Marley Stratus Design Series® - Design and installation guide

Manufacturer/supplier contact details

Company: **Marley New Zealand Limited**
Web: www.marley.co.nz
Email: info@marley.co.nz
Telephone: 0800 MARLEY (0800 627 539)

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier Guarantee:

15 years: Against defects in material and manufacture

- Commence the guarantee from the date of purchase
- Refer to Marley NZ Guarantee available at www.marley.co.nz

Refer to the general section 1237 WARRANTIES for additional requirements.

1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ years: For installation

- When installed to Marley's published installation instructions at time of installation.
- Provide this warranty on the installer/applicator standard form.
- Workmanship warranty to be issued separately by the installer
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS

Installers to be experienced, competent workers familiar with the materials and techniques specified.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified Marley systems, components and associated products listed in this section.

Performance

1.7 TEST

Test the completed Marley rainwater disposal system with water to ensure, spouting is laid to correct fall, that both spouting and downpipes are unobstructed and that no ponding occurs in spouting.

1.8 DESIGN

Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with NZBC E1/AS1.

2 PRODUCTS

Materials

2.1 UPVC SPOUTING/DOWNPipes

Marley uPVC spouting and downpipe systems in white and grey uPVC.

Products

2.2 MARLEY SPOUTING

Marley spouting system, complete with Marley fittings including jointers, brackets, expansion outlets, end caps and corners supplied by Marley. Spouting to be sized to comply with NZBC E1/AS1 and installed to NZBC E2/AS1 8.1.6, **Gutters**. Refer to SELECTIONS for type.

2.3 MARLEY DOWNPipes

Marley downpipe system, complete with Marley fittings including bends, clips, joiners and junctions supplied by Marley. Refer to SELECTIONS for type.

Components

2.4 MARLEY MCS SOLVENT WELDING CEMENT

Only Marley MCS® Solvent Welding Cement to be used in conjunction with the spouting and downpipe systems to manufacturer's instructions. Colour match to spouting or downpipes.

2.5 EXPANSION OUTLET/DROPPERS

Marley expansion outlet/droppers, compatible with spouting and downpipe profile.

2.6 SCREW FIXINGS - TIMBER FASCIA

Stainless steel, grade 304 finish, self tapping screws 6g x 20mm pan head or wafer head.

2.7 NAIL FIXINGS - TIMBER FASCIA

Marley galvanised nails (MCNAILS).

2.8 FABRICATION

Special items can be fabricated by Marley to specific dimensions on request including but not limited to angle flats, angle rakes, outlets and adaptors.

3 EXECUTION

Conditions

3.1 HANDLING AND STORAGE

Handle and store Marley downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Store out of direct sunlight. Refer to Marley installation guides for further details.

3.2 SUBSTRATE

Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT

Make adequate provision in the jointing of the spouting for thermal movement in the length of the spouting by using Marley expansion joiners and/or expansion outlets. Refer to Marley expansion technical information.

3.4 ENVIRONMENTAL

Marley Spouting and Downpipe systems are suitable for most environmental conditions and will never rust, rot or corrode.

3.5 RECYCLING

All Marley manufactured spouting and downpipe systems are 100% recyclable and Marley operates recycling programs with industry suppliers where uPVC pipes can be returned from site for recycling at Marley.

Application

3.6 INSTALL MARLEY SPOUTING

Install to Marley's current published installation instructions available at www.marley.co.nz. Ensure only Marley MCS® Solvent Welding Cement to be used in conjunction with the spouting systems to manufacturer's instructions. From high points fix brackets true-to-line to give a fall of 5mm every 10 metres to outlets. Set spouting brackets at 500mm centres; reduce to 300mm spacing for high wind zones or areas subject to occasional snowfalls. Make adequate provision for thermal movement.

3.7 INSTALL MARLEY DOWNPIPES

Install to Marley's current published installation instructions available at www.marley.co.nz. Ensure that all joints are sealed properly using Marley MCS® Solvent Welding Cement. Assemble downpipes, solvent cement jointed complete, fit to outlets, fix with pipe clips every 1.2 metres, fix pipe clips with 304 stainless steel screws, plumb and discharging into the stormwater gully or pipe inlet to the Marley required practice.

Completion

3.8 REPLACE

Replace damaged or marked elements.

3.9 LEAVE

Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

3.10 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.marley.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

uPVC system - spouting

4.1 MARLEY STRATUS DESIGN SERIES® SPOUTING - TYPHOON®

Manufacturer:	Marley
Profile/type:	Marley Typhoon® half-round
Size:	133mm
Cross section:	6100mm ²
Bracket type:	-
Colour:	TBC to match metal cladding colour

4.2 MARLEY STRATUS DESIGN SERIES® DOWNPIPES

Manufacturer:	Marley
Type:	RP80® downpipe
Profile:	Round profile
Size:	80 mm round
Bracket type:	-
Colour:	TBC to match metal cladding colour

Miscellaneous items

- 4.3 MARLEY DOWNPIPE SPREADERS
- | | |
|---------------|-----------------|
| Manufacturer: | Marley |
| Type: | T spreader |
| Colour: | to match system |

**** APPENDIX**

- 1 Ecoply Barrier BRANZ Appraisal 827 Jan 2014.pdf
- 2 Marshalls SuperStick Branz Appraisal 846
- 3 Marshalls SuperStick Codemark Certificate
- 4 Ramset - TDS03046 - 12mm AnkaScrew Uplift capacity in 100 mm Slab Thickness
- 5 Ramset - TDS03046 - 12mm AnkaScrew Uplift capacity in 100 mm Slab Thickness
- 6 Ramset APG 2013 AnkaScrew Screw In Anchor
- 7 Thermakraft Supercourse 500
- 8 Thermakraft Thermathene Black DPM
- 9 Thermakraft Covertek 405 BRANZ 743
- 10 Thermakraft Covertek 405 Codemark 30030



BRANZ Appraised
Appraisal No. 827 [2014]

**ECOPLY® BARRIER
RIGID AIR BARRIER**



Appraisal No. 827 (2014)

Amended 13 May 2016

BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 The EcoPLY® Barrier Rigid Air Barrier is sealed plywood sheets and tapes designed for use as a rigid wall underlay and air barrier [sheathing] behind cavity wall cladding systems. EcoPLY Barrier is also for use as a wall bracing system to resist wind and earthquake loads on timber framed buildings.

Scope

- 2.1 EcoPLY Barrier has been appraised for use as a rigid wall underlay, air barrier and temporary weather-protecting sheathing on timber framed buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained and vented cavity; and,
 - with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
 - situated in NZS 3604 Wind Zones up to, and including Extra High.
- 2.2 EcoPLY Barrier has also been appraised for use as wall bracing systems for timber framed buildings within the scope of NZS 3604.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 **In the opinion of BRANZ, EcoPLY Barrier, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:**
 - Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. EcoPLY Barrier meets the requirements for loads arising from earthquake and wind [i.e. B1.3.3 (f) and (h)]. See Paragraphs 8.1 - 8.4.
 - Clause B2 DURABILITY:** Performance B2.3.1 (a), not less than 50 years, B2.3.1 (b), 15 years and B2.3.2. EcoPLY Barrier meets these requirements. See Paragraphs 9.1 - 9.3.
 - Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. When used as part of the wall cladding system, EcoPLY® Barrier will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.
 - Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. EcoPLY Barrier meets this requirement and will not present a health hazard to people.
- 3.2 EcoPLY Barrier is an **Acceptable Solution** rigid wall underlay and air barrier material in terms of compliance with NZBC Acceptable Solution E2/AS1, Table 23. This is also an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.
- 3.3 EcoPLY Barrier can be used to satisfy the bracing demand requirements of Section 5 of NZS 3604 which is an NZBC Compliance Document.

Technical Specification

- 4.1 The components and accessories for Ecoply Barrier, which are supplied by Carter Holt Harvey Woodproducts New Zealand are:
- Ecoply Barrier sheets are 7 mm thick, 1197 mm wide and 2440 and 2745 mm long structural plywood, manufactured from radiata pine in accordance with AS/NZS 2269, and H3.2 CCA treated in accordance with AS/NZS 1604.3. The sheets are coated on the front face and four edges with a beige polyester powder coating. Plywood sheets are marked Ecoply Barrier for identification.
 - Ecoply Sealing Tape - 60 mm x 30 m, tape for sheet joints.
 - Ecoply Frame Flashing Tape - 150 mm x 30 m and 200 mm x 30 m.
 - Ecoply Sill Tape - 150 mm x 20 m and 200 m x 20 m.
- Tapes are marked Ecoply and type for identification.
- 4.2 The components and accessories for the Ecoply Barrier, which are supplied by the building contractor are:
- Ecoply Horizontal Jointer - PVC horizontal 'Z' flashing supplied by E2 Flashing Solutions.
 - Fasteners - 50 x 2.8 mm flat head hand-driven nails, hot-dip galvanised or stainless steel. Paslode Impulse 50 x 2.8 mm round head gun-nails. Hot-dip galvanised or stainless steel. Stainless steel nails must be ring shanked.
- [Note: Hot-dip galvanising must comply with AS/NZS 4680 and stainless steel must be Grade 304 or 316.]*
- Bracing panel end stud connection - GIB® HandiBrac® one-piece, 2 mm thick, galvanised-steel angle bracket approximately 95 mm high, 65 mm long and 54 mm wide. The bracket is supplied with 5 Type 17 screws 14 g x 35 mm.
 - Timber floor end stud hold down - 12 mm x 150 mm hot-dipped galvanised coach screws.
 - Concrete floor end stud hold down - cast-in bolts M12 x 150 mm minimum or proprietary fixings with a minimum characteristic strength of 15 kN.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by Carter Holt Harvey Woodproducts New Zealand or the building contractor, whether on or off site, is under the control of the building contractor. Ecoply Barrier plywood sheets must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. The Ecoply Tapes must be protected from damage and weather and stored in clean, dry conditions away from direct exposure to sunlight. uPVC jointers must be protected from physical damage and should be stored flat and under cover.
- 5.2 Other accessories must be stored so they are kept clean, dry and undamaged.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Ecoply Barrier Specification & Installation Guide which must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Ecoply Barrier Specification & Installation Guide and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 Ecoply Barrier is intended for use as rigid wall underlay and air barrier fixed over timber framed walls in order to support wind pressures and to act as a secondary barrier to wind-driven rain. With all joints sealed with Ecoply Tapes no flexible wall underlay is required over the Ecoply Barrier plywood.
- 7.2 Commencing from installation, the Ecoply Barrier including Ecoply Tapes must not be exposed to the weather for more than 90 days.
- 7.3 Ecoply Barrier may be used as a temporary weather protecting sheathing to allow the insulation and internal lining of the building to proceed before the wall cladding is installed. To achieve temporary weathertightness, all joints, internal and external corners of the Ecoply Barrier must be sealed, the roof cladding and soffit linings must be installed, the flexible sill and jamb flashing tape system must be installed around the window and door openings, and the window and door joinery must be installed complete with head flashings and air seals. The timber wall framing must have a maximum moisture content as specified by the internal lining system supplier at the time of the insulation installation and internal lining application.
- 7.4 Ecoply Barrier is suitable for use under wall claddings as a rigid wall underlay as called up in NZBC Acceptable Solution E2/AS1, Table 23 on timber framed buildings. Refer to Table 1.

Table 1: NZBC E2/AS1 Table 23 Requirements

NZBC E2/AS1 Table 23 Rigid Wall Underlay Properties	Property Performance Requirement	Ecoply Barrier Actual Property Performance
Vapour Resistance	≤ 7 MN s/g	2.2 MN s/g
Absorbency	≥ 100 g/m ²	1451 g/m ²
Water Resistance	≥ 20 mm	Pass

Timber Treatment

- 7.5 Timber wall framing behind the Ecoply Barrier must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

- 7.6 Timber framing must be minimum 90 x 45 mm structural grade SG8 and must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170 considering local factors. In all cases studs must be at maximum 600 mm centres. Dwargs must be fitted flush between the studs at maximum 1200 mm centres. *[Note: The timber framing must also be suitable for the selected wall cladding. Refer to the selected cladding system's Technical Literature for specific framing requirements.]*
- 7.7 Timber wall framing where the Ecoply® Barrier plywood sheets are joined must be nominal 50 mm width [i.e. 45 mm minimum finished width].
- 7.8 Timber framing must be kiln dried and as dry as practically possible at the time of the Ecoply Barrier installation.

Ecoply Barrier Set Out

- 7.9 All Ecoply Barrier plywood sheet edges must be fully supported by framing.
- 7.10 Ecoply Barrier must be installed vertically. At the base of the wall the plywood sheets must hang below the bottom plate a minimum of 25 mm, up to a maximum of 40 mm.

Ecoply Barrier Plywood and Cladding Fixing

- 7.11 Ecoply Barrier plywood sheets must be fixed at maximum 150 mm centres around the perimeter of each sheet and at maximum 300 mm centres to intermediate studs. In Extra High Wind Zones, the fixing centres on the intermediate studs must be closed up to maximum 150 mm centres. The fixings are at the same centres regardless of whether the Ecoply Barrier plywood is being used for bracing or not.
- 7.12 The length of the selected wall cladding fasteners must be increased by a minimum of 7 mm to maintain the face load strength of the wall cladding system.

Structure

Mass

- 8.1 The mass of Ecoply Barrier is approximately 4.0 kg/m². This mass must be added to the selected wall cladding system mass when determining the overall wall cladding mass in terms of NZS 3604.

Wind Zones

- 8.2 Ecoply Barrier is suitable for use in all Wind Zones of NZS 3604, up to, and including, Extra High.

Bracing

- 8.3 The bracing units achieved [wind and earthquake] for the Ecoply Barrier are given in Table 2. The Technical Literature gives details of edge and end fixing distances and provides comprehensive construction and panel hold-down details.
- 8.4 The bracing units are derived from the BRANZ P21 test method based on a wall height of 2.4 m. For greater wall heights the bracing rating is calculated by multiplying the appropriate value shown in Table 2 by a factor $f=2.4$ and divided by the wall height in metres. Walls lower than 2.4 m shall be rated as if they were 2.4 m in high.

Table 2: Bracing Ratings for Ecoply Barrier Single Sided Structural Plywood Brace

Specification No.	Minimum Wall Length	Lining Requirements	Bottom Plate Hold-down and Fixing	BUs/m Wind	BUs/m Earthquake
EPBI	0.4 m	Ecoply® Barrier one side	GIB HandiBrac®*	80	95
	0.6 m			95	105
	1.2 m			120	135**
EPBS	0.4 m	Ecoply® Barrier one side	No additional fastening*	60	60
	0.6 m			60	65
	1.2 m			65	70
	2.4 m			80	90
EPBG	0.4 m	Ecoply Barrier one side and 10 mm GIB® Standard plasterboard other side	GIB HandiBrac®	100	115
	1.2 m			150**	150**

Notes:

* Bottom plate fixed in accordance with the requirements of NZS 3604.

** Timber Floors - A limit of 120 BU/m applies to NZS 3604 timber floors.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 16.1 Racking tests were carried out in accordance with BRANZ Technical Paper P21. The earthquake and wind bracing ratings were determined using the evaluation procedures outlined in BRANZ Technical Recommendation No. 10. The test results and laboratory methods have been reviewed by BRANZ and found to be satisfactory.
- 16.2 Testing has been carried out by BRANZ to determine the face load pressure resistance of Ecoply Barrier.
- 16.3 Testing to determine the resistance of Ecoply Barrier plywood to water vapour transmission in accordance with AS/NZS 4200.1 and resistance to water penetration in accordance with AS/NZS 4201.4 has been completed. The results have been reviewed by BRANZ and found to be satisfactory.
- 16.4 The Ecoply Sealing Tape, Frame Flashing Tape and Sill Tape have been tested to BRANZ criteria to assess the tensile strength of control and UV aged material, nail sealability, water resistance of control and UV accelerated aged material and pliability. BRANZ has determined that the tapes are fit for purpose for the intended use. The adhesion to the Ecoply Barrier plywood sheet has also been tested and found to be satisfactory.

Other Investigations

- 17.1 Structural and durability opinions were given by BRANZ technical experts.
- 17.2 An assessment was made of the durability of the Ecoply Barrier Tapes by BRANZ technical experts.
- 17.3 BRANZ expert opinion on NZBC E2 code compliance for Ecoply Barrier was based on evaluation of all details within the scope and as stated within this Appraisal. The details contained within the Ecoply Barrier Specification & Installation Guide have been reviewed and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of Acceptable Solution E2/AS1 for a rigid wall underlay.
- 17.4 Site inspections were carried out by BRANZ to assess the practicability of installation.
- 17.5 The Ecoply Barrier Specification & Installation Guide has been examined by BRANZ and found to be satisfactory.

Quality

- 18.1 The manufacture of the Ecoply® Barrier plywood has been examined by BRANZ, including methods adopted for quality control. Details regarding the composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 18.2 The quality of materials, components and accessories supplied by Carter Holt Harvey Woodproducts New Zealand is the responsibility of Carter Holt Harvey Woodproducts New Zealand. The quality control system for the manufacture of the plywood used for the Ecoply Barrier has been assessed and registered as meeting the requirements of AS/NZS 2269 by the Engineered Wood Products Association of Australasia, Certificate No. 911.
- 18.3 The manufacture of Ecoply Tapes has been examined on behalf of BRANZ, including methods adopted for quality control. Details of the quality and composition of the materials used were obtained and found to be satisfactory.
- 18.4 Quality of installation on site of components and accessories supplied by Carter Holt Harvey Woodproducts New Zealand and the building contractor is the responsibility of the installer.
- 18.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation in accordance with the instructions of Carter Holt Harvey Woodproducts New Zealand.



Sources of Information

- AS/NZS 1170: 2002 Structural design action - General principles.
- AS/NZS 2269: 2008 Plywood - Structural.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
- AS/NZS 4201.4: 1994 Pliable building membranes and underlays - Methods of test - Resistance to water penetration.
- BRANZ Appraisal No. 294 [2011] GIB EzyBrace® Systems 2011.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 [including Amendment 6, 14 February 2014].
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 13 May 2016.

This Appraisal has been amended to update the Ecoply Barrier sheet sizes, add additional Flashing and Sill Tape roll sizes and to add new bracing ratings to Table 2. The Appraisal has also been amended to update the Appraisal Holder's contact details.



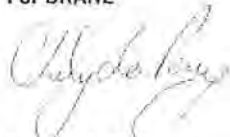
In the opinion of BRANZ, Ecoply® Barrier Rigid Air Barrier is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Carter Holt Harvey Woodproducts New Zealand, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. Carter Holt Harvey Woodproducts New Zealand:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
 - d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by Carter Holt Harvey Woodproducts New Zealand.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Carter Holt Harvey Woodproducts New Zealand or any third party.

For BRANZ



Chelydra Percy
Chief Executive

Date of Issue:
24 January 2014



BRANZ Appraised
Appraisal No. 846 [2013]

SUPER-STICK FLEXIBLE FLASHING TAPE



Appraisal No. 846 (2013)

Amended 29 January 2016

BRANZ Appraisals

Technical Assessments of products for building and construction.



Marshall Innovations Limited

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Greerton

Tauranga

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BRANZ

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Product

- 1.1 SUPER-STICK is a flexible flashing tape used around framed joinery openings as a secondary weather resistant barrier.
- 1.2 SUPER-STICK is installed into and around the framed joinery opening over the building wrap and exposed frame to cover both the face and edge of the opening framing. SUPER-STICK is also used at joinery heads to seal flashing upstands to the building wrap.

Scope

- 2.1 SUPER-STICK has been appraised as a flexible flashing system for use around window and door joinery openings for buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
 - with wall cladding systems complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal that specifies a flexible flashing tape system; and,
 - with wall underlays compatible with the flexible flashing tape; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 SUPER-STICK has also been appraised as a flexible flashing system for use around window and door joinery openings for steel framed buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, with regards to building height and floor plan area; and,
 - constructed with steel framing complying with the NZBC; and,
 - with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
 - with wall cladding systems covered by a valid BRANZ Appraisal that specifies a flexible flashing system; and,
 - with wall underlays compatible with the flashing tape and steel frame; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.

Note: Marshall Innovations Ltd offer SUPER-STICK as a jointing and flashing tape for use with rigid air barrier systems that do not require a flexible wall underlay, but this aspect is outside the scope of this Appraisal. Contact the rigid air barrier system proprietor for system details including recommended jointing and flashing tapes.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, SUPER-STICK, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:
- Clause B2 DURABILITY:** Performance B2.3.1 (b), 15 years and B2.3.2. SUPER-STICK meets these requirements. See Paragraphs 8.1 and 8.2.
- Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. SUPER-STICK contributes to meeting this requirement. See Paragraphs 7.1 – 7.4 and 11.1.
- Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. SUPER-STICK meets this requirement and will not present a health hazard to people.
- 3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance. See Paragraph 7.1.

Technical Specification

- 4.1 SUPER-STICK is a multi-layered silver polyester faced, copolymer, self-adhesive tape. The tape is supplied in rolls of 75 mm X 22.86 m, 150 mm X 22.86 m and 200 mm X 22.86 m.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by Marshall Innovations Ltd, whether on or off site, is under the control of the installer. Rolls must be stored under cover, in clean, dry conditions away from direct exposure to sunlight.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for SUPER-STICK. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 SUPER-STICK meets the requirements of AC148: 2001 which is an alternative solution to the version of AC148 referenced by NZBC Acceptable Solution E2/AS1, Paragraph 9.1.5 (b). The installation method for SUPER-STICK is an alternative solution to the installation method shown within NZBC Acceptable Solution E2/AS1, Figure 72A and 72B.
- 7.2 The use of flexible flashing tape systems around window and door joinery openings is critical to assist the overall weathertightness performance of window and door joinery installations.
- 7.3 SUPER-STICK is suitable for use over flexible wall underlays compatible with the flashing tape in NZS 3604 Wind Zones up to and including Extra High. In the Extra High Wind Zone, the flexible underlay must be installed over a rigid underlay complying with NZBC Acceptable Solution E2/AS1, Table 23.
- 7.4 SUPER-STICK is designed to prevent air leakage and water penetration around window and door openings at framing junctions (e.g. at the sill trimmer and opening stud junction), and to keep any water that gets past the cladding, or through the joinery, from direct contact with the framing timber.
- 7.5 SUPER-STICK is not designed to overcome poor detailing and workmanship of the window or door joinery installation. The system must not be considered in isolation, but be considered as part of the wall cladding system. SUPER-STICK flashing tape is designed to be used in conjunction with air seals and joinery flashing systems, not as a substitute.



- 7.6 When SUPER-STICK is used in conjunction with LOSP (light organic solvent preservative) treated timber, the solvent from the timber treatment must be allowed to evaporate (generally at least one week) prior to the installation of the system.

Durability

- 8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement, and the ability to detect failure of SUPER-STICK both during normal use and maintenance of the building.

Serviceable Life

- 8.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 90 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, SUPER-STICK is expected to have a serviceable life equal to that of the cladding. The maximum exposure period may however be limited by the requirements of the substrate supplier.

Maintenance

- 9.1 No maintenance is required for SUPER-STICK. Regular checks, at least annually, must be made of the junctions between the joinery and wall cladding to ensure that they are maintained weathertight and that the primary means of weather resistance for the junction e.g. flashing, sealant, etc continues to perform its function, to ensure that water will not penetrate the cladding.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to SUPER-STICK from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 11.1 Where a cladding manufacturer specifies the use of generic flashing tapes around window and door joinery openings at framing junctions as part of their system, or they specify the use of flexible flashing tapes that comply with NZBC E2/AS1, Paragraph 9.1.5 (b), SUPER-STICK may be used.

Installation Information

Installation Skill Level Requirements

- 12.1 Installation of SUPER-STICK must be completed by tradespersons with an understanding of flexible flashing systems, in accordance with instructions given within SUPER-STICK Technical Literature and this Appraisal.

General

- 13.1 The selected building wrap must be installed in accordance with the manufacturer's instructions, and must completely cover the joinery opening. The wrap is then cut on a 45° angle away from each corner of the opening so the flaps can be folded into the opening and secured to the interior face of the timber framing.
- 13.2 Before SUPER-STICK is applied, the substrate surfaces must be clean, dry and free from any surface contaminants such as dust and grease that may cause loss of adhesion.
- 13.3 A 75 mm wide x 150 mm long sealing tape 'butterfly' must be installed at 45° across the corner of the jamb/sill junction overlapping the corner by 3 mm to create a seal at the corner junction. A length of SUPER-STICK is then cut to the length of the sill plus 300 mm. The tape is installed flush with the interior face of the opening and is applied along the entire length of the sill and 150 mm up each jamb. The overhanging tape is cut at the corner of the opening to allow the tape to be folded onto the face of the building wrap and "butterfly" installed across the corner. Cut another length of SUPER-STICK the exact length of the sill and overlay onto the already installed Tape to ensure nail sealability requirements are met.

- 13.4 A 300 mm length of SUPER-STICK must be installed 150 mm down the jamb and 150 mm along the lintel at each of the top corners of the window or door joinery opening. A 75 mm wide x 150 mm long sealing tape 'butterfly' must be installed at 45° across the corner of the head/jamb junction overlapping the corner by 3 mm to create a seal at the corner junction.
- 13.5 SUPER-STICK must not be stretched. When joining two sections of tape, the overlap must be 100 mm minimum.
- 13.6 If SUPER-STICK is exposed to the weather or UV light for more than 90 days, it must be replaced with new material.

Installation Temperature

- 13.7 SUPER-STICK must not be installed where temperatures are less than -5°C [Note: Marshall Innovations Ltd approve the installation of SUPER-STICK down to -20°C. This has not been addressed by this Appraisal and is outside its scope.]

Inspections

- 13.8 The Technical Literature must be referred to during the inspection of SUPER-STICK installations.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 14.1 Testing of SUPER-STICK has been completed by BRANZ to the requirements of ICC Evaluation Service Acceptance Criteria for Flashing Materials AC148. The adhesion of SUPER-STICK to black bituminous Kraft building paper complying with the requirements of NZBC Acceptable Solution E2/AS1, Table 23 and selected other synthetic wall underlays have been tested and found to be satisfactory.

Other Investigations

- 15.1 An assessment was made of the durability of SUPER-STICK by BRANZ technical experts.
- 15.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 15.3 The Technical Literature has been reviewed by BRANZ and found to be satisfactory.

Quality

- 16.1 The manufacture of SUPER-STICK has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods basis.
- 16.2 The quality of supply to the market is the responsibility of Marshall Innovations Ltd.
- 16.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and building wraps in accordance with the instructions of the designer.
- 16.4 The quality of installation, handling and storage on site is the responsibility of the installer in accordance with the instructions of Marshall Innovations Ltd.

Sources of Information

- ICC Evaluation Service, Inc, AC148 Acceptable Criteria for Flexible Flashing Materials, July 2001.
- NZS 3604: 2011 Timber-framed buildings.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



Amendments

Amendment No. 1, dated 13 March 2014.

This Appraisal has been amended to increase maximum exposure days and to reduce the minimum application temperature.

Amendment No. 2, dated 29 January 2016.

This Appraisal has been amended to update the roll sizes of SUPER-STICK.



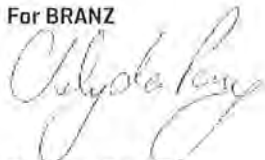
In the opinion of BRANZ, SUPER-STICK is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Marshall Innovations Limited, and is valid until further notice, subject to the Conditions of Appraisal.

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 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. Marshall Innovations Limited:
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 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by Marshall Innovations Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Marshall Innovations Limited or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

23 December 2013

Certificate of Conformity

This is to Certify: **SUPER-STICK Building Tape**

Product Description

SUPER-STICK Building Tape is a cold applied self-adhering flashing tape that utilises a metalized, fibre reinforced, facer film and a high performance copolymer adhesive that is designed to have aggressive adhesion in extreme cold and hot temperatures. It is available in rolls 75, 150 and 200mm wide by 23m long.

Complies with the Building Code of New Zealand:

When used in accordance with the conditions and limitations of this certificate, SUPER-STICK Building Tape will comply with the following NZBC Clauses:

B2 Durability – B2.3.1 (b), B2.3.2 (a)

E2 External Moisture – E2.3.2

F2 Hazardous Building Materials – F2.3.1

Subject to the following conditions and limitations:

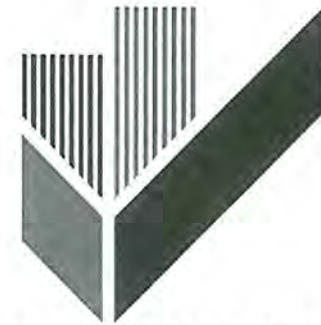
1. Must be installed in accordance with the SUPER-STICK Building Tape Guide Version One November 2015.
2. The scope of this certificate covers the use of SUPER-STICK Building Tape in timber and steel framed buildings:
 - up to 10m in height, and
 - with a risk score less than 20, when evaluated against the E2/AS1 risk matrix, and
 - in wind zones up to extra high as defined in NZS 3604:2011, and
 - in all corrosion zones as defined in NZS3604:2011.
3. Installation at an ambient and substrate temperature of less than -6°C falls outside the scope of this certificate
4. The scope of the certificate covers the use of SUPER-STICK Building Tape with Kraft Building Paper and modern laminated synthetic cloth building wraps. For further information please contact the certificate holder.
5. SUPER-STICK Building Tape may be used as a joint and window sealing tape on rigid air barriers made from plywood, fibre-cement and oriented strand board. Refer to the rigid air barrier manufacturers specifications for tape application to joinery openings and sheet joints.
6. Compatibility with sealants must be assessed prior to use. For further information please contact the certificate holder.
7. Marshall Innovations will notify AsureQuality in accordance with Regulation 15 of the Building (Product Certification) Regulations 2008

Date of Issue 6th January 2016

Certificate Number AQ-010116-CMNZ



John McKay, Chief Executive Officer, AsureQuality Limited



CODEMARK™

Product Use and Scope

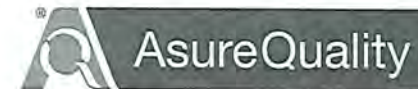
SUPER-STICK Building Tape is a high performance window and door flashing tape.

Certificate Holder

Marshall Innovations
41 Hotuhotu Street, Tauriko
Tauranga
Ph; 0800 776 9727
www.mwnz.com

CodeMark Certification Body

AsureQuality, 11 Hull Road, Mt Maunganui
New Zealand
Tel. 0508 00 11 22
www.asurequality.com



JAS-ANZ



www.jas-anz.com

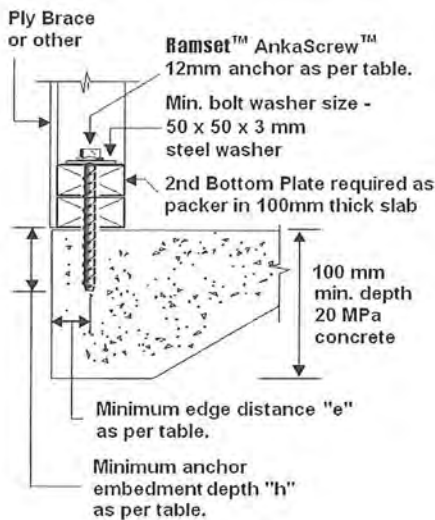
This certificate is issued by an independent certification body accredited by the product certification accreditation body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment (MBIE) under the Building Act 2004. The MBIE does not in any way warrant, guarantee, or represent that the building method or product the subject of this certificate conforms with the New Zealand Building Code, nor accept any liability arising out of the use of the building method or product. The MBIE disclaims, to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages, and costs arising as a result of the use of the building method(s) or product(s) referred to in this certificate. This certificate may only be reproduced in its entirety.

Limit State Uplift Capacity

Ramset™ 12mm AnkaScrew™

Date	13/03/12
Reference	TDS03046

Limit State Design uplift capacity of Ramset™ AnkaScrew™ used in wall frame tie-down connection (ply brace or other).



Tie Down Capacity of Bolts through Timber as per AS 1684.2-1999

Bolt Size	Uplift capacity (kN)					
	Unseasoned timber			Seasoned timber		
	J2	J3	J4	JD4	JD5	JD6
M12	27	27	26	20	16	12



Ramset™ AnkaScrew™

Anchor Type	Part Number	Anchor Size, d_b	Installation details						Uplift Capacity (kN)
			Drilled Hole Diameter (concrete), d_h (mm)	Fixture Hole Diameter (timber), d_f (mm)	Min. Edge Distance, e (mm)	Min. Anchor Spacing, a (mm)	Min Drill Hole Depth, h_1 (mm)	Anchor Embedment Depth, h (mm)	
AnkaScrew™	AS12150GM	12	12	15	120	70	77	71	14.4

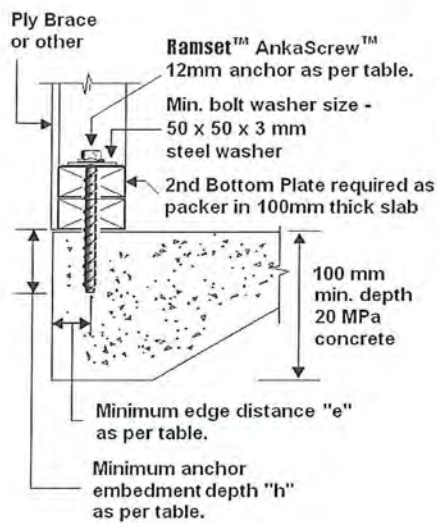
- Note:**
1. Uplift Capacity is based on installation into concrete with 20 MPa concrete compressive strength
 2. Uplift Capacity is based on Strength Limit State Design of the Specifiers Resource Book Edition 3 located in the Mechanical Anchoring Section - pages 195 to 202.
 3. Uplift Capacity is per anchor
 4. Minimum concrete substrate thickness can be $b_m = 100$ mm
 5. For an actual concrete substrate thickness of 100 mm, the 12 mm x 150 mm Galvanized AnkaScrew™ will require a 2nd Bottom Plate as a packer (i.e. Overall Fixture Thickness to be $t = 35 + 35 + 3 = 73$ mm)



Limit State Uplift Capacity Ramset™ 12mm AnkaScrew™

Date	13/03/12
Reference	TDS03046

Limit State Design uplift capacity of Ramset™ AnkaScrew™ used in wall frame tie-down connection (ply brace or other).



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Bolt Size	Uplift capacity (kN)					
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Ramset™ AnkaScrew™

Anchor Type	Part Number	Anchor Size, d_b	Installation details						Uplift Capacity (kN)
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AnkaScrew™	AS12150GM	12	12	15	120	70	77	71	14.4

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Ramset™

ANKASCREW™ SCREW IN ANCHOR

| Removable | Reusable | Medium Tensile and Shear Strength Anchor |

Product Description

The Anka Screw Anchor is a small to medium diameter (rotation setting) medium duty mechanical anchor.

Available in galvanised for exterior applications in a wide range of lengths in M6-M12 sizes (6 - 12mm holes).



Installation Features & Benefits

- Easy and fast to install, remove and reuse
- Flanged head does not sink into soft fixtures making removal easy
- Easy and fast to remove and reuse
- Suitable for installation with impact wrenches
- No protruding metal components to cut off when removed
- Suitable for a wide range of fixture thicknesses

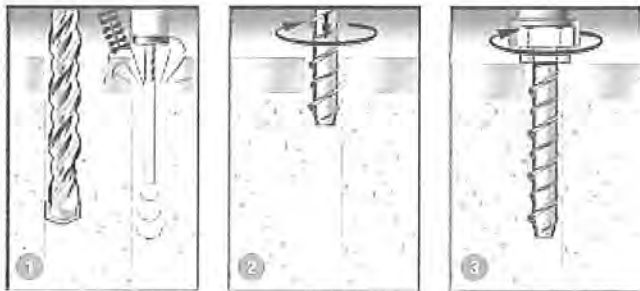
Performance Features & Benefits

- Installation close to concrete edges does not burst the concrete
- Good performance with small edge and anchor spacing distances
- Suitable for a range of fixture thicknesses up to 100mm
- Design allows reuse up to 3-5 times

Principal Applications

- The AnkaScrew is ideal for small to medium load applications where the anchor needs to be installed with small edge distances or anchor spacings. It also has the benefit of being fully removal and reusable
- Meets the 15kN requirement for Proprietary Bracing Systems
- Securing formwork for tilt-up panels
- Securing small machinery
- Fastening into solid brick in lighter duty applications

Installation Procedure



1. Drill hole to correct diameter and depth. Clean thoroughly with brush. Remove debris by way of vacuum or hand pump, compressed air etc.
2. Using a socket wrench, screw the Anka Screw into the hole using slight pressure until the self tapping action starts.
3. Tighten the Anka Screw. If resistance is experienced when tightening, unscrew anchor one turn and re-tighten. Ensure not to over tighten.

Product Options, Dimensions and Installation Information

Part Number	Head Style	Durability Options	Box Qty	Length (mm)	Bolt Dia (mm)	Concrete Hole Dia (mm)	Tightening Torque (Nm)	Socket/Wrench Size AF (mm)	Fixture Clearance Hole Dia (mm)
AS06050GH	Bolt	GR	100	50					
AS06075GH	Bolt	GR	100	75	6	6	25	10	8
AS06100GH	Bolt	GR	100	100					
AS08060GH	Bolt	GR	100	60					
AS08075GH	Bolt	GR	100	75	8	8	40	12	10
AS08100GH	Bolt	GR	100	100					
AS10060GH	Bolt	GR	50	60					
AS10075GH	Bolt	GR	50	75	10	10	60	14	12
AS10100GH	Bolt	GR	50	100					
AS10150GH	Bolt	GR	25	150					
AS12075GH	Bolt	GR	50	75					
AS12100GH	Bolt	GR	25	100	12	12	80	17	15
AS12150GH	Bolt	GR	20	150					

Independent Appraisal



Tension Zone



Cyclic Loads



Shock Load



Fire Applications



Pull Down



Close Spacings



Water System



Chemical Creep Tested



Zinc Plating



Galvanised Plating





Ramset™

ANKASCREW™ SCREW IN ANCHOR

| Removable | Reusable | Medium Tensile and Shear Strength Anchor |

Performance Information



IF YOUR DIMENSIONS ARE LESS THAN THE TABLED "DIMENSIONS TO ACHIEVE CAPACITIES"
Refer to Ramset Specifiers Anchoring Resource Book for the performance values.
Or scan QR Code to link to the Specifiers Anchoring Resource Book.



Part Number	Installation (mm)		Dimensions to Achieve Capacities (mm)			Tensile Capacity ϕN_{uc} (kN)		
Part Number (Bolt Dia)	Fixture Thickness	Hole Depth	Min Concrete Thickness	Min Anchor Edge Distance	Min Anchor Spacing	20 MPa Concrete	32 MPa Concrete	40 MPa Concrete
AS06050GH (M6)	5	57	82	24	48	5.8	6.9	7.4
	10	52	77	24	48	5.1	6.0	6.5
	20	42	67	24	48	3.7	4.3	4.7
AS06075GH (M6)	5	82	107	24	48	9.6	11.3	12.3
	20	67	92	24	48	7.3	8.6	9.3
	45	42	67	24	48	3.7	4.3	4.7
AS060100GH (M6)	5	107	132	24	48	13.6	16.1	17.4
	45	67	92	24	48	7.3	8.6	9.3
	70	42	67	24	48	3.7	4.3	4.7
AS08060GH (M8)	5	71	96	32	64	8.3	9.8	10.6
	10	66	91	32	64	7.3	8.6	9.3
	20	56	81	32	64	5.5	6.4	7.0
AS08075GH (M8)	5	86	111	32	64	11.4	13.4	14.5
	20	71	96	32	64	8.3	9.8	10.6
	35	56	81	32	64	5.5	6.4	7.0
AS080100GH (M8)	5	111	136	32	64	16.9	20.0	21.6
	35	81	106	32	64	10.3	12.2	13.1
	60	56	81	32	64	5.5	6.4	7.0
AS10060GH (M10)	5	75	100	40	80	9.0	10.6	11.4
	10	70	95	40	80	7.9	9.3	10.0
AS10075GH (M10)	5	90	115	40	80	12.6	14.8	16.0
	10	85	110	40	80	11.3	13.4	14.5
	25	70	95	40	80	7.9	9.3	10.0
AS10100GH (M10)	5	115	140	40	80	19.3	22.8	24.6
	25	95	120	40	80	13.9	16.3	17.7
	50	70	95	40	80	7.9	9.3	10.0
AS10150GH (M10)	5	165	190	40	80	34.9	41.1	44.5
	50	120	145	40	80	20.7	24.4	26.4
	100	70	95	40	80	7.9	9.3	10.0
AS12075GH (M12)	5	94	119	48	96	14.0	16.6	17.9
	15	84	109	48	96	11.2	13.2	14.3
AS12100GH (M12)	5	119	144	48	96	21.9	25.9	28.0
	20	104	129	48	96	17.1	20.1	21.8
	40	84	109	48	96	11.2	13.2	14.3
AS12150GH (M12)	5	169	194	48	96	40.7	47.9	51.8
	45	129	154	48	96	25.4	29.9	32.4
	90	84	109	48	96	11.2	13.2	14.3

Stainless Steel

Floor Applications

Wall Applications

Overhead Applications

Dry Holes

Damp Holes

Flooded Holes

Hollow Substrates

Hammer Drill

Cored Holes

Through Fixed

Fully Removable





BRANZ Appraised

Appraisal No. 329 [2016]

SUPERCOURSE 500 DAMP-PROOF COURSE AND CONCEALED FLASHING

Appraisal No. 329 [2016]

This Appraisal replaces BRANZ
Appraisal No. 329 [2005]

Amended 23 February 2017



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Supercourse 500 is a single layer black polyethylene, embossed on both faces to produce a small diamond pattern. It is for use as a general damp-proof course (DPC), and also as a concealed flashing for masonry veneer cladding.

Scope

- 2.1 Supercourse 500 has been appraised for use as a damp-proof course for separating timber, wood-based products and metal from concrete, masonry or clay brick in accordance with NZS 3604.
- 2.2 Supercourse 500 has also been appraised for use as a damp-proof course and flashing in masonry veneer walls in accordance with NZBC Acceptable Solution E2/AS1.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Supercourse 500 Damp-Proof Course and Concealed Flashing, if used, designed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (a), not less than 50 years and B2.3.2. Supercourse 500 meets these requirements. See Paragraph 8.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2 and E2.3.3. When used as a flashing as part of a masonry veneer cladding system, Supercourse 500 will contribute to meeting the requirements of E2.3.2. When used as a DPC, Supercourse 500 will meet the requirements of E2.3.3. See Paragraphs 11.1 and 11.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Supercourse 500 meets this requirement and will not present a health hazard to people.

- 3.2 This is an Appraisal of an **Alternative Solution** DPC in terms of the New Zealand Building Code compliance. This is also an Appraisal of an **Acceptable Solution** flashing when used behind masonry veneer in accordance with NZBC Acceptable Solution E2/AS1.