Region of Peel
working with you

Wednesday, November 27, 2024

DOCUMENT - 2024-346P

Construction of the Docksteader Peel Region Paramedic Services Reporting Station

ADDENDUM 3

Number of Pages: 12 plus the following,

- Division 1, General Requirements, Section 02 21 00, Cash Allowance, Attached Addendum 3
- Division 23, Heating Ventilation and Air Conditioning, Section 02 23 81 10 – Air Source Heat Pump, Attached Addendum 3
- Appendix A, Acceptable Manufacturers List, Attached Addendum 3
- A011 – Site Plan issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3
- A041 – Exterior Building Assemblies, Symbols & Annotations issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- A054 – Shade Screen Schedule issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- A303 – Partial Elevations issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- A304 – Enlarged Elevations issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 2.
- A451 – Wall Sections issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- A452 – Wall Sections issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

- A453 – Wall Sections issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- A650 – Interior Section Details issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- A703 – Stair Details issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.
- M203 – Level 2 – Plumbing and Drainage Plan – West issued under title Issued for Addendum 3, dated November 27th, 2024, Revised Addendum 3.
- M803 – HVAC Details issued under title Issued for Addendum 3, dated November 27th, 2024 Revised Addendum 3.
- L102 – Planting Plan issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024 Revised Addendum 3.

Referring to the above Document 2024-346P - Construction of the Docksteader Peel Region Paramedic Services Reporting Station, please note the following revisions to the Closing Date:

Bidders are advised that the Bid Closing Date has been changed. Please refer to the Bid Details page through the Agency's Bidding System at peelregion.bidsandtenders.ca for the revised Bid Closing Date. Bidders shall note that the Bid Closing Date as stated on the Bid Details page of the Agency's Bidding System shall take precedence at all times and that any subsequent changes to the Bid Closing Date may not be captured through Addendum.

It is the sole responsibility of the Bidder to ensure their Bidder Submission is received by the time and date specified within the Agency's Bidding System.

Referring to the above Document 2024-346P - Construction of the Docksteader Peel Region Paramedic Services Reporting Station, please note the following Modifications to the Specifications:

1. **Delete:** Division 1, General Requirements, Section 02 21 00, Cash Allowance in its entirety.

   Replace With: Division 1, General Requirements, Section 02 21 00, Cash Allowance, Revised Addendum 3.

2. **Delete:** Division 10, Specialties, 10 26 23 – Protective Wall Covering in its entirety.

3. **Delete:** Division 23, Heating Ventilation and Air Conditioning, Section 02 23 81 10 – Air Source Heat Pump in its entirety.

   Replace With: Division 23, Heating Ventilation and Air Conditioning, Section 02 23 81 10 – Air Source Heat Pump, Revised Addendum 3.

4. **Delete:** Appendix A, Acceptable Manufacturers List in its entirety.

   Replace With: Appendix A, Acceptable Manufacturers List, Revised Addendum 3.

Referring to the above Document 2024-346P - Construction of the Docksteader Peel Region Paramedic Services Reporting Station, please note the following Modifications to the Drawings.

1. **Delete:** A011 – Site Plan issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A011 – Site Plan issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

2. **Delete:** A041 – Exterior Building Assemblies, Symbols & Annotations issued under title Issued for Tender Addendum No. 2, dated November 12th, 2024 in its entirety.

   Replace With: A041 – Exterior Building Assemblies, Symbols & Annotations issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

3. **Delete:** A054 – Shade Screen Schedule issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A054 – Shade Screen Schedule issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

4. **Delete:** A303 – Partial Elevations issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A303 – Partial Elevations issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

5. **Delete:** A304 – Enlarged Elevations issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

Replace With: A304 – Enlarged Elevations issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 2.

6. **Delete:** A451 – Wall Sections issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A451 – Wall Sections issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

7. **Delete:** A452 – Wall Sections issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A452 – Wall Sections issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

8. **Delete:** A453 – Wall Sections issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A453 – Wall Sections issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

9. **Delete:** A650 – Interior Section Details issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

   Replace With: A650 – Interior Section Details issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

10. **Delete:** A703 – Stair Details issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

    Replace With: A703 – Stair Details issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024, Revised Addendum 3.

11. **Delete:** M203 – Level 2 – Plumbing and Drainage Plan – West issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

    Replace With: M203 – Level 2 – Plumbing and Drainage Plan – West issued under title Issued for Addendum 3, dated November 27th, 2024, Revised Addendum 3.

12. **Delete:** M803 – HVAC Details issued under title Issued for Tender, dated September 23rd, 2024 in its entirety.

    Replace With: M803 – HVAC Details issued under title Issued for Addendum 3, dated November 27th, 2024 Revised Addendum 3.

13. **Delete:** L102 – Planting Plan issued under title Issued for Tender Addendum No. 2, dated November 12th, 2024 in its entirety.

    Replace With: L102 – Planting Plan issued under title Issued for Tender Addendum No. 3, dated November 27th, 2024 Revised Addendum 3.

Referring to the above Document 2024-346P - Construction of the Docksteader Peel Region Paramedic Services Reporting Station, please note the following responses to questions raised:

Question 1:

Can you please confirm, for the signage, I found exterior details on A305, A304, A804, however, I see signage on A803 /17- level 2 training room, can you confirm where the details are for this sign or if its in the scope.

Also, for Cash Allowance, 10 21 00 states Signage and Wayfinding, however, I do not see any wayfinding in the drawings. Please confirm if there are any in scope.

Answer 1:

Design drawings for Signage and Wayfinding to be provided following award of project. Bidders to carry Cash Allowance stated in 10 21 00 for this scope of work.

Question 2:

We request to move the divisional breakdown schedule to supplementary bid submission within 24 hours from the tender closing. As you know, the most of the subcontractors will be submitting their quotes within the last hour of closing due and this will help the general contractors to manage and submit their tenders properly.

Answer 2:

The divisional breakdown will be required only from the awarded Vendor, the pricing has been revised to a total Stipulated Price for the project.

Question 3:

The Plumbing Fixture Schedule shown on drawing M901 is incomplete, please provide makes and models for the following Tags; WC-1, WC-2, SH-1, SH-2, SH-3, EMS-1, EW-1 & FT-1.

Answer 3:

Please refer to Tender Addendum No. 2 and documents issued as part of Tender Addendum No. 3.

Question 4:

Please provide missing specification 11 41 23 for walk-in coolers and freezers.

Answer 4:

Please refer to Tender Addendum No. 2.

Question 5:

There are two hatch marking on the landscape plans L102 that are not in key. Can you please confirm what they are? Please see link below for snapshots: https://tmci.egnyte.com/dl/HBderNx6Kw/Q4_-_LANDSCAPPING_DRAWINGS_L102.docx_

Answer 5:

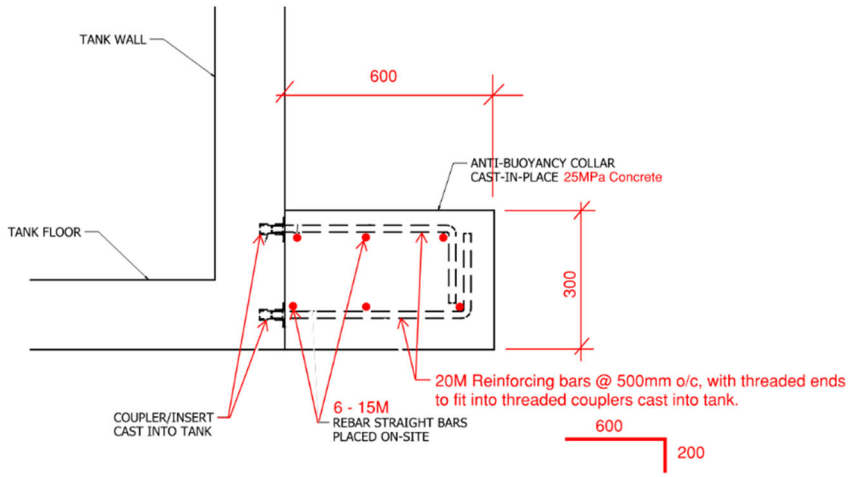
All perennials are hatched, rather than shown as circles. The perennial hatches correspond to a plant key, however revised plant schedules have been provided for clarity in documents issued as part of Tender Addendum No. 3. These plant schedules show the corresponding hatch for each perennial. The cross hatch (X) is a blend of Allium x 'Millenium' and Sporobolus heterolepis within the same space.

Question 6:

Is there a design for the concrete stormwater tank and the concrete irrigation tank?

Answer 6:

Bidders are to supply their own design, whether precast or a cast-in-place structure, ensuring the design meets the technical requirements outlined in the contract drawings and specifications. A detail for an anti-buoyancy collar is attached for bidding purposes only and will still need to be reviewed as part of the tank design. Please also refer to Tender Addendum No. 2.



STANDARD ANTI-BUOYANCY COLLAR DETAIL

Question 7:

In the Communications Elevation detail 2/T-401, it shows 2U AVAYA G430 (BY DIV27) Please confirm by Communications Contractor.

Answer 7:

Yes, to be provided by the Communications Contractor.

Question 8:

In the Communications Elevation detail 2/T-401, it shows 1U VERACITY FV_VLS1U(BY DIV 27) Please confirm by Communications Contractor.

Answer 8:

Yes, to be provided by the Communications Contractor.

Question 9:

In 2/T-401, there is a discrepancy regarding the cable types on the riser diagram. (1) GEL-FILL OUTDOOR CAT 6 CABLE (BY DIV.27) conflicts with (1) HYBRID CABLES (BY DIV.27). Please clarify.

Answer 9:

For Data drops more than 90m distance, hybrid cables are used, while the ones within distance outdoor CAT 6 cables are used. Please refer to Sheet T-101.

Question 10:

We would ask that Advanced Energy Management Ltd be allowed to use Honeywell and/or Reliable Controls in place of Alerton in Appendix A as it relates to BAS.

Answer 10:

Alternatives will NOT be considered prior to contract award. The awarded bidder may submit alternatives for review in accordance with the Contract and the final decision on the use of any alternatives will be at the discretion of the Consultant and the Agency.

Question 11:

Please refer to Section 01 21 00, Cash Allowances. The Refueling Station Canopy shows an allowance of $400,000.00, but on page 95 of the RFP document, it indicates $50,000.00. Could you please confirm which amount is correct?

Answer 11:

Please refer to revised Specification Section 01 21 00 issued as part of Tender Addendum No. 3.

Question 12:

The specification in Section 10 26 23 refers to protective wall covering; however, we couldn't locate any corresponding details in the drawings. Could you please clarify the location(s) and type of protective wall coverings required?

Answer 12:

This product is no longer being used and abuse / impact resistant gypsum board used in its place. Specification Section 10 26 23 is being deleted as part of Tender Addendum No. 3, and please refer to revised Specification Section 09 21 16 and revised detail 1 on drawing A650 issued as part of Tender Addendum No. 3.

Question 13:

The drawing stated 13mm coverboard and on the specs it is stating to use SopraRock DD Plus (this product comes at 2.0"- 6.0" thickness)
Please clarify the product to use for the coverboard?

Answer 13:

Please refer to Tender Addendum No. 2.

Question 14:

The spec specified Detec's TruGround conductive primer in order to enable ELD (electronic leak detection) testing. Unfortunately, TruGround is not compatible with Soprema's SopraRock DD Plus. TruGround would need to be applied to an asphaltic board such as Soprema's Sopraboard in order to be compatible.
Can we use Internation Leak Detection (ILD) in Lieu of Detec System. Laying down a wire mesh under the base sheet membrane to properly test for leak?

Answer 14:

Please refer to Tender Addendum No. 2.

Question 15:

Roof type R1 requires insulation (INS-2) which is Polyisocyanurate . Specification 07 52 16 is calling for Minimum RSI (R) value : 1 per 25 mm (5.7 per 1 inch) however, Insulation Type Schedule shown on A041 is asking for R4.7 per 25.4 mm. Please confirm which one to proceed with to determine the insulation thickness.

Answer 15:

Please refer to revised drawing A041 issued as part of Tender Addendum No. 3, which has been revised to indicate R Value of 5.7/Inch as provided in Specification Section 07 52 16.

Question 16:

Referencing 7/A703, mentioned to check structural drawings for stringer detail for stair B.,D & E. Structural drawing is not provided any information on this. Please advise.

Answer 16:

Please refer to revised detail 7 on drawing A703 issued as part of Tender Addendum No. 3.

Question 17:

Drawing 3/A303 mentions 6mm galvanized steel plate solar wall trim, but the drawing A054 shade screen schedule not shown this 6mm plate anywhere. Please clarify.

Answer 17:

Please refer to revised detail 3 on drawing A303 issued as part of Tender Addendum No.3. Reference to 6mm galvanized steel plate on 3/A303 has been revised to 8mm galvanized steel, as appears in A054.

Question 18:

Drawing 4/A054 refers to structural drawing for framing detail of SS04 solar screen wall, but the structural drawings not shown these details. please advise.

Answer 18:

Please refer to revised detail 4 on drawing A054 issued as part of Tender Addendum No.3. Note on 4/A054 revised for clarity to “Refer to Structural for Types and Sizing.” Framing details to be coordinated through shop drawings after tender award.

Question 19:

Slab on Grade assemblies shows no concrete topping for SOG1 and 150mm topping for SOG2 on architectural drawing A041, but the structural drawing S201 indicated 125mm topping for SOG1 and 75mm for SOG2 & SOG3. please review and clarify on discrepancies.

Answer 19:

Please refer to updated SOG assemblies on drawing A041 issued as part of Tender Addendum No.3. Structural changes will be issued as part of a forthcoming addendum.

Question 20:

Refer to drawing 3/A304, please provide specifications and details for aircraft cable climbing plant trellis and 40x100mm pre-painted aluminum extrusion above staff entrance canopy.

Answer 20:

Please refer to revised detail 9 on drawing A304 issued as part of Tender Addendum No.3 for aluminum extrusion sizing and mounting. Specification for cable trellis to follow as part of Tender Addendum No. 4.

Question 21:

Drawing A011 indicated Overhead Entry Canopy at visitor entrance but there are no reference on architectural or structural drawings. Please clarify.

Answer 21:

Please refer to updated drawing A011 issued as part of Tender Addendum No.3. Canopy note no longer applies and has been removed.

Question 22:

The architectural drawing 5/A451 shows a combination of bent plate and angle iron assemblies at the boundaries of areas with concrete topping. However, the structural drawings, such as 4/A703, indicate a one-piece bent plate for the same locations. Could you please confirm which set of drawings should be followed?

Answer 22:

Please refer to structural drawings and specifications to determine structural deck details and requirements. Architectural drawings on A451, A452, and A453 have been revised to align with structural and are issued as part of Tender Addendum No.3.

Question 23:

Could you please clarify whether the cabling for the Audio Visual scope of work is included in the communication cabling or part of the cash allowance?

Answer 23:

All data drops for AV shall be included in the communication cabling.

Question 24:

We wish to request an extension to the closing date.

Answer 24:

The Closing Date has been extended to **12:00 p.m. Eastern Standard Time, Monday, December 16, 2024**

Question 25:

The closing hour of 12noon is too early in the day to sufficiently close a tender of this size. All subtrades and suppliers release bids only on day of tender closing and commonly tenders close in the afternoon at 2pm, or 3pm, or 4pm, giving time for trades and suppliers to submit bids, and giving time for general contractor to review bids. Kindly revisit the closing time and extend it to the afternoon.

Answer 25:

Refer to the response to Question 24 above. The closing time will remain at 12:00 p.m. Eastern Standard Time.

Question 26:

Refer to Sections 28 49 00 and 28 51 00 (Code Blue Systems). We couldn't locate any corresponding requirements in the drawings. Could you please advise?

Answer 26:

It is for the Entrance vestibule 103

Mario MacGlashan
Procurement Advisor

1 . GENERAL

1.1 Cash Allowances

1.1.1 Include in Contract Price specified cash allowances.

1.1.2 Cash allowances, unless otherwise specified, cover net cost to Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation and other authorized expenses incurred in performing Work.

1.1.3 Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.

1.1.4 Disbursements from Cash Allowances shall be authorized by Consultant in writing and by Change Order.

1.1.5 Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.

.1 Where costs under a cash allowance exceed the amount of the allowance, unexpended amounts from other cash allowances may be reallocated to cover the shortfall.

1.1.6 Extend to Owner refunds, trade and quantity discounts which may be received in purchasing under Cash Allowances, except cash discounts for prompt payment.

1.1.7 Include progress payments on accounts of work authorized under cash allowances in Consultant's monthly certificate for payment.

1.1.8 Prepare schedule jointly with Consultant and Contractor to show when items called for under cash allowances must be authorized by Consultant for ordering purposes so that progress of Work will not be delayed.

1.1.9 At Consultant’s request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.1.10 Purchase products and systems selected by Consultant from the designated supplier.

1.1.11 Submit invoices, summary statements or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.1.12 Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

1.1.13 Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.1.14 Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

.1 If requested by Consultant, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.1.15 Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

1.1.16 Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

1.1.17 Schedule of Cash Allowances: Provide cash allowances as follows:

No.	Cash Allowance Description	Amount
	FF&E Cafeteria / Servery Appliances: - Two (2) Traulsen G-Series Solid Door, 2 Section Refrigerators - Two (2) Miele G5006 U Active Dishwashers Laundry Equipment - 1 x Tumble Dryer, UNIMAC Model# UT075NDNONBA3W0000. - 1 x Washer Extractor, UNIMAC Model# UWNO65T3LXU4001. - 1 x Firefighters PPE drying cabinet, UNIMAC, Model# UTGC6EDG4501W01. - 1x Georgia Steel & Chemical Co., Inc, Respirator washer, Model# GS5000. Two (2) Ceiling Fans - Big Ass Fans Powerfoil X4	$600,000.00

No.	Cash Allowance Description	Amount
	Forklift Equipment - Raymond - Two (2) Raymond Universal Stance Deep-Reach Trucks, Model 7500 DR32TT with two (2) Enersys 18-E125D-15 batteries,two (2) FLT-KBP18Y & PSI-829157 battery accessories and two (2) Enersys NIP3-HL-4CI chargers for each truck. - Two (2) Bravi Sprint Man-up Orderpickers - One (1) Raymond 8210 Pallet Truck Model 8210-TF45L 48`x 27`, with Bilingual Decals, Standard Warranty Coverage and one (1) Stryten PalletPro Maintenance-Free Battery-Pack (Model M900004S24ELEG)	$200,000.00
	Racking/Spider Shelving – Metric Storage Systems - Sixty-Four (64) Bays Closed Spider Shelving 48"W X 24"D X 147"H - Each bay of racking has 13 shelves and base delivery and installation	$55,000.00

No.	Cash Allowance Description	Amount
	Pick Stations – Metric Storage Systems - four (4) wb1 cabinets - 144"w x 30"d Rousseau cabinets w/ 2" s/s base , top leveling glides, 2 x 60"w cabinets w 2 x 12"h drawers & painted plastic bin panels - four (4) wb1 garbage cabinets - 84"w x 40"d x 52"h garbage cabinet with custom 12" Hole is s/s top with 1 garbage drawer, systems: - five (5) wb1 cabinets - 60"w x 40"d x 52"h cabinets with 2" s/s base, top leveling glides, 2 x 60"w x 12"h drawers & painted plastic bin panels - three (3) wb2 cabinets - 108"w x 40"d x 81"h cabinet with s/s top , 2 x 4" 1 x 10",1 x 12" drawers - power fee - one (1) wb2 cabinet + leg - 108"wide x40"dx76"high cabinets w/ 2" s/s base, top Leveling glides, 2 x 60"w , 2 x 4", 1 x 10" , 1 x 12`` drawers & 1 x powerfeed and plastic bin panels - one (1) wb3 garbage cabinet - 84"w x 40"d x 56"h cabinet with custom 12" hole in s/s top with 1 garbage drawer, 1 x open leg and painted plastci bin panel, 3 x power feed - one (1) wb3 cabinet - 60"w x 40"d Rousseau cabinets w/ 2" s/s base, top leveling glides, 1 x 60"w cabinet with 2 x 12" drawers, 1 x open leg , 2 x power feed, painted Plastic bin panel. Over head cabinets - delivery and installation	$105,000.00

No.	Cash Allowance Description	Amount
	(PALETTE PICK) Palette Racking - Metric Storage Systems - 65 bays of pallet racking as per design, 100" wide x 37' tall with 5 beam levels per bay with wire mesh decks in all skid locations. - Included safety fencing between double deep bays and single bay. 54 x 12"" high floor mounted post guards, 8 x cross aisle guards for single run of racking on east wall, all hardware - Engineered stamped drawings for building permitting - Delivery and installation - Delivery, rental and pickup of scissor lifts and forklifts	$170,000.00
	Refueling Station Canopy above grade - Refer to drawings for details.	$50,000.00
	Signage + Wayfinding	$200,000.00
	Cardboard Baler - MDA Compaction Bullpak 1050 Vertical Baler - 600-208v, 3 phase, 10hp motor - Bale full light - Bale ties (1 bundle) - Auto eject and wire guides - Electrical disconnect on panel - Delivered and installation At Region of Peel - 1 year warranty labour, 2 year on parts, 3 year on structure - (6) semi-annual PM’s included with purchase	$35,000.00
	Inspection and Testing, Including Tab Balancing	$500,000.00
	AV Equipment and Implementation	$500,000.00
	TOTAL OF CASH ALLOWANCES	**$2,065,000.00**

2 . PRODUCTS

2.1 Not Used

3 . EXECUTION

3.1 Not Used

END OF SECTION

1 . GENERAL

1.1 General Instructions

1.1.1 Read and conform to: The general provisions of the Contract, including General and Supplementary Conditions; and the requirements of Division 01 Specifications and any additional documents referred to in this Section.

1.2 Summary

1.2.1 Provide labour, materials, products, equipment and services to complete the Gypsum Board Assemblies work specified herein. This includes, but is not necessarily limited, to:

.1 Interior gypsum board.

.2 Exterior gypsum board for ceilings and soffits.

.3 Gypsum board shaft wall assemblies.

.4 Non-load-bearing steel framing.

.5 Tile backing panels.

.6 Trim accessories.

.7 Joint treatment materials.

.8 Auxiliary materials.

1.2.2 Related Requirements: Specifications throughout all Divisions of the Project shall be read as a whole, and may be directly applicable to this Section.

.1 Related requirements provided below are for convenience purposes only.

.1 Section 06 16 00, Sheathing for gypsum sheathing for exterior walls.

.2 Section 09 30 00, Tiling for cementitious backer units installed as substrates for ceramic tile.

1.3 References

1.3.1 Reference Standards: Unless otherwise indicated in this Section or the Building Code, the latest published editions of reference standards as of the Project's Bid Closing deadline apply. Refer to Section 01 42 19 for list of standards used in Specifications.

1.4 Definitions

1.4.1 Steel Thickness:

.1 Base Steel Thickness: Thickness of bare steel exclusive of coatings.

.2 Design Thickness: Target or "nominal" thickness used to determine structural properties of the cold formed Products.

.3 Minimum Thickness: Design thickness minus minimum allowable under-tolerance required by CSA S136 (95% of design thickness) or material specification; whichever is more stringent.

.4 Designation Thickness: For the purposes of this specification; thicknesses provided will be minimum base steel thicknesses in accordance with CSA S136 and determined by the following table:

Designation Thickness	Minimum Base Steel Thick-ness		Gauge No. (For reference Only)	Colour
(mils)	(in)	(mm)	Ga	
18	0.0179	0.455	25	Not Painted
33	0.0329	0.836	20	White
43	0.0428	1.087	18	Yellow
54	0.0538	1.367	16	Green
68	0.0677	1.72	14	Orange

1.5 Administrative Requirements

1.5.1 Coordination:

.1 Coordinate installation of anchorages and steel weld plates and angles for casting into concrete. Supply setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.5.2 Preinstallation Meetings: Conduct preinstallation meeting at Place of the Work prior to installation. Review requirements of Contract Documents and coordination requirements with other trades.

1.6 Action Submittals

1.6.1 Product Data: Submit product data in accordance with Division 01 for each type of product.

.1 Submit manufacturer's instructions, printed product literature and data sheets for the Gypsum Board Assemblies work and include product characteristics, performance criteria, physical size, finish and limitations.

1.6.2 Samples: Submit samples in accordance with Division 01 for the following products:

.1 Trim Accessories: Full-size Sample in 300-mm- (12-inch-) long length for each trim accessory indicated in Contract Documents.

.2 Textured Finishes: Manufacturer's standard size for each textured finish indicated in Contract Documents and on same backing for Work.

1.6.3 Professional Engineer's Stamped Shop Drawings and Submittals: Submit Professional Engineer's Stamped Shop Drawings and Submittals bearing Professional Engineer's seal and signature for all gypsum board assemblies 3m (9.8 ft) and over in height, and Products in this Section requiring engineering design. Include accompanying analysis data demonstrating compliance with performance requirements and design criteria.

1.7 Informational Submittals

1.7.1 Evaluation Reports: Submit evaluation reports in accordance with Division 01 for shaft wall assemblies and firestop tracks, from BMEC, CCMC, or equivalent to ICC-ES.

1.8 Quality Assurance

1.8.1 Steel Fabricator's Qualifications: Provide steel framing members from fabricator who can produce Products to meet requirements specified in this Section, and who is a member in good standing with the Canadian Sheet Steel Institute (CSSBI) or similar organization that provides verifiable code compliance program (e.g. Steel Framing Industry Association).

1.8.2 Mockups: Before beginning gypsum board installation, install mockups of at least 9 sq. m (100 sq. ft.) in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

.1 Install mockups for the following:

.1 Each level of gypsum board finish in this Section for use in exposed locations.

.2 Each texture finish indicated.

.2 Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.

.3 Simulate finished lighting conditions for review of mockups.

.4 Reviewed mockups may become part of the completed Work if undisturbed at time of Substantial Performance of the Work.

1.9 Delivery, Storage And Handling

1.9.1 Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.10 Field Conditions

1.10.1 Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

1.10.2 Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

1.10.3 Do not install panels that are wet, those that are moisture damaged, and those that are mould damaged.

.1 Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

.2 Indications that panels are mould damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

1.11 Warranty

1.11.1 Provide warranty covering the Work of this Section in accordance with Supplementary Condition SC49 / GC 12.3 WARRANTY.

2 . PRODUCTS

2.1 Manufacturers

2.1.1 Products from the following manufacturers may be acceptable for inclusion into The Work, provided they meet requirements of Contract Documents.

.1 Gypsum Board

.1 CertainTeed Corp.

.2 CGC Inc.

.3 Georgia-Pacific Gypsum LLC.

.4 Continental Building Products.

.2 Metal Framing:

.1 Bailey Metal Products

.2 CGC Inc.

.3 ClarkDietrich Building Systems

.4 Approved equivalent manufacturer who is a member in good standing with CSSBI

2.1.2 Substitution Limitations: In accordance with requirements of Section 01 25 00, Substitution Procedures.

2.2 Performance Requirements

2.2.1 Fire-Resistance-Rated Assemblies: for fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings and Schedules according to CAN/ULC-S101 or equivalent to ASTM E119 by an independent testing agency.

2.2.2 Seismic Performance: Provide products and systems specified in this Section to withstand the effects of earthquake motions in accordance with OBC 4.1.8.18 and CAN/CSA S832.

.1 Professional engineer specified in Division 01 and referenced in this Section shall be responsible for designing systems and submitting signed and sealed analysis data and Shop Drawings illustrating seismic-resistant systems.

.2 Refer to Structural Drawings for seismic sensitivity values.

2.2.3 Shaft Wall Assemblies:

.1 Design and size partitions surrounding elevator shafts to accommodate structural members completely within the required fire resistance rated construction, while maintaining the shaft wall rating without interruption.

.2 Shaftwall system for elevator shafts shall not have pointed ends of screws penetrating into shaft.

.3 Ensure components are compatible and tested by approved independent testing facilities acceptable to authorities having jurisdiction.

.4 Ensure shaftwall framing, shaftliner, gypsum board and joint treatment materials Provide fire resistance rating as noted on Drawings and Schedules according to CAN/ULC-S101 or equivalent to ASTM E119 by an independent testing agency.

2.2.4 STC-Rated Assemblies: for STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings and Schedules according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

.1 Lightweight gypsum board is not permitted.

2.2.5 Moisture-resistant gypsum board: Provide moisture resistant gypsum board at all wet areas and washrooms. Provide tile backer

board at walls surrounding showers. Refer to Drawings for exact locations.

2.2.6 Full-height partitions: Provide full-height partitions where noted on Drawings. As a minimum, Provide full height partitions at mechanical, electrical, security, and telecommunications rooms, stairs, elevator shafts, chases and washrooms, fire-rated walls, private offices, conference rooms, and break rooms.

2.2.7 System Deflections: Ensure partition design can accommodate following loadings with deflection not exceeding L/240 in any direction:

.1 Minimum Lateral Load for Partitions: 0.24 kPA (5 psf)

.2 Minimum Lateral Load for Firewalls: 0.51 kPA (10 psf)

.3 Minimum Lateral Load for Elevator Shaft Walls: 0.73 kPA (15 psf)

.4 Reduce deflection to L/360 for partitions where tile and similar brittle finishes are indicated to be installed.

.5 Increase stud gauges as required to accommodate deflections criteria noted in this Section.

2.2.8 Gypsum Ceilings: Design suspension system to support weight of mechanical and electrical items such as air grilles and lighting fixtures and similar components with deflection limited to L/360.

.1 Provide adequate support to allow rotation and relocation of light fixtures.

.2 Design sub-framing as necessary to accommodate, and to circumvent, conflicts and interferences where ducts or other equipment prevent regular spacing of hangers.

2.2.9 Reinforcing: Provide in-wall reinforcing where required to support manufactured component items such as washroom accessories, casework/millwork, wall mounted equipment and similar items.

2.3 Interior Gypsum Board

2.3.1 Gypsum Wallboard (GB or GWB):

.1 Commercial-grade and fire-rated type: Type X to ASTM C1396/C 1396M.

.1 Thickness: 15.9 mm (5/8 inch).

.2 Long Edges: Tapered and featured (rounded or beveled) for prefilling.

.3 Acceptable Products:

.1 “ToughRock® Fireguard or Fireguard C” by Georgia-Pacific Canada, L.P.

.2 “Sheetrock Firecode or Firecode C Core” by CGC Inc.

.3 “Drywall Type X or Type C Gypsum Board” by CertainTeed Gypsum Canada Inc.

2.3.2 Gypsum Ceiling Board (PSH21): ASTM C1396/C 1396M.

.1 Thickness: 12.7 mm (1/2 inch) anti-sag sheets. Provide Type X where indicated on Drawings or required to provide fire-resistance ratings.

.2 Long Edges: Tapered.

.3 Acceptable Products:

.1 "Sheetrock® - Regular Gypsum Panels" or "Sheetrock® - Sag-Resistant Interior Gypsum Ceiling Board" by CGC

.2 "ToughRock® Gypsum Boards" or "ToughRock® CD® Ceiling Board” by Georgia-Pacific Canada, L.P.

.3 " Interior Ceiling Gypsum Board" by CertainTeed

2.3.3 Fiberglass-Mat Moisture- and Mould-Resistant Gypsum Board – Paperless (GB-MR or MRGB or GBC1): ASTM C1658/C1658M and ASTM C1396/C 1396M. With moisture- and mould-resistant core and fiberglass-mat surfaces.

.1 Core: As shown on Drawings.

.2 Long Edges: Tapered.

.3 Mould Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274. Boards containing paper or other organic materials in their composition are not acceptable.

.4 Basis-of-Design Products: "SheetRock Brand Glass-Mat Panel – Mould Tough" by CGC

2.3.4 Impact-Resistant Gypsum Board (GB-AR or ARGB): ASTM C1629/C 1629M.

.1 Impact resistance characteristics:

.1 Minimum Surface Abrasion: Level 1;

.2 Minimum Surface Indentation: Level 1,

.3 Minimum Soft body impact: Level 2.

.4 Minimum Hard body impact: Level 2.

.2 Core: As indicated on Drawings.

.3 Long Edges: Tapered.

.4 Mould Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

.5 Provide for up to 1800 mm on outer layer of gypsum partitions in all circulation spaces throughout.

.6 Basis-of-Design: "Fiberock® Brand AR Interior Panel" by CGC Inc.

2.4 Tile Backing Panels

2.4.1 Glass-Mat, Water-Resistant Backing Board: ASTM C1178/C 1178M, with manufacturer's standard edges.

.1 Acceptable Products:

.1 "GlasRoc Tile Backer" by CertainTeed Corp.

.2 "DensShield Tile Backer" by Georgia-Pacific Gypsum LLC

.3 "USG Durock™ Glass-Mat Tile Backerboard" by CGC.

.2 Core: As indicated on Drawings

.3 Mould Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274. Boards containing paper or other organic materials in their composition are not acceptable.

2.4.2 Cementitious Board - Backer Units: ANSI A118.9 and ASTM C1288 or 1325, with manufacturer's standard edges.

.1 Acceptable Products:

.1 "FiberCement BackerBoard" by CertainTeed Corp.

.2 "DUROCK Cement Tile Backer Board" by CGC

.3 "PermaBase Board" by Unifix Inc.

.2 Thickness: 12.7 mm (1/2 inch).

.3 Mould Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5 Gypsum Board Shaft Wall Assemblies

2.5.1 Fire-Resistance Rating: As indicated on Drawings and Schedules .

2.5.2 STC Rating: As indicated on Drawings and Schedules .

2.5.3 Steel Framing Members: Comply with ASTM C645 requirements for metal unless otherwise indicated on Drawings and Schedules.

.1 Protective Coating: ASTM A653/A 653M, Z180 (G60), hot-dip galvanized unless otherwise indicated on Drawings and Schedules.

.2 Studs: Manufacturer's standard profile for repetitive members, corner and end members, and fire-resistance-rated assembly indicated on Drawings and Schedules.

.1 Depth: As indicated on Drawings and Schedules .

.2 Minimum Base-Metal Thickness: 0.84 mm (20 ga - 0.033 inch; Colour: White).

.3 Runner Tracks: Manufacturer's standard J-profile track with manufacturer's standard long-leg length, but at least 51 mm (2 inches) long and matching studs in depth.

.1 Minimum Base-Metal Thickness: 0.84 mm (20 ga - 0.033 inch; Colour: White).

.4 Elevator Hoistway Entrances: Manufacturer's standard J-profile jamb strut with long-leg length of 76 mm (3 inches), matching studs in depth, and not less than 0.84 mm (20 ga - 0.033 inch; Colour: White) thick.

2.5.4 Gypsum Shaftliner Board, Moisture- and Mold-Resistant Type X: ASTM C1396/C 1396M; manufacturer's proprietary fire-resistive liner panels with moisture- and mold-resistant core and surfaces.

.1 Acceptable Products:

.1 "ProRoc Moisture and Mold Resistant Shaftliner" by CertainTeed Corp.

.2 "Dens-Glass Ultra Shaftliner" by Georgia-Pacific Gypsum LLC

.3 "Firecheck Moldcheck Type X Shaftliner" by Continental Building Products.

.4 "Pabcore Mold Curb Shaftliner Type X" by PABCO Gypsum

.5 "Sheetrock Brand Mold Tough Gypsum Liner Panel" by CGC Inc.

.2 Thickness: 25.4 mm (1 inch).

.3 Long Edges: Double bevel.

.4 Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.5.5 Room-Side Finish: Gypsum board.

2.5.6 Shaft-Side Finish: Gypsum shaftliner board, Type X.

2.5.7 Insulation: Sound attenuation blankets.

2.6 Framing Systems

2.6.1 Framing Members, General: Comply with ASTM C754 for conditions indicated on Drawings and Schedules.

.1 Steel Sheet Components: Comply with ASTM C645 requirements for metal unless otherwise indicated. Galvannealed products are not acceptable.

.2 Protective Coating: ASTM A653/A 653M, Z180 (G60), hot-dip galvanized unless otherwise indicated.

.1 Provide ASTM A653/A653M, G90 (Z275) in heavy moisture environments such as pools, showers and similar locations.

2.6.2 Studs and Runners: ASTM C645. Cold-formed galvanized-steel C-studs studs and runners or dimpled steel studs and runners.

.1 Steel Studs and Runners:

.1 Minimum Base-Metal Thickness: 0.45 mm (25 ga - 0.018 inch), unless otherwise indicated. Provide heavier thicknesses where required at unrestrained heights, to frame openings or for abuse/impact resistance requirements.

.1 Where studs are supporting abuse- and impact-resistant partitions, provide minimum 0.836 mm (20 ga - 0.032 inch).

.2 At framed openings, provide manufacturer's proprietary framed opening system as specified in this Section.

.3 Where stud gauges are required to be increased for unrestrained heights, provide specialty high capacity studs as specified herein.

.2 Ensure runners are of depth and base-metal thickness to match studs, unless indicated otherwise.

.3 Depth: As indicated on Drawings.

.2 Specialty High Capacity Studs:

.1 Cold-formed galvanized-steel C-studs as per ASTM C645 with minimum equivalent strength of 227 MPa (33 ksi) but acoustic characteristics equivalent to 0.45 mm (25 ga - 0.018 inch) studs.

.2 Ensure runners are of depth and base-metal thickness to match studs, unless indicated otherwise.

.3 Depth: As indicated on Drawings.

.4 Basis-of-Design: "B18 (Hard Board) Stud" by Bailey Metal Products or approved equivalent.

2.6.3 Slip-Type Head Joints: Where indicated on Drawings and Schedules as "deflection tracks", provide one of the following:

.1 Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated on Drawings and Schedules for studs and in width to accommodate depth of studs.

.1 Acceptable Products:

.1 "Multi-Slot Track complete with Bailey Top Deflection Clip (TDC)" by Bailey

.2 "Blazeframe DSL or MaxTrak Slotted Deflection Track" by Dietrich Metal Framing

.3 VertiClip SLD or VertiTrack VTD Series" by Steel Network Inc. (The)

.4 "Vertical Slip Track or Vertical Slip Track II" by Telling Industries
.5 Approved equivalent.

2.6.4 Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated on Drawings and Schedules; in thickness not less than indicated on Drawings and Schedules for studs and in width to accommodate depth of studs.

.1 Location: Provide at head-of-wall firestopping.

.2 Acceptable Products:

.1 "SERIES TTG Track Top Gasket" by Specified Technologies

.2 "CFS-TTS Firestop Top Track Seal" by Hilti or approved equivalent.

.3 Approved equivalent.

2.6.5 Metal Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated on Drawings and Schedules.

.1 Minimum Base-Metal Thickness: 1.37 mm (16 ga - 0.054 inch)

.2 Location: Provide for blocking and bracing as required for fixture attachment.

.3 Basis-of-Design: "Backer Plate" by Bailey or approved equivalent.

2.6.6 Cold-Rolled Channel Bridging: Steel, 0.836 mm (20 ga - 0.032 inch) minimum base-metal thickness, with minimum 13-mm- (1/2-inch-) wide flanges.

.1 Depth: Manufacturer's standard but not less than 38 mm (1-1/2 inches).

.2 Location: As required for lateral bracing.

.3 Basis-of-Design: "Spazzer 9200 Bridging and Spacing Bar" by ClarkDietrich Building Systems or approved equivalent.

2.6.7 Cold-Rolled Furring Channels: 1.34-mm (16 ga - 0.053-inch; Colour: Green) uncoated-steel thickness, with minimum 13-mm-(1/2-inch-) wide flanges.

.1 Depth: As indicated on Drawings.

2.6.8 Framed Openings: Manufacturer's proprietary shape used to form header beams and jambs, columns or posts, of web depths indicated, unpunched, with stiffened flanges and as follows:

.1 Header and Jamb: Galvanized-steel, one-piece header and jamb studs complying with or exceeding requirements of ASTM C754.

.2 Header Clip: Header bracket (HDSC). Provide attachment screw pattern per manufacturer's written instructions.

.3 Header Flange Length: 76-mm (3-inch)

.4 Jamb Flange Length: 76-mm (3-inch)

.5 Minimum Yield Strength: 227 MPa (33 ksi).

.6 Minimum Base-Steel Thickness: 1.087 mm (43 mils - 0.0428 inch - 18 ga – Colour: Yellow)

.7 Basis-of-Design: “RedHeader PRO and Header Bracket (HDSC)” by Bailey Metal Products or approved equivalent.

2.7 Suspension Systems

2.7.1 Tie Wire: ASTM A641/A 641M, Class 1 zinc coating, soft temper, 1.59-mm- (0.062-inch-) diameter wire, or double strand of 1.21-mm- (0.048-inch-) diameter wire.

2.7.2 Hanger Attachments to Concrete:

.1 Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, required loadings with appropriate safety factors as appropriate for the substrate.

.1 Uses: Securing hangers to structure.

.2 Type: Torque-controlled, expansion anchor

2.7.3 Wire Hangers: ASTM A641/A 641M, Class 1 zinc coating, soft temper, 4.12 mm (8ga - 0.16 inch; Colour: Orange) in diameter.

2.7.4 Flat Hangers: Steel sheet, minimum 25 by 5 mm (1 by 3/16 inch) by length required.

2.7.5 Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 1.34 mm (0.053 inch) and minimum 13-mm- (1/2-inch-) wide flanges.

.1 Depth: As required for loadings, but not less than 38 mm (1-1/2 inch)

2.7.6 Furring Channels (Furring Members):

.1 Cold-Rolled Channels: 1.34-mm (16 ga - 0.053-inch; Colour: Green) uncoated-steel thickness, with minimum 13-mm- (1/2-inch-) wide flanges, 19 mm (3/4 inch) deep.

.2 Steel Studs and Runners: ASTM C645.

.1 Minimum Base-Metal Thickness: Not less than 0.45 mm (25 ga - 0.018 inch).

.2 Depth: As indicated on Drawings

2.7.7 Grid Suspension System for Gypsum Board Ceilings: At Contractor’s option, following system may be used in lieu of traditional gypsum framing.

.1 Provide ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.

.1 Acceptable Products:

.1 “Drywall Grid Systems” by Armstrong World Industries, Inc.

.2 “Drywall Grid System” by Chicago Metallic Corporation

.3 “Drywall Suspension System” by CGC Inc.

2.8 Auxiliary Materials

2.8.1 Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

2.8.2 Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

2.8.3 Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.8.4 Isolation Strip at Exterior Walls:

.1 Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 3.2 mm (1/8 inch) thick, in width to suit steel stud size.

2.9 Accessories

2.9.1 Interior Trim: ASTM C1047.

.1 Material: paper-faced galvanized steel sheet.

.2 Shapes:

.1 Cornerbead.

.2 Bullnose bead.

.3 LC-Bead: J-shaped; exposed long flange receives joint compound.

.4 L-Bead: L-shaped; exposed long flange receives joint compound.

.5 U-Bead: J-shaped; exposed short flange does not receive joint compound.

.6 Expansion (control) joint.

.7 Curved-Edge Cornerbead: With notched or flexible flanges.

2.9.2 Exterior Trim: ASTM C1047.

.1 Material: Hot-dip galvanized steel sheet, plastic, or rolled zinc.

.2 Shapes:

.1 Cornerbead.

.2 LC-Bead: J-shaped; exposed long flange receives joint compound.

.3 Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.

2.9.3 Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

.1 Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B221M (ASTM B221), Alloy 6063-T5.

.2 Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

.3 Acceptable Manufacturers:

.1 Fry Reglet Corporation.

.2 Gordon, Inc.

.3 Pittcon Industries.

2.10 Joint Treatment Materials

2.10.1 General: Comply with ASTM C475/C 475M.

2.10.2 Joint Tape:

.1 Interior Gypsum Board: Paper.

.2 Exterior Gypsum Soffit Board: Paper.

.3 Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.

.4 Tile Backing Panels: As recommended by panel manufacturer.

2.10.3 Joint Compound for Interior Gypsum Board: for each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

.1 Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

.2 Embedding and First Coat: for embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.

.1 Use setting-type compound for installing paper-faced metal trim accessories.

.3 Fill Coat: for second coat, use drying-type, all-purpose compound.

.4 Finish Coat: for third coat, use drying-type, all-purpose compound.

.5 Skim Coat: for final coat of Level 5 finish, use drying-type, all-purpose compound or high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

2.10.4 Joint Compound for Exterior Applications:

.1 Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.

.2 Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board manufacturer.

2.10.5 Joint Compound for Tile Backing Panels:

.1 Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

.2 Cementitious Backer Units: As recommended by backer unit manufacturer.

.3 Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

2.11 Acoustical Components

2.11.1 Sound Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

.1 Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

.2 One of the following types are acceptable:

.1 Mineral Wool (in fire-rated partitions): CAN/ULC-S702.1/S702.2, Type 1; ASTM C553 (Type VII) and non-combustible in accordance with requirements of CAN/ULC-S114. Acceptable Products:

.1 "Rockwool AFB® evo" by Rockwool A/S

.2 “Thermafiber SAFB FF” Mineral Wool Insulation

.3 Approved equivalent.

.2 Mineral Glass Fibre (in non-fire-rated partitions): CAN/ULC-S702, Type 1; ASTM C553 (TYPE VII) and non-combustible in accordance with requirements of ULC CAN/ULC-S114. Acceptable Products:

.1 “EcoTouch™ QuietZone® PINK™ FiberGlas® Acoustical Batts” by Owens Corning Canada LP

.2 “Noise Reducer Sound Attenuation Insulations” by CertainTeed.

.3 “Sound-Shield Formaldehyde-Free Fiber glass Insulation” by Johns Manville.

.4 Approved equivalent.

2.11.2 Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.

.1 Acceptable Products (gun-applied):

.1 “Smoke N Sound Acoustical Sealant” by Specified Technologies, Inc.

.2 “SHEETROCK Acoustical Sealant” by CGC Inc.

.3 “QuietZone Acoustic Sealant” by Owens-Corning Canada Inc.

.4 “Tremstop Acrylic Acoustical Sealant” by Tremco Ltd.

.5 “SilentFX® Noise Proofing Sealant by CertainTeed Inc.

.6 “QuietSeal Pro” by Pabco Gypsum.

.7 "CP506 – Smoke and Acoustic Sealant" by Hilti (Canada) Limited

.8 “Tecsound CLG 5900” by Soprema Canada

.2 Acceptable Products (sprayed-on):

.1 "CP572 – Smoke and Acoustic Spray" by Hilti or approved equivalent.

3 . EXECUTION

3.1 Examination

3.1.1 Gypsum Board Assemblies:

.1 Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

.2 Examine panels before installation. Reject panels that are wet, moisture damaged, and mould damaged.

3.1.2 Shaft Walls:

.1 Examine substrates to which gypsum board shaft wall assemblies attach or abut, with Installer present, including hollow-metal frames, elevator hoistway door frames, cast-in anchors, and structural framing. Examine for compliance with requirements for installation tolerances and other conditions affecting performance.

.2 Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.

3.2 Preparation

3.2.1 Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

.1 Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

3.2.2 Sprayed Fire-Resistive Materials:

.1 Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 610 mm (24 inch) o.c.

.2 Coordinate with gypsum board shaft wall assemblies so both elements of Work remain complete and undamaged. Patch or replace sprayed fire-resistive materials removed or damaged during installation of shaft wall assemblies to comply with requirements specified in Section 07 81 00.

.3 After sprayed fire-resistive materials are applied, remove only to extent necessary for installation of gypsum board assemblies and without reducing the fire-resistive material thickness below that which is required to obtain fire-resistance rating indicated on Drawings and Schedules. Where excessive to material has been damaged, Provide additional material to reinstate require fire-ratings. Protect adjacent fire-resistive materials from damage.

3.3 Installing Framed Assemblies

3.3.1 Installation Standard: Comply with ASTM C754.

.1 Gypsum Plaster Assemblies: Also comply with requirements in ASTM C841 that apply to framing installation.

.2 Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C1063 that apply to framing installation.

.3 Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C844 that apply to framing installation.

.4 Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.

3.3.2 Install framing and accessories plumb, square, and true to line, with connections securely fastened.

3.3.3 Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

3.3.4 Install bracing at terminations in assemblies.

3.3.5 Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3.6 Install framing system components in accordance with spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

.1 Single-Layer Application: As indicated on Drawings or required by horizontal deflection performance requirements unless otherwise indicated.

.2 Multilayer Application: As indicated on Drawings or required by horizontal deflection performance requirements unless otherwise indicated.

.3 Tile Backing Panels: As indicated on Drawings or required by horizontal deflection performance requirements unless otherwise indicated.

3.3.7 Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

3.3.8 Install studs so flanges within framing system point in same direction.

3.3.9 Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

.1 Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

.2 Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.

.1 Install two studs at each jamb unless otherwise indicated.

.2 Install cripple studs at head adjacent to each jamb stud, with a minimum 13-mm (1/2-inch) clearance from jamb

stud to allow for installation of control joint in finished assembly.

.3 Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

.3 Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

.4 Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

.1 Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

.5 Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

.6 Curved Partitions:

.1 Bend track to uniform curve and locate straight lengths so they are tangent to arcs.

.2 Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 152 mm (6 inches) o.c.

3.3.10 Direct Furring:

.1 Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 600 mm o.c.

3.3.11 Z-Shaped Furring Members:

.1 Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 600 mm o.c.

.2 At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 300 mm from corner and cut insulation to fit.

3.3.12 Installation Tolerance: Install each framing member so fastening surfaces vary not more than 3 mm (1/8 inch) from the plane formed by faces of adjacent framing.

3.4 Installing Ceiling Suspension Systems

3.4.1 Install suspension system components in accordance with spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

.1 Hangers: 1200 mm o.c. minimum

.2 Carrying Channels (Main Runners): 1200 mm o.c. minimum

.3 Furring Channels (Furring Members): 400 mm o.c., unless otherwise indicated on Drawings.

3.4.2 Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

3.4.3 Suspend hangers from building structure as follows:

.1 Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

.1 Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

.2 Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

.1 Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

.2 Limit deflection to L/360 unless otherwise required by loading requirements.

.3 Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.

.4 Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.

.5 Do not attach hangers to steel roof deck.

.6 Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.

.7 Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.

.8 Do not connect or suspend steel framing from ducts, pipes, or conduit.

3.4.4 Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

3.4.5 Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.4.6 Installation Tolerances: Install suspension systems that are level to within 3 mm in 3.6 m (1/8 inch in 12 feet) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.5 Installing Drywall Penetration Barrier Mesh

3.5.1 Install drywall-penetration barrier mesh as follows:

.1 Install barrier-mesh sheets with diamond running in direction most suitable.

.2 Install barrier-mesh clips to secure mesh to framing members.

.3 Join staggered mesh joints that occur on framing members.

.4 Overlapping mesh joints to achieve tie-in is acceptable.

.5 Install barrier-mesh sheets to join, begin, and terminate on framing members.

.6 Wire tie barrier-mesh sheets not joining on framing member shall with 18-gauge steel tie wire.

.7 Wire tying shall be no less frequent than mesh clip installation.

3.6 Applying And Finishing Panels, General

3.6.1 Comply with ASTM C840.

3.6.2 Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

3.6.3 Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1.5 mm (1/16 inch) of open space between panels. Do not force into place.

3.6.4 Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite

sides of partitions. Do not make joints other than control joints at corners of framed openings.

3.6.5 Form control and expansion joints with space between edges of adjoining gypsum panels.

3.6.6 Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

.1 Unless concealed application is indicated on Drawings and Schedules or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 0.7 sq. m (8 sq. ft.) in area.

.2 Fit gypsum panels around ducts, pipes, and conduits.

.3 Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 6.4- to 9.5-mm- (1/4- to 3/8-inch-) wide joints to install sealant.

3.6.7 Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 6.4- to 12.7-mm- (1/4- to 1/2-inch-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

3.6.8 Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.6.9 STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.6.10 Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.7 Applying Interior Gypsum Board

3.7.1 Install interior gypsum board in the following locations:

.1 Regular Wallboard Type: Vertical surfaces unless otherwise indicated.

.2 Type X: Where required for fire-resistance-rated assembly and where noted on Drawings.

.3 Flexible Type: Apply in double layer at curved assemblies.

.4 Ceiling Type: Ceiling surfaces unless otherwise indicated.

.5 Abuse-Resistant and Impact-Resistant Type: As indicated on Drawings.

.6 Moisture- and Mould-Resistant Type: In wet locations, and for a minimum 2.4 m (8 ft) of a plumbing fixture. Provide tile backer where tile installation is scheduled.

.7 Acoustically Enhanced Type: Provide in lieu of regular gypsum board where 20 ga studs are scheduled to be installed. Do not provide in lieu of abuse-resistant or impact-resistant type.

3.7.2 Single-Layer Application:

.1 On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.

.2 On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated on Drawings and Schedules or required by fire-resistance-rated assembly, and minimize end joints.

.1 Stagger abutting end joints not less than one framing member in alternate courses of panels.

.2 Where ceiling height is greater than 2.46 m (8’ – 1”) or wall is 1220 mm (4 ft.) wide or less, install panels using parallel application (i.e. vertically) unless otherwise indicated on Drawings and Schedules or required by fire-resistance-rated assembly.

.3 On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

.4 Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.7.3 Multilayer Application:

.1 On ceilings, apply gypsum board indicated on Drawings and Schedules for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 400 mm (16 inches) minimum, from parallel base-layer joints, unless otherwise indicated on Drawings and Schedules or required by fire-resistance-rated assembly.

.2 On partitions/walls, apply gypsum board indicated on Drawings and Schedules for base layers and face layers vertically (parallel to framing) with joints of base layers located

over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated on Drawings and Schedules or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

.3 On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.

.4 Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.7.4 Laminating to Substrate: Where gypsum panels are indicated on Drawings and Schedules as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.7.5 Curved Surfaces:

.1 Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus 300-mm- (12-inch-) long straight sections at ends of curves and tangent to them.

.2 Fasten base layer to studs with screws 400 mm (16 inches) o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 300 mm (12 inches) o.c.

3.8 Applying Exterior Gypsum Panels For Ceilings And Soffits

3.8.1 Apply panels perpendicular to supports, with end joints staggered and located over supports.

.1 Install with 6.4-mm (1/4-inch) open space where panels abut other construction or structural penetrations.

.2 Fasten with corrosion-resistant screws.

3.9 Applying Tile Backing Panels

3.9.1 Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at showers, tubs, and locations indicated on Drawings and Schedules to receive tile. Install with 6.4-mm (1/4-inch) gap where panels abut other construction or penetrations.

3.9.2 Cementitious Backer Units: ANSI A108.11, at showers, tubs, and where indicated on Drawings and Schedules**.**

3.9.3 Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.10 Installing Shaft Walls

3.10.1 General: Install gypsum board shaft wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated on Drawings and Schedules, manufacturer's written installation instructions, and ASTM C754 other than stud-spacing requirements.

3.10.2 Do not bridge building expansion joints with shaft wall assemblies; frame both sides of expansion joints with furring and other support.

3.10.3 Install supplementary framing in gypsum board shaft wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, wall-mounted door stops, and similar items that cannot be supported directly by shaft wall assembly framing.

.1 Elevator Hoistway: At elevator hoistway-entrance door frames, provide jamb struts on each side of door frame.

.2 Reinforcing: Where handrails directly attach to gypsum board shaft wall assemblies, provide galvanized steel reinforcing strip with 20 ga (33 mil) minimum thickness of base metal (uncoated), accurately positioned and secured behind at least one layer of face panel.

3.10.4 Penetrations: At penetrations in shaft wall, maintain fire-resistance rating of shaft wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.

3.10.5 Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while maintaining continuity of fire-rated construction.

3.10.6 Firestop Tracks: Where indicated on Drawings and Schedules, install to maintain continuity of fire-resistance-rated assembly indicated on Drawings and Schedules.

3.10.7 Control Joints: Install control joints according to ASTM C840 and in specific locations approved by Consultant while maintaining fire-resistance rating of gypsum board shaft wall assemblies.

3.10.8 Sound-Rated Shaft Wall Assemblies: Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly.

3.10.9 Cant Panels: At projections into shaft exceeding 102 mm (4 inches), install 13- or 16-mm- (1/2- or 5/8-inch-) thick gypsum board cants covering tops of projections.

.1 Slope cant panels at least 75 degrees from horizontal. Set base edge of panels in adhesive and secure top edges to shaft walls at 610 mm (24 inches) o.c. with screws fastened to shaft wall framing.

.2 Where steel framing is required to support gypsum board cants, install framing at 610 mm (24 inches) o.c. and extend studs from the projection to shaft wall framing.

3.10.10 Installation Tolerance: Install each framing member so fastening surfaces vary not more than 3 mm (1/8 inch) from the plane formed by faces of adjacent framing.

3.11 Installing Trim Accessories

3.11.1 General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

3.11.2 Control Joints: Install control joints according to ASTM C840 and in specific locations approved by Consultant for visual effect.

3.11.3 Interior Trim: Install in the following locations:

.1 Cornerbead: Use at outside corners unless otherwise indicated on Drawings and Schedules.

.2 LC-Bead: Use at exposed panel edges.

.3 Curved-Edge Cornerbead: Use at curved openings.

3.11.4 Exterior Trim: Install in the following locations:

.1 Cornerbead: Use at outside corners.

.2 LC-Bead: Use at exposed panel edges.

3.11.5 Aluminum Trim: Install in locations indicated on Drawings.

3.12 Finishing Gypsum Board

3.12.1 General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

3.12.2 Prefill open joints, rounded or beveled edges, and damaged surface areas.

3.12.3 Apply joint tape over gypsum board joints, except for trim products specifically indicated on Drawings and Schedules as not intended to receive tape.

3.12.4 Gypsum Board Finish Levels: Finish panels to levels indicated on Drawings and Schedules below and according to ASTM C840:

.1 Level 1: Ceiling plenum areas, concealed areas, and where indicated on Drawings and Schedules.

.2 Level 2: Panels that are substrate for tile.

.3 Level 4: At panel surfaces that will be exposed to view unless otherwise indicated on Drawings and Schedules .

3.12.5 Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.

3.12.6 Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

3.12.7 Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.13 Protection

3.13.1 Protect adjacent surfaces from gypsum board compound and promptly remove from floors and other non-gypsum board surfaces. Repair surfaces stained, marred, or otherwise damaged during gypsum board application.

3.13.2 Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

3.13.3 Remove and replace panels that are wet, moisture damaged, and mould damaged.

.1 Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

.2 Indications that panels are mould damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

1 . GENERAL

1.1 Related Work

1.1.1 This Specification Section forms part of Contract Documents and are to be read, interpreted, and coordinated with other parts.

1.2 Warranty

1.2.1 The units shall be covered by the manufacturer's limited warranty for a period of one (1) year from date of commissioning, or 18 months from shipment, whichever occurs first, provided that the commissioning form is completed and sent to the manufacturer within ten (10) calendar days from the date commissioning is performed. Refrigeration compressors shall be warrantied for five (5) years after installation.

1.2.2 Coordinate installation of control system outlined in Section 25 .

1.3 Scope

1.3.1 Provide touchscreen HMI controller, scroll compressors, air-cooled chiller of the scheduled capacities as shown and

1.3.2 indicated on the Drawings, including but not limited to:

.1 Single or modular package

.2 Electrical power and control connections

.3 Chilled liquid connections

.4 Charge of refrigerant and oil

1.4 Quality Assurance

1.4.1 Products shall be Designed, Tested, rated in accordance with, and installed in compliance with, applicable sections of the following Standards and Codes:

.1 AHRI 550/590 – Performance Rating of Water-chilling and Heat Pump Water-heating Packages Using the Vapor Compression Cycle

.2 AHRI 370 – Sound Rating of Large Outdoor Refrigerating and Air-Conditioning Equipment

.3 ANSI/ASHRAE 15 – Safety Code for Mechanical Refrigeration

.4 ANSI/ASHRAE 34 – Number Designation and Safety Classification of Refrigerants

.5 ASHRAE 90.1 – Energy Standard for Buildings Except Low-Rise Residential Buildings

.6 ANSI/NFPA 70 – National Electrical Code (N.E.C.)

.7 ASME Boiler and Pressure Vessel Code, Section VIII, Division 1

.8 OSHA – Occupational Safety and Health Act

.9 Manufactured in facility registered to ISO 9001

1.4.2 Factory Run Test: Heat Pump shall be pressure-tested, evacuated, and fully charged with refrigerant and oil, and shall be factory operational run tested with water flowing through the vessels.

1.4.3 Heat pump manufacturer shall have a factory trained and supported service organization.

1.5 QUALITY ASSURANCE

1.5.1 The units shall be listed by a Nationally Recognized Testing Laboratory (NRTL) accredited by the standards council of Canada and bear the bodies' certification label indicating it is acceptable for use in Canada. Heat Pump unit shall be certified, tested, and labelled in accordance with the harmonized standards CSA C22.2 No. 236-11 and UL 1995, 4th Ed. for Heating and Cooling Equipment.

1.5.2 The units shall conform to CSA B52 requirements. Ensure that all refrigerant relief valves are readily accessible for re-certification and replacement. Pressure Vessels inside the unit that form part of the refrigerant circuit shall also bear a Canadian Registration Number in accordance with the requirements of CSA B51 and CSA B52, regardless of provincial exemptions.

1.5.3 All wiring shall be in accordance with the latest edition of the Canadian Electrical Code CSA C22.1 (C.E.C.).

1.5.4 The units shall be manufactured in a facility registered to ISO 9001 and ISO14001 which is a set of standards applying to quality procedures and environmental protection, respectively, set by the International Standard Organization (ISO).

1.5.5 All hydronic heat pump units shall meet or exceed the latest edition of ASHRAE 90.1 efficiency requirements for chillers while operating in cooling mode. Efficiency and performance metrics shall be published in accordance with the AHRI published performance requirements as specified in AHRI standard 550/590.

1.5.6 Unit shall be certified and rated in accordance with AHRI Standard 550/590 by the manufacturer. Units that are rated in accordance with the AHRI standard but not certified by AHRI shall not be accepted.

1.5.7 A full charge of R-410A and refrigerant oil shall be provided by the manufacturer. Field charging of refrigerant shall be allowable at the manufacturer’s discretion provided that the services are provided by a factory trained and authorized service provider.

1.6 DELIVERY, STORAGE AND HANDLING

1.6.1 Unit shall be stored and handled according to the manufacturer's installation, operation and maintenance manuals.

1.7 MANUFACTURERS

1.7.1 The design shown on the Drawings is based on York model YMAE AIR-COOLED MODULAR HEAT PUMPS manufactured by Johnson Controls. Alternate equipment will be acceptable if the manufacturers equipment meets the scheduled performance and complies with these specifications. If equipment manufactured by a manufacturer other than that scheduled is utilized, then the Mechanical Contractor shall be responsible for coordinating with the General Contractor and all affected Subcontractors to insure proper provisions for installation of the furnished unit. This coordination shall include, but not be limited to, the following:

.1 Structural supports for units.

.2 Piping size and connection/header locations.

.3 Electrical power requirements and wire/conduit and overcurrent protection sizes.

.4 Heat pump physical size on plant layout.

.5 Site noise considerations.

2 . PRODUCTS

2.1 GENERAL

2.1.1 Description: Furnish, Install, and Commission factory assembled charged, and operational run tested AIR-COOLED MODULAR HEAT PUMPS as specified herein and shown on the Drawings. Heat pump shall include but is not limited to: a complete system with multiple independent refrigerant circuits incl. 4-way-valve, DC inverter scroll compressors, brazed plate heat exchanger, air-cooled heat exchanger, R454B refrigerant, interconnecting wiring, safety and operating controls and special features as specified herein or required for safe, automatic operation. Units shall be internally heat traced without the requirement for separate power feed.

2.1.2 Operating Characteristics:

.1 Ensure unit is capable of operation in cooling mode from -4°F to 118.4°F ambient temperature.

.2 Ensure unit is capable of operation in heating mode from -13°F to 109.4°F ambient temperature.

.3 Ensure unit is capable of operation in Simultaneous Heating & Cooling mode from -4°F to 118.4°F ambient temperature.

2.1.3 Cabinet: Unit panels, structural elements, control boxes and heavy gauge structural base shall be constructed of painted galvanized steel. All exposed sheet steel shall be coated with baked on powder paint to meet 500-hour salt spray test in accordance with the ASTM B117 standard. Radiant Slab Heating and Cooling System

2.2 COMPRESSORS

2.2.1 Inverter EVI scroll compressors: including

.1 High Pressure Type compressor chamber design: Big displacement buffing capacity can bring down operation noise and vibration.

.2 New asymmetric wrap: more suitable for part load conditions and improving compressor efficiency

.3 Non-contact oil membrane seal: adopted in axial and diametrical of compression chamber, oil film seal formed by lubricating oil, so friction diminished, and better efficiency and reliability achieved.

.4 Concentrated Motor: Concentrated winding has advantages in mid-low speed area with lower height and less copper loss, and more adaptable to part load condition.

.5 Relieve valve: Improving partial load energy efficiency, adapting to the condition of variable pressure ratio, upgrading compressor performance.

.6 Highly reliable bearings: By optimizing the design of the bearing, using special materials, bearing both self-lubricating function and good load-bearing effect, the reliability of the compressor is improved.

.7 Internal oil circulation structure: reduce over-heat losses and oil discharge rate and to improve efficiency and reliability.

.8 Positive displacement gear pump ensures high and low frequency both can meet the necessary oil supply, and the oil filter screen effectively prevents impurities from entering the oil pump and improve the compressor reliability.

.9 Vapor Injection cycle: Lower discharge temperature, bigger compressor capacity, wider running range, better product performance.

.10 High Speed Features: A wider range of capability achieved.

.11 Terminal Cover: Installation more stable, more secure, higher rank of protection.

2.2.2 Compressor motor is 3ph DC synchronous motor with DC inverter starting. Suction filter, oil pump filter will be prevented the invasion of impurities protection.

2.3 REFRIGERANT CIRCUIT COMPONENTS

2.3.1 Compressor crankcase heaters are also included for extra protection against liquid migration. Heat the compressor in the case of the standby when power on.

2.3.2 Refrigerant circuit shall include inverter EVI scroll compressors, four-way valve, electronic expansion valves, and flexible, closed-cell foam insulated suction line and suction pressure transducer, refrigerant receiver, accumulator and R454B refrigerant.

2.4 HEAT EXCHANGER

2.4.1 Four-side air inlet, structured with “U” shaped heat exchanger, exclusively designed for minimum footprint

2.4.2 per area.

2.4.3 Coils shall be internally enhanced tube and hydrophilic pre-coated aluminum fins type condenser coils. Coils shall be designed for 4.15 MPa or higher working pressure.

2.4.4 Fans assembly kits shall be composed of following components with their feature:

2.4.5 Impeller: constructed with plastic metal material blade

2.4.6 Fan motors: EC fan motor, high efficiency, regulates fan using a stepless speed method. Insulation class “F”, current protected, overheating protection.

2.4.7 Fan housing: resistant, corrosion resistant, meet 500hrs Salt Spray test.

2.5 INSULATION

2.5.1 A. Material: Closed-cell, flexible, UV protected, thermal insulation for preformed flexible elastomeric cellular thermal insulation in sheet and tubular form.

2.5.2 B. Factory-applied insulation over cold surfaces of liquid chiller components including brazed

2.5.3 C. Plate heat exchanger, water pipe on chiller

2.6 HEAT TRACING

2.6.1 Heat Tracing shall be provided within the ASHP for freeze protection to -28.9C in standby without requirement for separate power feed

2.7 POWER AND ELECTRICAL REQUIREMENTS

2.7.1 Power/Control Panel:

.1 Factory installed and wired NEMA 3R, powder painted steel cabinets with tool lockable, hinged, latched, and gasket sealed outer doors equipped with wind struts for safer

servicing. Provide main power connection(s), compressor starters and fan motor contactors, fuses, and factory wiring.

2.7.2 Single Point Power:

.1 A unit mounted circuit breaker with external, lockable handle (in compliance with NEC Article 440-14), can be supplied to isolate the power voltage for servicing. (This option includes the Single-Point Power connection.)

.2 All exposed power wiring shall be routed through liquid-tight, UV-stabilized, non-metallic conduit.

.3 Supplied equipment shall not exceed scheduled Minimum Circuit Ampacity (MCA.) The mechanical Contractor shall be responsible for any additional costs associated with equipment deviation.

2.8 CONTROLS

2.8.1 General:

.1 Provide automatic control of chiller and waterside economizer operation including compressor start/stop and load/unload, anti-recycle timers, condenser fans, evaporator pump, evaporator heater, waterside economizer bypass value, unit alarm contacts and run signal contacts.

.2 Chiller shall automatically reset to normal chiller operation after power failure.

.3 Alarm contacts shall be provided to remote alert for any unit or system safety fault.

2.8.2 Display:

.1 Provide full touch screen HMI display that is both viewable in direct sunlight and night-time viewing.

.2 Provide full touch screen HMI display that is both viewable in direct sunlight and has LED backlighting for night-time viewing. Provide one keypad and display panel per chiller.

.3 HMI display shall be accessible through hinged enclosure door. Display shall provide a minimum of unit

.4 setpoints, status, electrical data, temperature data, pressures, safety lockouts and diagnostics.

.5 Descriptions in English (or available language options).

2.8.3 Programmable Setpoints (within Manufacturer limits): Display language, chilled liquid cooling mode,

.1 local/remote control mode, display units' mode, system lead/lag control mode, remote temperature reset, remote

.2 current limit, remote sound limit, low ambient temperature cut-out enable/disable, leaving chilled liquid setpoint and

.3 range, maximum remote temperature reset.

2.8.4 Display Data: Return and leaving water temperatures, outdoor air temperature, status of each unit, percent of

.1 compressors running, low leaving water temperature cut-out setting, Metric data, water temperature reset via

.2 Modbus interface, compressor run status, daily start/stop times, holiday status, modules operating hours (each),

.3 water heater and fan operation, water pump status, high- and low-pressure switch status, water switch status,

.4 discharge temperature.

2.8.5 Both ASHP (the 3 module and 4 module) shall be wired together (by mechanical contractor) for single master controller via the lead ASHP.

2.9 ACCESSORIES AND OPTIONS

2.9.1 Some accessories and options supersede standard product features. All options are factory-mounted unless otherwise noted.

2.9.2 HMI controller

2.9.3 Piping Package (Factory provided)

2.9.4 Structural Steel Base

.1 The common base shall be manufactured as shown in the drawings accompanying this submittal to allow integration of the chillers and associated piping

.2 Structural Steel Base – Structural Steel - The common base shall be engineered and fabricated using structural steel base with a minimum of 4” high main beams and 2 ½” cross members. Plates, when provided, shall be a minimum of 3/16” plate steel and welded to the frame for a secure anchoring of equipment. The frame shall be primed and painted. Lifting lugs shall be provided for rigging the unit into place on the job site. Lifting lugs shall be welded or bolted to the structural steel base depending on specific design requirements. Additional holes shall be provided for the installation of field provided and installed isolators. Refer to rigging and weight diagram for details on hole location.

.3 Structural Steel Base - Lifting Lugs – The common base shall incorporate lifting lugs to rig, position, and set skid in place on the job site. Lugs are located and provided as shown in the accompanying rigging diagram. Lugs are designed to accept a “corky” style lifting device commonly used in container rigging. The holes are designed to accept a 1.7x3.0 inch “corky”. The skid must be rigged using all provided lifting lugs and only rigged dry and empty.

.4 Structural Steel Base – Finish – Painted - The base shall be prepared for paint using a process that may include the

following processes: wash down of all surfaces with a paint-prep solution, removal of weld slag, and sanding of any fine surface corrosion that may be present when materials are delivered from the mill. After the preparation process, the steel base shall be painted a color similar to the base unit. Slight variations in dye lots may change final appearance of the extension base color. The underside of the extension is provided painted in a similar fashion to the top side. The base is uninsulated.

.5 Structural Steel Base – Chiller(s) Mechanically Fastened to Base Rail – The chiller(s) shall be mechanically fastened to the base rail/sub base.

2.10 Chilled Water & Hot Water Piping Package

2.10.1 Pipe and Fittings Construction – Schedule 40 black steel pipe. Welded or with grooved mechanical couplings and standard grooved fittings and 150 pound flanges. ANSI/AWWA C-606, or equivalent.

2.10.2 Chilled Water Piping Package –

.1 A Factory installed piping package shall be provided for the unit. Piping shall be as indicated on the enclosed drawings. No components not specifically identified in this document or upon the enclosed Factory drawings shall be included. Construction and material for piping shall be as indicated below.

.2 Single Entering / Leaving Fluid Connection – The unit shall be equipped with a single entering fluid connection and a single leaving fluid connection for the chilled water system. The connection type shall be as indicated on the included submittal drawings elsewhere in this document. When unit is assembled using C-606 style grooved fittings and couplings and the connection type is shown as flanged, the unit shall ship with flange adapters. These items ship loose and require field installation. The flange adapters are not typically listed in the field installed items section.

.3 Butterfly Isolation Valve Grooved Style - Factory shall provide and install as shown on the hydronic schematic, an isolation valve. These butterfly valves are designed for pressures to at least 150psi bidirectional pressure. The valve shall have a ductile iron body and disc conforming to ASTM A-536, grade 65-45-12. The body shall have a 2” extended neck for insulation. The valve seat shall be suitable for service with the fluid being used and shall have a full 360° continuous contact with the seating surface. The valve shall be provided with a handle operator. Standard valve seat shall be an EPDM material with a temperature

range of -30F to 250F and recommended for cold and hot water service.

.4 Manual Air Vent - Factory shall provide and install as shown on the hydronic schematic, a ball valve that shall be used as a manual air vent. The ball valve shall be a two-piece, full port, blow-out proof stem with PTFE seat construction. The body shall be constructed from brass and the ball constructed from chrome plated brass. It shall have threaded connections with a screwdriver slot. Valves shall have a 600 psi WOG pressure rating and a 150 WSP pressure rating.

.5 Pressure/Temperature Port – Factory shall provide and install as shown on the hydronic schematic, pressure/temperature ports. The pressure/temperature ports shall be constructed of solid brass with two valve cores of Neoprene. The ports shall have a maximum recommended temperature of 200°F and maximum working pressure of 500 psig. They shall have a cap and gasket to provide an additional seal. The pressure/temperature ports shall be ½" NPT connection and be extended past the pipe insulation.

.6 ½" NPT Connection – Factory shall provide as shown on the hydronic schematic, a ½" NPT connection. The ½" NPT connection shall be for field provided and installed gauges and shall be plugged from Factory.

.7 Two-Way Modulating Control Valve - Factory shall provide and install as shown on the hydronic schematic, a two-way modulating control valve. The valve shall have grooved ANSI/AWWA pipe connections. The control valve shall be provided with a programmable actuator. The valve actuator shall have a nominal voltage of 24 to 240 VAC / 24 to 125 VDC and a nominal voltage frequency of 50/60 Hz. Control input for actuator shall be configurable for either 2-10VDC or 4-20 mA.

.8 Wye Strainer – Factory shall install a factory provided wye strainer as shown on the hydronic schematic.

.9 Drain Port – Factory shall provide and install as shown on the hydronic schematic, a drain port. The drain port shall be at the lowest point in the chilled water piping system and shall be plugged.

.10 Flow Switch – Factory shall provide and install as shown on the hydronic schematic, a flow switch. The flow switch shall be a thermal dispersion flow switch. The flow switch shall be wired to the corresponding chiller control panel.

.11 Flexible Metal Hose – The piping package shall be equipped with flexible metal hoses in the locations shown in the hydronics schematic. The flexible metal hose is designed to absorb vibration and allow for misalignment. When

pressurized, outer braid covering shall be tight around the inner hose section. Flexible metal hoses shall be installed at the designed length with no torsional, compressive, extensive, or offset load. Flexible connectors shall be of the braided stainless steel type. Flexible hose and braid shall be constructed of 304 stainless steel with carbon steel schedule 40 grooved connections. Overall length to allow for a maximum of 3 1/2" permanent lateral offset.

2.10.3 Hot Water Piping Package –

.1 A Factory installed piping package shall be provided for the unit. Piping shall be as indicated on the enclosed drawings. No components not specifically identified in this document or upon the enclosed Factory drawings shall be included. Construction and material for piping shall be as indicated below.

.2 Single Entering / Leaving Fluid Connection – The unit shall be equipped with a single entering fluid connection and a single leaving fluid connection for the hot water system. The connection type shall be as indicated on the included submittal drawings elsewhere in this document. When unit is assembled using C-606 style grooved fittings and couplings and the connection type is shown as flanged, the unit shall ship with flange adapters. These items ship loose and require field installation. The flange adapters are not typically listed in the field installed items section.

.3 Butterfly Isolation Valve Grooved Style - Factory shall provide and install as shown on the hydronic schematic, an isolation valve. These butterfly valves are designed for pressures to at least 150psi bidirectional pressure. The valve shall have a ductile iron body and disc conforming to ASTM A-536, grade 65-45-12. The body shall have a 2" extended neck for insulation. The valve seat shall be suitable for service with the fluid being used and shall have a full 360° continuous contact with the seating surface. The valve shall be provided with a handle operator. Standard valve seat shall be an EPDM material with a temperature range of -30F to 250F and recommended for cold and hot water service.

.4 Manual Air Vent - Factory shall provide and install as shown on the hydronic schematic, a ball valve that shall be used as a manual air vent. The ball valve shall be a two-piece, full port, blow-out proof stem with PTFE seat construction. The body shall be constructed from brass and the ball constructed from chrome plated brass. It shall have threaded connections with a screwdriver slot. Valves shall have a 600 psi WOG pressure rating and a 150 WSP pressure rating.

.5 Pressure/Temperature Port – Factory shall provide and install as shown on the hydronic schematic, pressure/temperature ports. The pressure/temperature ports shall be constructed of solid brass with two valve cores of Neoprene. The ports shall have a maximum recommended temperature of 200°F and maximum working pressure of 500 psig. They shall have a cap and gasket to provide an additional seal. The pressure/temperature ports shall be ½" NPT connection and be extended past the pipe insulation.

.6 ½" NPT Connection – Factory shall provide as shown on the hydronic schematic, a ½" NPT connection. The ½" NPT connection shall be for field provided and installed gauges and shall be plugged from Factory.

.7 Two-Way Modulating Control Valve - Factory shall provide and install as shown on the hydronic schematic, a two-way modulating control valve. The valve shall have grooved ANSI/AWWA pipe connections. The control valve shall be provided with a programmable actuator. The valve actuator shall have a nominal voltage of 24 to 240 VAC / 24 to 125 VDC and a nominal voltage frequency of 50/60 Hz. Control input for actuator shall be configurable for either 2-10VDC or 4-20 mA.

.8 Wye Strainer – Factory shall install a factory provided wye strainer as shown on the hydronic schematic.

.9 Drain Port – Factory shall provide and install as shown on the hydronic schematic, a drain port. The drain port shall be at the lowest point in the hot water piping system and shall be plugged.

.10 Flexible Metal Hose – The piping package shall be equipped with flexible metal hoses in the locations shown in the hydronics schematic. The flexible metal hose is designed to absorb vibration and allow for misalignment. When pressurized, outer braid covering shall be tight around the inner hose section. Flexible metal hoses shall be installed at the designed length with no torsional, compressive, extensive, or offset load. Flexible connectors shall be of the braided stainless steel type. Flexible hose and braid shall be constructed of 304 stainless steel with carbon steel schedule 40 grooved connections. Overall length to allow for a maximum of 3 1/2" permanent lateral offset.

.11 Flow Switch – Factory shall provide and install as shown on the hydronic schematic, a flow switch. The flow switch shall be a thermal dispersion flow switch. The flow switch shall be wired to the corresponding chiller control panel.

2.10.4 Pipe and Fittings Insulation –

.1 3/4" Elastomeric - All non-economizing water piping, fittings and hydronic specialties are provided with 3/4" elastomeric insulation. Insulation shall be UV resistant without the application of covering paint. Depending upon material availability at the time of fabrication, standard elastomeric insulation may be provided and coated with an ultraviolet resistant finish. Components and piping provided on the base unit shall retain factory provided insulation type and size unless specifically noted elsewhere in this document. Insulation is installed using a contact adhesive. As a contact adhesive, in all cases, both surfaces to be joined are coated with adhesive. For application to large, flat or curved metal surfaces such as ducts, very large pipes, tanks and vessels, full adhesive coverage is used. For application as pipe insulation and fitting covers, only the seams and joints are adhered with contact adhesive.

2.10.5 Custom Power

.1 Chilled Water Modulating Control Valve Wiring – The chilled water modulating control valve for each chiller module shall be wired to the single point power panel. The wiring shall be completed by Factory.

.2 Hot Water Modulating Control Valve Wiring – The hot water modulating control valve for each chiller module shall be wired to the single point power panel. The wiring shall be completed by Factory.

2.10.6 Custom Controls –

.1 Communication Wiring between Chillers – The communication wiring between chillers shall be completed by mechanical contractor

.2 Chilled Water Flow Switch Wiring – The chilled water flow switch for each chiller module shall be wired to the chiller control panel. The wiring shall be completed by Factory.

3 . EXECUTION

3.1 GENERAL

3.1.1 Install units as indicated and to Manufacturer's recommendations.

3.1.2 Piping connections to units shall be flexible hoses.

3.1.3 Provide pressure independent control valve in supply piping, supply and return isolation valves, wye strainer on supply side pipe, P+T ports and local drain on terminal side of isolation valves for unit maintenance.

3.2 EQUIPMENT PREPARATION AND START-UP

3.2.1 Provide services of Manufacturer's Field Engineer to set and adjust equipment for operation as specified.

END OF SECTION

ACCEPTABLE MANUFACTURERS LIST

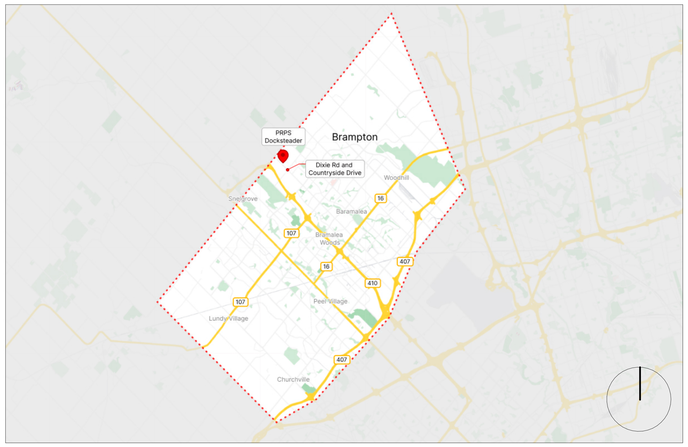
ITEM	APPROVED MANUFACTURERS
Access Doors	Can-Aqua, Mifab, Milcor, Maxam, Van-Met,Nystrom, Van-Met, Acudor, E.H. Price, Steel Brothers, Nailor, Zurn, Wade
Automatic Air Vent	Sarco, Armstrong, Dole, Maid-O-Mist, Taco, Watson McDaniel, Caleffi
Air Curtains	Berner, Schwank, Biddle
Air Separators	Armstrong, Spirotherm, Taco, Spirotech Caleffi, Wessels, B&G (Xylem)
Air Handling Units/Make-up Air/DOAS Units (Institutional)	AnnexAir, Engineered Air, Haakon, Ingenia, Ventrol, Govern-Air, Scott Springfield, Swegon, Tempeff, Scott Springfield, SystemAire, *JCI York*
Balancing	Air Balance Group, Air Audit, Clark, Aerodynamics, Pro-Air, Dynamic Flow Balancing, Air Velocities Control, Flowset, Designtest and Balance, VPG, Vital Canada, Technical Air Balancing,
Backflow Protection	Watts, Febco, Clayton, Beeco, Wilkins
Buffer Tanks	AO Smith, Bell & Gossett (Xylem), Taco, Armstrong
Air Source Heat pump	Aermec, Climavenata, JCI, Water Furnace, Bluebox
Coils, Water	Aerofin, Trane, McQuay, Carrier, Engineered Air, Heatcraft, JCI/York, RAE. Macon
Boiler	Petterson Kelly, Lochinvar, Fulton, Acme Slim, Viessman, *Aerco*
Controls	*Trane, ESC/Delta, Johnson Controls*
Couplings	Victaulic, Grinnell
Damper - Low Leakage	Tamco, Ruskin, Nailor, EH Price, Greenheck, Arrow United, NCA
Domestic Hot Water Heaters	AO Smith, Ruud, Rheem, State, PVI, GSW, John Wood, Bosch, Bradford White

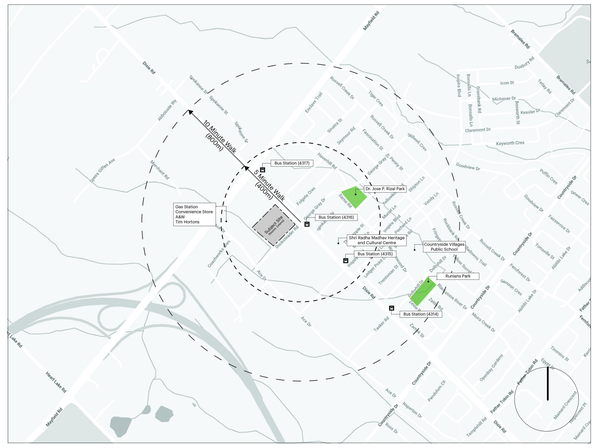
Domestic Hot Water-Tankless	AO Smith, Bosch, Tagaki, Rinnai, Eemax, Navien, Stiebbl Ebtron, NTI
Expansion Joints	Flexonics, Hyspan, Uniroyal, Keflex, Mason, Goodall,Yarway
Expansion Tanks	Amtro/Extrol, Therm-x-trol, State, Sparco, Expanflex, Armstrong, B &G (Xylem), Clemmer, Taco, Zilmet H & G, Watts, Flexcon
Fan Coil Units	Carrier, Trane, Daikin, Williams, MultiAquaEngineered Air, Airtherm, Climatec, Unilux, Price, International Environmental, first co, IEC, *JCI*
Fans - Cabinet, Roof and Propeller	Loren-Cook, Penn, Jenn-Air, Greenheck, Carnes, American Cool-Air, Broan, Delta Breez, Nutone, Reversomatic, Panasonic, Air King, Lexton
Fans - Centrifugal/Plenum	Buffalo, Northern, Pace, Chicago, Twin City fans, Barry Blower, Trane, Flakt-Woods, Penn, New York Blower, Greenheck, Loren-Cook ,
Fans - Inline	Loren-Cook, Penn, Jenn-Air, Greenheck, Carnes, S & P
Fans – Roof/Wall Exhaust	Acme, Penn, Greenheck, Loren-Cook,
Filters - Air	Camfil-Farr, Continental, Cambridge, AAF, EH Price, Dayco, Dafco
Fire Dampers	Canadian Advanced Air, Maxam, Ruskin, Controlled Air, Nailor-Hart , NCA
Fire Protection - Cabinets	Wilson & Cousins, National, Viking, NFE
Fire Protection - Extinguishers	Flagg, National, Kidde
Fire Protection - Sprinklers	Grinnell, Viking, Star, Astra, Vipond, Tyco, Reliable
Force Flow Units/Unit Heaters/Convectors (Hot Water)	Trane, Firstco, Modine, Rosemex, Daikin Dunham Bush, Engineered Air, Sterling, Sigma, Airtherm
Gas Detection Systems	Vulcain. QEL, Enmet, MSL, Armstrong, Honeywell

Grilles and Diffusers	Price, Nailor, Titus, Krueger, Lindab, Seiho, Tuttle & Bailey, Metalaire, NAD- Klima
Grilles and Diffusers-Self-Modulating	E H Price, Titus
Heat Exchangers	Armstrong, AIC, Alpha Laval, B & G (Xylem), GEA, Sondex
Humidifiers-Absorption Self-Contained Type	Steam-O-Vap, Carel, neptronic
Insulation	Fiberglas, Knauf, Johns-Manville, Atlas, PPG, Manson, Armstrong, Owens Corning, Certainteed, Roul, Thermafibre, Therma-Cel, Armacell, Aerocell, K-Flex, Flex USA, Kingspan
Jacketing Material	Childers, Fiberglas, Johns-Manville
Louvres	Ventex, Airolite, Ruskin, Greenheck
Motors, Electric – Premium Efficiency	Century Electric, Baldor, Toshiba, Teco
Pre- Fabricated Ductwork system	*Nad Klima*
Pipe Fittings and Flanges	Crane, Grinnell, Jenkins, Victaulic
Pipe Supports and Hangers	Crane, Unistrut, Myatt, L.E. Taylor, Grinnell, Sarco
Plumbing Drainage Accessories	Roto-Tech-Smith, Enpoco, Ancon, J.R. Smith, Zurn, Mifab, Watts
Plumbing Fixtures and Trim	K.I.L., Fiat, Kohler, Eljer, American Standard, AMP, Moen-Commerical, Williams, AristaNewman, Haws, Elkay, Aquarius, Swan, Bradley, Cambridge, Speakman, Valley, Hytec, Watrous, Briggs, Symmons, Sloan, Nepitek, Crane, Toto, Mifab, Grohe, Guardian
Pressure Gauges	Marsh, Moeller, Weiss, Ametek, Trerice, Winters
Pumps-Domestic Booster	Armstrong, B&G, Wilo, Plad, Grundfos, Patterson (Gorman Rupp)
Pumps-Domestic Hot Water Recirculation	B&G, Armstrong, Taco, Grundofos, Wilo
Pumps – Vertical-In-Line, Circulators	Bell & Gossett, Armstrong, Grundfos, Wilo, Taco,

	Patterson (Gorman Rupp), Pentair
Pumps – Fire	Aurora, Xylem (B & G), Armstrong, Plad, Peerless, Patterson (Gorman Rupp)
Pumps- Submersible	Hydro–Matic, Leader, Flygt, Patterson (Gorman Rupp), Myers, Zoeller, Barnes, Plad
Radiant Ceiling Panels- Hot Water/Chilled water	Lindner, Aquatherm, Messana, Airtex (Eng Air), Giacomini, Barcol-Air, TWA-Frenger, Armstrong Ceilings, Zehnder, Climacustic, Eurotherm
Radiant Slab Heating and Cooling System	Uponor, Heat Link, Rehau (Klimatrol), Watts Radiant, Giacomini, *Calefactio*
Relief Valves	Crosby, Sarco, Watts
Reverse Osmosis Unit	Filterco, Barnstead, Nimbus, Culligan
Roof Drains	Zurn, Jay R Smith, Wade, Watts, Ancon
Sound Attenuation (Silencers)	I.A.C., Vibron, Vibro Acoustics, VAW Systems, Flanders-CSC Corp, Kinetics
Strainers	Red & White, Crane, Armstrong, Kitz, Mueller, Plenty, Colton, Metraflex, Muesco, Spirax/Sarco, Toyo, Victaulic
Thermometers	Marsh, Moeller, Trerice, Weiss, Weksler, Winters
Toilet Seats	Beneke, Bemis, Olsonite, Moldex, Centoco
Trench Fan Coil Units	Jaga, Kampmann, *Air Fixture- JCI*
Unit Heaters (Hot water)	Engineered Air, Trane, Sigma,
VAV Boxes	EH Price, Nailor, Titus, Krueger, Metalaire, Tuttle and Bailey
Valves - Ball	Red & White, Grinnell, Watts, Newman Hattersley, Crane, Victaulic, Nibo, Kitz, Toyo
Valves - Gate & Globe	Red & White, Crane, Jenkins, Grinnell, Kitz, Newman Hattersley, Dezurik, Nibco, Victaulic

Valves - Butterfly	Centerline, Keystone, Grinnell, Crane, Victaulic, Crane, MA Stweart, Nibco, Keystone, Toyo, Kurimoto, Kitz
Valves - Balancing	Armstrong, Tour and Anderson, Dezurik, Dahl, Toyo, Caleffi, Keystone, Ballcentric, Xylem, Victaulic, Wheatley, Overtrop, ESBE, Nexus
Valves - Check Spring Loaded	Mission, Moyes & Groves, Crane, Kitz, Newman Hattersley, Nibco, Toyo, Grinnell, Victaulic, Mueller, Conbraco, Durabla, Muessco, Centerline, Apco,
Valves- PICV	Belimo, Siemens
Valves – 6 way valves	Belimo, Siemens
Variable Speed Drives	ABB, AC Tech, Toshiba, Hitachi, Danfoss/Graham, Coyote, Armstrong, Reliance, Cerus (E.H. Price supplier).
Vibration Control Equipment	Vibro-Acoustics, Lo-Rez, Vibron, Korfund, Mason, Kinetics, EAR Grommets, American National Rubber, Unisource
Water Treatment & Pot Feeder	Suez (Campus Preferred)





CONTEXT MAP NTS

AMENITY MAP NTS

Project Building Code Data Summary

Project Name:	**PRPS Docksteader Reporting Station**		
Project Address:	**Part of Block 6, Plan 43M-1907, City of Brampton, Regional Municipality of Peel**		
Project Type:	**New Build**		
Project Description:	**New Construction of Paramedic Reporting Station and Ambulance Stocking Warehouse**		

Governing Code (Part 3 or Part 9) :		**Part 3**	Building's Major Occupancy Classification(s)	
Number of Streets Facing :		**1**	**Group D (3.2.2.54), Business and Personal Services - Office**	
Grade Elevation (m) :		**FFE 253m ASL**	**Group F Division 3 (3.2.2.77), Low Hazard Industrial - Storage Garage**	
Building Height	- Storeys Above Grade :	**2 Storeys (9m)**		
	- Storeys Below Grade :	**0**	Occupancy Separation F.R.R. (Hr):	**1.5**

Project Sustainability Metrics

Per:	**City of Brampton Sustainability Assessment Tool**
Applicant Category:	**Site Plan Control**
Total Points Achieved:	**72 (Minimum 41)**
Sustainability Score Threshold:	**Silver (Minimum Bronze)**

Note: Refer to Appended Sustainability Assessment Report for Complete Breakdown of Points Awarded and Rationale.

Zoning By-Law Minimum Setback Requirements

Per:	**Section 6.33.2**	
	Min. Setback at All Yards:	**1m**
	Min. Setback Yards Abutting Residential Zone:	**4.5m (N/A)**
Per:	**Section 2258 M1 - 2258**	
	Min. Depth of Landscaped Open Space at Dixie Road:	**6m**
	Min. Depth of Landscape Open Space at All Other Streets:	**3m**

Site Statistics

Gross Site Area	15735 m²
Building Footprint	5322 m²
Building Coverage Ratio	34%
Landscape Area Ratio	36%

Gross Floor Area Schedule

Per Regional Municipality of Peel By-Law Number 77-2020

Level	Area
Level 1	5351.40
Level 2	1691.58
VB Roof/Level 3	802.29
Gross Floor Area	7845.28

Gross Construction Area Schedule

Level	Area
Level 1	5365.67
Level 2	1808.41
VB Roof/Level 3	816.76
Grand total	7990.84

Site Parking Schedule

Type	Count
A - Ambulance Stall - Exterior - 7.0x3.5m	14
E - ERV / RRU Parking - Exterior - 5.4x2.7m	10
S - Staff Parking - Exterior- 5.4x2.7m	78
V - A - Visitor - AODA Type A - 5.4x2.7m	2
V - B - Visitor - AODA Type B - 5.4x3.4m	3
V - Visitor Parking - 5.4x2.7m	26
Grand total: 133	

Interior Parking Schedule

Type	Count
A - Ambulance Stall - Interior - 7.0x3.5m	60
S - RRU/ERV Parking - Interior - 5.4x2.7m	4
Grand total: 64	

Motorcycle Parking Space Schedule

Type	Count
M - Motorcycle Parking - 1.2x3m	6
Grand total: 6	

Bicycle Parking Schedule

Type	Provided Count	Minimum Required Count
Secure Bicycle Parking	24	17
Short Term Bicycle Parking	14	7

Note: Bicycle Parking Counts as required by Region of Peel's Healthy Development Assessment, Minimum Bicycle Parking Standards.

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Issued

No.	Date	Description
1	Nov 17, 2023	Site Plan Control - Completeness Review
2	Nov 20, 2023	100% Design Development
3	Nov 27, 2023	Site Plan Approval
4	Mar 20, 2024	Site Plan Approval R1
5	Mar 22, 2024	33% Construction Documents
6	Apr 22, 2024	66% Construction Documents
7	May 27, 2024	Issued For Building Permit (Draft)
10	July 8, 2024	Issued for Building Permit
11	July 26, 2024	Issued for Tender
12	Sept 23, 2024	Issued for Tender
14	Nov 5, 2024	Issued for SPA Resubmission No. 1
15	Nov 27, 2024	Issued for Tender Addendum No. 3

Site Plan 1 : 200

Key Plan 1:3000

Legend

Site Plan Symbols

▼	Vehicle Entrance/Exit
▼	Building Entrance/Exit
≻	Siamese Connection
⌑	Fire Hydrant
- - - -	Barrier-Free Pathway
▨	Sidewalk - Concrete
▨	Ornamental Bioswale
▨	Pedestrian Walkway - Pavers
▨	Plaza Paving
▨	Low-Mow Grass
▨	Multi - Use Pathway
▨	Asphalt
▨	Accessible Parking Clear Loading Space

GENERAL NOTES

Site Plan

1. Site Plan Developed Based on Site Survey by KRCMAR: Plan of Survey for Part of Block 5, Plan 43M-1907, City of Brampton, Regional Municipality of Peel.
2. Dixie Road Widening Based on Dixie Road Reconstruction Location 1 (From South of Countryside Dr to North of Mayfield Re), RW5, July 2021. Site works, including paving, landscaping, and grading are designed to meet existing conditions per Site Survey by KRCMAR. Final paving, landscape, and grading subject to change based on final Road Widening by the Region of Peel.
3. Accessible parking stall signage to conform to City of Brampton Accessible Parking Standards.
4. All Site Signage and Pavement Markings to conform to OTM and City of Brampton Standard #430.

Contractor Must Check & Verify all Dimensions on the Job.

Do Not Scale Drawings.

This Drawing is Not to be Used for Construction Until Signed by the Architect.

Docksteader PRPS
6 Docksteader Road, Brampton, ON
221033
File No. SPA-2024-0088

Site Plan
As indicated

A011

Autodesk Docs://221033-Docksteader PRPS-R22/221033-ARCH-DSA-Building-R22.rvt
2024-11-27 11:15:17 AM

Exterior Wall Types

TYPE	R(IMP.) EFFECTIVE	ASSEMBLY	DESCRIPTION
EW1 (A or B)	R-30	265; Support Substrate	**Metal Panel on Concealed Clip System** Prefinished Metal Cladding Panel Engineered Cladding Rails w/ Concealed Clip System Insulation Type INS-1 Fibreglass Clip and Galvanized Girt Cladding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings) *Note:* Type Suffix "A" and "B" Indicate Metal Cladding Panel Finish Type - Refer to Specification
EW2 (A or B)	-	60; Support Substrate	**Metal Panel on Concealed Clip System - Uninsulated** Prefinished Metal Cladding Panel Engineered Cladding Rails w/ Concealed Clip System Support Substrate (Refer to Drawings) *Note:* System to be Engineered to Resist Wind Loads From Front (Exposed) and Back (Support) Faces
EW3	R-30	195; 200; Support Substrate	**Solar Wall** 22mm 24 Gauge Corrugated Perforated Rolled Pre-Painted Steel Wall Cladding 150mm Solarwall Preheat Cavity 100mm Vertical Galvanized Z-Girt on 50mm Horizontal Galvanized Z-Girt 22mm 24 Gauge Corrugated Rolled Galvanized Steel Wall Cladding Insulation Type INS-1 Fibreglass Clip and Galvanized Girt Cladding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings)
EW4	R-30	265; Support Substrate	**Aluminum Composite Panel Cladding System** Composite Metal Panel on Engineered Clip System Engineered Cladding Rails Insulation Type INS-1 Fibreglass Clip and Galvanized Girt Cladiding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings)
EW5	-	65; Support Substrate	**Aluminum Composite Panel - Uninsulated** Composite Metal Panel on Engineered Clip System Engineered Cladding Rails Support Substrate (Refer to Drawings)
EW6	R-30	275; Support Substrate	**Sintered Stone Panel Cladding System** Sintered Stonel Panel on Engineered Clip System Engineered Cladding Rails Insulation Type INS-1 Fibreglass Clip and Galvanized Girt Cladding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings)
EW8	R-15	150; Support Substrate	**Corrugated Metal Cladding** 22mm 24 Gauge Corrugated Rolled Pre-Painted Steel Wall Cladding 25mm Engineered Cladding Support Channel Insulation Type INS-1 Fibreglass Clip Cladding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings)
EW9	-	15; 35; 15; 50	**Ribbed Pre-Cast Concrete Panel** Pre-Cast Ribbed Concrete Panel w/ 25x25mm Channels @50mm C/C Mid-Coarse Chipped Surface Pattern Cast-In-Place Concrete (Refer to Structural)
EW10	R-30	265; Support Substrate	**Glass Faced Rainscreen Cladding Panel** Glass Faced Rainscreen Panel Engineered Cladding Rail Insulation Type INS-1 Fibreglass Clip and Galvanized Girt Cladding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings)
EW11	R-30	65; 240; Support Substrate	**Assembled Aluminum Fin Profile** Prefished Assembled Aluminum Fin Profile Extruded Aluminum Fin Projections on Plate Aluminum Cladding Panel Engineered Cladding Attachment Clip System Insulation Type INS-1 Fibreglass Clip Cladding Attachment Membrane Type AVBM-1 (Typical) Support Substrate (Refer to Drawings)

Exterior Back-Up Wall Types

TYPE	STC	FRR	ASSEMBLY	DESCRIPTION
MS1	- -	- -	124	**Steel Stud Back-Up Wall - 124mm** 16mm Exterior Sheathing Board 92mm Engineered Lateral Load-Bearing Cold Formed Metal Framing 16mm Gypsum Board
MS2	- -	- -	184	**Steel Stud Back-Up Wall - 184mm** 16mm Exterior Sheathing Board 152mm Engineered Lateral Load-Bearing Cold Formed Metal Framing 16mm Gypsum Board
MS3	- -	- -	235	**Steel Stud Back-Up Wall - 235mm** 16mm Exterior Sheathing Board 203mm Engineered Lateral Load-Bearing Cold Formed Metal Framing 16mm Gypsum Board

Foundation Wall Types

TYPE	R(IMP.) EFFECTIVE	ASSEMBLY	DESCRIPTION
FW1	R-30	300; Support Substrate	**Typical CIP Concrete Foundation Wall** 100mm Precast Concrete Wall Base 30mm Air Space Insulation Type INS-3 Stainless Steel Anchors Filter Fabric 19mm Drainage Board Waterproofing Membrane Type WPM-1 Concrete Substrate with Crystalline Waterproofing Admixture - Ref. Section 07 16 16
FW2	R-30	280; Support Substrate	**Typical CIP Concrete Foundation Wall - 25mm Air Space** 100mm Precast Concrete Wall Base 10mm Air Space Insulation Type INS-3 Stainless Steel Anchors Filter Fabric 19mm Drainage Board Waterproofing Membrane Type WPM-1 Concrete Substrate with Crystalline Waterproofing Admixture - Ref. Section 07 16 16

Soffit Types

TYPE	R(IMP.) EFFECTIVE	ASSEMBLY	DESCRIPTION
S1	R30		**Interlocking Metal Panel Soffit** 92mm Engineered Metal Stud 16mm Fibreglass Faced Gypsum Sheathing Board Membrane Type M-AVB-1 Insulation Type INS-1 Max. 200mm Insulation Depth Fibreglass Clip and SS Girt Cladding Attachment 25mm Galvanized Steel Cladding Attachment Channel Interlocking Prefinished Galvanized Metal Panel
S2	-		**Interlocking Metal Panel Soffit - Uninsulated** 92mm Engineered Metal Stud 16mm Fibregless Faced Gypsum Sheathing Board 25mm Galvanized Steel Cladding Attachment Channel Interlocking Prefinished Galvanized Metal Panel
S3	-		**Aluminum Composite Panel Soffit - Uninsulated** Composite Metal Panel w/ Mirror Finish Membrane Type AVBM-1 (Typical) 92mm Galvanized Metal Stud Framing

Roof Types

TYPE	R(IMP.) EFFECTIVE	ASSEMBLY	DESCRIPTION
R1	R45	Support Substrate; 13	**SBS Membrane - Low Slope** 2-Ply SBS Roof Membrane, Fully Adhered - Ref. 07 52 16 6.35mm Cover Board Insulation Type INS-2 Membrane Type VCM-1 (Typical) 16mm Fibreglass-Mat Gypsum Sheathing Board Substrate - Typically Metal Roof Deck (Refer to Structural)
R2		Support Substrate; 13	**SBS Membrane - Low Slope, Reduced Insulation** 2-Ply SBS Roof Membrane, Fully Adhered - Ref. 07 52 16 6.35mm Cover Board Insulation Type INS-2 Membrane Type VCM-1 16mm Fibreglass-Mat Gypsum Sheathing Board Substrate - Typically Metal Roof Deck (Refer to Structural) Note: This Roof Assembly to be Used at Exterior Canopy and Does Not Form a Part of the Building Enclosure

Subfloor Types

TYPE	RSI	FRR	ASSEMBLY	DESCRIPTION
SOG1	R-30		REFER TO STRUC.; REFER TO GEOTECH.	**Slab on Grade w/ 75mm Concrete Topping** 75mm Concrete Topping Hydronic Piping Set In Topping Structural Cast-In-Place Slab (Refer to Structural) Membrane Type VCM-2 Insulation Type INS-4 Min. 200mm Gravel Base and Drainage Layer
SOG2	R-30		REFER TO STRUC.; REFER TO GEOTECH.	**Slab on Grade w/ 150mm Concrete Topping** 150mm Concrete Topping Hydronic Piping Set In Topping Structural Cast-In-Place Slab (Refer to Structural) Membrane Type VCM-2 Insulation Type INS-4 Min. 200mm Gravel Base and Drainage Layer

15

Insulation Types

TYPE	R(IMP.) EFFECTIVE	ASSEMBLY	DESCRIPTION
INS-1	R4.3 per 25.4mm 15		**Semi-Rigid Mineral Wool Insulation** Staggered Joints Ref. Section 07 21 00
INS-2	R5.7 per 25.4mm		**Polyisocyanurate Roof Insulation** Staggered Joints Ref. Section 07 21 00
INS-3	R5.0 per 25.4mm		**Extruded Polystyrene** Low-GWP Staggered Joints Ref. Section 07 21 00
INS-4	R5.0 per 25.4mm		**Extruded Polystyrene** High Load-Bearing Capacity Low-GWP Staggered Joints Ref. Section 07 21 00
INS-5	R4.3 per 25.4mm		**Foamed-In-Place Insulation** Ref. Section 07 21 19

Membrane Types

TYPE	R(IMP.) EFFECTIVE	ASSEMBLY	DESCRIPTION
AVBM-1			**Air and Vapour Barrier Membrane** Ref. Section 07 27 14
AVBM-2			**Air and Vapour Barrier Membrane** Heat Resistant - Ref. Section 07 62 00
AVBM-4			**Air and Vapour Barrier Membrane** Silicon Transition Sheet - Ref. Section 08 44 13
VCM-1			**Vapour Control Membrane** Roof Type - Ref. Section 07 52 16
VCM-2			**Vapour Control Membrane** Underslab Type - Ref. Section 07 26 16
WPM-1			**Waterproofing Membrane** Face Applied - Ref. Section 07 13 26
WPM-2			**Waterproofing Membrane** Blind-Side - Ref. Section 07 13 33
WPM-3			**Waterproofing Membrane** Cementitious Waterproofing - Ref. Section 07 16 13

Typical Partition Tag

Assembly Type (First Position)
Core Assembly (Second Position)
P21A0
Assembly Options (Suffix (Optional))
Sheathing Thickness/Quantity (Third Position)

Assembly Abbreviations

Prefix	Assembly Type
M	Concrete Masonry Partition
MR	Concrete Masonry Partition FR
F	Furring
P	Metal Stud Partition
PR	Metal Stud Partition FR
PS	Shaftwall Partition
EW	Exterior Wall
PW	Parapet

GENERAL NOTES

Partitions

1. **Gypsum Board Partitions and Furring:**
1.1 Extend Gypsum Board Partitions Full Height to U/S of Floor or Roof Slab Above, Unless Otherwise Indicated.
1.2 At Non-Rated Fire Separations, Acoustic and Fire Rated Partitions, Provide Joint Sealant at Perimeter Joints and All Penetrations Through Gypsum Board.
1.3 Provide Backer Plates for Handrail Support, Bumper Rails, Wall Mounted Millwork etc. Refer to Plans for Extent and Locations.
1.4 At Partitions to Receive Ceramic Tile Wall Finish Provide Tile Backer Board in Lieu of Gypsum Board Behind Tiles. Backer Board to be Fire Rated Type at Fire Rated Partitions.
1.5 At Acoustic Partitions, Recessed Electrical Boxes on Opposite Sides of Partition to be Staggered Minimum 600mm.
1.6 See Room Finish Schedule for Interior Finishes.
1.7 Height of Furring Wall to be 150mm Above Finished Ceiling Unless Otherwise Noted.
1.8 Suffixes for Gypsum Board Partitions and Furring:
'O': Denotes Offset Wall - Number of GB Layers Differs per Side.
'I': Denotes Wall Containing Acoustic Batt Insulation in Stud Cavity.
'0': Denotes Low Wall - Height Indicated on Floor Plans. Cap with GB Unless Otherwise Indicated.
'1': Denotes Partition/Furring to Extend Min 150mm Above Finished Ceiling.
'2': Denotes Partition/Furring to Stop at U/S of Finished Ceiling
'3': Denotes Partition/Furring to Extend to U/S of Floor or Roof Slab Above.
'4': Denotes Engineered Metal Support System.
'5': Denotes Partition Acting as Guard
'6': Denotes Partition/Furring Replaces GB With Moisture Resistant GB
'7': Denotes Partition/Furring Replaces GB With Moisture Resistant GB on One Side Only (Refer to RFS)
'8': Denotes Partition/Furring Replaces GB with Impact Resistant GB on One Side Only (Refer to RFS).

1.9 ULC Listings Provided for Fire Rated Partitions are for Reference Only.
Provide Appropriate Manufacturer Specific ULC Listings for Review as Required in the Specifications.

2. **Concrete Masonry Unit Walls and Partitions:**
2.1 All Concrete Masonry Unit Walls and Partitions to Extend to U/S of Floor or Roof Slab Above, Unless Noted Otherwise.
2.2 Provide Compressible Joint Filler Continuous at Top of All CMU Walls and Partitions, Seal Joints where Exposed. Provide Firestopping and Smoke Seals at Perimeter Joints and Penetrations in Fire Rated Partitions.
2.3 Provide Lateral Bracing at Top of CMU Walls and Partitions, Refer to Structural for Details.
2.4 Provide Reinforcement of CMU Walls and Partitions as Required by Structural.

3. **Fire Separations:**
3.1 Refer to Fire Separation Plans - Fire Separation Requirements.
3.2 At All Fire Rated Partitions: Install Continuous Firestopping and Smoke Seals at All Perimeter Joints and Penetrations.
3.3 At Recessed Panel Installations (Eg. Electrical Panels) Within Rated Walls: Provide Continuity of the Required Rating Behind and Around the Panel.

4. **Guard Loading:**
4.1 Partitions constructed along edges of floors and adjacent to open-to-below areas to be designed and engineered to meet loading requirements as prescribed by the Ontario Building Code.

Legend
Drawing Symbols

Symbol	Description
A100	Building Section
1 / A100	Wall Section / Detail Section
1 / A100	Callouts
1 / A100	Building Elevation
1 / A100 / 1 / 1 / 1	Interior Elevation
A / 1	Grids
Level 2 / 5100	Levels
1	Revision Bubbles & Tags
	Breakline
1 / A202	Matchline
	North Arrow

Legend
Annotation Symbols

Symbol	Description
ROOM / 1230	Room/Area Tags
2001A	Door Tags
SC2001	Screen Tags
P1 / P1	Assemblies/Accessories/Furniture/Window/Equipment/Finishes Tag
ACT2 / 2600 / ACT2 / 2600	Ceiling Tags
1200	Spot Elevation - New
1200	Spot Elevation - Existing
T/O Concrete 1200	Spot Elevation - "Top of" Alignment Benchmark
U/S Soffit 1200	Spot Elevation - "Underside of" Alignment Benchmark
UP	Stair/Ramp Direction Tag
28 @ 175mm	Stair Riser Tag
27 @ 19mm	Stair Tread Tag
Wall Base	Keynote Tag

Legend
Abbreviations List

A
ABM Air Barrier Membrane
ACONC Architectural Concrete
ACP{#} Acoustic Ceiling Panel {Type No.}
ACT{#} Acoustic Ceiling Tile {Type No.}
AD Area Drain
Add Addendum
Adj Adjustable
ADO Automatic Door Operator
AF Above Floor
AFF Above Finished Floor
AHU Air Handling Unit
Alum Aluminum
ANOD Anodized
AP Access Panel
Approx Approximate
Arch Architectural
AVBM{#} Air Vapour Barrier Membrane
AW Acid Waste
AWP{#} Acoustic Wall Panel {Type No.}
Approx Approximate
Arch Architectural

B
BBD Tile Backer Board (In lieu of GB behind CT)
BDRM Bedroom
BF Barrier Free
BH Bore hole
BL{#} Bollard {Type No.}
BM Benchmark
BR Bumper Rail
BSMT Basement
BT{#} Base Type {Type No.}

C
Cam Security Camera
CBD Cement Board
CG Corner Guard
CFF Concrete Floor Finish {Type No.}
CH Coat Hook
CJ Control Joint
CHB Chalkboard
CL Centre line
CLG Ceiling
CM Construction Manager
CMU Concrete Masonry Unit
CO Clean out
Col Column
Conc{#} Concrete {Type No.}
Con Construction
ConJT Construction Joint
Cont Continuous
Conv Convector
CPH Concealed Panic Hardware
CPT{#} Carpet {Type No.}
CR Chair Rail
CROD Curtain Rod
CS{#} Concrete Surface Sealer {Type No.}
CT Curtain Track
CTR Centre
Cur{#} Curtain {Type No.}
CW{#} Curtain Wall {Type No.}

D
Demo Demolition
DEPT Department
DF Drinking Fountain
Dia Diameter
Diff Diffuser
Dim Dimension
Disp Dispenser
Div Division
DM Dome Mirror
DN Down
DWG Drawing

E
EA Each
EHO Electric Hold Open
Elec Electrical
Elev Elevator
EP{#} Epoxy Flooring {Type No.}
EPT{#} Epoxy Terrazzo
EQ Equal
EQP Equipment
ES{#} Eyewash Station {Type No.}
EW{#} Exterior Wall Type
EXG Existing
EXP Exposed
EXPNJT{#} Expansion Joint
EXPSTR Exposed Structure

F
F{#} Gypsum Board Furring {Type No.}
FA Fire Alarm
FCU Fan Coil Unit
FD Floor Drain
FE Fire Extinguisher
FEC Fire Extinguisher Cabinet
FHY Fire Hydrant
FHC Fire Hose Cabinet
Fin{#} Finish{Type No.}
FL Floor or Flooring
FLGR{#} Floor Grille {Type No.}
Fluor Fluorescent
FN{#} Fence {Type No.}
FR Fire-rated
FRR Fire Resistance Rating
FRTR Fire Retardant Treated
FS Full-size

G
GA Gauge
GALV Hot Dipped Galvanized
GB Gypsum Board
GBC{#} Gypsum Board Ceiling {Type No.}
GBR Grab Bar
GC General Contractor
GDRL{#} Guardrail {Type No.}
GFRG Glass Fibre Reinforced Gypsum
GL{#} Glass {Type No.}
GMU Glass Masonry Unit
GT{#} Geotextile Filter Fabric {Type No}

H
HB Hose Bib
HDRL{#} Handrail
HM Hollow Metal
HM{#} Hollow Metal Door Type
Hor Horizontal
HP High Point
HR Hour
HSS Hollow Steel Section
HT Height
HVAC Heating Ventilating and Air Conditioning

I
ID Inside Diameter
IFRM{#} Intumescent Fireproofing Type {#}
INT Interior
INS{#} Insulation Type {#}
INV Invert
IVT Intravenous Track

J
JAN Janitor
JT Joint

K
KG Kilogram
KO Knockout

L
LAB Laboratory
LAM Laminated
LAV Lavatory
LKR Locker
LINO Linoleum
LP Low Point

M
M Metre
M{#} Concrete Masonry Unit Wall {Type No.}
MRM Marmoleum
Max Maximum
Mech Mechanical
Mezz Mezzanine
MG Make Good
MH Maintenance Hole
Mic Microphone
Min Minimum
Mir Mirror
MISC Miscellaneous
MiscMTL Miscellaneous Metal
MR{#} Fire Rated Concrete Masonry Unit Wall {Type No.}
MWK Millwork
MM Millimetre
MO Masonry Opening
MTL Metal

N
NA Not Applicable
NBC National Building Code
NFHB Non-Freeze Hose Bib
NIC Not in Contract
No Number
NRC Noise Reduction Coefficient
NS Non-slip (Slip Resistant)
NTS Not to Scale

O
OAA Ontario Association of Architects
OBC Ontario Building Code
OC On Center
OD Outside Diameter
Off Office
OHD{#} Overhead Door {Type No.}
Opp Opposite
OWSJ Open Web Steel Joist

P
P{#} Gypsum Board Partition {Type No.}
PCONC Precast Concrete
PE{#} Moveable Partition {Type No}
PERF Perforated
PH Panic Hardware
Plas{#} Plaster {Type No.}
PLam{#} Plastic Laminate {Type No.}
PLWD Plywood
PNL{#} Wall Panel {Type No.}
Pol Polished
PPT Prime Painted
PR{#} Fire Rated Gypsum Board Partition {Type No.}
Prefab Prefabricated
Prefin Prefinished
Proj Projection
PS{#} Shaft Wall {Type No.}
PSF Pounds per Square Foot
PSH{#} Horizontal Shaft Wall {Type No.}
PSI Pounds per Square Inch
PT{#} Paint {Type No.}
PTD Paper Towel Disposal
PTDD Paper Towel Dispenser
PTN Folding Partition
PTR Paper Towel Receptor
PVA Polyvinyl Acetate
PVC Polyvinyl Chloride

R
R Radius
R{#} Roof Type {Type No.}
RA{#} Roof Anchor {Type No.}
RAD Radiator
RB Rubber Base
RBM Root Barrier Membrane
RC Reinforced Concrete
RD Roof Drain
Ref Reference
Refr Refrigerator
Rev Revision
RFS Room Finish Schedule
RM Room
RO Rough Opening
RP Removable Panel
RPM Revolutions Per Minute
RS {#} Roller Shade
RSF {#} Resilient Sheet Flooring {Type No.}
RSU Rod & Shelf Unit
RT {#} Resilient Tile {Type No.}
RTU Roof-Top Unit
RWL Rainwater Leader

S
S{#} Soffit Type {Type No.}
SBO Supplied by Owner (for contractor installation)
SC Screen
SD Soap Dispenser
Sect Section
SF{#} Sub Floor {Type No.}
SFRM Sprayed Fireproofing
SHRC Shower Rod & Curtain
Sim Similar
SND Sanitary Napkin Dispenser
SNR Sanitary Napkin Receptor
SPK Speaker
SP{#} Spandrel Panel Type No.
Spec Specification
SPLR Sprinkler
SQ Square
SRTC Service Room Traffic Coating
SS Stainless Steel
SSM{#} Solid Surface Material {Type No.}
ST Stain
STC Sound Transmission Class
STD Standard
STL Steel
STL/D Steel Deck
STN {#} Stone {#}
Struc Structural
Susp Suspended
SVC Sprinkler Valve Cabinet

T
T&G Tongue and Groove
TB Towel Bar
TKB{#} Tack Board
Tel Telephone
Terr Terrazzo
Tex{#} Textile {Type No.}
Thr{#} Threshold {Type No.}
TL{#} Tile {Type No.}
TOC Top of Curb
TOCS Top of Concrete Slab
TOL Top of Ledge
TOS Top of Steel
TOW Top of Wall
TP Toilet Partition
TPH Toilet Paper Holder
TR{#} Floor Transition Type No.
TT{#} Traffic Topping {Type No.}
TWSI{#} Tactile Warning Strip Indicators {Type No}
TXF Textured Finish
Typ Typical

U
UC Undercut
U/S Underside
U/SS Underside Soffit
UPS Uninterruptible Power Supply
UH Unit Heater

V
V Vinyl
VB{#} Vapour Barrier {Type. No.}
VDS{#} Visual Display Surface
VCM{#} Vapour Control Membrane {Type No.}
Vert Vertical
Vest Vestibule
VWC{#} Vinyl Wall Covering

W
W Width
W/ With
WA{#} Washroom Accessory {Type No.}
WBD Whiteboard
WC Water Closet
WD Wood Frame Material
WD{#} Wood Door {Type No.}
WDS{#} Solid Wood Type No
WDFL{#} Wood Flooring Type No.
WDP{#} Wood Panel Type No.
WDVN{#} Wood Veneer Type No.
WDU Waste Disposal Unit
WM Wire Mesh
WMD Wire Mold
WP Wall Protection
WPM{#} Waterproofing Membrane {Type No.}
WR Washroom
WRP Water Repellent Sealer
WS{#} Window Shades {Type No.}
WTS Waterproof Traffic Surfacing
WWF Welded Wire Fabric

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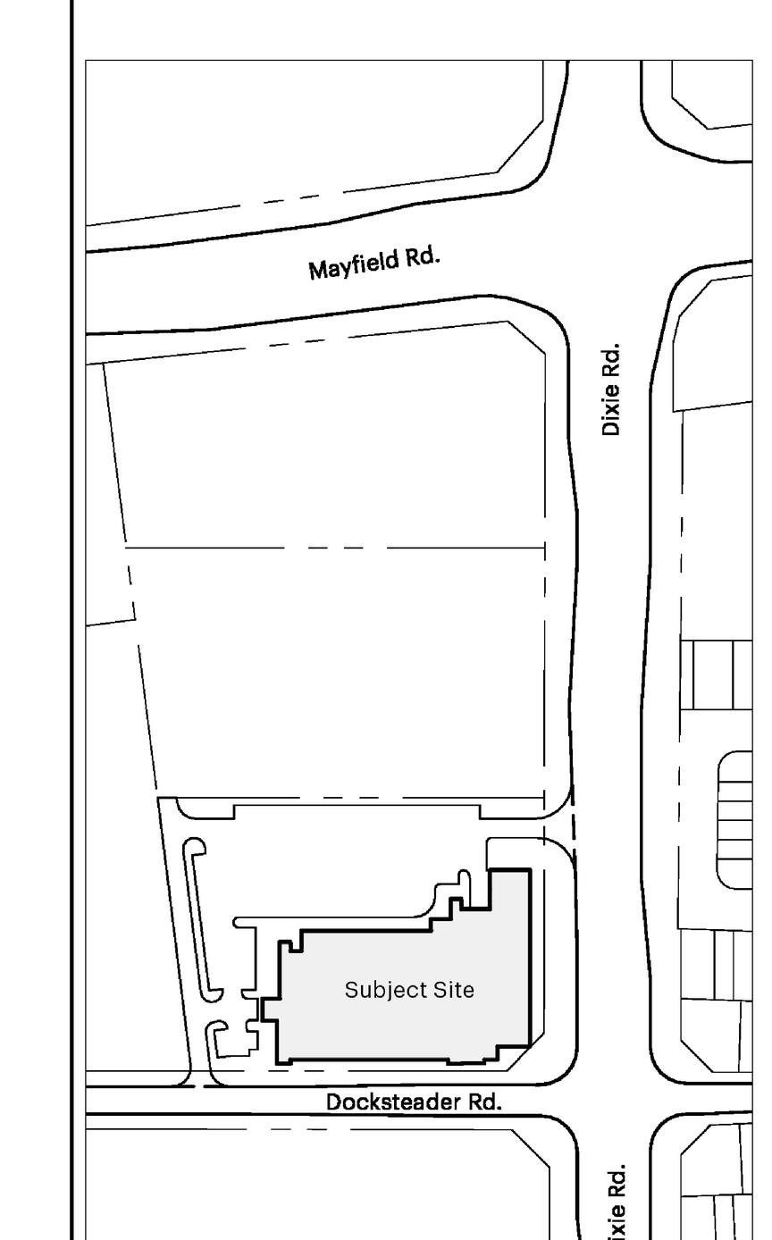
Issued

No.	Date	Description
2	Nov 20, 2023	100% Design Development
5	Mar 22, 2024	33% Construction Documents
6	Apr 22, 2024	66% Construction Documents
7	May 27, 2024	Issued For Building Permit (Draft)
10	July 8, 2024	Issued for Building Permit
11	July 26, 2024	Issued for Tender
12	Sept 23, 2024	Issued for Tender
13	Nov 12, 2024	Issued for Tender Addendum No. 2
15	Nov 27, 2024	Issued for Tender Addendum No. 3

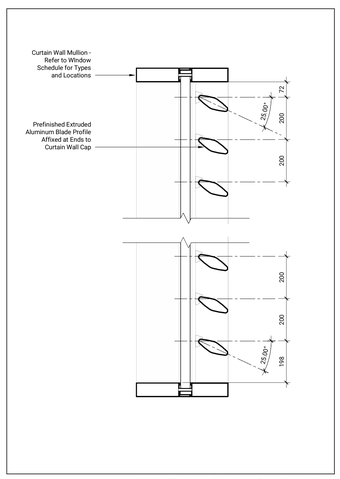


Key Plan 1:3000

Docksteader PRPS
6 Docksteader Road, Brampton, ON
221033
File No. SPA-2024-0088

Exterior Building Assemblies, Symbols & Annotations
As indicated

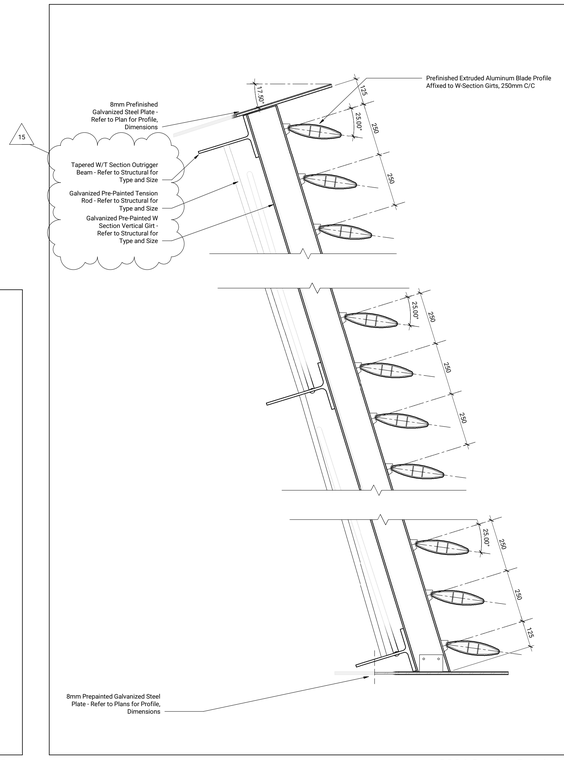
A041



SS01 Typical Section Detail

1 : 10

6 A054



SS04 Section Details

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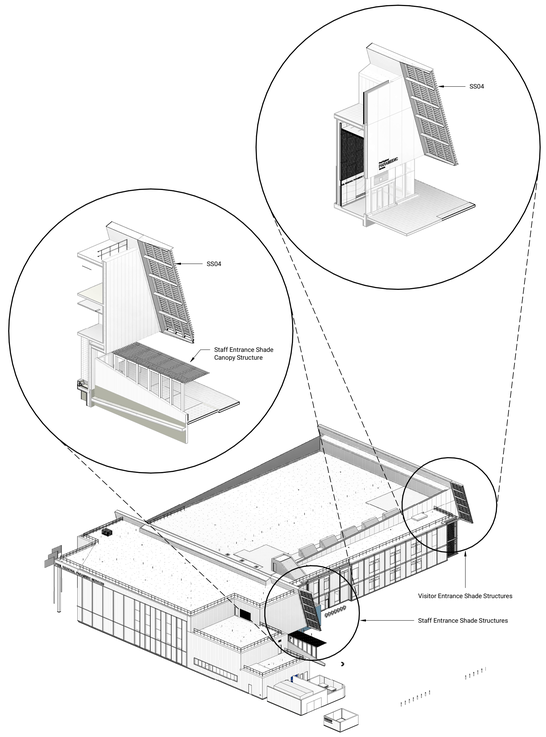

Exterior Shade Structures 3D Diagram

2 A054

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No.	Date	Description
6	Apr 22, 2024	66% Construction Documents
7	May 27, 2024	Issued For Building Permit (Draft)
10	July 8, 2024	Issued for Building Permit
11	July 26, 2024	Issued for Tender
12	Sept 23, 2024	Issued for Tender
15	Nov 27, 2024	Issued for Tender Addendum No. 3

Shade Screens SS01, SS02, + SS03

1 : 25

5 A054

SS04 Side Elevation

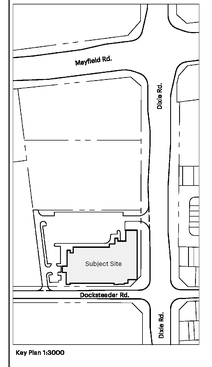
1 : 25

3 A054

SS04 Front Elevation

1 : 25

1 A054



Key Plan 1:3000

Docksteader PRPS

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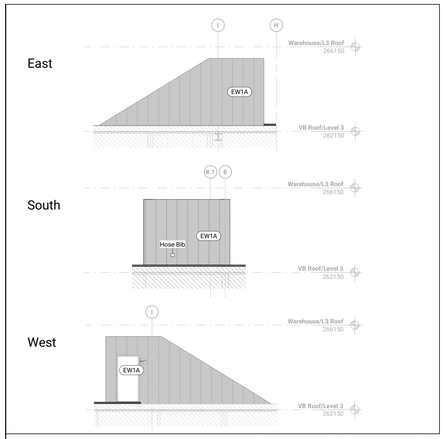
File No. SPA-2024-0088

Shade Screen Schedule

As indicated

A054



Stair B Pop-Up Partial Elevations
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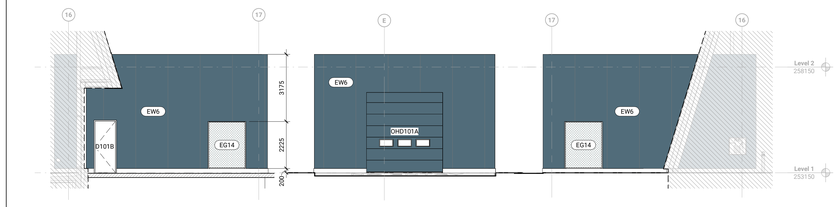
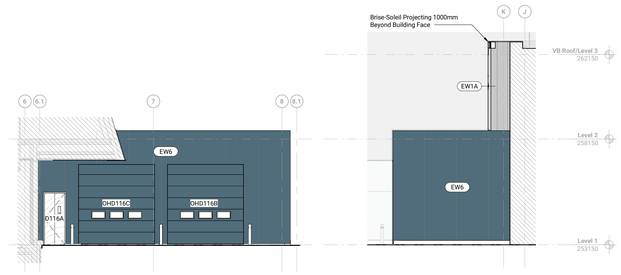


Vehicle Exit Vestibule North
1 : 100 — 9 A303

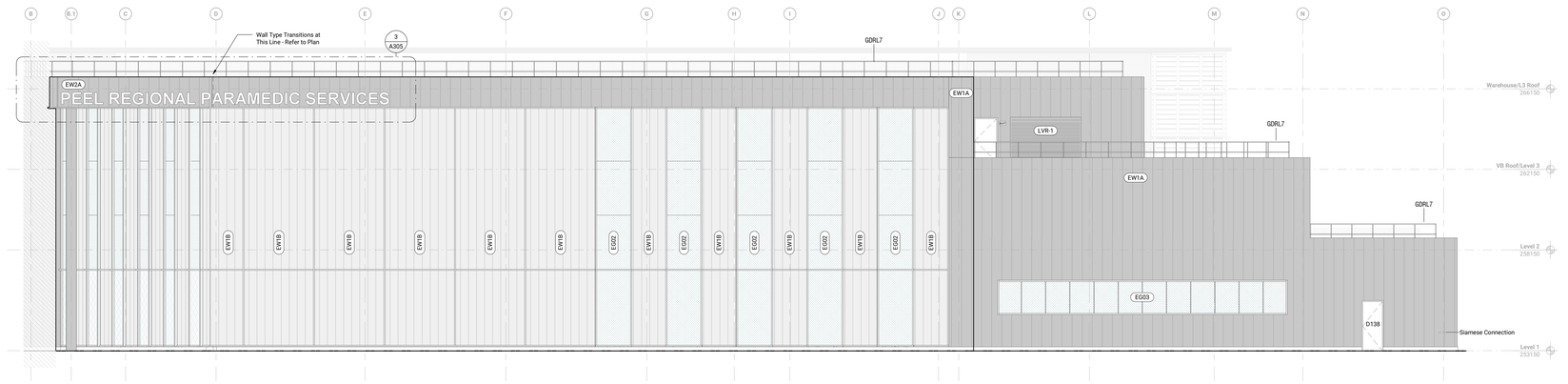
Vehicle Exit Vestibule West
1 : 100 — 8 A303

Vehicle Exit Vestibule South
1 : 100 — 7 A303

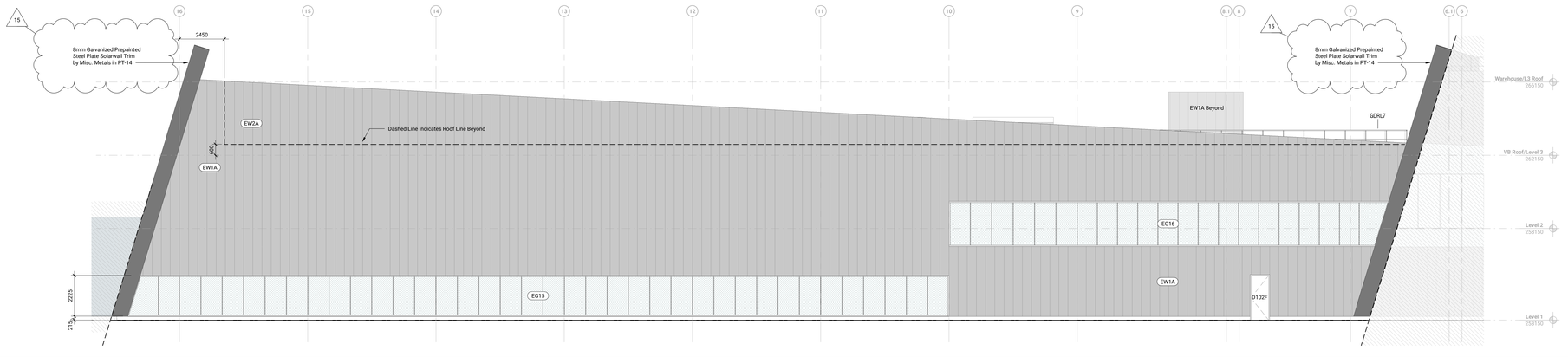


Vehicle Entry Vestibule
1 : 100 — 6 A303

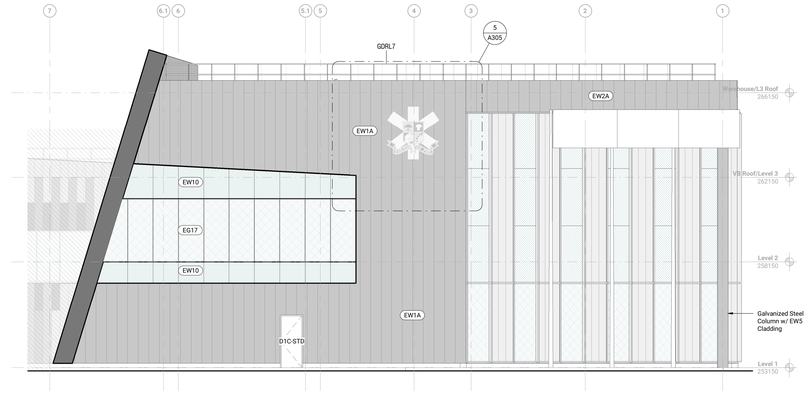
Vehicle Entry Vestibule West Partial Elevation
1 : 100 — 5 A303



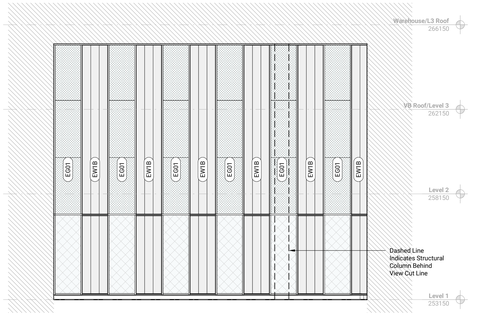
East Partial Elevation
1 : 100 — 4 A303



South Partial Elevation - West
1 : 100 — 3 A303



South Partial Elevation -East
1 : 100 — 2 A303



Southeast Partial Elevation
1 : 100 — 1 A303

LEGEND

Exterior Finishes

Finish Type Mark
Cladding System Description
Finish Type Graphic

EW1A
Folded Metal Cladding System

EW1B
Folded Metal Cladding System

EW2 A/B
Metal Panel on Concealed Clip System - Uninsulated

EW3
Solar Wall

Note: Only used for projections beyond building envelope.

EW8
Corrugated Metal Cladding

EW4
Aluminum Composite Panel Cladding System

EW5
Aluminum Composite Panel - Uninsulated

EW6
Sintered Stone Panel Cladding System

EW9
Ribbed Pre-Cast Concrete Panel

EW10
Glass Faced Rainscreen Cladding Panel

CW1
IGU in Thermally Broken Aluminum Frame, Frit

CW2
IGU in Thermally Broken Aluminum Frame, Frit

EW11
Aluminum Extrusion Accent Panel

Custom Extrusion - Clear Anodized

EW10 / CW1 / EW1A / EW10
Typical Admin. Wing Facade Module

SS01
Exterior Shading Screen Clear Anodized Aluminum

GENERAL NOTES

Elevations

1. Material and product selections are indicative of design intent. Final product selections subject to change.
2. Glazing to be compliant with Bird-Friendly Design strategies as required by the Region of Peel and City of Brampton.

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Issued

No.	Date	Description
1	Nov 17, 2023	Site Plan Control - Completeness Review
2	Nov 20, 2023	100% Design Development
3	Nov 27, 2023	Site Plan Approval
4	Mar 20, 2024	Site Plan Approval R1
5	Mar 22, 2024	33% Construction Documents
6	Apr 22, 2024	66% Construction Documents
7	May 27, 2024	Issued For Building Permit (Draft)
10	July 8, 2024	Issued for Building Permit
11	July 26, 2024	Issued for Tender
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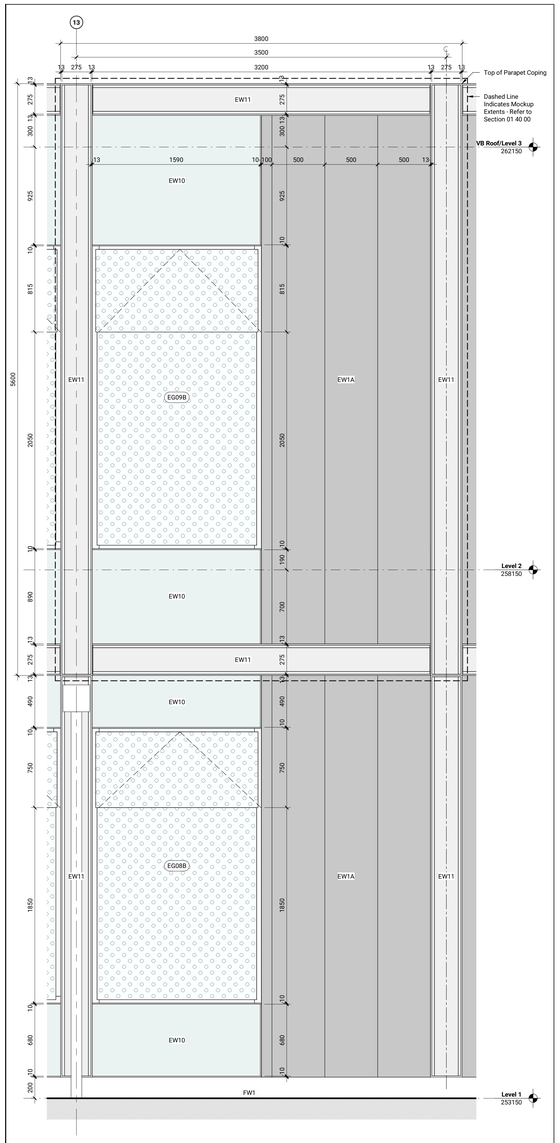
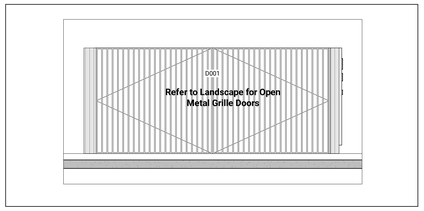
Docksteader PRPS
6 Docksteader Road, Brampton, ON
221033
File No. SP-2023-0088

Partial Elevations
As indicated

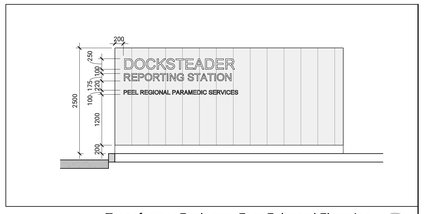
A303



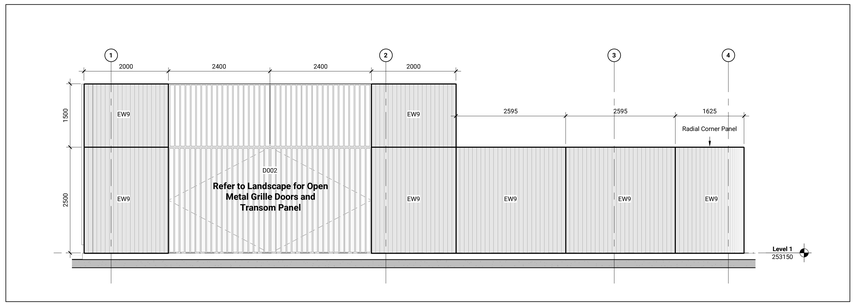
West Facade Partial Elevation and Mock-Up Extents
1 : 20 — 1 / A304



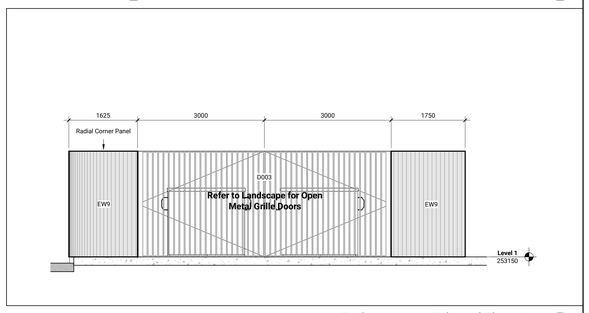
Transformer Enclosure South Enlarged Elevation
1 : 50 — 8 / A304



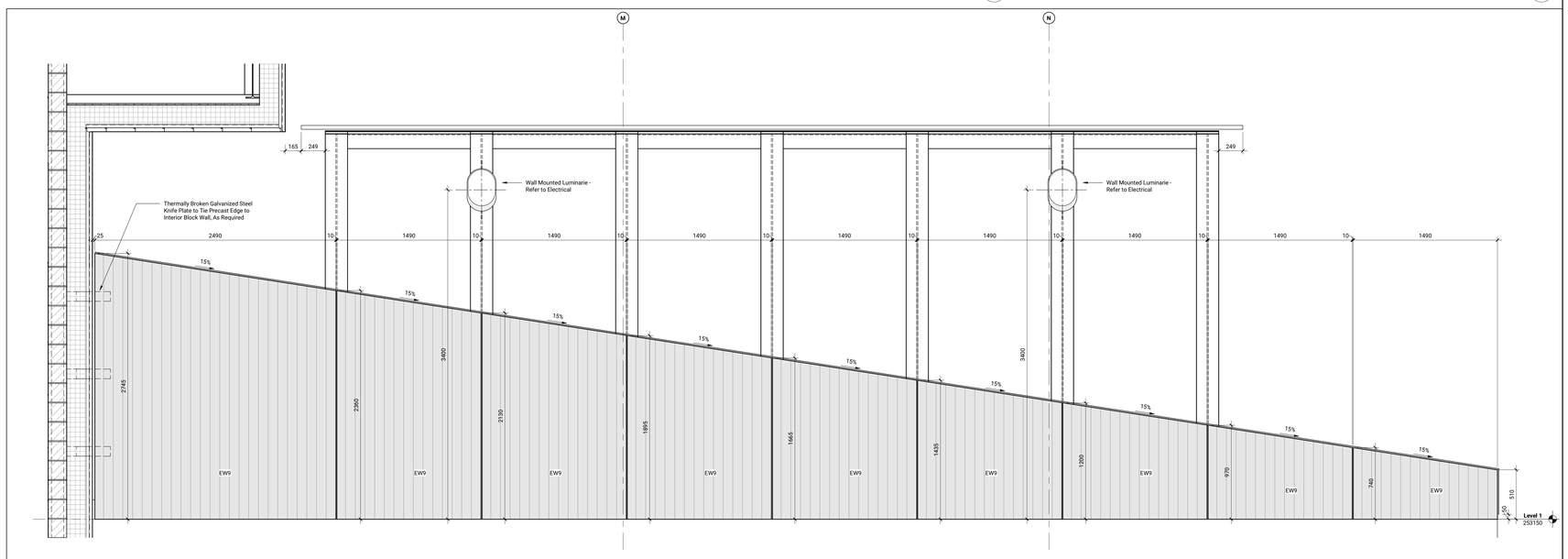
Transformer Enclosure East Enlarged Elevation
1 : 50 — 7 / A304



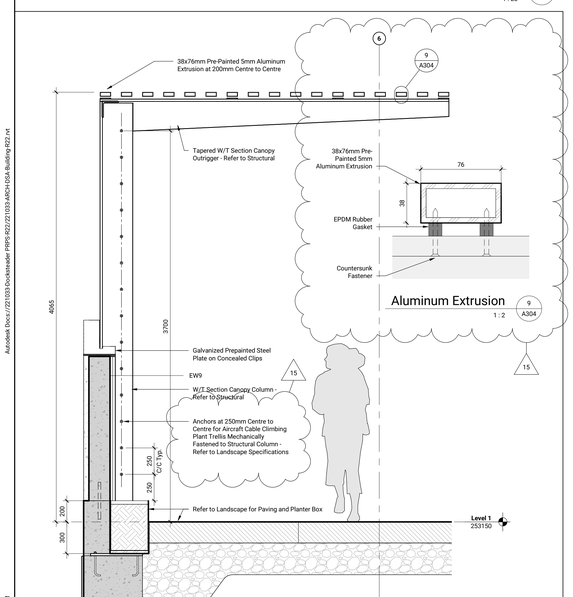
Generator Enclosure North Enlarged Elevation
1 : 50 — 5 / A304



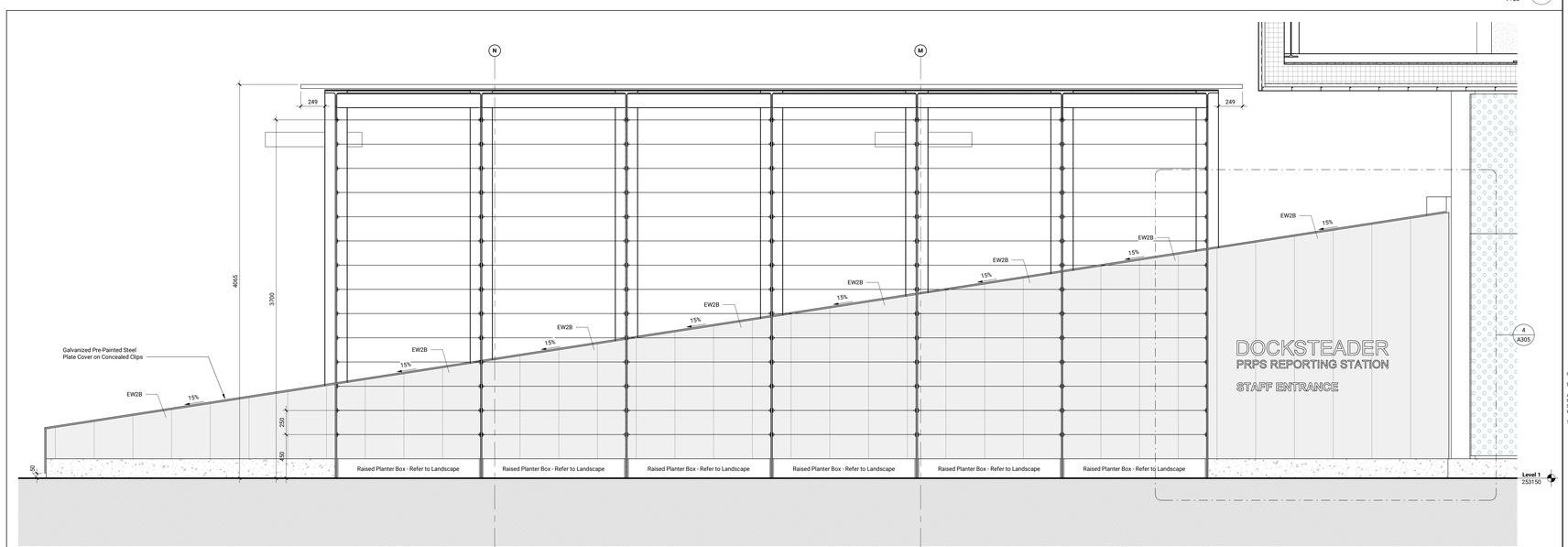
Waste Enclosure West Enlarged Elevation
1 : 50 — 6 / A304



Loading Ramp Precast Concrete Panels Enlarged Elevation
1 : 20 — 4 / A304



Staff Entrance Canopy Section Detail
1 : 20 — 3 / A304



Staff Entrance Enlarged Elevation
1 : 20 — 2 / A304

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No.	Date	Description
10	July 8, 2024	Issued for Building Permit
11	July 26, 2024	Issued for Tender
12	Sept 23, 2024	Issued for Tender
15	Nov 27, 2024	Issued for Tender Addendum No. 3

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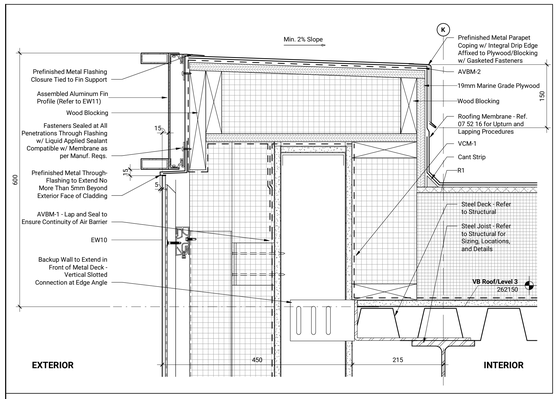
Enlarged Elevations
As indicated

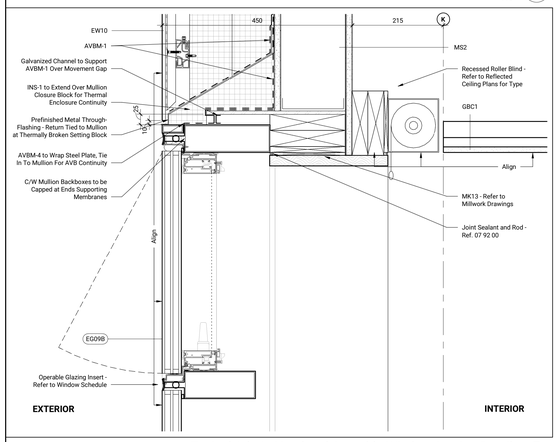
A304



Typical Admin/Training Wing Parapet Section Detail

1 : 5

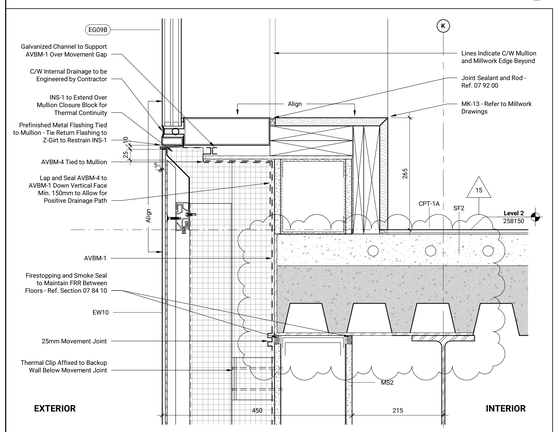
7 / A451



Typical Admin Head and Operable Window Section Detail

1 : 5

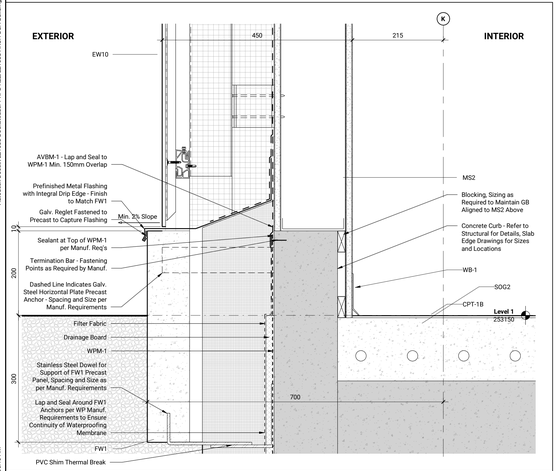
6 / A451



Typical Admin Sill and Deck Edge Connection Section Detail

1 : 5

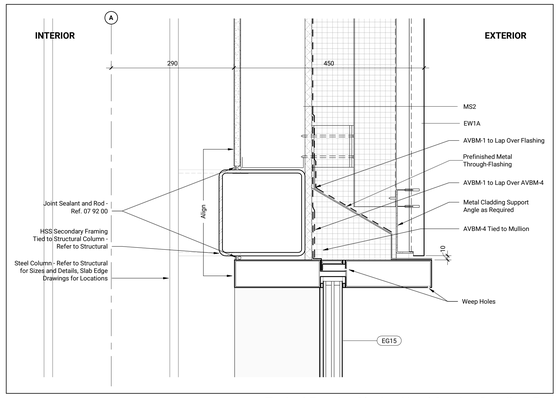
5 / A451



Typical Exterior Wall Base Section Detail

1 : 5

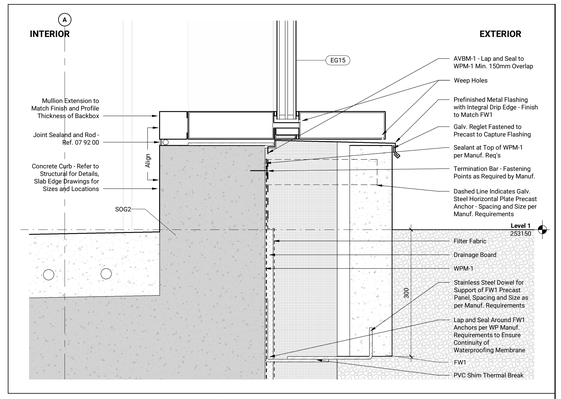
4 / A451



Typical Exterior Glazing Head Section Detail

1 : 5

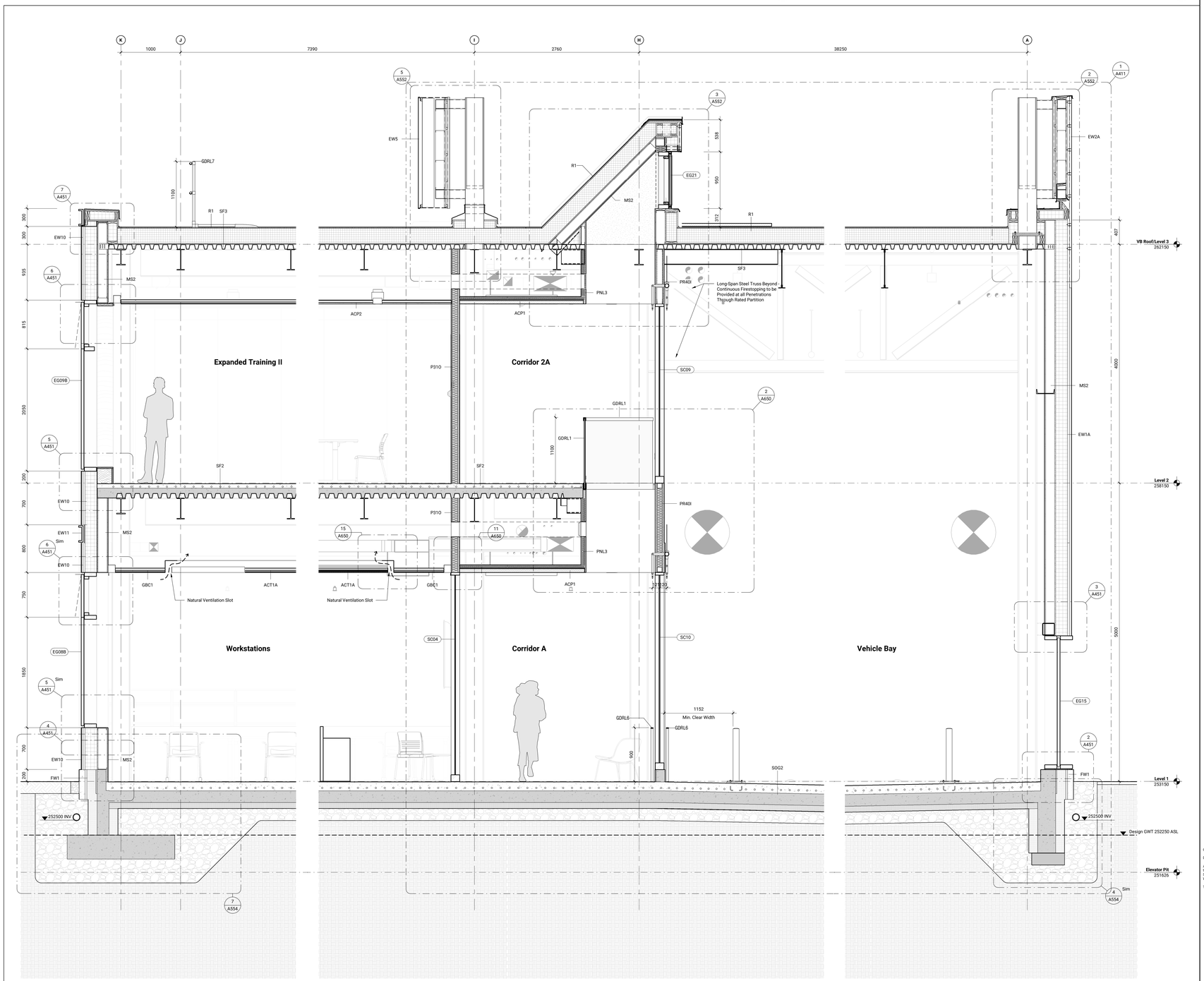
3 / A451



Typical Exterior Wall Base at Glazing Section Detail

1 : 5

2 / A451



EW Wall Section - Workspaces, Expanded Training, Corridor & Skylight, Vehicle Bay

1 : 25

1 / A451

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8	May 29, 2024	Issued for 66% Construction Documents Add. No. 1
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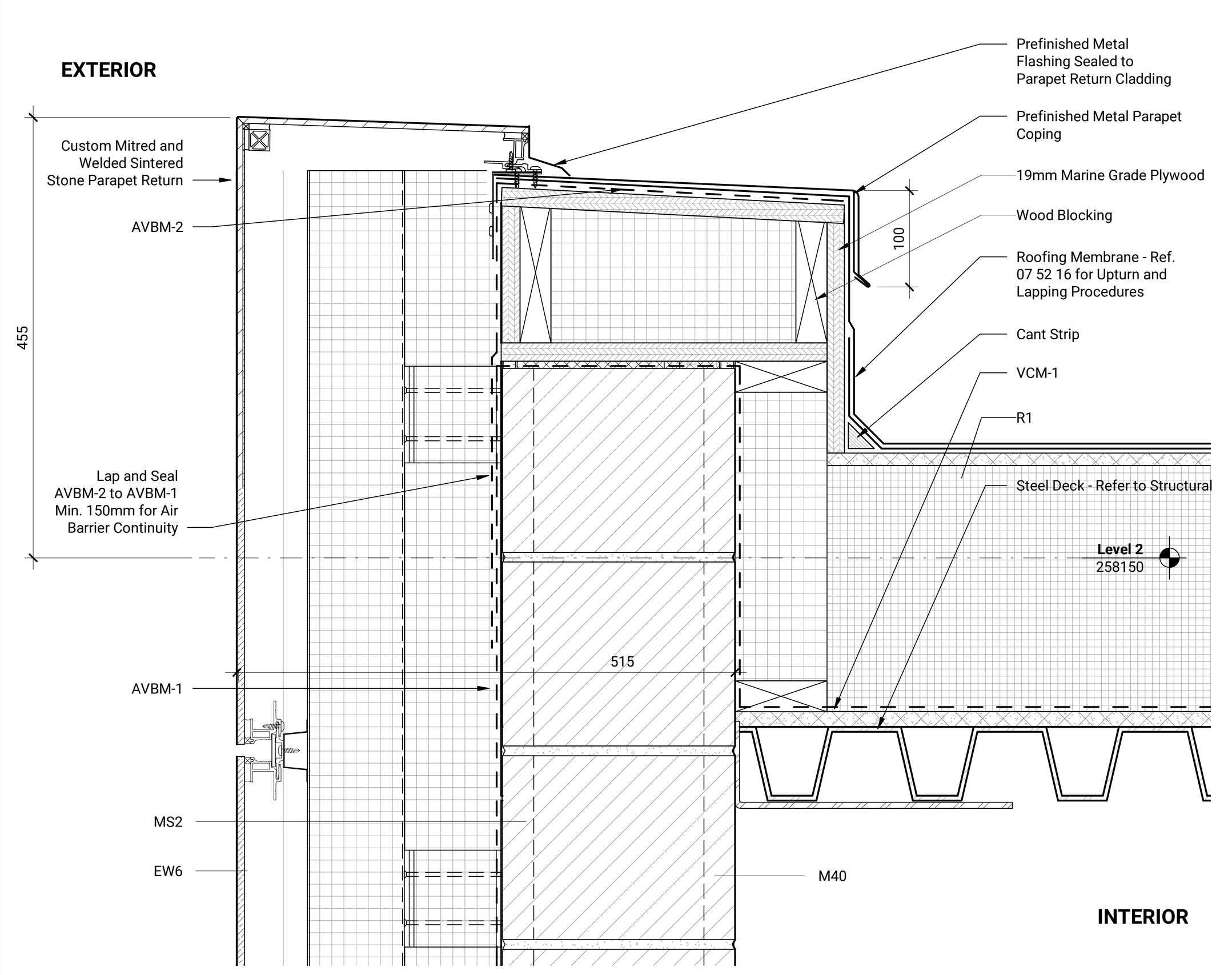
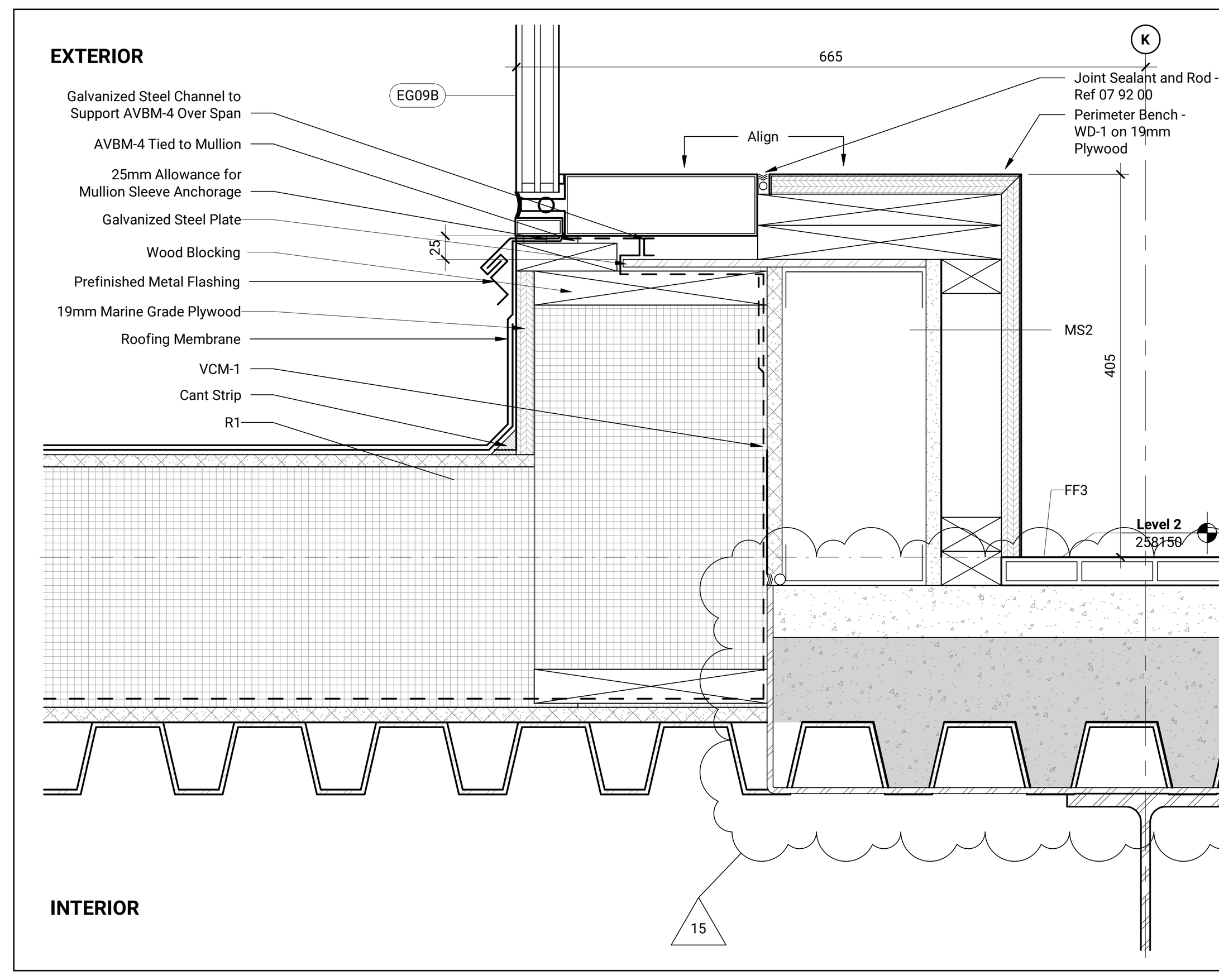
Wall Sections
As indicated

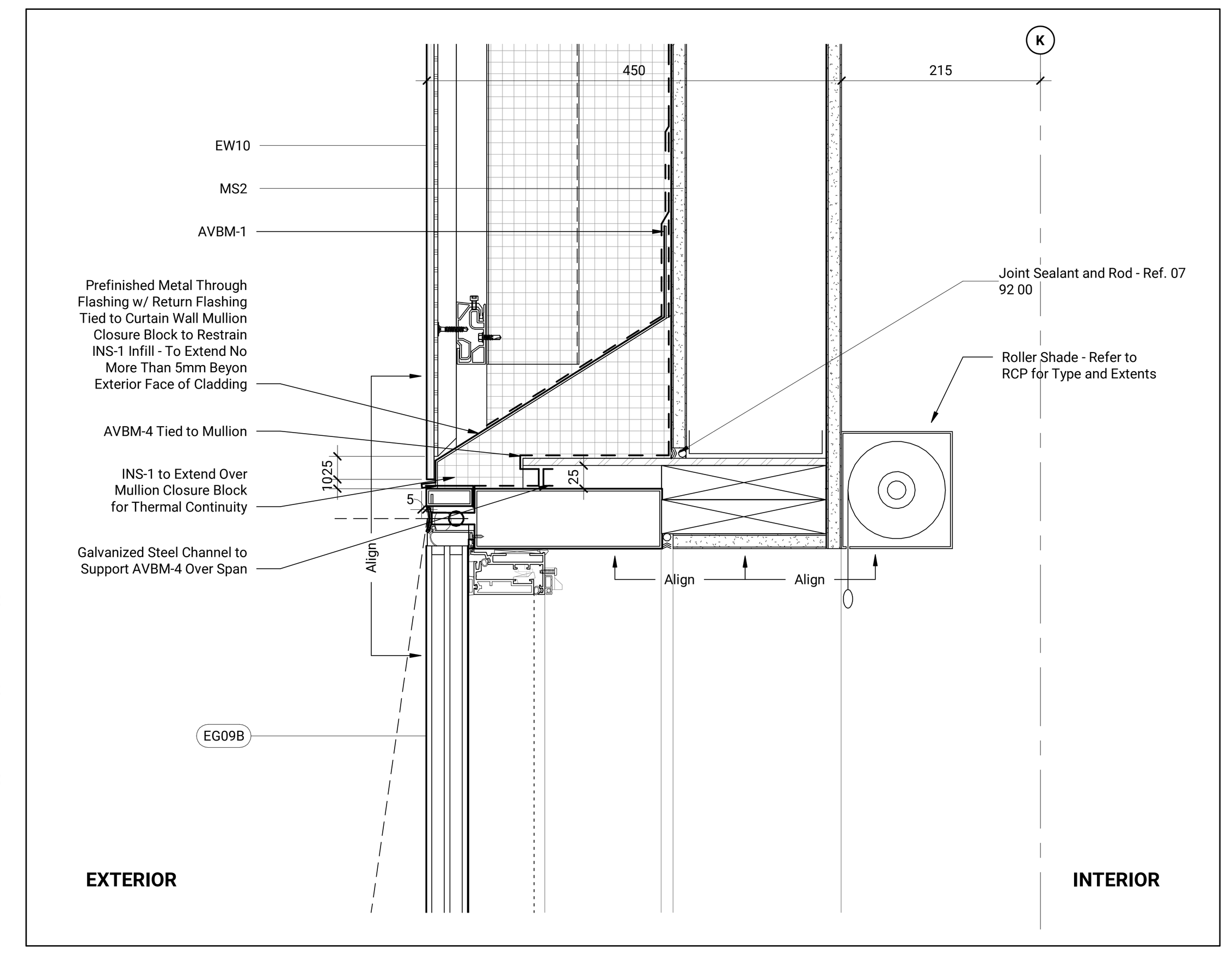
A451



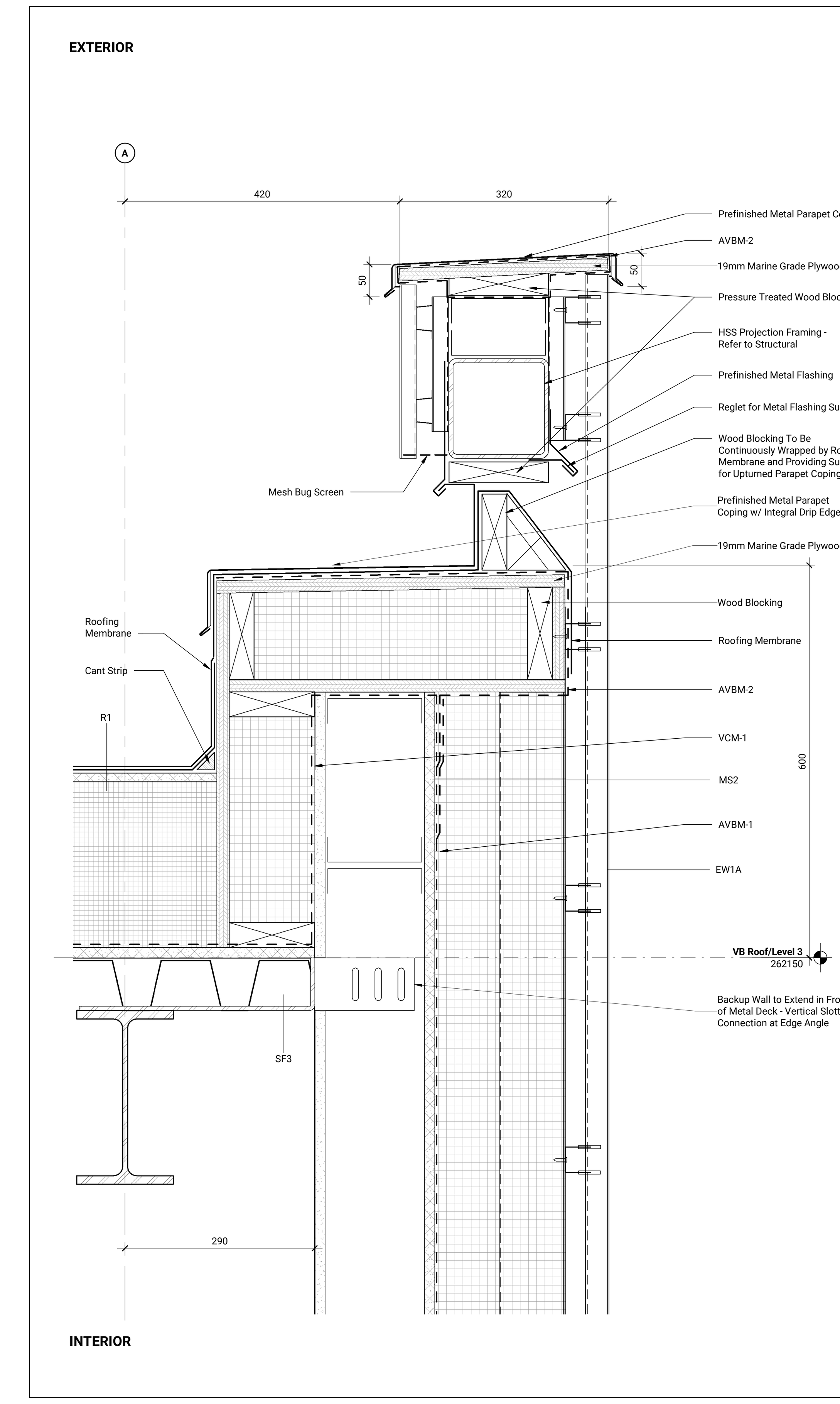
Vehicle Entry Vestibule Parapet Section Detail
1 : 5
7
A452



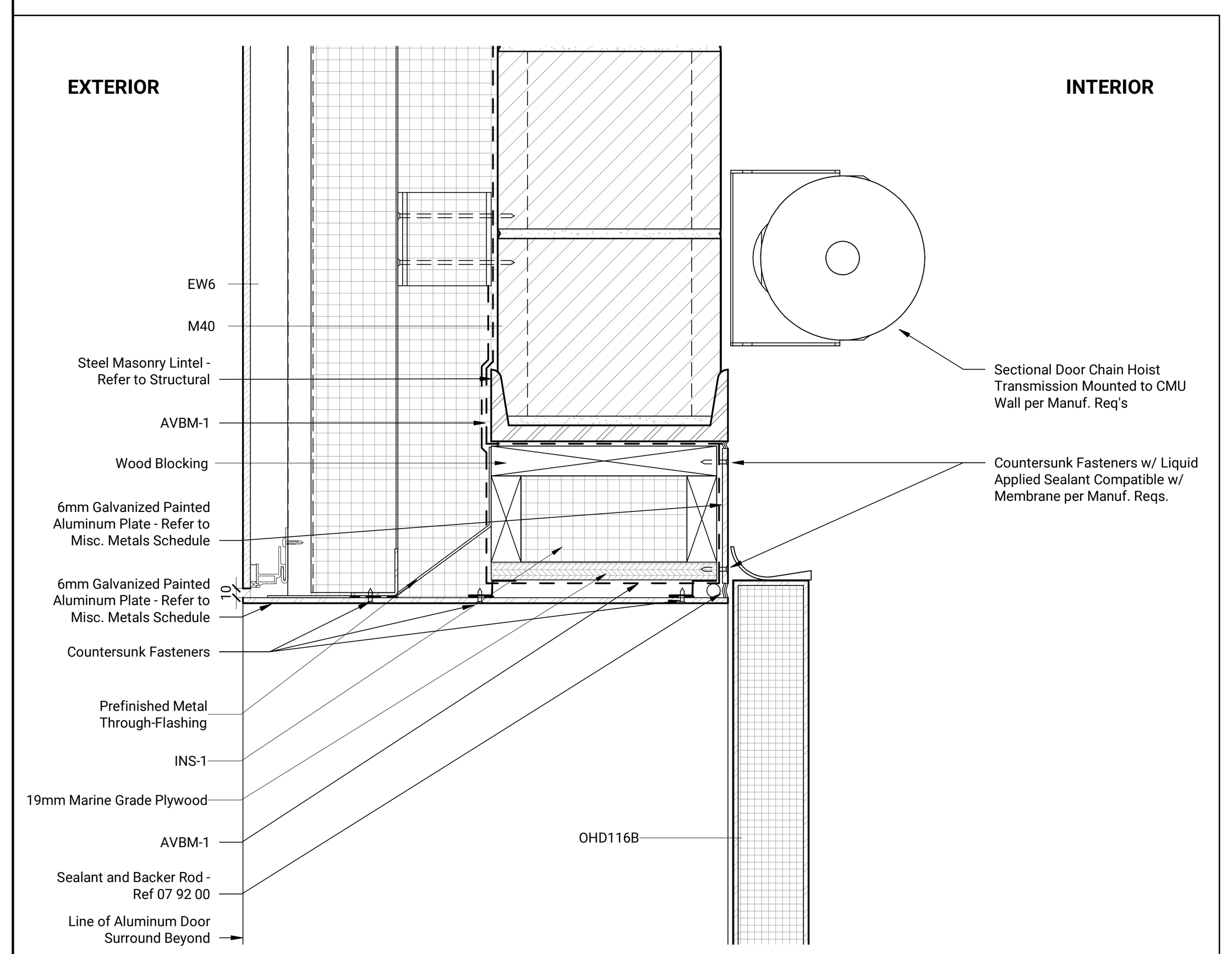
Typical Roof to Wall Transition Section Detail
1 : 5
6
A452



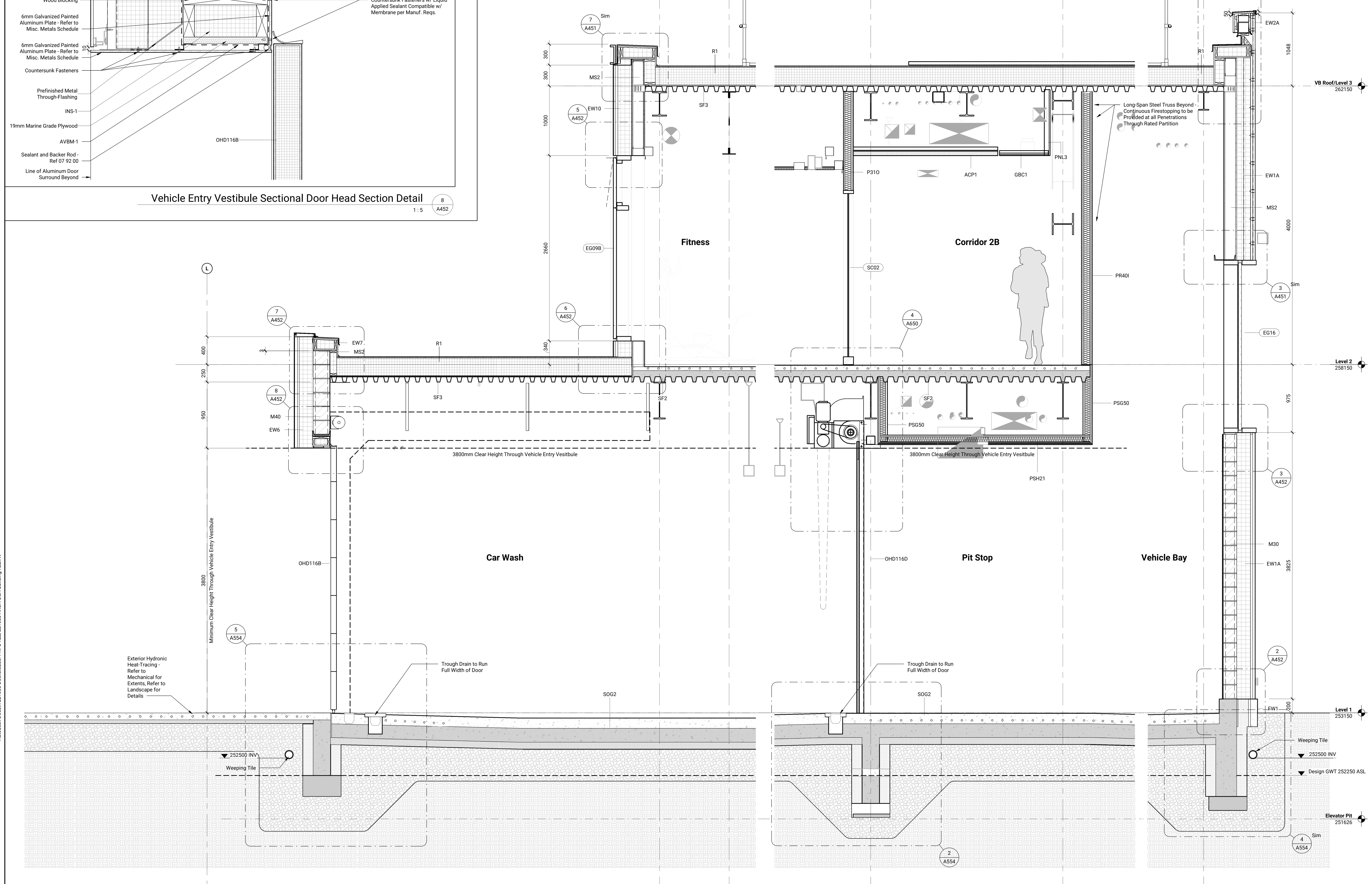
Fitness Glazing Head Section Detail
1 : 5
5
A452



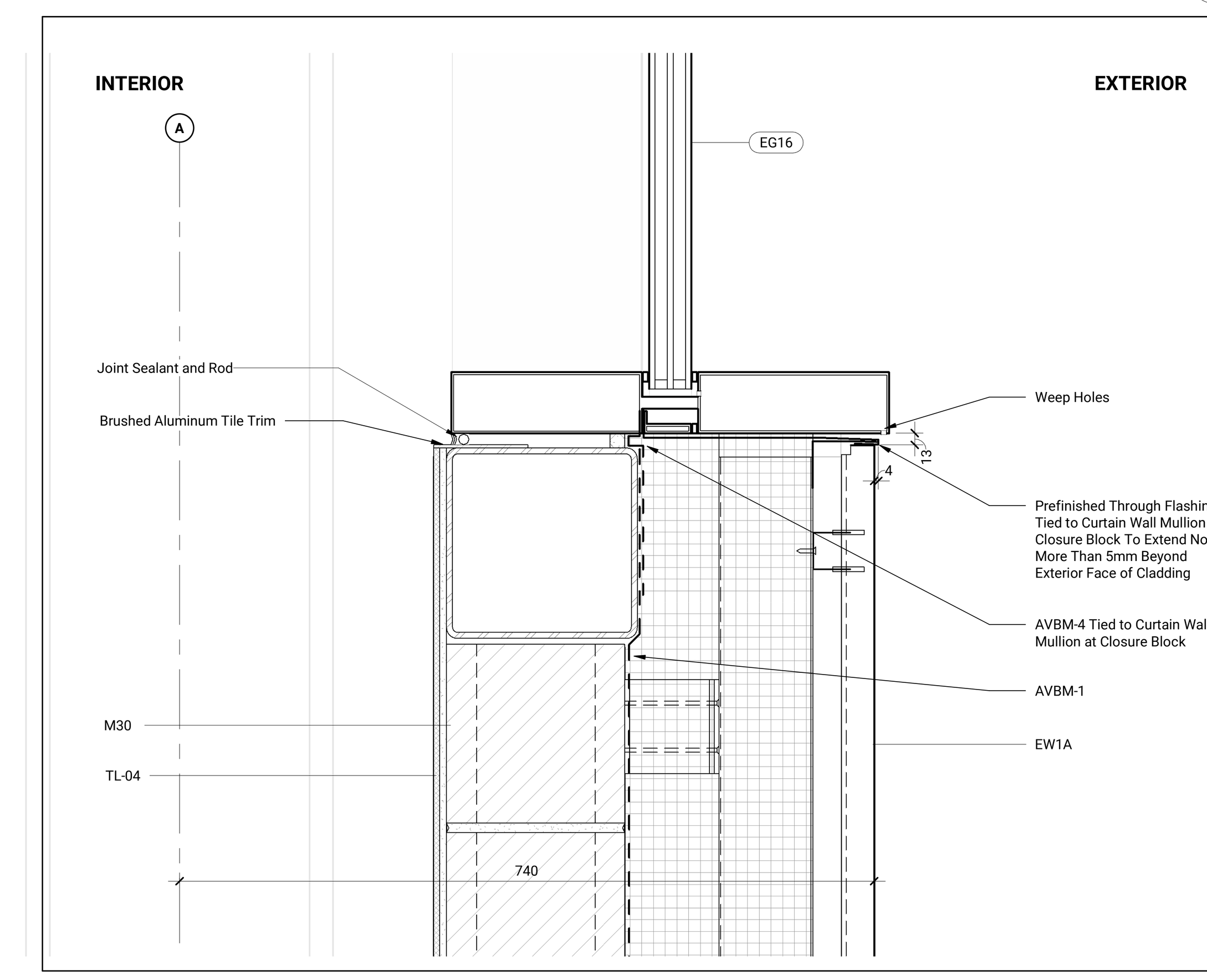
Vehicle Bay South Low Parapet Projection Section Detail
1 : 5
4
A452



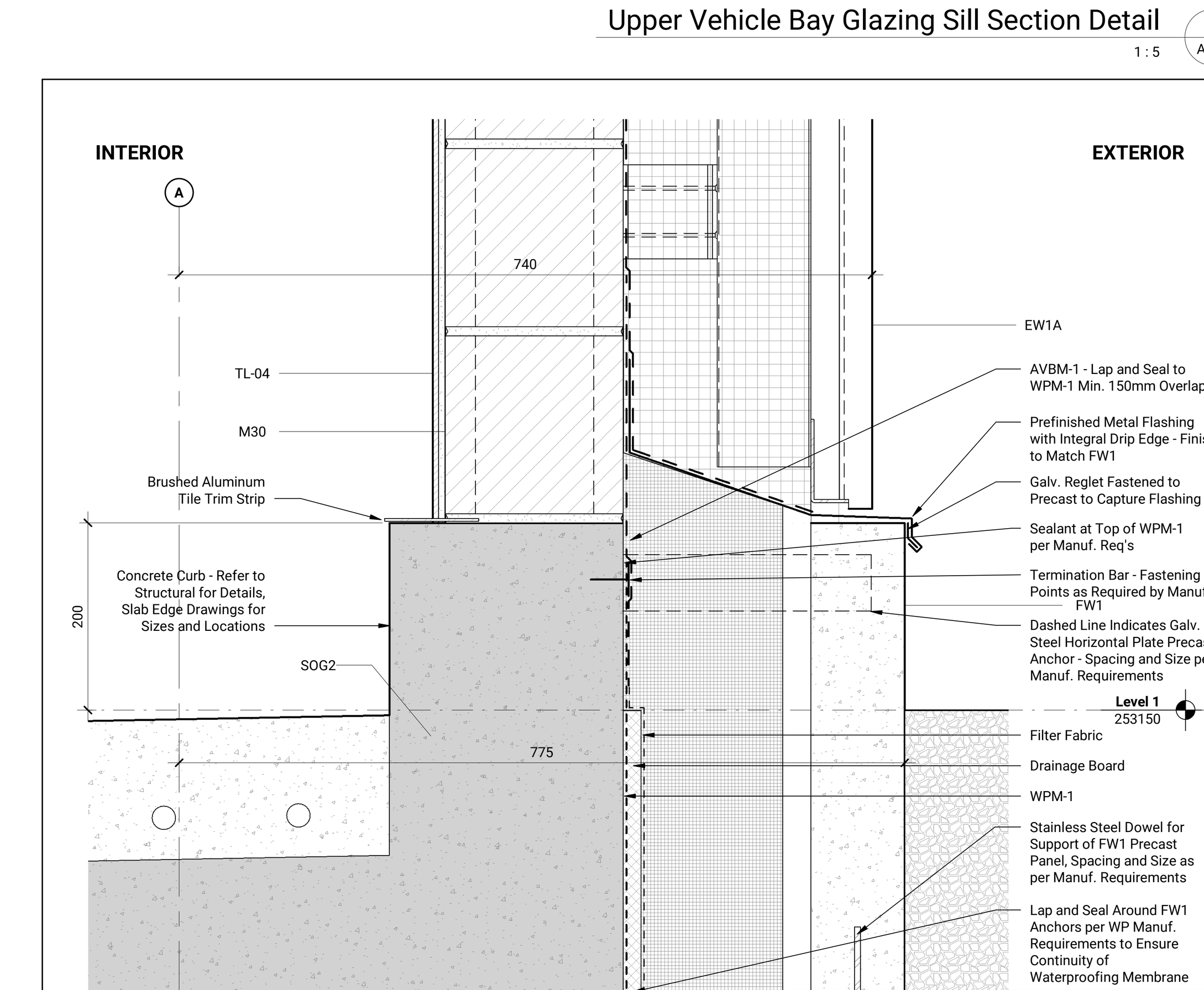
Vehicle Entry Vestibule Sectional Door Head Section Detail
1 : 5
8
A452



EW Wall Sections - Vehicle Entry Bay, Fitness, Corridor, Vehicle Bay
1 : 25
1
A452



Upper Vehicle Bay Glazing Sill Section Detail
1 : 5
3
A452



Typical Interlocking Metal Cladding to Foundation Transition Section Detail
1 : 5
2
A452

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Wall Sections
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A452

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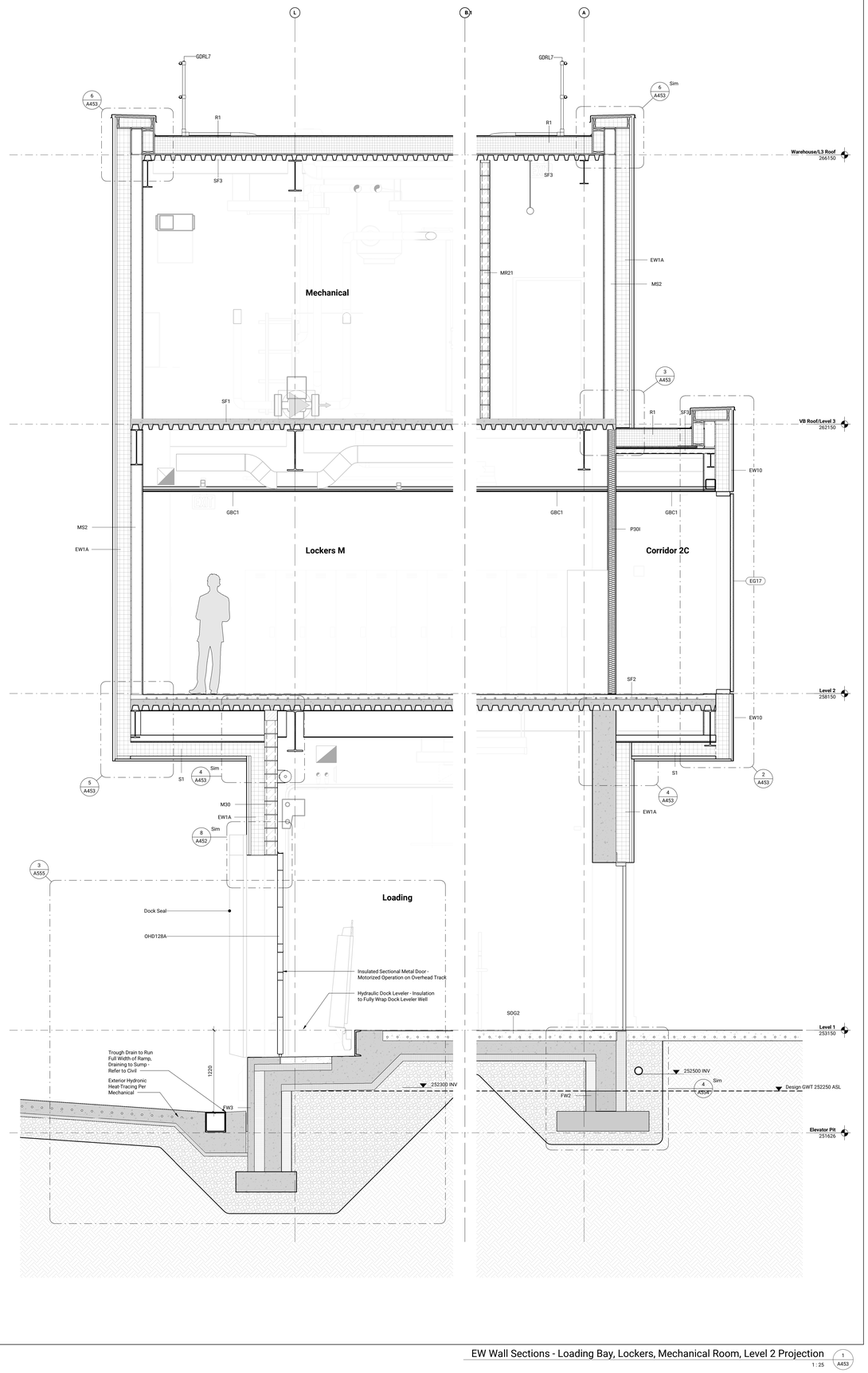
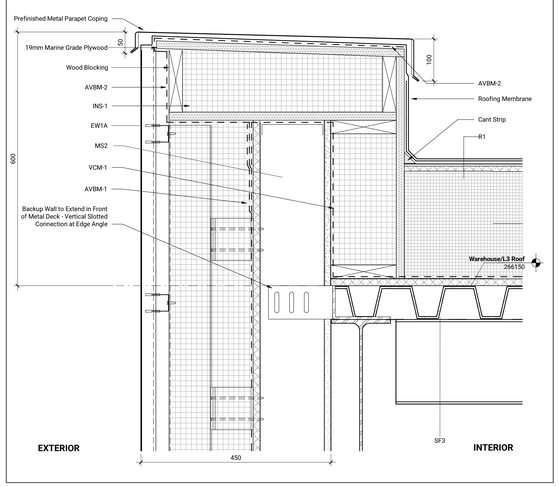
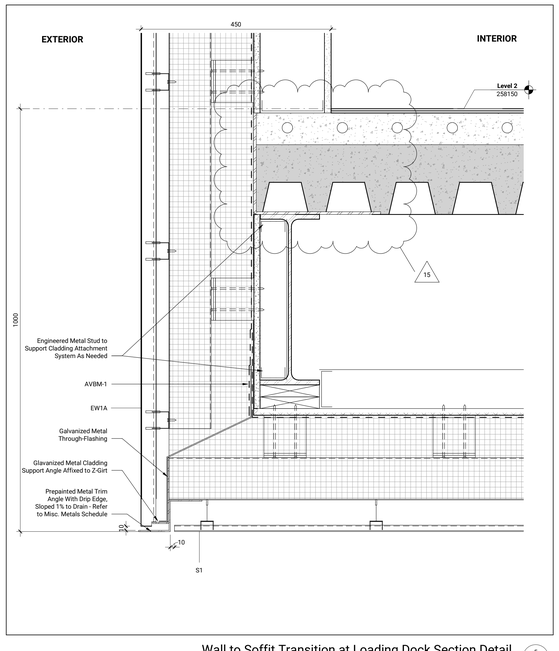


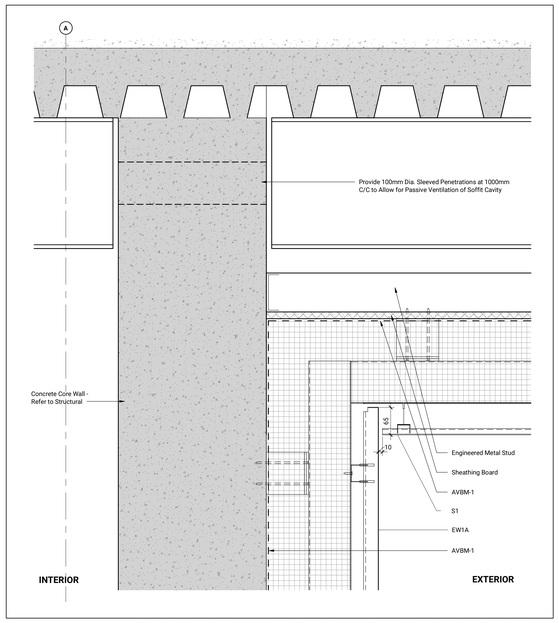
EW Wall Sections - Loading Bay, Lockers, Mechanical Room, Level 2 Projection
1 : 25 — 1 A453



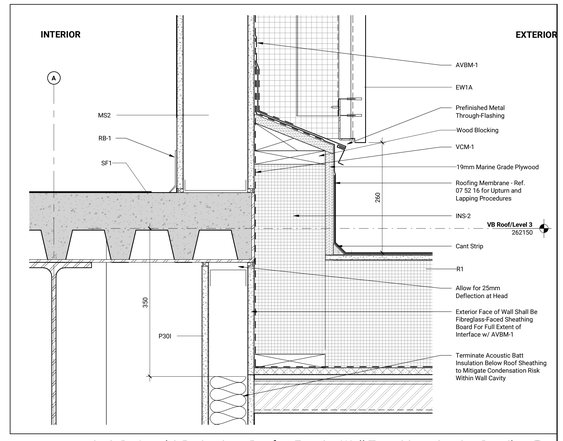
Typical Parapet Section Detail
1 : 5 — 6 A453



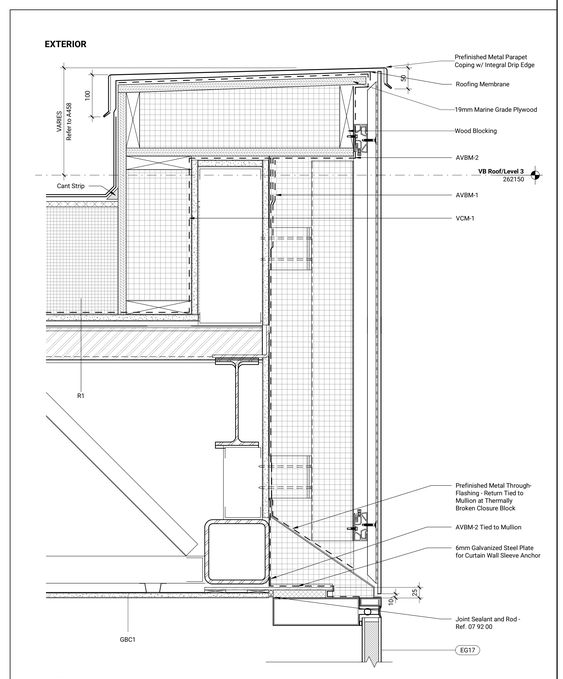
Wall to Soffit Transition at Loading Dock Section Detail
1 : 5 — 5 A453

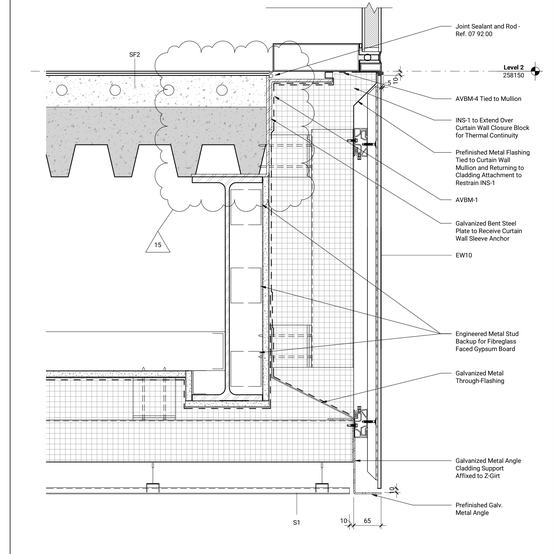


Typical Ventilated Soffit to Exterior Wall Transition - Section Detail
1 : 5 — 4 A453



Stair D - Level 2 Projection - Roof to Exterior Wall Transition - Section Detail
1 : 5 — 3 A453





Stair D Level 2 Projection Section Detail
1 : 5 — 2 A453

EXTERIOR

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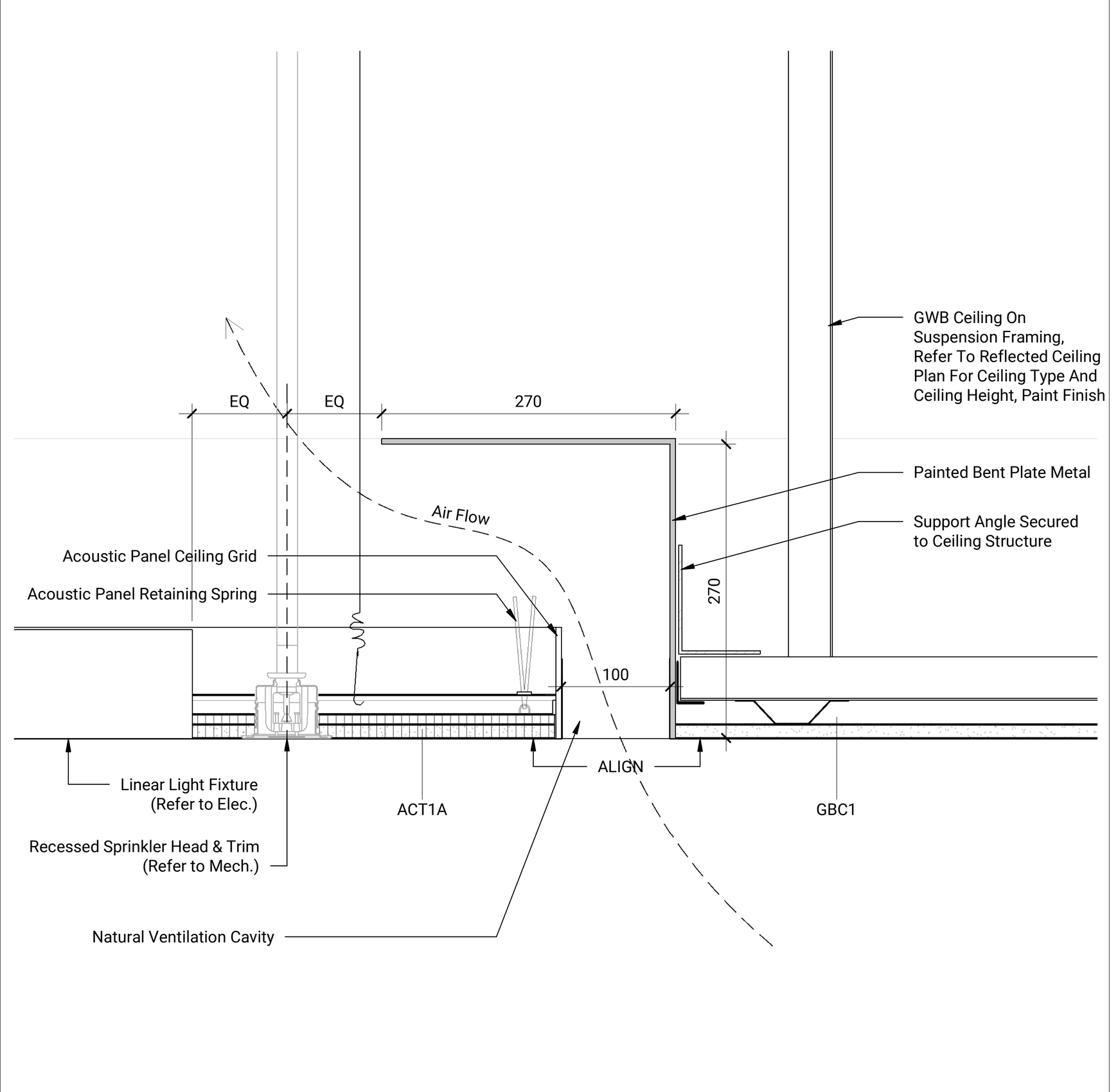
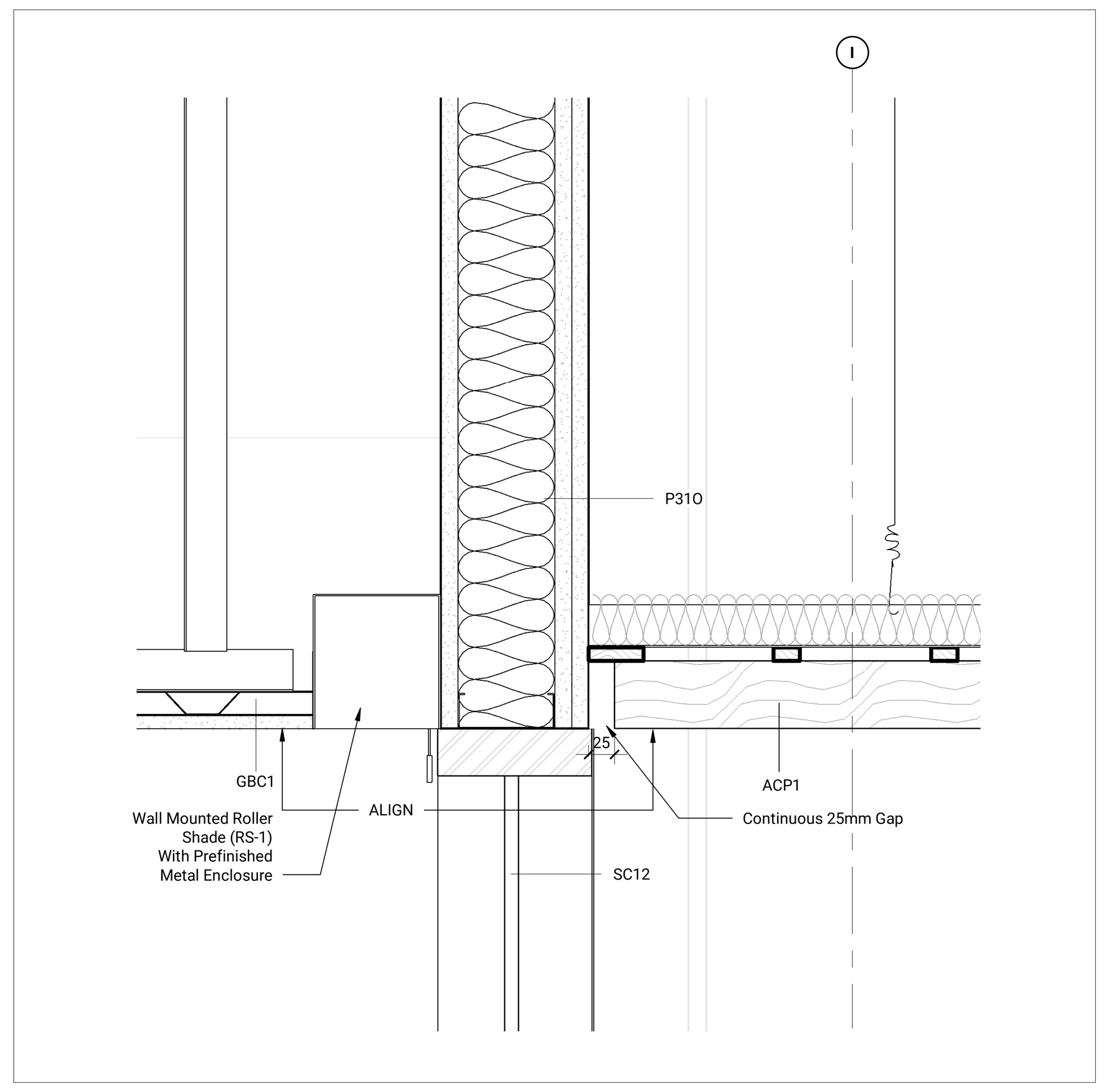
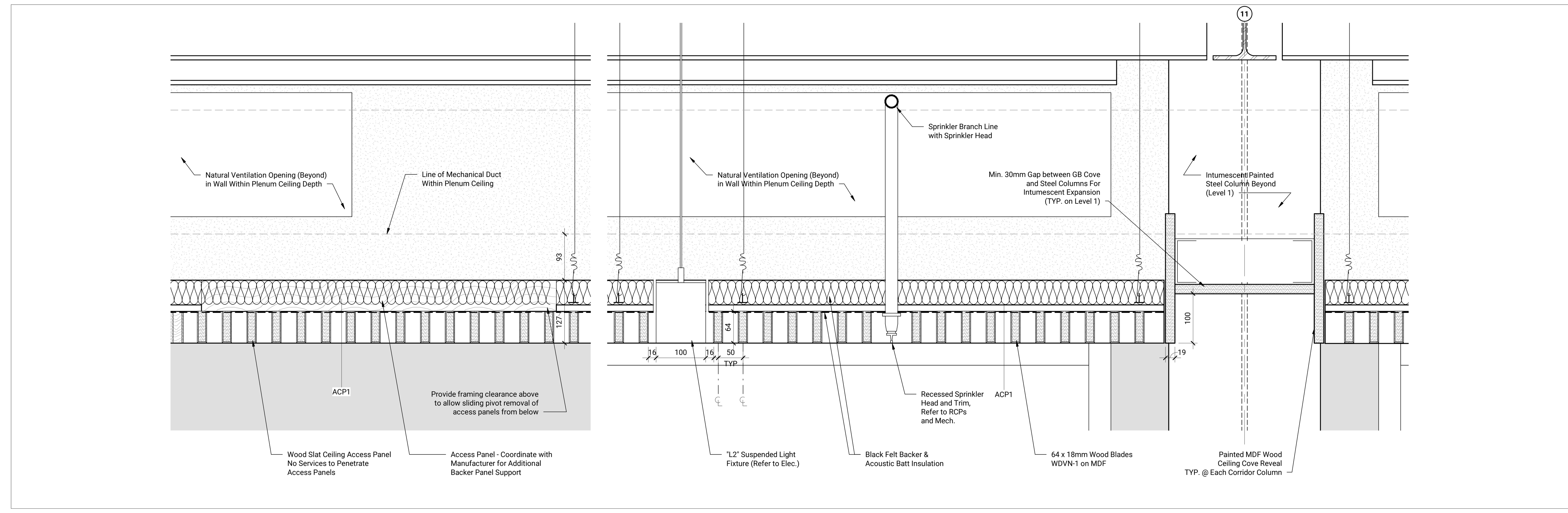
Wall Sections
As indicated
A453



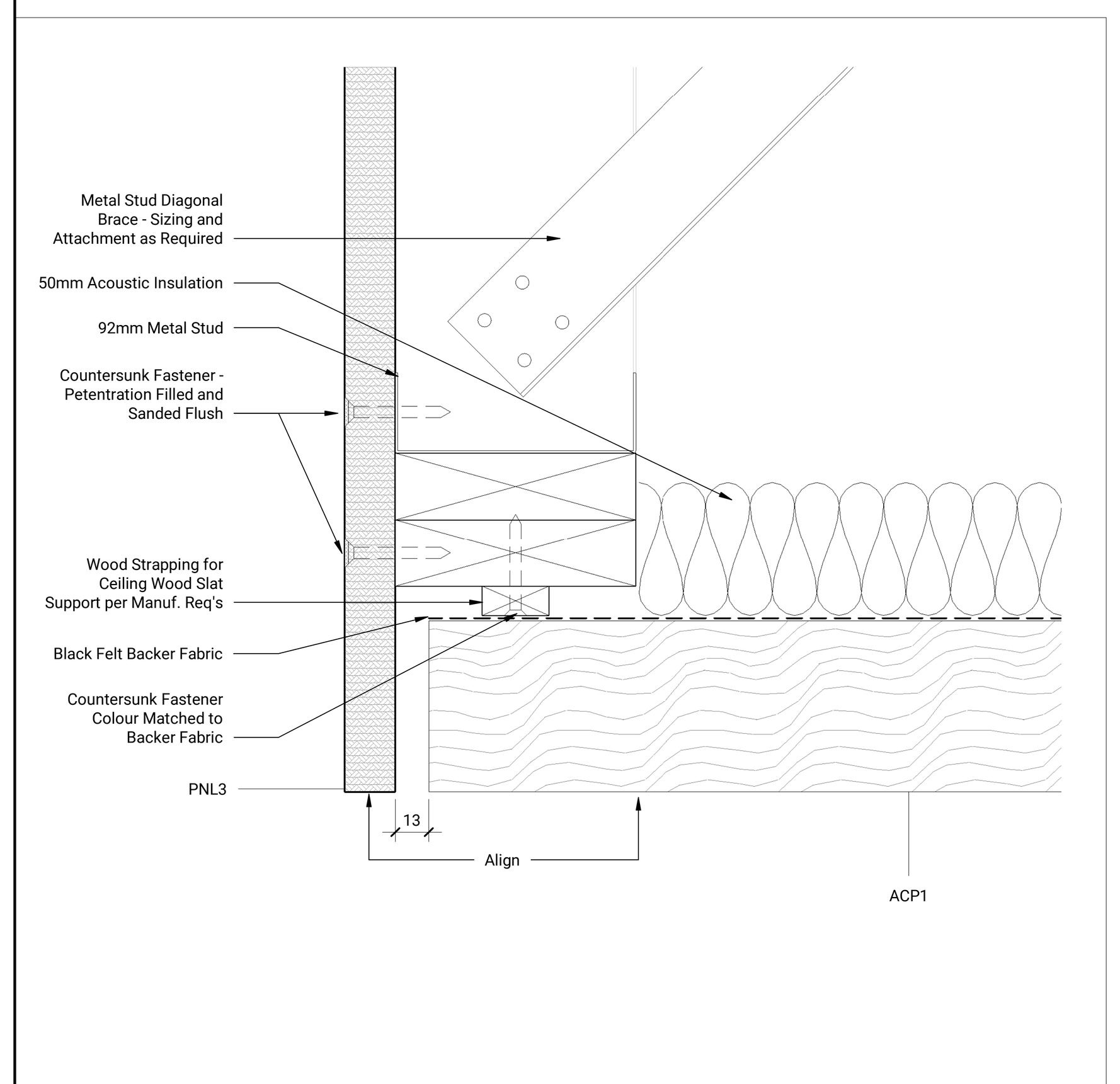
Workspaces, Expanded Training - Ventilation Ceiling Section Detail 15 A650
1 : 5



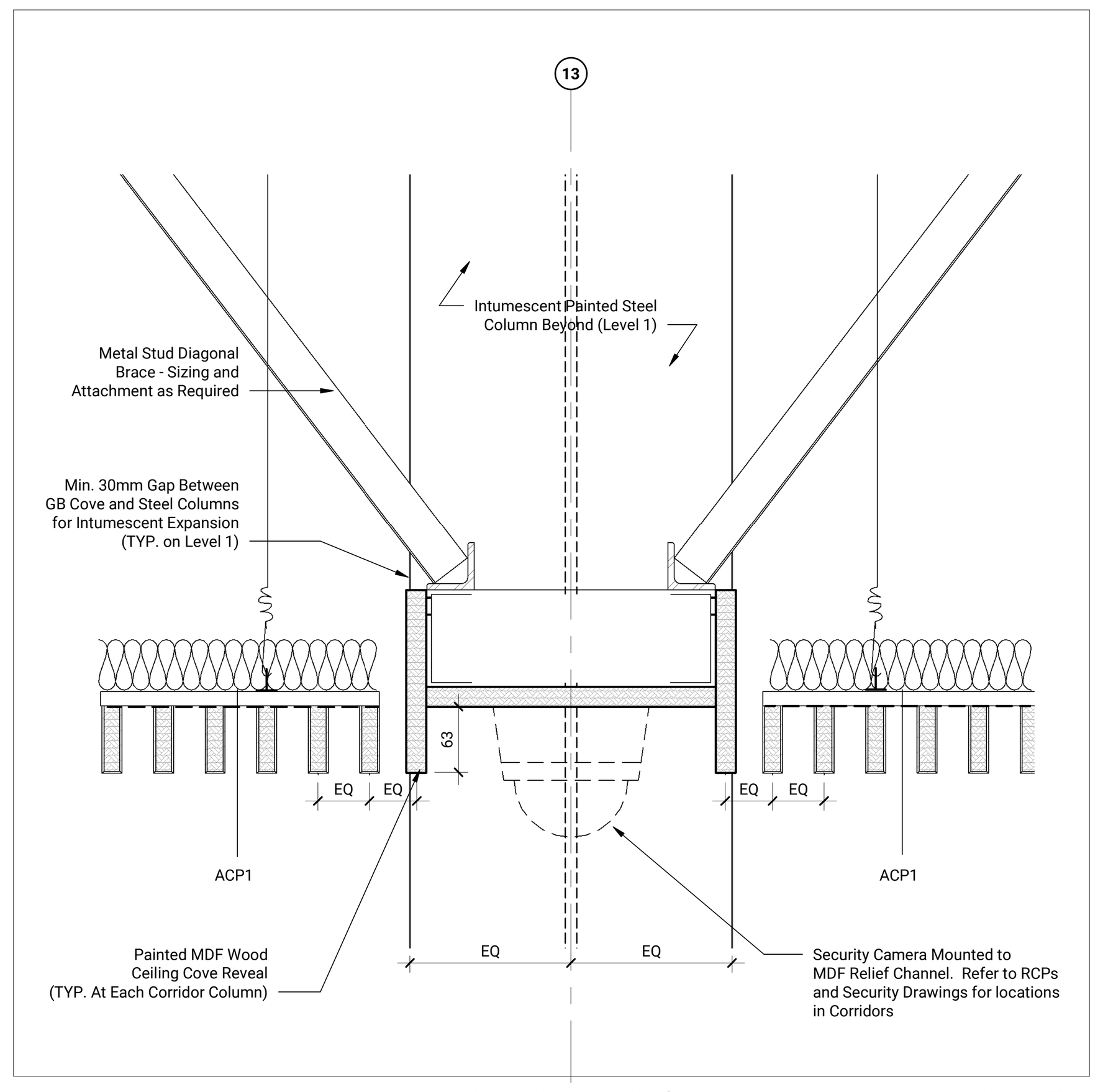
Typ. Corridor Glazing Wall / Ceiling Section Detail 11 A650
1 : 5



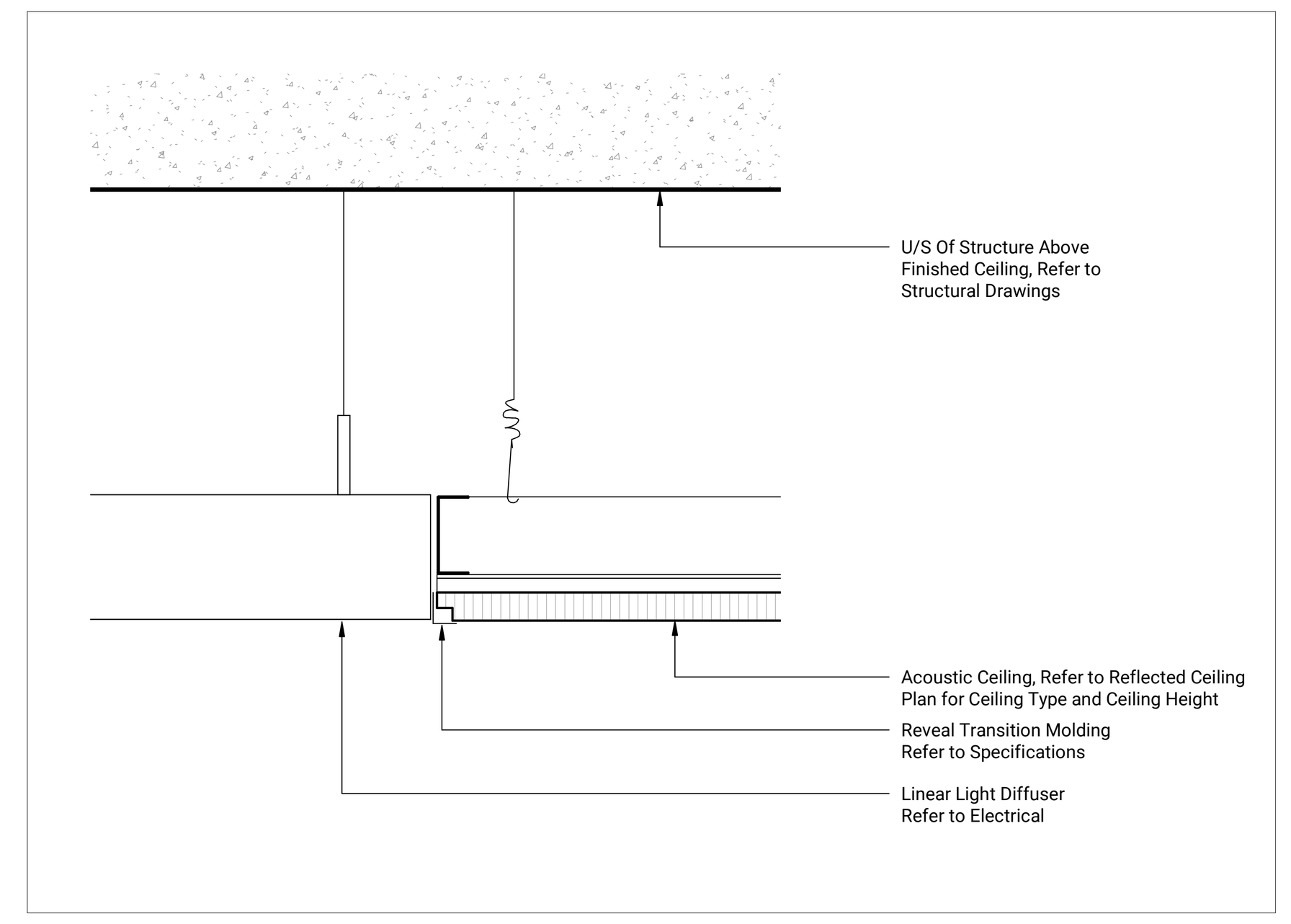
Typical Corridor Acoustic Wood Ceiling Section Detail 3 A650
1 : 5



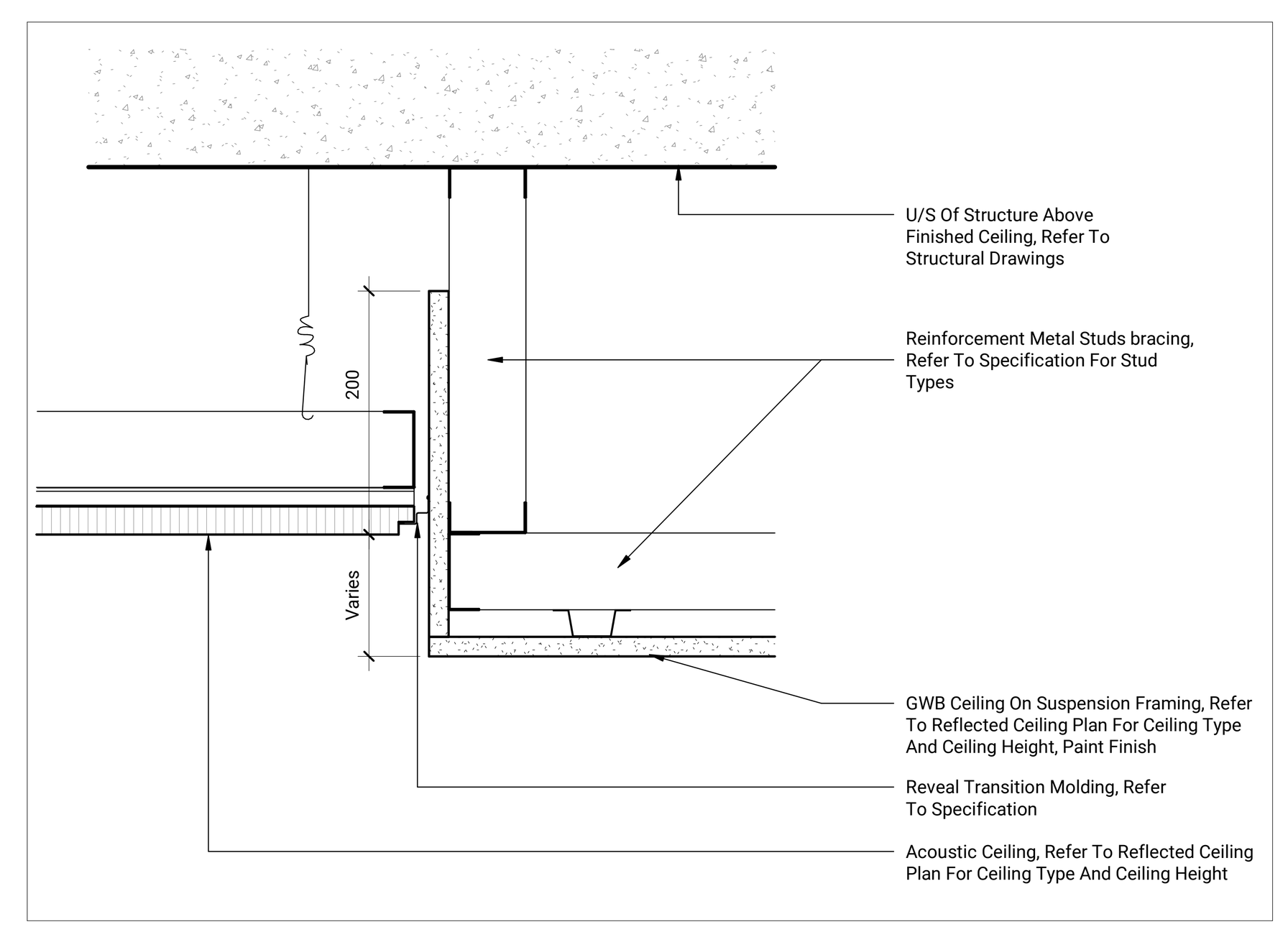
PNL3 to ACP1 Transition Section Detail 14 A650
1 : 2



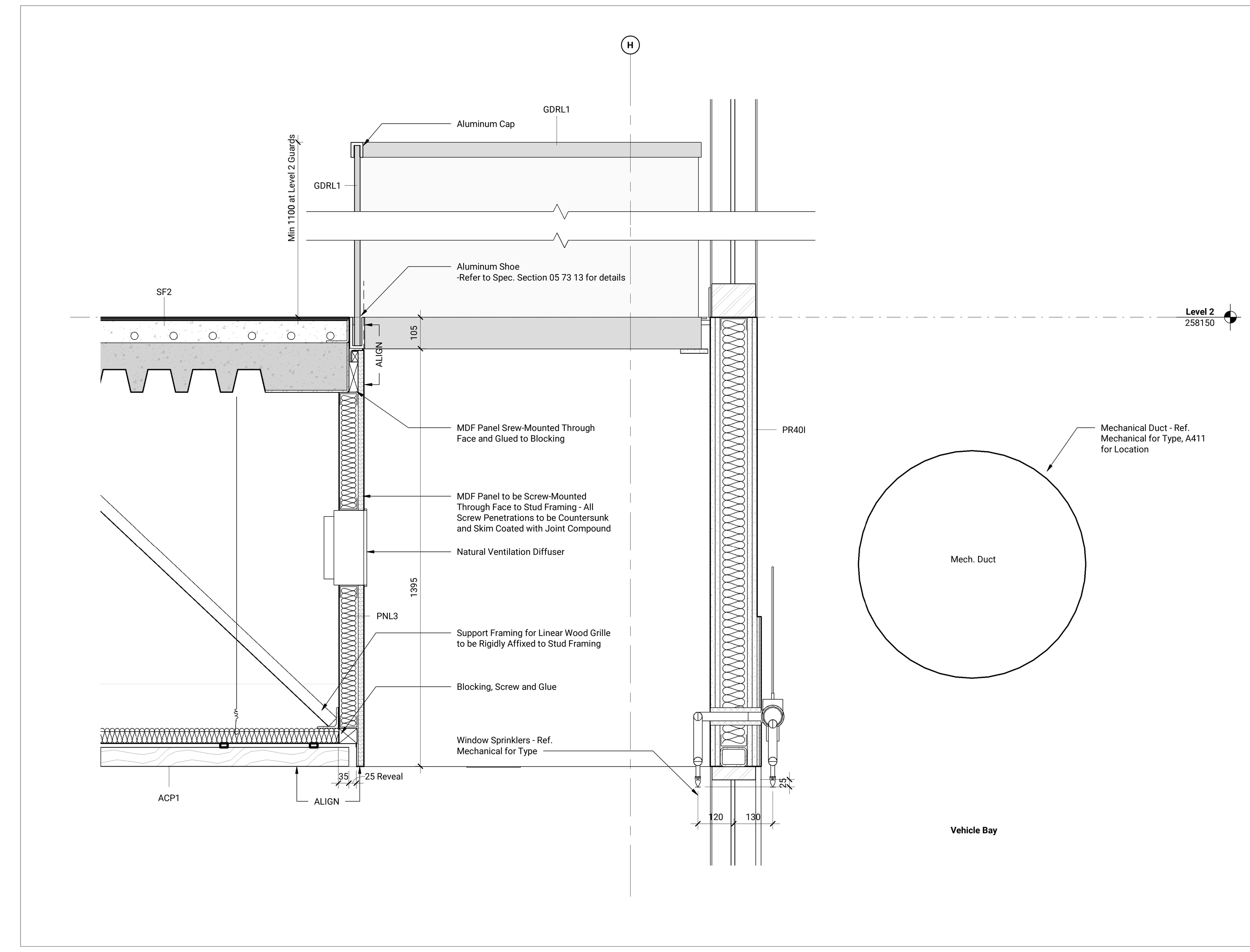
Typical Ceiling Relief Channel Section Detail 10 A650
1 : 5



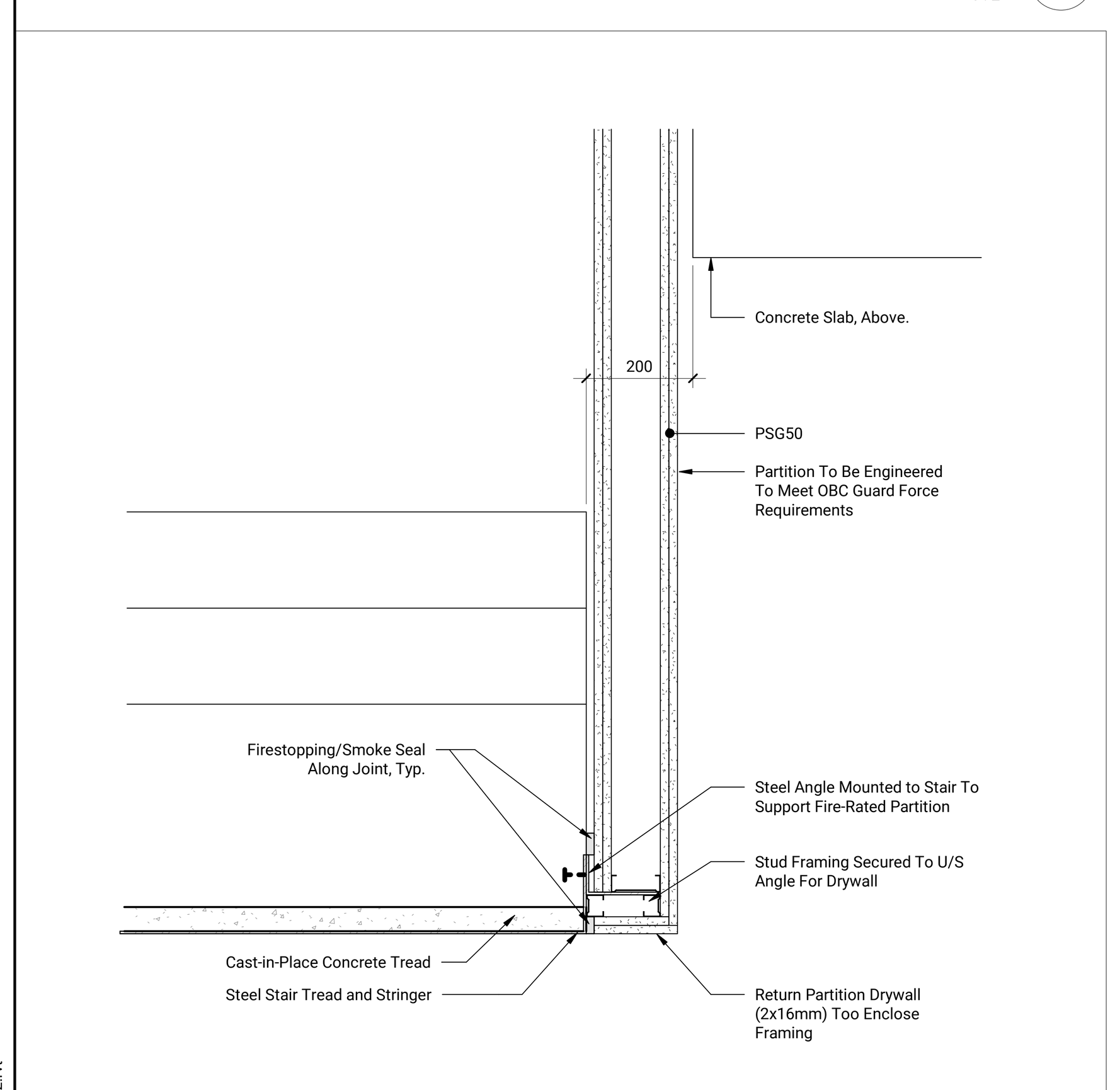
Make-Ready Light Fixture Mounting Detail 7 A650
1 : 5



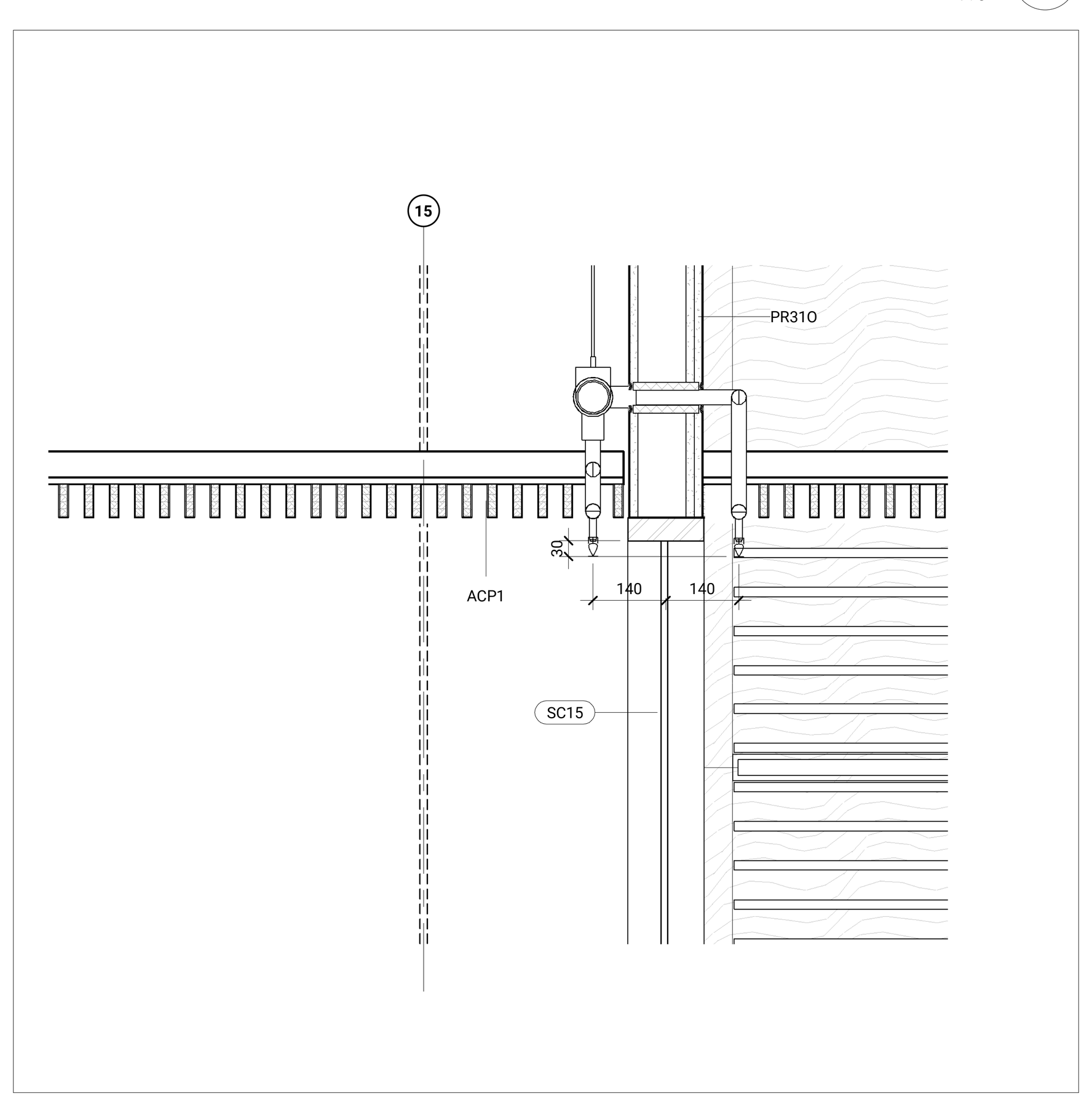
Section - Ceiling Transition - ACT To GB 6 A650
1 : 5



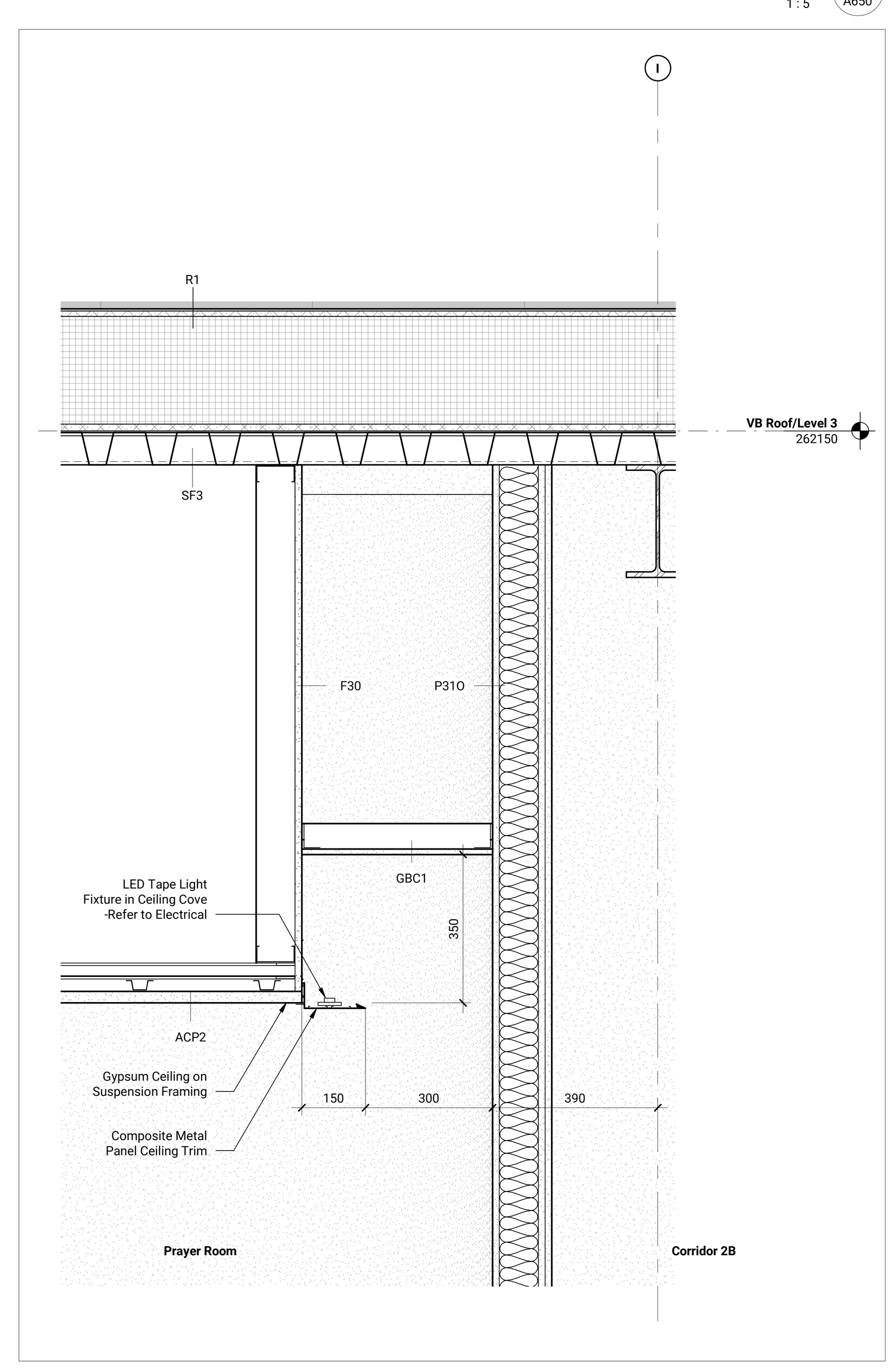
Level 2 Floor Opening Typical Section Detail 2 A650
1 : 10



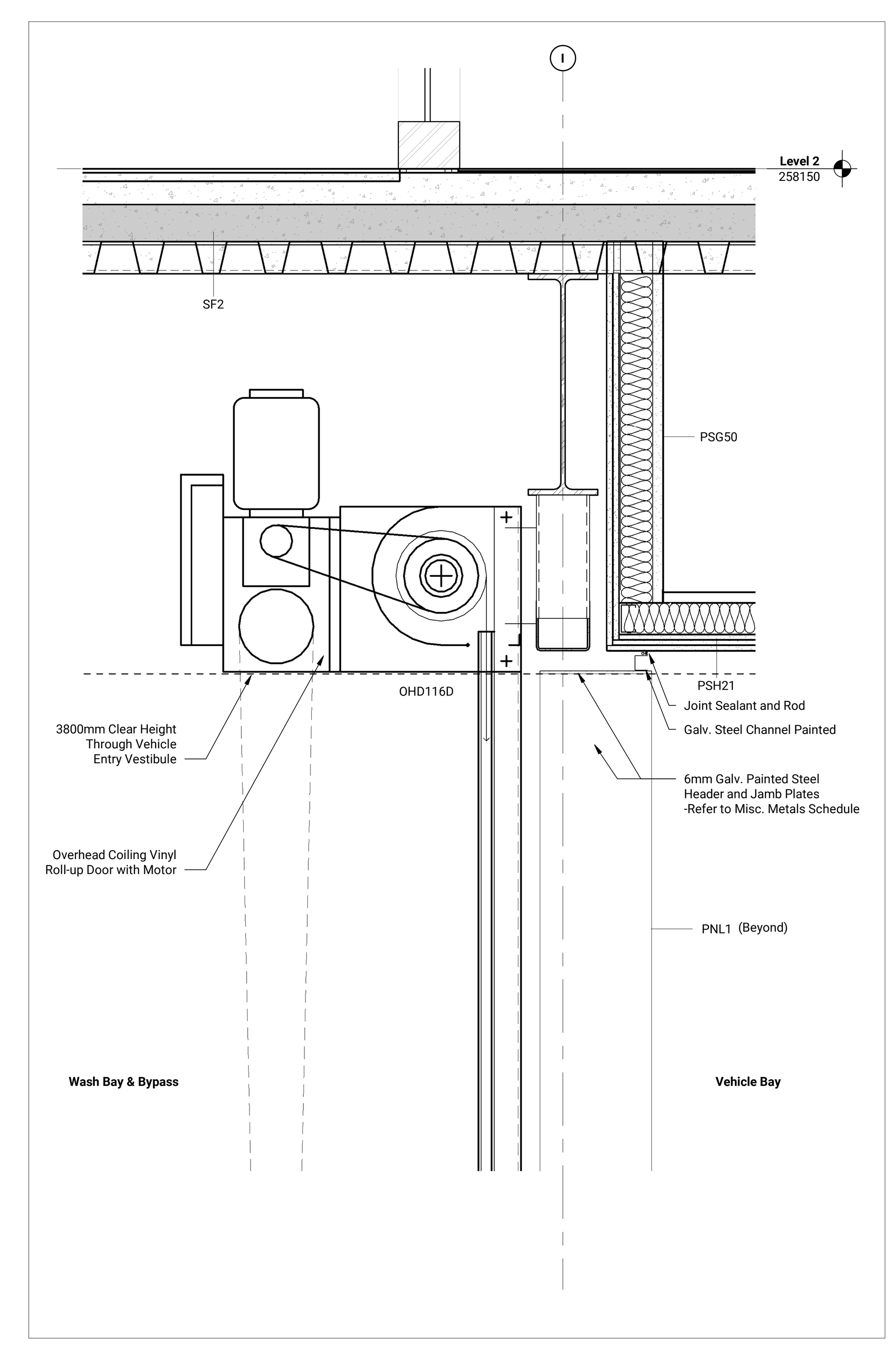
Stair Detail - Rated Separation Drywall Partition 13 A650
1 : 10



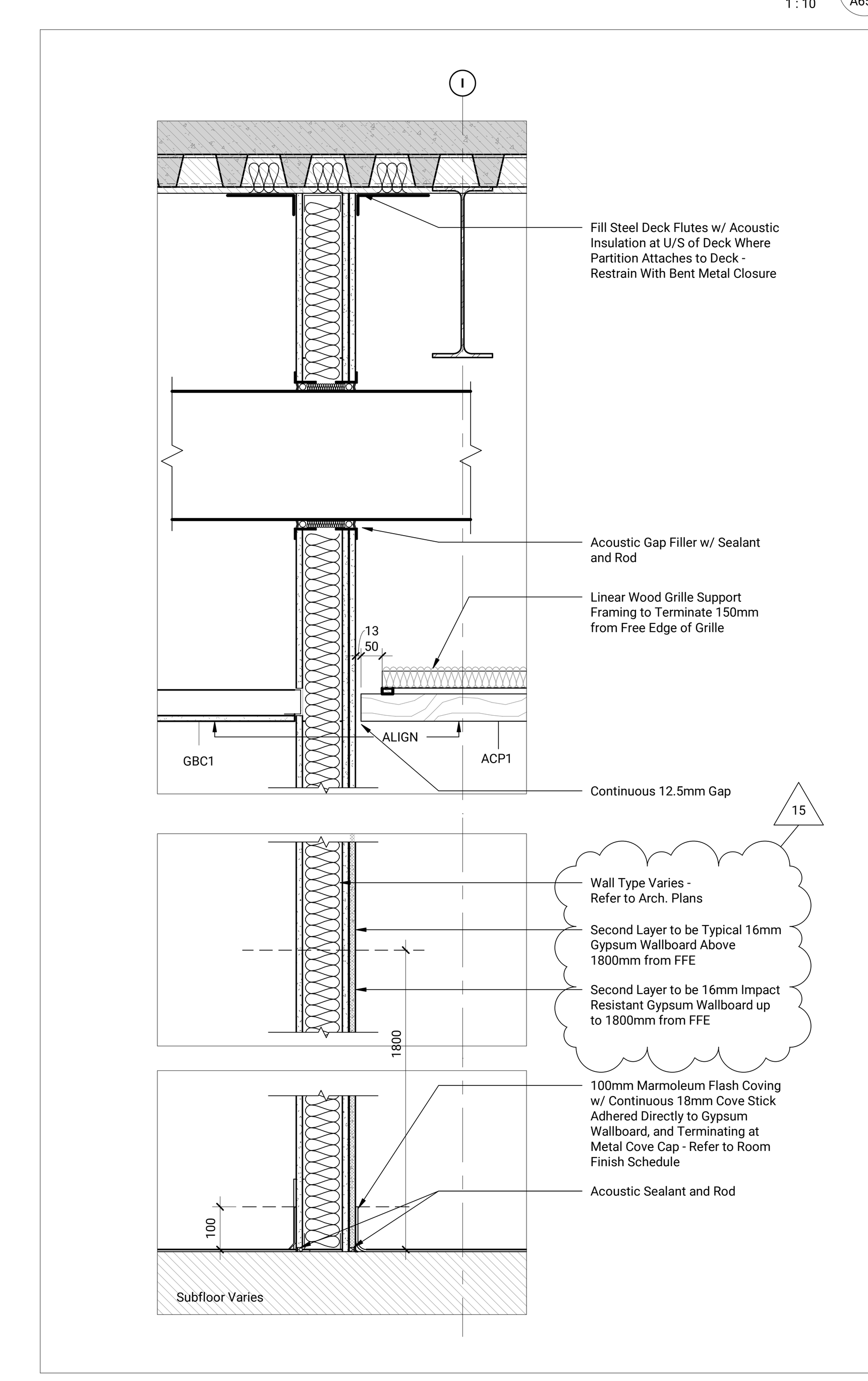
Visitor Lobby Sprinklered Glazing Section Detail 9 A650
1 : 10



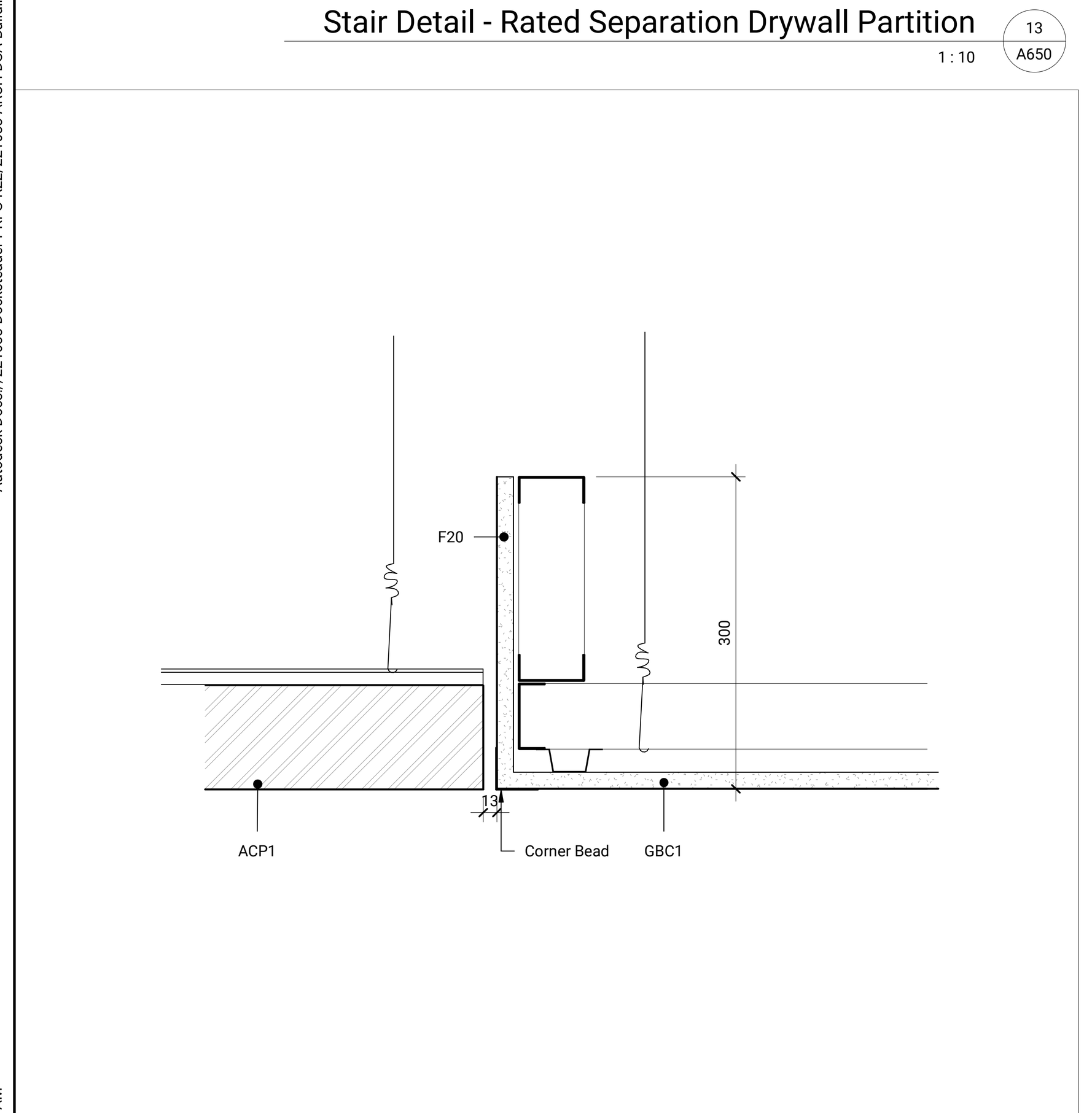
Level 2 Prayer Room Ceiling Section Detail 5 A650
1 : 10



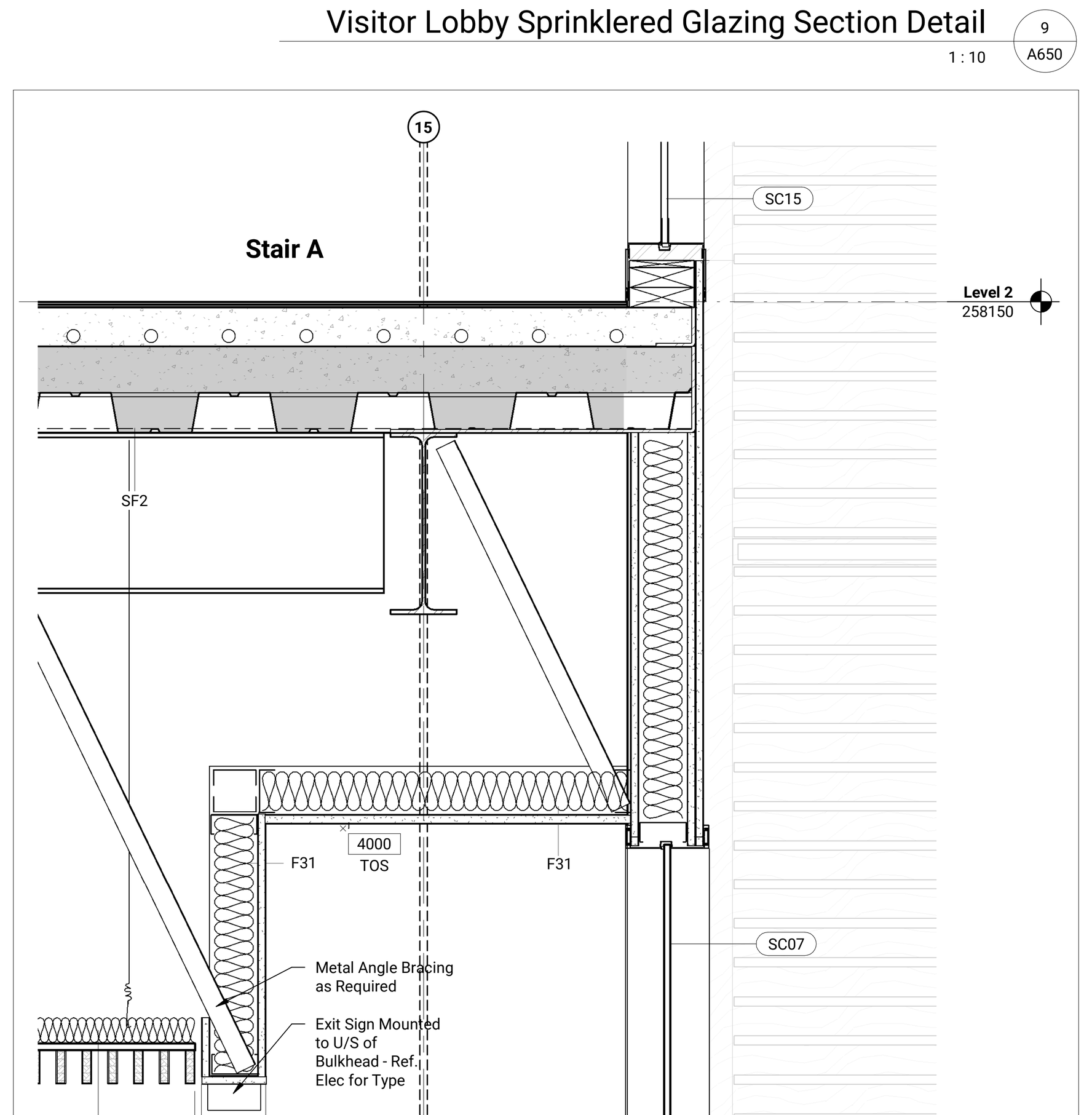
Vehicle Entry Bay, Pit Stop Roll-Up Door Section Detail 4 A650
1 : 10



Corridor North Partition Section Detail 1 A650
1 : 10



Typical Ceiling Detail - GBC1 To ACP1 12 A650
1 : 5



Visitor Lobby Glazing Floor Connection Section Detail 8 A650
1 : 10

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221033
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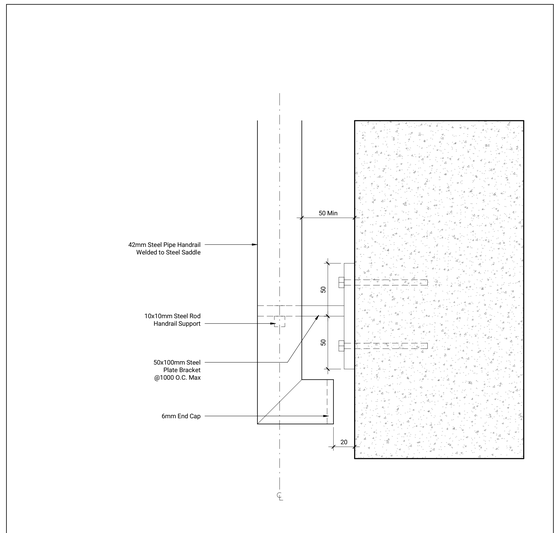
Interior Section Details
As indicated

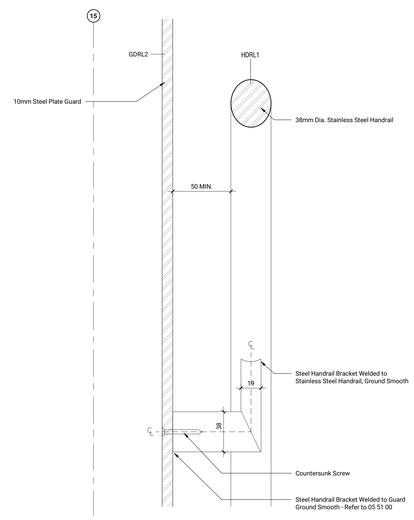
A650



Plan Detail - Wall Mounted Handrail - End of Bracket

1 : 2

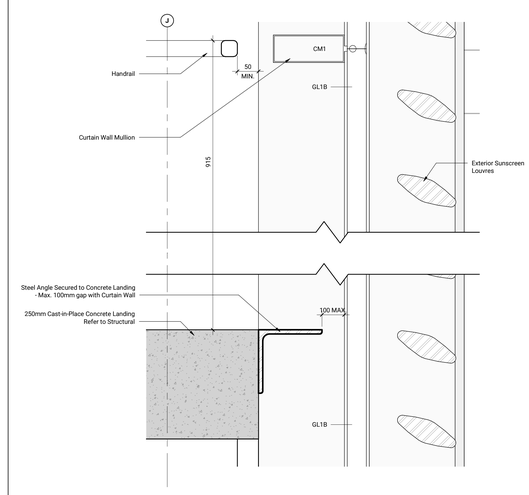
9 A703



Stair A & C Handrail Bracket Connection Detail

1 : 2

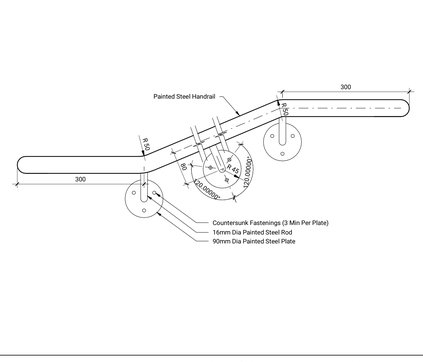
6 A703



Stair B - Landing at Curtain Wall

1 : 5

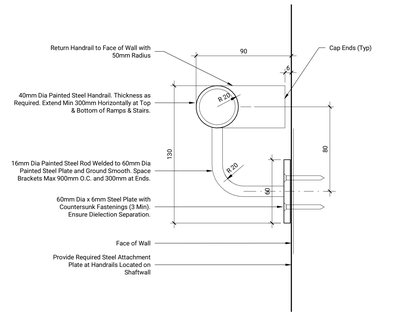
3 A703



Elevation Detail - Typical Wall Mounted Handrail

1 : 5

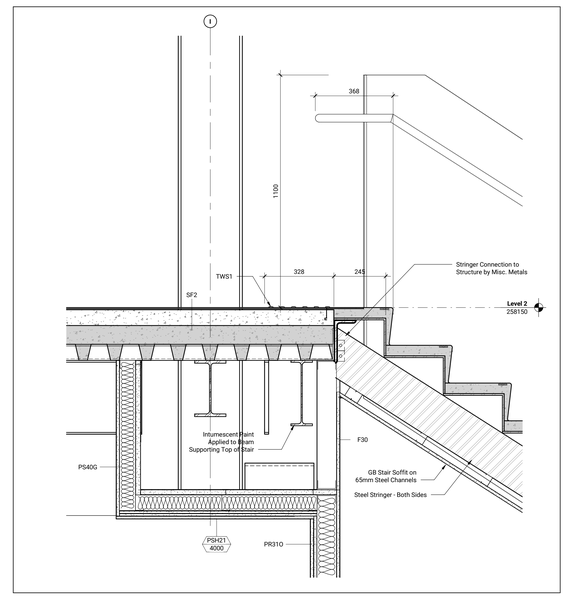
11 A703



Section Detail - Typical Wall Mounted Handrail

1 : 2

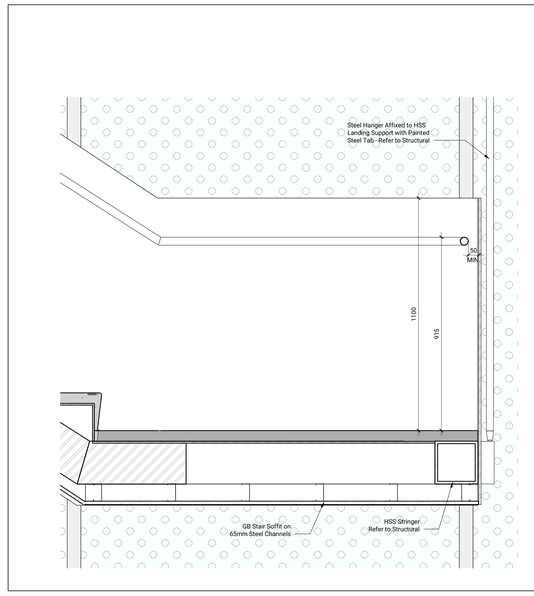
8 A703



Stair A At Level 2 Landing Connection

1 : 10

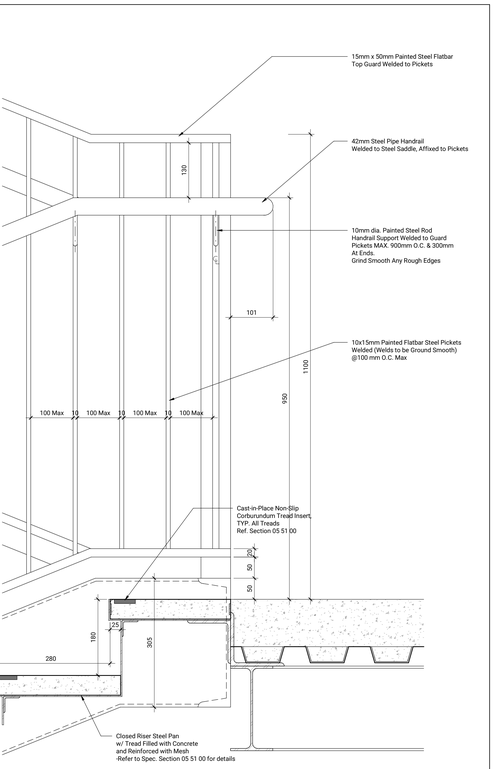
5 A703



Stair A At Mid-Landing Connection

1 : 10

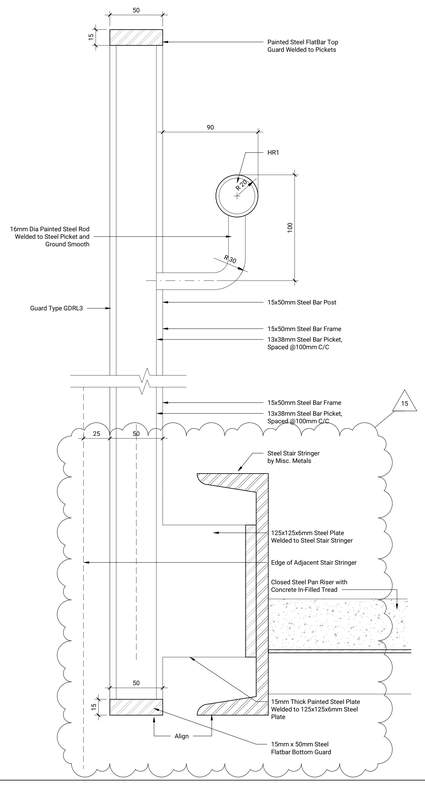
2 A703



Section Detail - Stair B, D, E Typical Guard and Handrail Detail at Mid-Landing

1 : 5

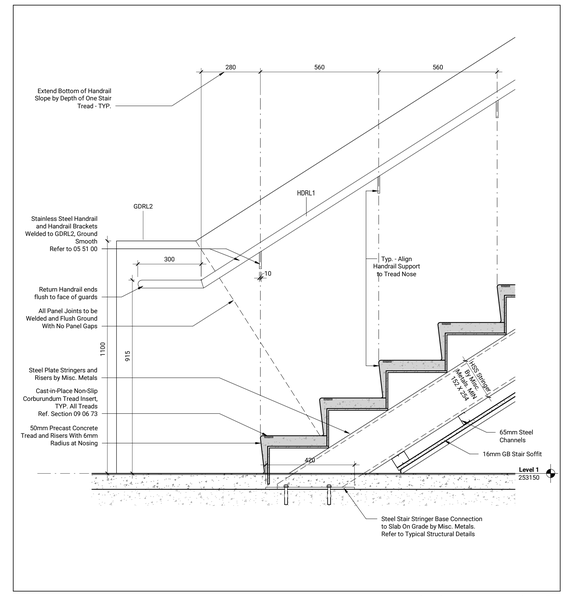
10 A703



Section Detail - Stair B, D, E Typical Guard and Handrail

1 : 2

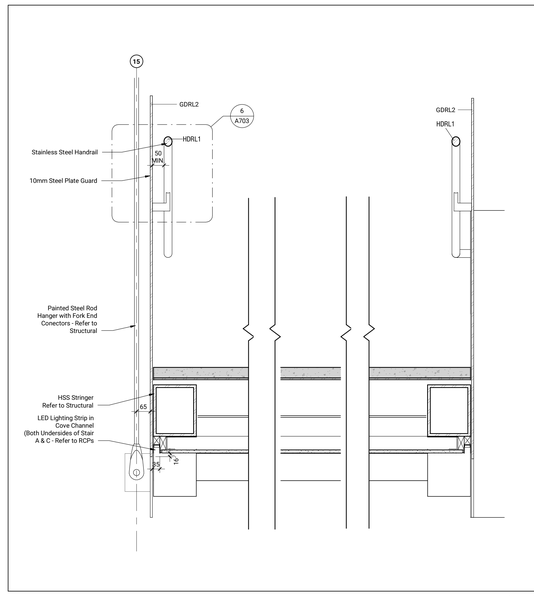
7 A703



Stair A & C Base Longitudinal Section Detail

1 : 10

4 A703



Stair A Transverse Section Detail

1 : 10

1 A703

Issued

No.	Date	Description
2	Nov 20, 2023	100% Design Development
5	Mar 22, 2024	33% Construction Documents
6	Apr 22, 2024	66% Construction Documents
7	May 27, 2024	Issued For Building Permit (Draft)
10	July 8, 2024	Issued for Building Permit
11	July 26, 2024	Issued for Tender
12	Sept 23, 2024	Issued for Tender
15	Nov 27, 2024	Issued for Tender Addendum No. 3

Docksteader PRPS
6 Docksteader Road, Brampton, ON
221033
File No. SPA-2024-0088

Stair Details
As indicated
A703

PLANT SCHEDULE INSIDE PROPERTY

	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
CONIFEROUS TREES								
	PG	8	Picea glauca	White Spruce	200cm Ht.	W.B.		Native
DECIDUOUS TREES								
	AF	9	Acer freemanii `Jeffersred`	Autumn Blaze Maple	60mm Cal.	W.B.		Native hybrid
	CO	6	Celtis occidentalis	Common Hackberry	60mm Cal.	W.B.		Native
	CCA	4	Cercis canadensis	Eastern Redbud	60mm Cal.	W.B.		
	GB	2	Ginkgo biloba	Maidenhair Tree	60mm Cal.	W.B.		
	GD	5	Gymnocladus dioica `Espresso`	Kentucky Coffeetree	60mm Cal.	W.B.		Native cultivar
	NS	4	Nyssa sylvatica `David Odom`	Afterburner Black Gum	60mm Cal.	W.B.		Native
	OV	16	Ostrya virginiana	American Hophornbeam	60mm Cal.	W.B.		Native
	PA	5	Platanus acerifolia `Bloodgood`	London Plane Tree	60mm Cal.	W.B.		
	PT	3	Populus tremuloides	Quaking Aspen	60mm Cal.	B&B		Native
	PP	13	Populus tremuloides `Dancing Flame`	Dancing Flame Aspen	60mm Cal.	W.B.		Native cultivar
	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
CONIFEROUS SHRUBS								
	JI	41	Juniperus chinensis `Blaauw`	Blaauw's Juniper	60cm	3 gal.	1.5 m	
	Jm	29	Juniperus chinensis `Mint Julep`	Mint Julep Juniper	60cm	3 gal.	1.5 m	
DECIDUOUS SHRUBS								
	Pm	30	Physocarpus opulifolius `Monlo`	Diabolo Ninebark	60cm	3 gal.	1.5 m	Native cultivar
	RaG	34	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	60cm	3 gal.	1.5 m	Native cultivar
	Vj	25	Viburnum x juddii	Judd Viburnum	60cm	3 gal.	1.5 m	
ORNAMENTAL GRASSES								
	ca	51	Calamagrostis acutiflora `Karl Foerster`	Feather Reed Grass	---	1 gal.	0.8 m	
	Pv	44	Panicum virgatum	Switch Grass	---	1 gal.	0.9 m	Native
	PvC	196	Panicum virgatum `Cheyenne Sky`	Cheyenne Sky Switch Grass	---	1 gal.	0.6 m	Native cultivar
	Sl	55	Schizachyrium scoparium	Little Bluestem	---	1 gal.	0.6 m	Native
	Sn	33	Sorghastrum nutans	Indian Grass	---	1 gal.	0.9 m	Native
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
PERENNIALS								
	Am	246	Allium x `Millenium`	Ornamental Onion	---	1 gal.	900 mm	Bulbs
	Cv	5	Clematis virginiana	Virgins Bower	---	1 gal.	1,000 mm	Native
	ep	85	Echinacea purpurea	Coneflower	---	1 gal.	600 mm	Native
	sMN	46	Salvia nemorosa `May Night`	Sage	---	1 gal.	450 mm	
	Sh	563	Sporobolus heterolepis	Prairie Dropseed	---	1 gal.	600 mm	Native

PLANT SCHEDULE OUTSIDE PROPERTY

	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER		REMARKS
DECIDUOUS TREES								
	PT	1	Populus tremuloides	Quaking Aspen	60mm Cal.	B&B		Native
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	REMARKS
PERENNIALS								
	Am	77	Allium x `Millenium`	Ornamental Onion	---	1 gal.	900 mm	Bulbs
	Cz	135	Coreopsis verticillata `Zagreb`	Zagreb Tickseed	---	1 gal.	500 mm	
	Sh	172	Sporobolus heterolepis	Prairie Dropseed	---	1 gal.	600 mm	Native

REFERENCE NOTES:

1. Survey provided by KRCMAR Surveyors Ltd., dated February 28, 2023.
2. Refer to Electrical drawings by Introba for site lighting information.
3. Refer to Civil drawings prepared by Morrison Hershfield for grading and servicing information, including: oil and grit separation, stormwater storage tanks, asphalt pavements and permeable pavements.

GENERAL NOTES:

1. Drawings not to be used for construction unless authorized by the Landscape Architect.
2. Contractor shall report any discrepancies between the drawings and site conditions prior to commencement of the work.
3. All utility locates are the responsibility of the Contractor. Hand dig within the limits recommended by the service utility. Utility conflicts with proposed tree locations must be reported immediately to the Landscape Architect.
4. Landscape drawings show engineering information for design purposes only. Do not construct engineering works from these drawings.

PLANTING NOTES:

1. Provide erosion control blankets for all seeded and planted slopes greater than 3:1. Contractor to submit a biodegradable straw net suitable for the application.
2. Provide 100mm uncompacted planting soil for all trees, soil trenches and planting beds. Soil to contain a minimum of 10% organic matter by dry weight, and a pH of 6.0 to 8.0.
3. No potable water shall be used for irrigation.
4. Contractor to submit irrigation shop drawings for review and approval by Landscape Architect.

LEGEND:

- Property Line
- Snow Storage Area
- Deciduous Tree
- Coniferous Tree
- Shrubs
- Ornamental Grasses
- Sod with 200mm Topsoil
- Grassland Bird Habitat Wet Meadow Seed Mix Available from St. Williams Nursery & Ecology Centre
- Dry Meadow Seed Mix Available from St. Williams Nursery & Ecology Centre

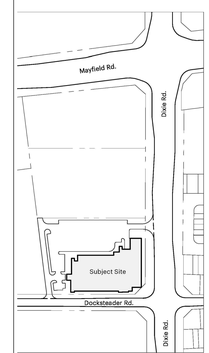
GSP group

Region of Peel working with you

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — ASSOCIATION DES ARCHITECTES PAYSAGISTES DE L'ONTARIO — OALA — MEMBER

ISSUED

No.	Date	Description
1	2023 NOV 16	Issued for Site Plan Control
2	2023 NOV 20	Issued for 100% Design Development
3	2023 NOV 29	Issued for Site Plan Control
4	2024 MAR 20	Issued for Site Plan Approval
5	2024 MAR 22	Issued for 33% Construction Drawings
6	2024 APR 22	Issued for 66% Construction Drawings
7	2024 MAY 31	Issued for Building Permit
8	2024 JUL 08	Issued for Building Permit
9	2024 JUL 26	Issued for Tender
10	2024 SEP 23	Issued for Tender
11	2024 NOV 12	Issued for Tender Addendum No. 2
12	2024 NOV 12	Issued for SPA Resubmission No. 1
13	2024 NOV 27	Issued for Tender Addendum No. 3



Key Plan 1:3000

3 1 0 2 4 8
1: 200(m)

Docksteader PRPS

6 Docksteader Road, Brampton, ON
SPA-2024-0088
23003

Planting Plan
1 : 200

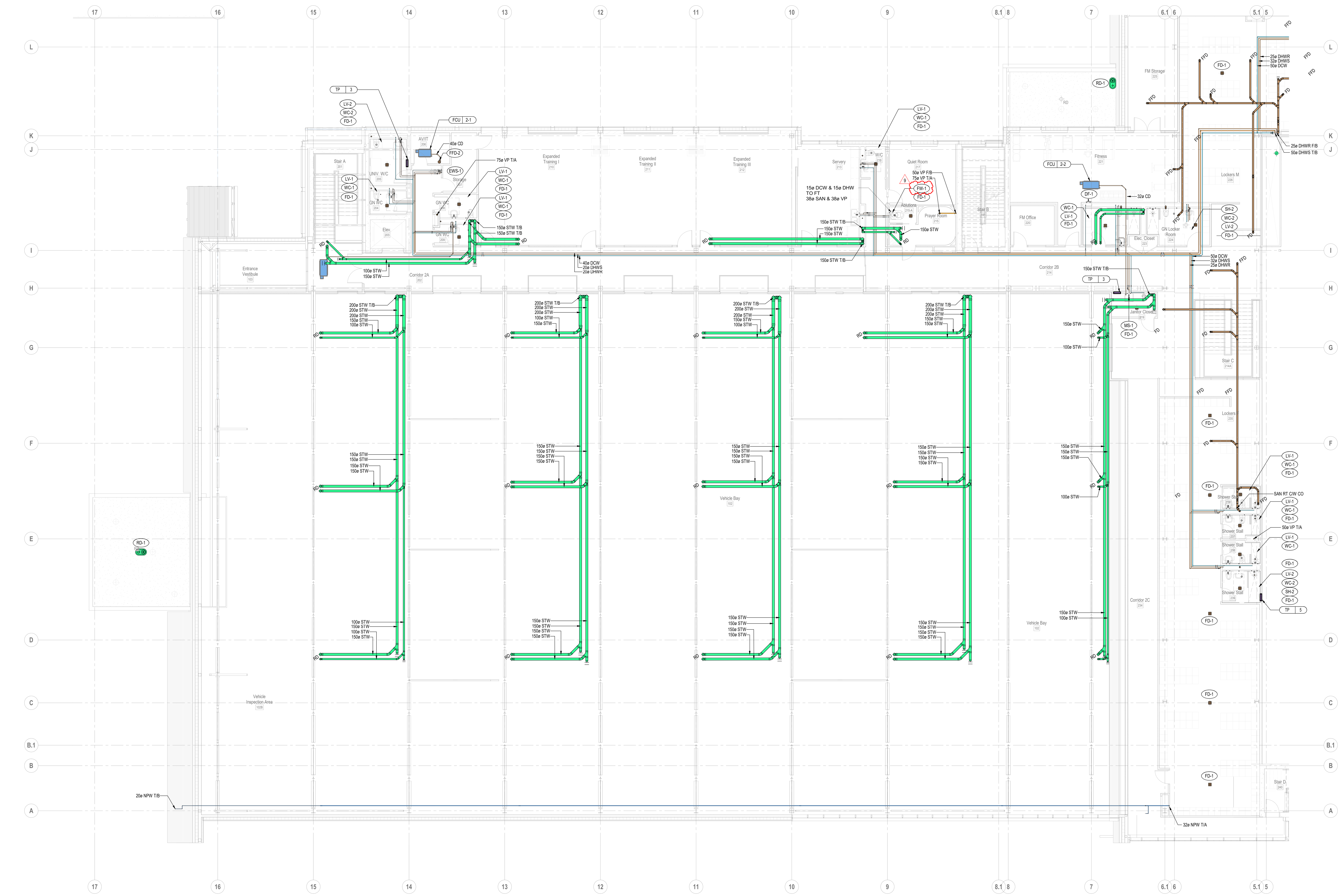
L102

GENERAL NOTES

A. THIS PROJECT IS A POST-DISASTER BUILDING. ALL NEW NON-STRUCTURAL COMPONENTS, EQUIPMENT AND THEIR CONNECTIONS WHICH INCLUDE, BUT NOT LIMITED TO DUCTWORK, MECHANICAL EQUIPMENT, PIPEWORK, TANKS, ATTACHMENTS TO CEILING WITH INDEPENDENT VERTICAL SUPPORT AND FIXTURES SHALL BE DESIGNED TO COMPLY WITH THE REQUIREMENTS OF CLAUSE 4.1.8.17 IN THE ONTARIO BUILDING CODE.

PLUMBING GENERAL NOTES

1. SANITARY DRAINAGE AND STORM DRAINAGE PIPING 100Ø mm (4") DIAMETER AND LARGER SHALL BE SLOPED AT 1% UNLESS OTHERWISE NOTED.
2. SANITARY DRAINAGE AND STORM DRAINAGE PIPING SMALLER THAN 100Ø mm (4") DIAMETER SHALL BE SLOPED AT 2% UNLESS OTHERWISE NOTED.
3. VALVE FOR METER ARRANGEMENT SHALL BE RISING STEM VALVE.



1 M203 Level 2 - PLUMBING PLAN - WEST
1 : 100

diamond schmitt

Peel Region
working with you

Issued

No.	Date	Description
1	20/11/2023	Issued for 100% Design Development
2	22/03/2024	Issued for 33% Construction Documents
3	22/04/2024	Issued for 66% Construction Documents
4	22/05/2024	Issued for Building Permit Draft
5	29/05/2024	Issued for 66% Construction Documents Add. No. 1
6	19/06/2024	Issued for 66% Construction Documents Add. No. 2
7	08/07/2024	Issued for Building Permit
8	09/23/2024	Issued for Tender
9	11/27/2024	Issued for Addendum -3

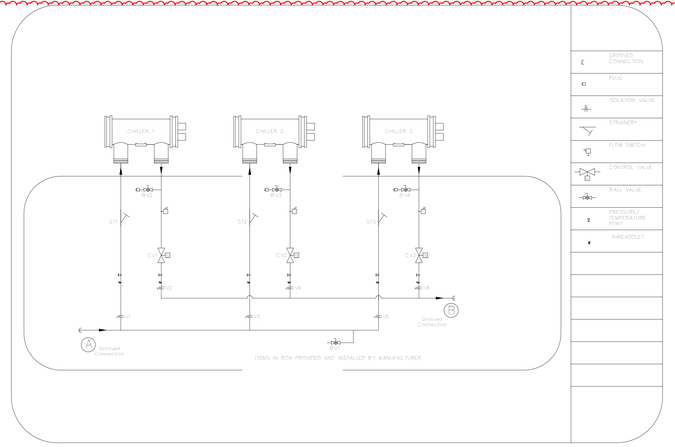
Introba
Toronto
380 Wellington Street West,
Toronto, ON M5V 1E3
+1.416.488.4425
hello@introba.com
www.introba.com

Dockseader PRPS

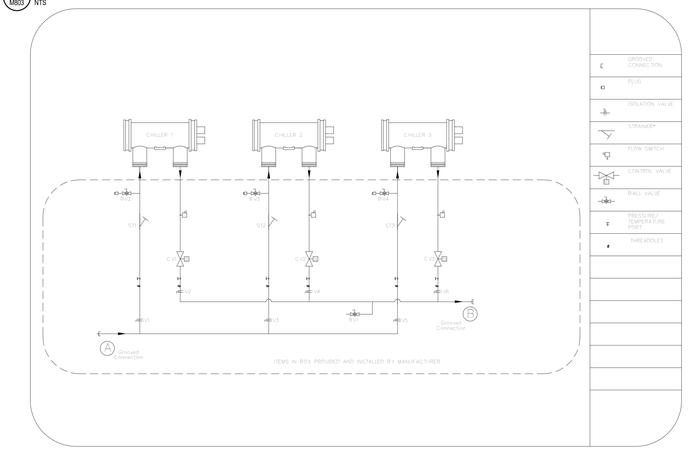
LEVEL 2 - PLUMBING AND DRAINAGE PLAN - WEST

As indicated

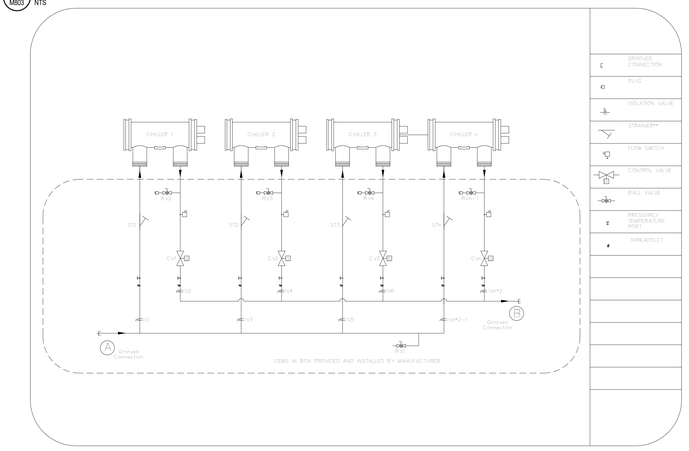
M203



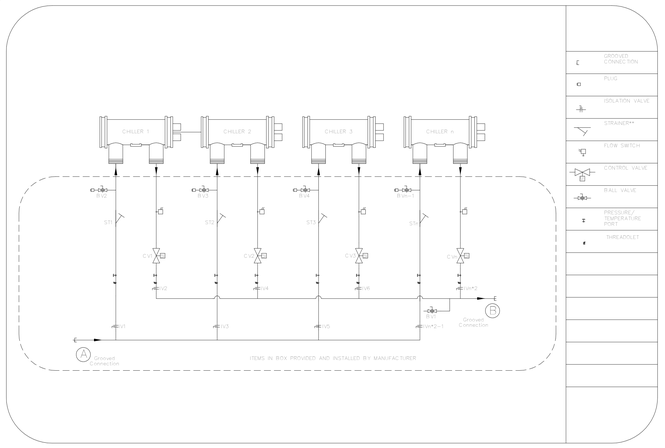
10 M803 ASHP-01 - GLYCOL CHILLER WATER PIPING SCHEMATIC
NTS



11 M803 ASHP-01 - GLYCOL HOT WATER PIPING SCHEMATIC
NTS



12 M803 ASHP-02 - GLYCOL CHILLER WATER PIPING SCHEMATIC
NTS



13 M803 ASHP-02 - GLYCOL HOT WATER PIPING SCHEMATIC
NTS

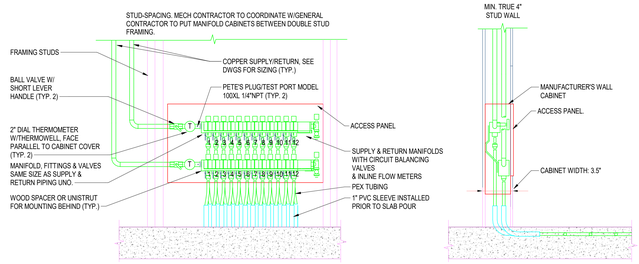
NOTES:

1. SEE DWGS FOR PEX SIZING & LAYOUT.
2. ALL VALVES, PETE'S PLUGS, MANIFOLDS TO BE ACCESSIBLE THROUGH ACCESS PANEL.
3. MAINTAIN TOP OF PEX TUBING 3/4" BELOW SLAB SURFACE AT SLAB EXIT.
4. INSTALL MANUAL AIR VENTS IN SUPPLY AND RETURN MANIFOLD BRANCH PIPING AS FOLLOWS: A) IN PIPING HIGH POINT WHEN PIPING IS ABOVE MAIN. B) CLOSE TO MANIFOLD WHEN PIPING IS NOT ABOVE MAIN (SIDE CONNECTION).
5. USE MANUFACTURER'S CABINET FOR MANIFOLD MOUNTING & ACCESS.
6. RADIANT SYSTEM MANIFOLDS TO BE ATTACHED TO FRAMING USING CAPTIVE NEOPRENE MOUNTS WITH 0.2" STATIC DEFLECTION.

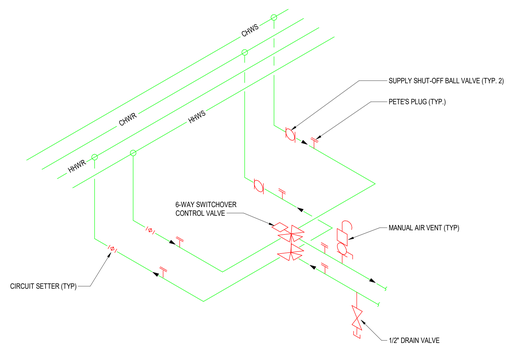
PROVIDE:

- LOOP ISOLATION VALVES
- LOOP BALANCING VALVES
- LOOP VISUAL FLOWMETER
- LOOP PETE'S PLUGS (ON BOTH SUPPLY AND RETURN LOOP CONNECTIONS)
- MANIFOLD ISOLATION VALVES ON SUPPLY AND RETURN WITH INTEGRATED FILTER
- MANIFOLD DIAL THERMOMETERS ON SUPPLY AND RETURN
- PETE'S PLUGS ON MANIFOLD SUPPLY AND RETURN
- AIR VENT AND DRAIN ON RETURN MANIFOLD
- ASSORTED FITTINGS

ACCESS PANEL SIZE	
# OF LOOPS	ACCESS PANEL MIN. DIMENSIONS (HxW)
2-7	36" x 24"
8-10	36" x 31"
10-12	36" x 40"



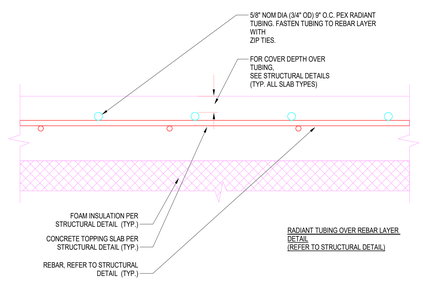
6 M803 RADIANT MANIFOLD
NTS



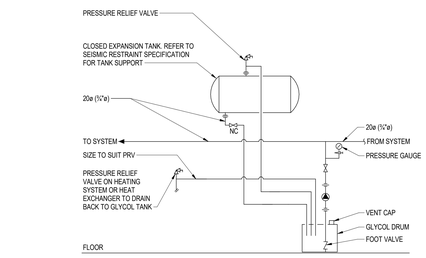
NOTES:

1. INSTALL MANUAL AIR VENT IN RETURN COIL BRANCH PIPING AS FOLLOWS:
   A. IN PIPING HIGH POINT WHEN PIPING IS ABOVE MAIN.
   B. CLOSE TO COIL WHEN PIPING IS NOT ABOVE MAIN (SIDE CONNECTION)
2. INSTALL MANUAL AIR VENT IN SUPPLY HEADER ONE PER CONTROL VALVE AS FOLLOWS.
   A. IN PIPING HIGH POINT WHEN PIPING IS ABOVE MAIN.
   B. CLOSE TO COIL WHEN PIPING IS NOT ABOVE MAIN (SIDE CONNECTION)
3. MINIMIZE FITTINGS; USE LONG RADIUS 90 DEG ELBOWS AND 45 DEG FITTINGS.

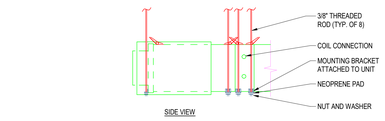
7 M803 SWITCHOVER VALVE ASSEMBLY (6-WAY VALVE)
NTS



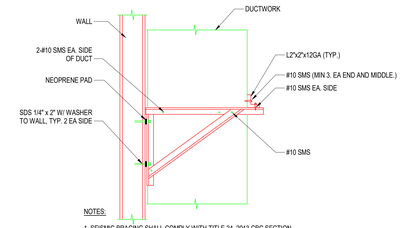
8 M803 IN-SLAB RADIANT TUBING
NTS



9 M803 GLYCOL SYSTEM CLOSED EXPANSION TANK
NTS



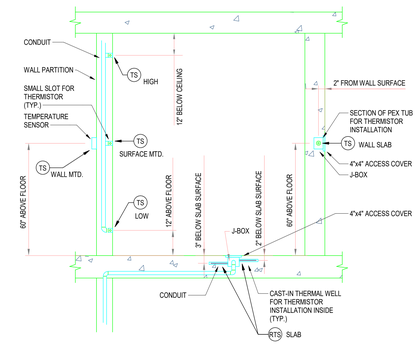
1 M803 VAV BOX MOUNTING
1 : 1



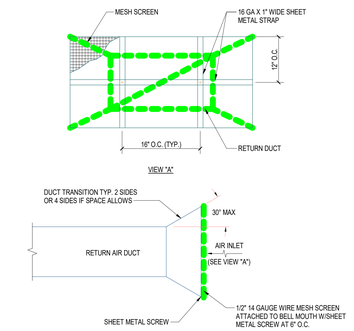
NOTES:

1. SEISMIC BRACING SHALL COMPLY WITH TITLE 24, 2013 CBC SECTION 1616A.
2. MAX DUCT SIZE: 10 LBS/FT.
3. USE INSULATED DUCT SUPPORTS TO MAINTAIN INSILATION VALUE IN SUPPORTED DUCT SECTIONS.

2 M803 VERTICAL DUCT IN SHAFT SUPPORT DETAIL
1 : 1



3 M803 RADIANT IN SLAB TEMPERATURE SENSORS
NTS

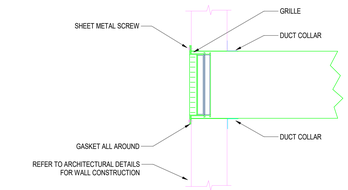


NOTES:

1. INTAKE AREA EQUAL A MINIMUM OF TWO RETURN AIR DUCT AREAS.
2. BELL MOUTH TRANSITION SHALL BE PROVIDED ON ALL FOUR SIDES IF SPACE ALLOWS AND ON TWO SIDES IN TIGHT SPACES.

RETURN AIR DUCT BELLMOUTH

4 M803 RETURN AIR DUCT BELLMOUTH
1 : 1



5 M803 SIDEWALL GRILLE DETAIL
1 : 1

Issued

No.	Date	Description
1	20/11/2023	Issued for 100% Design Development
2	22/03/2024	Issued for 33% Construction Documents
3	22/04/2024	Issued for 66% Construction Documents
4	22/05/2024	Issued for Building Permit Draft
5	29/05/2024	Issued for 66% Construction Documents Add. No. 1
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7	08/07/2024	Issued for Building Permit
8	09/23/2024	Issued for Tender
9	11/27/2024	Issued for Addendum -3

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www.introba.com

Docksteader PRPS

HVAC DETAILS
As indicated
M803

PLUMBING FIXTURES SCHEDULE

TAG/MA...		PRODUCT...	MANUFACTUR...	MODEL NUMBER	DESCRIPTION	ROUGH IN DRAIN	ROUGH IN VENT	ROUGH IN HOT	ROUGH IN COLD	FAUCET/FLUSH VALVE	ACCESSORIES
WC-1 (EXPOSED)		TOILET	AMERICAN STANDARD	3351101.020	AFWALL® MILLENNIUM™ FLOWISE®, VITREOUS CHINA, EVERCLEAN® ANTIMICROBIAL SURFACE, TOILET OPERATES IN THE RANGE OF 4.2 TO 6.0 LPF (1.1 - 1.6 GPF), FULLY-GLAZED 54 MM (2-1/8") TRAPWAY, WHITE FINISH, HEIGHT DEPENDS ON INSTALLATION (CHECK LOCAL CODES), ELONGATED BOWL, FOR FLUSH VALVE	75	38	-	25		SEAT: CENTOCO FAST-N-LOCK AM500STSCCFE-001, FOR ELONGATED BOWL, OPEN FRONT, WHITE FINISH, POLYPROPYLENE, ANTIMICROBIAL ADDITIVE INHIBITS THE GROWTH OF STAIN AND ODOR CAUSING BACTERIA FAUCET AND FLUSH VALVE POWER KIT: SLOAN SL-EL-154 CARRIER: WATTS ISCA-101-L/R-M11, CLOSET CARRIER
MS-1		SINK	STERN WILLIAMS	SB-900-T-35-T-40-BP	PRECAST TERRAZZO, FLOOR MOUNTED, SINGLE COMPARTMENT, MOP SERVICE SINKS	75	38	20	20	CHICAGO FAUCETS MANUAL, 194 - 213 MM (7-5/8" TO 8-3/8") ADJUSTABLE CENTERSET, 897-RCF,	SINK: HOSE AND WALL HOOK, MOP HANGER, SPLASH CATCHER FAUCET:
SK-1		SINK	FRANKE COMMERCIAL	SL2424-316-1-2	STAINLESS STEEL, TYPE 316, 16 GAUGE, FLOOR MOUNTED, SINGLE COMPARTMENT, SCULLERY SINK	38	38	15	15	CHICAGO FAUCETS MANUAL, 203 MM (8") CENTERSET, 631-GN8FCABCP, 5.7 LPM (1.5 GPM) MAXIMUM FLOWRATE	SINK: FAUCET: MIXING VALVE: LAWLER 570-86820 P-TRAP: MCGUIRE 8912CBSAN
SK-1		SINK	FRANKE COMMERCIAL	SSU1-00-1	STAINLESS STEEL, TYPE 304, 16 GAUGE, WALL-HUNG, WITH FAUCET LEDGE, SINGLE COMPARTMENT, SURGEON SCRUB-UP SINK	38	38	15	15	CHICAGO FAUCETS HYTRONIC®, AUTOMATIC NO-TOUCH, SINGLE HOLE CENTERSET, 116.104.AB.1, 1.9 LPM (0.5 GPM) MAXIMUM FLOWRATE	SINK: INCLUDES WALL HANGER BRACKETS FAUCET: FAUCET AND FLUSH VALVE POWER KIT: CHICAGO FAUCETS 243.260.00.1/242.340.00.1 MIXING VALVE: LAWLER 570-86820
SH-1		SHOWER FLOOR AND STALLS	STERN WILLIAMS	54		38	38	15	15		COMPLETE SHOWER TRIM: ACORN 530-MVC1-TF-B-GR24
WC-2 (CONCEALED)		TOILET	AMERICAN STANDARD	3353101.020	AFWALL® MILLENNIUM™ FLOWISE®, VITREOUS CHINA, EVERCLEAN® ANTIMICROBIAL SURFACE, TOILET OPERATES IN THE RANGE OF 4.2 TO 6.0 LPF (1.1 - 1.6 GPF), FULLY-GLAZED 54 MM (2-1/8") TRAPWAY, WHITE FINISH, HEIGHT DEPENDS ON INSTALLATION (CHECK LOCAL CODES), ELONGATED BOWL, FOR FLUSH VALVE	75	38	-	25	SLOAN SL-ROYAL 152-1.28-ESS-TMO-SWB, HIGH EFFICIENCY 4.8 LPF (1.28 GPF), AUTOMATIC NO-TOUCH	SEAT: CENTOCO FAST-N-LOCK AM500STSCCFE-001, FOR ELONGATED BOWL, OPEN FRONT, WHITE FINISH, POLYPROPYLENE, ANTIMICROBIAL ADDITIVE INHIBITS THE GROWTH OF STAIN AND ODOR CAUSING BACTERIA FAUCET AND FLUSH VALVE POWER KIT: SLOAN SL-EL-154 CARRIER: WATTS ISCA-101-L/R-M11, CLOSET CARRIER
EW-1		EMERGENCY EQUIPMENT	GUARDIAN	G1814	WALL-HUNG, TYPE 304 STAINLESS STEEL CONSTRUCTION, EYE WASH WITH STAINLESS STEEL BOWL, CORROSION RESISTANT POWDER COATED FINISH, 283 MM (11-1/8") Ø BOWL SIZE, TWO GS-PLUS SPRAY HEADS WITH FLIP TOP DUST COVER EACH, 13 MM (1/2") Ø IPS CHROME PLATED BRASS STAY OPEN BALL VALVE, EYE WASH, 13 MM (1/2") Ø NPT FEMALE INLET, 32 MM (1-1/4") Ø NPT FEMALE OUTLET, HEAVY DUTY CAST ALUMINUM WALL BRACKET, ANSI COMPLIANTTHERMOSTATIC HIGH-LOW MASTER WATER MIXING VALVE, TEMPERATURE...	-	-	15	15		MIXING VALVE: LAWLER 911E/F-UNIT 84907
SH-2		SHOWER FLOOR AND STALLS	STERN WILLIAMS	54		38	38	15	15		COMPLETE SHOWER TRIM: AMERICAN STANDARD TU075500.002 SHOWER VALVE: AMERICAN STANDARD RU108SS M954334-0070A SHOWERHEAD: AMERICAN STANDARD 1660244.002
ES-1		EMERGENCY EQUIPMENT	GUARDIAN	G1902	FLOOR MOUNTED, STAINLESS STEEL BOWL AND ABS OR STAINLESS STEEL SHOWERHEAD, COMBINATION EYEWASH AND SHOWER SAFETY STATION, STAINLESS STEEL, 283 MM (11-1/8") Ø BOWL SIZE, ORANGE ABS PLASTIC SHOWERHEAD, 254 MM (10") DIAMETER, TWO GS-PLUS SPRAY HEADS WITH FLIP TOP DUST COVER EACH, 75 LPM (20 GPM) FLOW CONTROL, 25 MM (1") Ø I.P.S. CHROME-PLATED BRASS STAY-OPEN BALL VALVE, 13 MM (1/2") Ø I.P.S. CHROME-PLATED BRASS STAY OPEN BALL VALVE, 32 MM (1-1/4") Ø NPT FEMALE TOP OR SIDE INTLET, 32 MM (1-1/4") Ø NPT FEMALE OUTLET, ANSI COMPLIANT, SCHEDULE 40THERMOSTATIC HIGH-LOW MASTER WATER MIXING VALVE, TEMPERATURE ADJUSTMENT SHALL BE VANDAL-RESISTANT, 70-90 F, 125 PSI MAX INLET PRESSURE, 280 X 229 X 127 MM (11" X 9" X 5")	-	-	32	32		FURNISHED WITH ORANGE POLYETHYLENE PIPEMIXING VALVE: LAWLER 911-UNIT 8334
SK-3		SINK	FRANKE COMMERCIAL	LBS6808-316P-1-1	STAINLESS STEEL, TYPE 316, 18 GAUGE, COUNTER MOUNTED, WITH FAUCET LEDGE, SINGLE COMPARTMENT, COMMERCIAL SINKS	38	38	15	15	CHICAGO FAUCETS AUTOMATIC NO-TOUCH, SINGLE HOLE CENTERSET, 116.682.AB.1, 5.7 LPM (1.5 GPM) MAXIMUM FLOWRATE	SINK: FAUCET: FAUCET AND FLUSH VALVE POWER KIT: CHICAGO FAUCETS 243.260.00.1/242.340.00.1 MIXING VALVE: LAWLER 570-86820 SUPPLY: MCGUIRE LFCK170 P-TRAP: MCGUIRE 8912CBSAN
SH-3 (BF)		SHOWER FLOOR AND STALLS	STERN WILLIAMS	WDA-3460		38	38	15	15		COMPLETE SHOWER TRIM: CHICAGO FAUCETS SH-PB1-00-000 SLIDE BAR: CHICAGO FAUCETS 9800-036CP HAND SHOWER: CHICAGO FAUCETS 624-LCP SHOWER HOSE: CHICAGO FAUCETS 24-69NF WALL SUPPLY: CHICAGO FAUCETS 622-001CP
U-1		URINAL	AMERICAN STANDARD	6590001EC.020	WASHBROOK® FLOWISE®, WALL-HUNG, FLUSH VALVE URINAL, STANDARD USE, VITREOUS CHINA, WHITE FINISH, PERMANENT EVERCLEAN SURFACE INHIBITS THE GROWTH OF STAIN AND ODOR CAUSING BACTERIA, 19 MM (3/4") SPUD CONNECTION, TOP SPUD, URINAL OPERATES IN THE RANGE OF 0.5 TO 3.8 LPF (0.125 - 1.0 GPF), WASHDOWN, CHROME-PLATED NON-METALLIC STRAINER	38	38	-	20	SLOAN ROYAL 186-0.125-SG, HIGH EFFICIENCY 0.5 LPF (0.125 GPF), MANUAL	CARRIER: WATTS CA-321, URINAL CARRIER, WALL PLATE
SK-4		SINK	FRANKE COMMERCIAL	LBD6408-316P-1-3	STAINLESS STEEL, TYPE 316, 18 GAUGE, COUNTER MOUNTED, WITH FAUCET LEDGE, DOUBLE COMPARTMENT, COMMERCIAL SINKS	38	38	15	15	CHICAGO FAUCETS MANUAL, 203 MM (8") CENTERSET, 786-GN8FCXKABCP, 5.7 LPM (1.5 GPM) MAXIMUM FLOWRATE	SINK: FAUCET: MIXING VALVE: LAWLER 570-86820 SUPPLY: MCGUIRE LFCK170 P-TRAP: MCGUIRE 8912CBSAN
SK-4 (DOUBLE BOWL)		SINK	FRANKE COMMERCIAL	SSU2-00-2	STAINLESS STEEL, TYPE 304, 16 GAUGE, WALL-HUNG, DOUBLE COMPARTMENT, SURGEON SCRUB-UP SINK	38	38	15	15	CHICAGO FAUCETS HYTRONIC®, AUTOMATIC NO-TOUCH, SINGLE HOLE CENTERSET, 116.104.AB.1, 1.9 LPM (0.5 GPM) MAXIMUM FLOWRATE	SINK: FAUCET: FAUCET AND FLUSH VALVE POWER KIT: CHICAGO FAUCETS 243.260.00.1/242.340.00.1 MIXING VALVE: LAWLER 570-86820
L-1		BASIN	AMERICAN STANDARD	0475047.020	VITREOUS CHINA, SINGLE HOLE CENTERSET, COUNTER MOUNTED, DROP-IN, WHITE FINISH, FRONT OVERFLOW	32	32	15	15		FAUCET AND FLUSH VALVE POWER KIT: CHICAGO FAUCETS 243.260.00.1/242.340.00.1 MIXING VALVE: LAWLER 570-86820 FIXTURE DRAIN: MCGUIRE PRODRAINSAN SUPPLY: MCGUIRE LFCK2165LK P-TRAP: MCGUIRE 8872C
L-1 (WALL HUNG)		BASIN	AMERICAN STANDARD	0958908EC.020	MURRO, VITREOUS CHINA, 203 MM (8") CENTERSET, WALL-HUNG, WHITE FINISH	32	32	15	15	CHICAGO FAUCETS MANUAL, 203 MM (8") CENTERSET, 786-GN8FCXKABCP, 5.7 LPM (1.5 GPM) MAXIMUM FLOWRATE	MIXING VALVE: LAWLER 570-86820 FIXTURE DRAIN: MCGUIRE PRODRAINSAN SUPPLY: MCGUIRE LFCK170 P-TRAP: MCGUIRE 8872CBSAN CARRIER: WATTS WCA-411, LAVATORY CARRIER, FOR CONCEALED ARM CARRIER
FW-1		FOOT WASH	WUDUMATE	WM-CLAS-WHT	SANITARY-GRADE, REINFORCED ACRYLIC, WHITE FINISH	38	38	15	15		MANUAL LEVEL MONOBLOC TAP, SENSOR TAP, AERATORS, THERMOSTATIC MIXING VALVE (TMV3) PANEL MOUNTED SOAP DISPENSER, ANTI-SLIP SHAPED MATTING.

BACKFLOW SCHEDULE

TAG/MARK...	PRODUCT...	MANUFA...	MODEL...	DESCRIPTION	MATERIAL	BYPA...	INLET...	OUTLET...	MAX WORKING...	MAX WORKING...	HAZARD PROTECTION...	STANDARD AND APPROVALS	CERTIFICATION	REMARKS/COMMENTS
SH-3 (BF)	VACUUM BREAKER	CHICAGO FAUCETS	E24JKCP	VACUUM BREAKER, INLINE, 140 °F MAX TEMPERATURE, 120 PSI MAX OPERATING PRESSURE			13 MM (1/2") NPSM FEMALE INLET/NPSM MALE OUTLET					ASSE 1014 COMPLIANT		
BFP-1	BACKFLOW PREVENTER	WATTS	009M2-QT 1	INLINE, BRONZE FINISH, BRONZE BODY, 0.5 °C TO 82 °C (33 °F TO 180 °F), 12.1 BAR (175 PSI) MAX., IT IS RECOMMENDED TO INSTALL AN AIR GAP WHEN SETTING UP THE DRAIN LINE			25 MM (1") INLET, FNPT INLET	25 MM (1") OUTLET, FNPT OUTLET			FOR HEALTH HAZARD APPLICATIONS			

DRAINAGE SCHEDULE

TAG/MA...		PRODUCT...	MANUFACT...	MODEL NUMBER	DESCRIPTION	BODY MATERIAL	TOP/GRATE/STAINER/DOME	FUNNEL	COVER	OUTLET SIZE (INCHES)	LOAD RATING
FD-1		FLOOR DRAIN	WATTS	FD-100-C-A-6-7	FINISHED AREA, FLOOR DRAIN, ANCHOR FLANGE, TRAP PRIMER TAPPING, REVERSIBLE MEMBRANE CLAMP, COLLAR WITH PRIMARY AND SECONDARY WEEPHOLES, VANDAL-PROOF, TRAP PRIMER...	EPOXY COATED CAST IRON, STANDARD BODY MATERIAL	ADJUSTABLE, 6 MM (1/4") THICK TOP, ROUND, UNSIZED STRAINER			UNSIZED PIPE, TO BE DETERMINED	MEDIUM DUTY (MD) 900 - 2250 KG (2000 - 4999 LBS) SAFE LIVE LOAD
SH-1		TRENCH DRAIN	BLÜCHER	BWS-240-C	WATERLINE SHOWER CHANNEL, W/SURFACE MEMBRANE CLAMP, 50 MM (2"), 135 X 1000 MM (5-3/8" X 39-1/2") , 137 MM (5-3/8") WIDE, SURFACE MEMBRANE CLAMP	AISI TYPE 304 STAINLESS STEEL 5-3/8" (135) WIDE	VIENNA GRATING (STANDARD), COPENHAGEN GRATING			BOTTOM OUTLET	
SEDIMENT INTERCEPTO R (UNSIZED)		INTERCEPTORS	WATTS	SI-742	HAIR, PLASTER & SEDIMENT INTERCEPTOR, REMOVABLE STAINLESS STEEL SEDIMENT BASKET	EPOXY COATED CAST ALUMINUM				51 MM (2") I.P.S. THREADED CONNECTIONS	
U-1		CLEANOUT	WATTS	WUCO	WALL ACCESS, NON-ADJUSTABLE, LINE CLEANOUT, TWO-PIECE EXPANDABLE CLEANOUT PLUG FOR URINAL, UNSIZED PLUG				STAINLESS STEEL COVER		
FD-1 (ALT SQUARE)		FLOOR DRAIN	WATTS	FD-100-C-L6-1	FINISHED AREA, FLOOR DRAIN, ANCHOR FLANGE, REVERSIBLE MEMBRANE CLAMP, COLLAR WITH PRIMARY AND SECONDARY WEEPHOLES	EPOXY COATED CAST IRON, STANDARD BODY MATERIAL	ADJUSTABLE, 13 MM (1/2") THICK REINFORCED TOP, SQUARE, 152 MM (6") SQUARE NICKEL BRONZE STRAINER			UNSIZED PIPE, TO BE DETERMINED	HEAVY DUTY (HD) 2250 - 3375 KG (5000 - 7499 LBS) SAFE LIVE LOAD
FD-4		FLOOR DRAIN	WATTS	FD-490-F-80-6	PARKING, FLOOR DRAIN, TOP MEMBRANE CLAMPING FLANGE, ALUMINUM SEDIMENT BUCKET, ANTI-PONDING SLOTS, VANDAL-PROOF	ALUMINIUM BODY	NON-ADJUSTABLE, ROUND, 432 X 432 MM (17" X 17") DUCTILE IRON SELF-CLOSING HINGED GRATE			UNSIZED PIPE, NO-HUB OUTLET	EXTRA HEAVY DUTY (XHD) 3375 - 4500 KG (7500 - 10,000 LBS) SAFE LIVE LOAD
FFD-1		FLOOR DRAIN	WATTS	FD-100-C-EG	FUNNEL, FLOOR DRAIN, ANCHOR FLANGE, REVERSIBLE MEMBRANE CLAMP, COLLAR WITH PRIMARY AND SECONDARY WEEPHOLES	EPOXY COATED CAST IRON, STANDARD BODY MATERIAL	ADJUSTABLE, UNSIZED STRAINER	102 X 229 MM (4" X 9") "EG" ELONGATED OVAL NICKEL BRONZE FUNNEL		UNSIZED PIPE, TO BE DETERMINED	
FS-1		FLOOR SINK	WATTS	FS-740-7	FLOOR SINK, SANITARY FLOOR RECEPTOR, 305 MM (12") LONG, 305 MM (12") WIDE, 203 MM (8") DEEP, 200 CM² (31 SQ. IN.) FREE AREA (WITH STANDARD GRATE), 303 CM² (47 SQ. IN.) FREE AREA (WITH -1/-3 GRATE), TRAP PRIMER TAPPING	CAST IRON WITH WHITE ACID RESISTANT PORCELAIN ENAMEL COATED INTERIOR	SQUARE, PORCELAIN ENAMEL COATED CAST IRON LOOSE SET GRATE			UNSIZED PIPE, TO BE DETERMINED	
FC-2 (SS)		FLOOR SINK	WATTS	FS-780	FLOOR SINK, SANITARY FLOOR RECEPTOR, 305 MM (12") LONG, 305 MM (12") WIDE, 152 MM (6") DEEP, 135 CM² (21 SQ. IN.) FREE AREA (WITH STANDARD GRATE), 303 CM² (47 SQ. IN.) FREE AREA (WITH -HD TOP ASSEMBLY)	14 GAUGE TYPE 304 STAINLESS STEEL	SQUARE, CAST STAINLESS STEEL LOOSE SET GRATE			UNSIZED PIPE, TO BE DETERMINED	
TD-1		TRENCH DRAIN	WATTS	P-DI-ADA	PRE-SLOPED POLYPROPYLENE TRENCH DRAIN SYSTEM WITH POLYPROPYLENE FRAME, TRENCH DRAIN SYSTEM, UV STABILIZED TALC-FILLED POLYPROPYLENE CHANNELS, 152 MM (6") WIDE, 152 MM (6") WIDE X 48" (1219 MM) LONG (STANDARD) UV STABILIZED GLASSFILLED POLYPROPYLENE FRAME		DUCTILE IRON ADA, CLASS C*			INTEGRAL 102 MM (4") NO HUB BOTTOM OUTLET(S)	
TD-2		TRENCH DRAIN	WATTS	D-DI-ADA	PRE-SLOPED POLYPROPYLENE TRENCH DRAIN SYSTEM WITH DUCTILE IRON FRAME, TRENCH DRAIN SYSTEM, UV STABILIZED TALC-FILLED POLYPROPYLENE CHANNELS, 152 MM (6") WIDE, 152 MM (6") WIDE X 48" (1219 MM) LONG (STANDARD) DUCTILE IRON...		DUCTILE IRON ADA, CLASS F			INTEGRAL 102 MM (4") NO HUB BOTTOM OUTLET(S)	
CO-2		CLEANOUT	WATTS	CO-200-R	UNFINISHED AREA, ADJUSTABLE, FLOOR CLEANOUT	EPOXY COATED CAST IRON, STANDARD (EPOXY COATED CAST IRON)	ROUND, 130 MM (5-1/8") NICKEL BRONZE TOP		UNSIZED COVER	UNSIZED PIPE, TO BE DETERMINED	MEDIUM DUTY (MD) 900 - 2250 KG (2000 - 4999 LBS) SAFE LIVE LOAD
CO-2		CLEANOUT	WATTS	CO-200NH-S-34G-6	UNFINISHED AREA, ADJUSTABLE, FLOOR CLEANOUT, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, GAS TIGHT ABS EXPANSION PLUG, VANDAL-PROOF	EPOXY COATED CAST IRON, STANDARD (EPOXY COATED CAST IRON)	SQUARE		UNSIZED COVER	UNSIZED PIPE, NO-HUB OUTLET	MEDIUM DUTY (MD) 900 - 2250 KG (2000 - 4999 LBS) SAFE LIVE LOAD
CO-1		CLEANOUT	WATTS	CO-450-RD	WALL ACCESS, NON-ADJUSTABLE, LINE CLEANOUT	EPOXY COATED CAST IRON, STANDARD (EPOXY COATED CAST IRON)	ROUND		GASKETED STAINLESS STEEL ACCESS COVER	UNSIZED PIPE, TO BE DETERMINED	
CO-4		CLEANOUT	WATTS	CO-460-RD	WALL ACCESS, NON-ADJUSTABLE, STACK CLEANOUT, GASKETED BRASS COUNTERSUNK PLUG	CAST IRON	ROUND		STAINLESS STEEL ACCESS COVER	UNSIZED PIPE, NO-HUB OUTLET	
RD-1		ROOF DRAIN	WATTS	RD-100-B-D-K	LARGE AREA, BI-LEVEL (IRMA), FLASHING CLAMP, INTEGRAL GRAVEL STOP, SUMP RECEIVER, UNDERDECK CLAMP, DUCTILE IRON DOME	EPOXY COATED CAST IRON	SELF-LOCKING POLYETHYLENE DOME STRAINER			UNSIZED PIPE, TO BE DETERMINED	
RD-1 (OVERFLOW)		ROOF DRAIN	WATTS	RD-100NH-85-B-D-F-K	LARGE AREA, PRIMARY DRAINAGE, FLASHING CLAMP, 102 MM (4") HIGH STAINLESS STEEL PERFORATED EXTENSION, SUMP RECEIVER, UNDERDECK CLAMP, DECK FLANGE/ADJUSTABLE EXTENSION, DUCTILE IRON DOME	EPOXY COATED CAST IRON	SELF-LOCKING POLYETHYLENE DOME STRAINER			UNSIZED PIPE, NO-HUB OUTLET	
NFWB-1		HYDRANT	WATTS	HY-725	NON-FREEZE HYDRANT, WALL HYDRANT, ALL BRONZE, CHROME-PLATED HYDRANT FACE, NICKEL BRONZE, SEAT CASTING, LOOSE KEY, BRONZE WALL CASING, UNSIZED THICKNESS, INTEGRAL VACUUM BREAKER, COMPLIES WITH ASME B1.20.7 AND ASSE 1019-2004, UPC/IAMPO LISTED. MAX. OPERATING PRESSURE 125 PSI., INTERNAL WORKING PARTS					19 MM (3/4") HOSE CONNECTION, 19 MM (3/4") FEMALE X 25 MM (1") MALE PIPE CONNECTION	
NFWH-1		HYDRANT	WATTS	HY-420	NON-FREEZE WALL HYDRANT WITH CHROME FACE, INTEGRAL VACUUM BREAKER, WALL HYDRANT, ALL BRONZE, CHROME-PLATED FACE, SEAT CASTING, LOOSE KEY, BRONZE WALL CASING, UNSIZED THICKNESS, INTEGRAL VACUUM BREAKER, COMPLIES WITH ASME B1.20.7, AND ASSE 1019-2004, UPC/IAMPO LISTED. MAX. OPERATING PRESURE 125 PSI., INTERNAL WORKING PARTS					19 MM (3/4") HOSE CONNECTION, 19 MM (3/4") FEMALE X 25 MM (1") MALE PIPE CONNECTION	
HB-1		HYDRANT	WATTS	SC8							

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No.	Date	Description
9	11/27/2024	Issued for Addendum -3

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MECHANICAL SCHEDULES

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