

Specifications and drawings for

**Daniel J. MacDonald Modernization**

are amended as follows:

**SPECIFICATIONS**

**1.1 REVISED SPECIFICATIONS**

.1 The following revised specifications issued with this addendum supersede previously issued specifications of the same title and number

- .1 Section No. 00 01 10\_R7, Table of Contents
- .2 Section No. 01 14 00\_R1, Work Restrictions
- .3 Section No. 01 61 10\_R4 List of Materials
- .4 Section No. 08 11 00\_R1, Metal Doors and Frames
- .5 Section No.08 34 73\_R1, Sound Control Door Assemblies
- .6 Section No. 09 21 16\_R1, Gypsum Board Assemblies
- .7 Section No. 09 80 00\_R1, Acoustic Treatment
- .8 Section No. 23 07 19\_R2, HVAC Piping Insulation
- .9 Section No. 25 90 01\_CS901\_R1, Geothermal Field Management System
- .10 Section No. 26 24 16.01\_R1, Panelboards Breaker Type

.2 The following specifications are revised only partially:

- .1 Section No. 08 71 10, Door Hardware: revisions to hardware sets #50, #51, and #63.

**1.2 NEW SPECIFICATIONS**

.1 Add the following new specifications issued with this Addendum.

- .1 Section No. 08 34 54, Bullet Resistant Doors and Frames

**DRAWINGS**

**1.3 REVISED DRAWINGS**

.1 The following Drawings are revised and re-issued with this addendum. Revisions are shown in bubbled areas on drawings. The following descriptions of revisions are for convenience only and do not define or limit the extent of actual revisions indicated on drawings:

- .1 Drawing A03-02 – DOOR HARDWARE SCHEDULE
  - .1 Revised to show ballistic doors

- .2 Drawing A32-00 – ATRIUM – GRAFTON ENTRY ELEVATIONS
  - .1 Revised to remove WW-1 label from detail 1/A32-00
- .3 Drawing A61-01 - CEILING DETAILS
  - .1 Revision of detail drawings
- .4 Drawing A61-02 - CEILING DETAILS
  - .1 Addition of detail drawings
- .5 Drawing A91-01 - MAIN FLOOR - WALL FINISHES PLAN
  - .1 Update to AWP tags
- .6 Drawing A91-02 - SECOND FLOOR - WALL FINISHES PLAN
  - .1 Update to AWP tags
- .7 Drawing A91-03 - THIRD FLOOR - WALL FINISHES PLAN
  - .1 Update to AWP tags
- .8 Drawing A91-04 - FOURTH FLOOR - WALL FINISHES PLAN
  - .1 Update to AWP tags
- .9 Drawing A91-05 - FIFTH FLOOR - WALL FINISHES PLAN
  - .1 Update to AWP tags
- .10 Drawing A93-02 - SECOND FLOOR FURNITURE & EQUIPMENT PLAN
  - .1 Removal of AWP note tag on drawing
- .11 Drawing A93-03 - THIRD FLOOR FURNITURE & EQUIPMENT PLAN
  - .1 Removal of AWP note tag on drawing
- .12 Drawing M02-01 - MECHANICAL SCHEDULES 1
  - .1 Revised data in the Fan Powered Box Schedule.
- .13 Drawing M53-00 - HYDRONIC - PARKING LEVEL NEW WORK
  - .1 Added HWS/R pipe to FPB-13.

End of NORR Addendum No. 08

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<u>DIVISION</u>	<u>SECTION</u>	<u>DOCUMENT RESPONSIBILITY</u>	<u>DATE</u>	<u>PAGES</u>
	25 90 01_CS901 Geothermal Field Management System – Control Points List	M	27 May 2022	1
	25 90 01_CS910 Miscellaneous Equipment	M	08 Jul 2022	1
	25 90 01_CS910 Miscellaneous Equipment – Control Points List	M	08 Jul 2022	1
	25 90 01_CS912 Lighting System	M	08 Jul 2022	1
	25 90 01_CS912 Lighting System – Control Points List	M	08 Jul 2022	1
<b>DIVISION 26</b>	<b>ELECTRICAL</b>			
	26 05 00 Common Work Results for Electrical	E	27 May 2022	12
	26 05 04 Existing Building – Modifications	E	27 May 2022	3
	26 05 05_R1 Selective Demolition for Electrical	E	18 Jul 2022	5
	26 05 20 Wire and Box Connectors (0-1000 V)	E	27 May 2022	2
	26 05 21 Wires and Cables (0-1000 V)	E	27 May 2022	5
	26 05 22 Connectors and Terminations	E	27 May 2022	2
	26 05 28 Grounding – Secondary	E	27 May 2022	4
	26 05 29 Hangers and Supports for Electrical Systems	E	27 May 2022	2
	26 05 31 Splitters, Junction, Pull Boxes and Cabinets	E	27 May 2022	2
	26 05 32 Outlet Boxes, Conduit Boxes and Fittings	E	27 May 2022	2
	26 05 34_R1 Conduits, Conduit Fastenings and Conduit Fittings	E	25 Jul 2022	4
	26 05 36 Cable Trays for Electrical Systems	E	27 May 2022	2
	26 05 37 Wireways and Auxiliary Gutters	E	27 May 2022	2
	26 05 48 Vibration and Seismic Controls	E	27 May 2022	6
	26 08 02 Field Testing and Commissioning – Low Voltage Installations	E	27 May 2022	7
	26 09 13 Power Monitoring	E	08 Jul 2022	7
	26 09 43 Network Lighting Controls	E	27 May 2022	16

<u>DIVISION</u>	<u>SECTION</u>	<u>DOCUMENT RESPONSIBILITY</u>	<u>DATE</u>	<u>PAGES</u>
	26 12 16.01 Dry Type Transformers Up To 600 V Primary	E	27 May 2022	3
	26 22 19 Control and Signal Transformers	E	27 May 2022	2
	26 24 13 Switchboards	E	27 May 2022	5
	26 24 16.01_R1 Panelboards Breaker Type	E	<del>27 May 2022</del> 18 Aug 2022	3
	26 27 26 Wiring Devices	E	27 May 2022	3
	26 28 13.01 Fuses – Low Voltage	E	27 May 2022	2
	26 28 16.02 Moulded Case Circuit Breakers	E	27 May 2022	2
	26 28 18 Ground Fault Equipment Protection	E	27 May 2022	3
	26 28 20 Ground Fault Circuit Interrupters - Class A	E	27 May 2022	2
	26 28 23 Disconnect Switches - Fused and Non-Fused	E	27 May 2022	2
	26 29 01 Contactors	E	27 May 2022	3
	26 29 03 Control Devices	E	27 May 2022	4
	26 29 10 Motor Starters to 600 V	E	27 May 2022	5
	26 32 13.01_R2 Power Generation Diesel	E	25 Jul 2022	14
	26 36 23 Automatic Transfer Switches	E	27 May 2022	7
	26 50 00 Lighting	E	27 May 2022	3
	26 52 13.13 Emergency Lighting	E	27 May 2022	3
	26 52 13.16 Exit Signs	E	27 May 2022	2
<b>DIVISION 27</b>	<b>COMMUNICATIONS</b>			
	27 05 00 Common Work Results for Communications	E	27 May 2022	9
	27 51 19 Sound Masking System	E	27 May 2022	8
<b>DIVISION 28</b>	<b>ELECTRONIC SAFETY AND SECURITY</b>			
	28 10 00 Access Control, Intrusion Detection and Video Surveillance Systems	E	27 May 2022	32
	28 31 00.02 Multiplex Fire Alarm and Voice Communication Systems	E	27 May 2022	14



26 Jul 18 Aug 2022

<u>DIVISION</u>	<u>SECTION</u>	<u>DOCUMENT RESPONSIBILITY</u>	<u>DATE</u>	<u>PAGES</u>
<b>DIVISION 31</b>	<b>EARTHWORK</b>			
	31 00 00 Earthwork	C	27 May 2022	8
<b>DIVISION 32</b>	<b>EXTERIOR IMPROVEMENTS</b>			
	32 01 90.23 – Pruning	L	27 May 2022	4
	32 01 90.33 - Tree and Shrub Preservation	L	27 May 2022	4
	32 12 16 Asphalt Paving	C	27 May 2022	4
	<b>VOLUME 3 OF 3</b>			
<b>APPENDIX 1</b>	<b>DESIGNATED SUBSTANCES AND HAZARDOUS BUILDING MATERIALS</b>			
	Hazardous Materials Assessment Report, prepared by All-Tech Environmental Services Limited	Info	04 Jan 2021	68
	Data Gap Analysis & Intrusive Asbestos Survey, prepared by Englobe	Info	28 Jun 2019	37
	DRAFT - Identification, Quantification and Abatement Estimates for Asbestos-Containing Materials - Letter, prepared by Englobe	Info	22 Mar 2019	4
	Halocarbon Standard Operating Procedure, prepared by MCW Maricor	Info	Oct 2012	50
<b>APPENDIX 2</b>	<b>BUILDING CONDITION REPORTS</b>			
	Building Condition Report 2017	Info	26 Apr 2017	103
<b>APPENDIX 3</b>	<b>GEOTECHNICAL INVESTIGATION</b>			
	EastTech Geotechnical Report - Daniel J. MacDonald Building Charlottetown, PEI, prepared by EastTech Engineering Consultants Inc.	Info	21 May 2020	18
	Charlottetown - DJM Building Phase II Soil Investigation, prepared by Jacques, Whitford & Associated Ltd.	Info	15 Aug 1980	25

**LEGEND TO DOCUMENTS RESPONSIBILITY**

- .1 A - Denotes documents prepared by Architect.
- .2 HS – Denotes documents prepared by Health & Safety Advisor, PSPC Human Resources Branch, Construction & Maintenance.
- .3 SC - Denotes documents prepared by Sustainability Consultant.
- .4 Cx – Denotes documents prepared by Commissioning Agent.
- .5 Env - Denotes documents prepared by PSPC Environmental Group.
- .6 S - Denotes documents prepared by Structural Engineer.
- .7 H - Denotes documents prepared by Architectural Hardware Consultant.
- .8 AV - Denotes documents prepared by Audio Visual Consultant
- .9 M - Denotes documents prepared by Mechanical Engineer.
- .10 E - Denotes documents prepared by Electrical Engineer.
- .11 C – Denotes documents prepared by Civil Engineer
- .12 L - Landscape documents prepared by PSPC
- .13 Info - Denotes Information Documents prepared by various entities.

**END OF SECTION**

~~27 May~~ **18 Aug** 2022

**Part 1 General**

**1.1 ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.2 USE OF SITE AND FACILITIES**

- .1 Entire building is under control of Contractor.
- .2 Maintain existing services to building and provide access for Contractor's site forces and Departmental Representative.
- .3 Contractor will provide sanitary facilities for use by own forces. Refer to Section 01 52 00 Construction Facilities.
- .4 Use only assigned elevators, existing in building, for moving workers and material.
  - .1 Protect walls of elevators, to approval of Departmental Representative prior to use.
  - .2 Accept liability for damage, safety of equipment and overloading of existing equipment.
- .5 Closures: protect work temporarily until permanent enclosures are completed.

**1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to building or the site.

**1.4 SPECIAL REQUIREMENTS**

- .1 Submit schedule in accordance with Section 01 32 16.16 - Construction Progress Schedule - Critical Path Method (CPM).
- .2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.

**1.5 SECURITY**

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.
- .2 Security clearances:
  - .1 Building will be completely vacated of employees and assets prior to construction. Any personnel working on site will be required to check in with the site security each day.
  - .2 Any individuals working on systems such as GCSI, security systems, etc. will require security clearances. Coordinate with Departmental Representative.

- .3 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.
- .3 Security Escort: this requirement will apply only after the project has reached Substantial Performance and when employees are back occupying the building.
  - .1 Personnel employed on this project must be escorted when executing work in occupied, non-public areas during normal working hours. Personnel must be escorted in all areas after normal working hours.
  - .2 Submit an escort request to Departmental Representative at least 14 days before service is needed. For requests submitted within time noted above, costs of security escort will be paid for by Departmental Representative. Cost incurred by late request will be Contractor's responsibility.
  - .3 Any escort request may be cancelled free of charge if notification of cancellation is given at least 4 hours before scheduled time of escort. Cost incurred by late request will be Contractor's responsibility.
  - .4 Calculation of costs will be based on average hourly rate of security officer for minimum of 8 hours per day for late service request and of 4 hours for late cancellations.
- .4 Security Escort requirement does not apply while the building is under the CCC (Care / Custody / Control) of the Contractor.
- .5 Refer Section 01 35 54 - Site Security Requirements for additional requirements.

**1.6 POTENTIAL OBSTRUCTIONS**

- .1 **As part of the City of Charlottetown’s Kent Street Revitalization Project, there will be new overhead lighting infrastructure installed along Kent Street in the section between Great George Street and Prince Street, scheduled to be completed by the end of 2022. The lighting infrastructure will span across Kent Street with attachments to lamp posts on either side.**
- .2 **Contractor is to coordinate with Aaron Hansen (see contact information below) to obtain details, determine any implications and include in the Contract Price associated costs.**
  - .1 **Aaron Hansen, Director of Operations, Charlottetown Area Development Corporation, Email: ahansen@cadcepi.com, Phone: 902-892-5341.**

**Part 2 Products**

**2.1 NOT USED**

**Part 3 Execution**

**3.1 NOT USED**

**END OF SECTION**

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.


CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
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Where a product is indicated with a particular colour, texture, or pattern, that product is the basis for matching the colour, texture, or pattern in the Work.

#### DIVISION 03 - CONCRETE

CSLR-1	Concrete Sealer	Silane Sealer	Parking Garage
C-TOP-1	Polished Concrete Topping	Fast-setting, high strength, cementitious, non-shrink, polishable tinted architectural topping, fully banded.  Polish to Medium Gloss Finish Colour to match Tile CT-1	Atrium

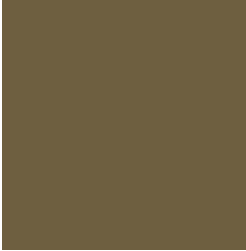
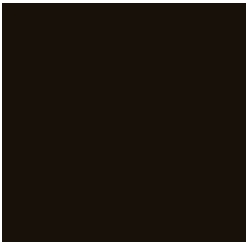
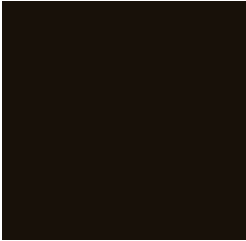
#### DIVISION 04 - MASONRY

BRK-1	Brick Cladding	Salvaged brick from onsite exterior wall demolition.  Or  New Brick to Match Existing as required. Provide samples to Departmental Representative for Approval. New brick to be mixed with salvaged brick proportionally	Exterior; Interior (lobby) 
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#### DIVISION 05 – METALS

MET-A1	Metal Finish - Prefinished Aluminum	Shop Applied Anodized Coating for Aluminum  AAMA Class 1  Exterior Grade  Min Film Thickness +0.7mils  Colour: Light Bronze RGB Colour Code: 110-95-64	Curtain Wall Sections - CW-3, CW-4  Entrance Canopy 
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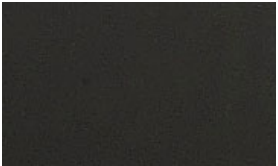

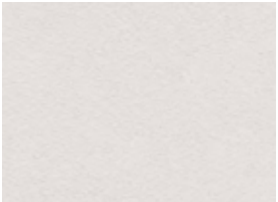
NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
MET-A2	<b>Metal Finish - Prefinished Aluminum</b>	Shop Applied 3-coat Fluoropolymer Coating for Aluminum  Dry Film Thickness (nominal) ASTM D1400  0.20-0.30 mil primer coat 0.70-0.80 mil colour coat 0.30-0.40 mil clear topcoat  Colour: Light Bronze RGB Colour Code: 110-95-64	Cap flashing and aluminum cladding. Applied for colour matching building elements having panels <b>MTL-PNL1</b>  
MET-A3	<b>Metal Finish - Prefinished Aluminum</b>	Shop Applied Anodized Coating for Aluminum  AAMA Class 1  Exterior Grade  Min Film Thickness +0.7mils  Colour: Dark Bronze RGB Colour Code: 24-17-9	Curtain wall CW-1, CW- 2 sections.  
MET-A4	<b>Metal Finish - Prefinished Aluminum</b>	Shop Applied 3-coat Fluoropolymer Coating for Aluminum  Dry Film Thickness (nominal) ASTM D1400  0.20-0.30 mil primer coat 0.70-0.80 mil colour coat 0.30-0.40 mil clear topcoat  Colour: Dark Bronze RGB Colour Code: 24-17-9	Cap flashing and aluminum cladding. Applied for colour matching building elements having panels <b>MTL-PNL3.</b>  

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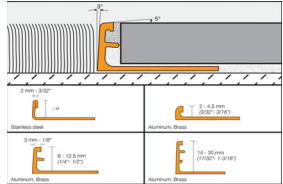
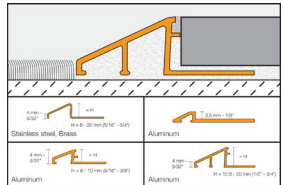
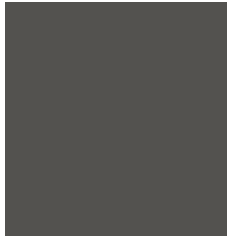
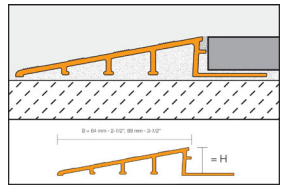
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
MET-A5	<b>Metal Finish - Prefinished Aluminum</b>	Shop Applied 3-coat Fluoropolymer Coating for Aluminum  Dry Film Thickness (nominal) ASTM D1400  0.20-0.30 mil primer coat 0.70-0.80 mil colour coat 0.30-0.40 mil clear topcoat  Colour: Black	Custom Atrium Acoustic Panel:  Solids — UC40577 Black - UC40577
MET-S1	<b>Prefinished Steel</b>	Architecturally Exposed Structural Steel (AESS): Category 3, Feature Elements  Paint: Coating System: Three (3) Coat System, Orzn /Epoxy /Pu  Refer to Section 05 12 48 Coatings for Architectural Exposed Structural Steel	Front Canopy; Column as the Atrium; Exposed Seismic Bracing
MET-S2	<b>Metal Finish - Prefinished Steel</b>	Shop Applied 4-coat Fluoropolymer Coating for Steel  Dry Film Thickness (nominal) ASTM D1400  0.20 mil primer coat 0.75 mil protection coat 0.75 mil color coat 0.50 mil clear topcoat  Colour: Light Bronze RGB Colour Code: 110-95-64	Atrium Stage: Bench Seat/ Edge Banding/ Railings

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

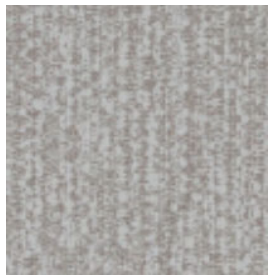
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
MET-S4	Prefinished Steel	Bluing of Acoustic Panel's Steel Frame  Shop Applied Transparent Black Acrylic Lacquer Coating  Dry Film Thickness .3-.5 mils  Color: Black Matte RGB Colour Code: 39 39 45	Custom Atrium Acoustic Panel: 
MET-Z1	Flat Lock Zinc Panels	Pre-patinated Titanium Zinc Panel  FlatLock Panels Thickness - 0.65mm on 16mm plywood substrate  Note: All corners to be continuous, no exterior corner flashing to be used Width: 230mm with ~280mm elongation on sloped stair ceiling surfaces (to match 230mm width on vertical faces) Height: Typically 575mm, as needed around edges and corners Colour: Pre-patinated Pigmented brown-grey to complement natural limestone STN-1. Provide samples to consultant	Interior Atrium Stair E, guard post roof 
CRBT-1	Carborundum Tape	Self Adhered Anti-Slip Tape  Peel Adhesion: MIL-D-17951E(SH): Adhesive strength 0.75 lbs. (minimum)  Width: 51mm Colour: White	Atrium Stair E nosing 






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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
TS-1	<b>Transition Strip</b> - Carpet, LVT to Tile	SS Transition Strip Material: Stainless steel Type 304 Height: Match tile thickness	
TS-2	<b>Transition Strip</b> - Carpet, LVT, Tile to SDT	Sloped SS Transition Strip Material: Stainless Steel Type 304 Height: To Match both adjacent floor thickness	
TS-3	<b>Transition Strip</b> - Carpet, LVT, SDT to Painted Epoxy/ Concrete	Product: Rubber Transition Strips Colour: Charcoal Grey Material: Rubber Gauge to be coordinated with flooring material thickness	
TS-4	<b>Transition Strip</b> - Tile to Painted Epoxy/ Concrete	Sloped SS Transition Strip Material: Stainless Steel Type 304 Height: Tile thickness to Painted epoxy/ concrete flooring	




**DIVISION 06 – WOOD, PLASTICS AND COMPOSITES**

FAB-1	<b>Fabric</b>	Face: 100% Polyurethane Back: 100% Polyester Knit Weight: 18 oz Per Linear Yard Stain Repellent Fire Rating: NFPA 260, Class 1	Bench seating 
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NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
HDW-1	Decorative hardware	Product: Silver Handle Material: Metal Colour: Nickel Size: 160mm center to center Width: 10mm Projection: 35mm Description: Square Edge D pull	Millwork: Security Console Drawer and Cupboard Pulls 
HDW-2	Decorative hardware	Product: Black Metal Handle Material: Metal Colour: Black Finish: Matte Size: 160mm center to center Width: 13mm Projection: 33mm Description: Hexagon Square Edges D Pull	Millwork: Kitchenette Drawer and Cupboard Pulls 
HDW-3	Decorative hardware	Product: Dark Grey Handle Material: Metal Colour: Dark Grey Size: 160mm center to center Projection: 35mm Description: Square Edge D pull	Millwork: Business Centers Drawer and Cupboard Pulls 


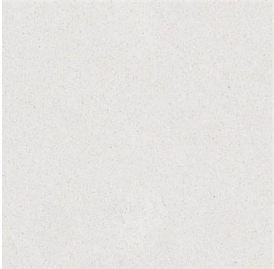
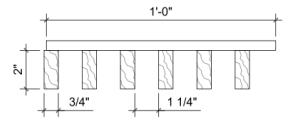
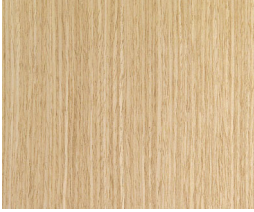
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
PLAM-1	<b>Plastic Laminate HPL</b>	Product: High Pressure Laminate Colour: Medium Brown Wood Pattern Material: High Pressure Laminate Finish: Smooth Texture Finish: Hi-Brite	Security Desk / Refer to Millwork details for location 
PLAM-2	<b>Plastic Laminate HPL</b>	Product: High Pressure Laminate Colour/ Wood look: Walnut Wood look with amber, light browns, greys, and taupes. Design Repeat: 1295mm L x 647mm W Material: Scratch Resistant High Pressure Laminate Finish: Soft Grain	Kitchenette/ Business Center/Vertical Surfaces 
PLAM-3	<b>Plastic Laminate HPL</b>	Product: High Pressure Laminate Colour/Wood look: Wood laminate design with mix of Teak and Framire, and African Oak. Mid-toned brown with tints and shades. Design Repeat: 1092mm L x 774mm W Material: Scratch Resistant High Pressure Laminate Finish: Soft Grain	Doors 
PLAM-4	<b>Plastic Laminate HPL</b>	Product: High Pressure Laminate Colour/Wood look: Wood laminate design with mix of Teak and Framire, and African Oak. Mid-toned brown with tints and shades.	Window Sills and Trim

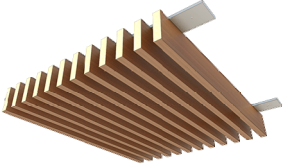
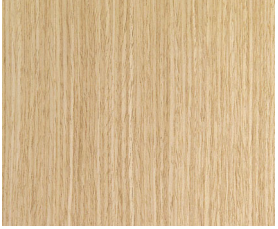
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Design Repeat: 1092mm L x 774mm W Material: Scratch Resistant High Pressure Laminate Finish: Soft Grain	
SSF-1	Solid Surfacing	Product: Quartz Countertop Material: Quartz Colour: White ground with touches of gray and pale beige, feather look Finish: Polished Thickness: 30 mm Edge Profile: Mitered Edge	Security Desk/ Refer to millwork details for location 
SSF-2	Solid Surfacing	Product: Quartz Countertop Material: Quartz Colour: Snow White with icy look Finish: Polished Thickness: 30 mm Edge Profile: Mitered Edge	Countertop/ Washroom 
SSF-3	Solid Surfacing	Product: Solid Surface Countertop Colour: White with veining Material: 1/3 acrylic resin and 2.3 natural materials Finish: Polished Thickness: 12mm	Countertop/ Business Center

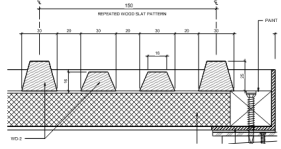
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Edge Profile: Mitered Edge	
SSF-4	Solid Surface	Product: Quartz Countertop Colour: Organic Speckled White Finish: Polished Material: Quartz Thickness: 20 mm Edge Profile: Mitered Edge	Countertop/ Kitchenette 
WD-PNL-1	Solid Wood Grille Panel	Linear Wood Blade Panel Panel Size 460mm x 1220mm Blade Size 50 x 19 mm Number of Blades: 6 Blade Material: Solid Wood White Oak Finish: Clear Stain – Matte Finish Backer: Cross Wood Backer, fire-rated, painted Black @ 305 O.C. Acoustic Backer: Black Acoustic Wovem Material, Exterior Rated Fire Rating: Class A	Grafton Street Entrance - Exterior Canopy Soffit  

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
WD-PNL-2	<b>Solid Wood Grille Panel – Acoustic Composite</b>	Custom Acoustic Panel Solid Wood Slats in steel angle frame Wood: White Oak; Rift Cut: Natural Fire Rating: Class A <u>Associated Materials:</u> MET-S4 (on steel frame) WD-2 (Fire Treated solid wood) MET-A5 (Flashing and Closures) AWP-3 (acoustic board)	Custom Atrium Acoustic Panels: <b>Sub-coded to indicate panel width as AWP-1 through 1.5 for full panels from levels 1 through 5 and AWP-2 &amp; 2.1 for partially open panels at ground floor windows. See Acoustic Panel Schedule on drawing A51-11.</b>
WD-PNL-3	<b>Solid Wood Grille Panel</b>	Custom Solid Wood Slats in steel frame at ceiling Wood: White Oak; Rift Cut: Natural Core Material: Solid Wood White Oak Finish: White Oak; Rift Cut, Natural – Match WD-PNL1 Backer: Cross Wood Backer painted Black Blade Size: 50mm x 152mm length varies depending on location Fire Rating: Class A	Wellness Room Ceiling/ Kitchenette Level 2-5/ Elevator Lobbies Level 1-5 
WD-PNL-4	<b>Wood Panel Solid</b>	Custom Wood Panel System Wood: White Oak; Rift Cut: Natural Slip Matched Core Material: Solid Wood White Oak Finish: White Oak; Rift Cut, Natural – Match WD-PNL1 Fire Rating: Class A Size: Refer to architectural drawings for details *Applied to wall and ceiling	Kitchenette 1-20, Locker end panels, Huddle Booths 

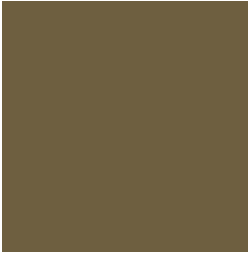
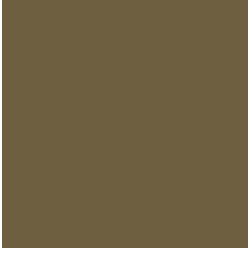

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
WD-1	Wood Throughout	Wood Throughout Wood: White Oak; Rift Cut: Natural Slip Matched Core Material: Solid Wood White Oak Finish: White Oak; Rift Cut, Natural – Match WD-PNL1 Flame Spread Rating: Class A Size: Refer to millwork shop drawings for sizing.	Wall/ Ceiling Panel Ground Floor Kitchenette/ Locker End Panels/ Huddle Booths.
WD-2	Solid Wood	Wood: White Oak; Rift Cut: Natural Core Material: Solid Wood White Oak Finish: Clear Stain – Matte Finish Match WD-PNL1  Fire Treatment: Water-base intumescent fire retardant wood treatment  Wet Film Thickness: 1ml /coat, 3ml after 3 coats  Class A Flame Spread: 20 Smoke Development: 95-105	Custom Atrium Acoustic Panel: 

#### DIVISION 07 – THERMAL AND MOISTURE PROTECTION

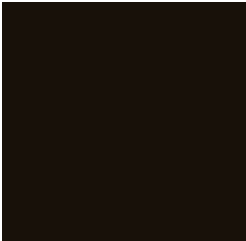
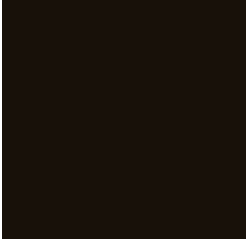
MTL-PNL1	Aluminum Cladding Panel	High Strength, Low Weight Aluminum Alloy Sheet Sheet Thickness - 3mm Panel Thickness – min 25mm Finish & Colour: MET-A1 Framing System Attachment:	Grafton St Column Covers/ Grafton St Entrance Canopy/ Atrium and Grafton St Ground Level Bases at Curtain Walls
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NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Vertical support fastened to thermally broken clip system off structural girts. Rear Ventilated Rainscreen Pressure-Equalized Vertical Joints to be open and minimized to 3mm	
<p><b>MTL-PNL2</b></p>	<p><b>Aluminum Cladding Panel</b></p>	High Strength, Low Weight Aluminum Alloy Sheet Sheet Thickness - 3mm Panel Thickness – min 25mm  Finish and Colour: MET-A2 Framing System Attachment:  Vertical support fastened to thermally broken clip system off structural girts. Rear Ventilated Rainscreen Pressure-Equalized Vertical Joints to be open and minimized to 3mm	Entrance Vestibules/ Atrium Fascia/ 4 <sup>th</sup> Floor Metal Cladding at Atrium CW-3 Base  
<p><b>MTL-PNL3</b></p>	<p><b>Aluminum Cladding Panel</b></p>	High Strength, Low Weight Aluminum Alloy Sheet Sheet Thickness - 3mm Panel Thickness – min 25mm  Finish and Colour: MET-A4 Framing System Attachment: Vertical support fastened to thermally broken clip system off structural girts.	2 <sup>nd</sup> through 5 <sup>th</sup> Floor Metal Cladding at Ribbon Windows  



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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Rear Ventilated Rainscreen Pressure-Equalized Vertical Joints to be open and minimized to 3mm	
MTL-PNL4	Aluminum Cladding Panel	High Strength, Low Weight Aluminum Alloy Sheet Sheet Thickness - 3mm Panel Thickness – min 25mm  Finish and Colour: MET-A4 Framing System Attachment: Vertical support fastened to thermally broken clip system off structural girts. Rear Ventilated Rainscreen Pressure-Equalized Vertical Joints to be open and minimized to 3mm	Ground and 2 <sup>nd</sup> Floor Cladding at Ribbon Windows  
MTL-PNL5	Aluminum Cladding Panel	High Strength, Low Weight Aluminum Alloy Sheet Sheet Thickness - 3mm bonded to abuse resistant backer Panel Thickness – min 25mm Finish and Colour: MET-A3 (Anodized Dark Bronze) Framing System Attachment: Vertical support fastened to thermally broken clip system off structural girts. Rear Ventilated Rainscreen Pressure-Equalized Vertical Joints to be open and minimized to 3mm	Ground Floor Bases at CW-1 (Kent St)  


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<b>CODE</b>	<b>ITEM</b>	<b>DESCRIPTION</b>	<b>APPLICATION / LOCATION</b>
<b>INS-1</b>	<b>Insulation</b>	Closed Sell Spray Foam	
<b>INS-2</b>	<b>Insulation</b>	Extruded Polystyrene – Foam Board	
<b>INS-3</b>	<b>Insulation</b>	Mineral Wool Insulation	Exterior
<b>RT-1</b>	<b>Roofing Assembly</b>	Inverted roof 40 Ballast Filter fabric 10 Drainage Board 2x76 INS-2 Leak detection system -Conductor Wire 2 Ply modified bitumen roof membrane Leak detection system - Measurement grid Sloped insulation Self adhesive Vapour Retarder 16 Exterior Sheathing Board Galv Metal deck  Colour: White	At New Atrium Roof
<b>RT-2</b>	<b>Roofing Assembly</b>	Canopy roof  2 Ply Modified Bitumen roof membrane Sloped insulation as required to form roof slope 13 Exterior Sheathing Board 38 Galv. Metal deck  Colour: white	Grafton Street canopy / revolving door

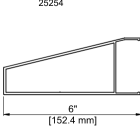
#### **DIVISION 08 – OPENINGS**

<b>CW-1</b>	<b>Curtain Wall System</b>	Thermal Broken Curtain Wall System Material: Aluminum Alloy – 6603  Mullion Size: 63.5mm x 133.4mm	Ground Floor Kent Street
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		profile 63.5mm x 101.6mm profile at existing columns  25mm cap at end of field locations. Structural Silicone Glazing (SSG) at all vertical joints.  Finish: MET-A3	
<p><b>CW-2</b></p>	<p><b>Window System</b></p>	Flush Front Glazed Fixed Window System  Material: Aluminum Alloy - 6003  Mullion Size: 19mm x 127mm + 19mm setting block  Finish: MET-A3	Ground, 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> and 5 <sup>th</sup> floors.
<p><b>CW-3</b></p>	<p><b>Curtain Wall System – High Span</b></p>	Thermal Broken Curtain Wall System Material: Aluminum Alloy – 6603  Final dimensions of system per CW engineering requirements  Mullion Size: 63.5mm x 254mm profile everywhere except 63.5mm x 133.4mm profile at Atrium clerestory horizontal mullions at 5 <sup>th</sup> floor level  25mm cap at end of field locations. 4-sided Structural Silicone Glazing (SSG).  Finish: MET-A1 Provide exterior knife blades as required to support CW-VS1 vertical sunshade at Atrium clerestory.	Atrium/ Grafton St Entrance  
<p><b>CW-4</b></p>	<p><b>Curtain Wall System South Block 3rd floor</b></p>	Thermal Broken Curtain Wall System Material: Aluminum Alloy – 6603  Mullion Size: 63.5mm x 254mm tapered profile at end of field locations , 63.5mm	South Block 3rd Floor Special Surround Mullion Cap 25254

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		x 168.3mm rect. profile at middle vertical mullions. Structural Silicone Glazing (SSG) at all vertical joints.. Colour: MET-A1	
<b>CW-VS1</b>	<b>Curtain Wall System Vertical Sunshade</b>	Vertical Sunshade – Material: Aluminum Alloy – 6603 Sunshade size: 63mm x 305mm Fastened to the CW-3 curtain wall framing. Colour: MET-A2 (light bronze)	
<b>FLM-1</b>	<b>Glazing Film</b>	Standard of Acceptance: 3M Product: Dusted Crystal Code: 7725SE-314	Glass Fronts *Refer to Signage Package
<b>FLM-2</b>	<b>Glazing Film</b>	Standard of Acceptance: 3M Product: Dusted Crystal Code: 7725SE-314	Bike Storage Glass Front *Refer to Signage Package
<b>GL-BL</b>	<b>Ballistic Glass</b>	Type: Laminated Ballistic Thickness: 32mm = 3mm + 0.6 urethane interlayer +25mm + 0.6 urethane interlayer +3mm  Glass 1 (3mm): Mar-Resistant Polycarbonate Interlayer: .060 Urethane Glass 2 (25mm): Acrylic Interlayer: 0.60Urethane Glass 1 (3mm): Mar-Resistant Polycarbonate  Mullion Size:	At Security Desks

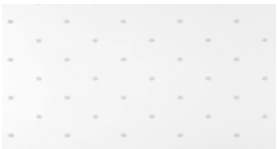
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<b>CODE</b>	<b>ITEM</b>	<b>DESCRIPTION</b>	<b>APPLICATION / LOCATION</b>
		45mmx100mm Ballistic Aluminum Frame Assembly Rated: ULC-752-3	
<b>GL-FR1</b>	<b>Fire Rated Glass</b>	Clear laminated ceramic glazing material Thickness: 8mm	
<b>GL-L1</b>	<b>Laminated Tempered Glass</b>	Type: Laminated Float Glass Thickness: 13mm Glass 1 (6mm): Clear Float Glass Interlayer: 0.60 PVB interlayer Glass 2 (6mm): Clear Float Glass	Building Entrances
<b>GL-L2</b>	<b>Laminated Tempered Glass</b>	Type: Laminated Safety Thickness: 21 mm Glass 1 (10mm): Clear Tempered Glass Interlayer: 0.80 PVB interlayer Glass 2 (10mm): Clear Tempered Glass 2mm chamfer on all glass edges	Bridge and Stair Guards
<b>GL-T1</b>	<b>Tempered Safety Glass</b>	Type: Tempered Glass, impact resistant Thickness: 6 mm	Doors, as per Door/Hardware Schedule indicated on drawings
<b>GS-1</b>	<b>Glass Partition System</b>  <b>Single Glazed</b>	Aluminum Framed Full Height Glazed Partition System  Glass: Glass 1 (4mm): Tempered Glass Laminate 1: 0.8 PVB laminate Glass 2 (4mm) Tempered Glass  Mullion Size: 45mmx95mm - Horizontal Mullions, End of Range Terminations and Door Frames 90mmx95mm - Perpendicular Butt Joint	All interior Single Glazed Glass Fronts

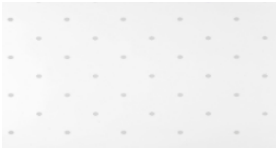
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Walls, Extra Clear Silicone butt joints all remaining vertical locations Frame Colour: Dark Grey / Graphite RGB Colour Code: 60,61,6 Doors: Wood doors by Division 8. See Door/Hardware Schedule	
GS-2	<b>Glass Partition System</b>  <b>Double Glazed</b>	Aluminum Framed Full Height Glazed Partition System  Glass: 9.5mm + Airspace + 9.5mm  Glass 1 (4mm): Tempered Glass Laminate 1: 0.8 PVB laminate Glass 2 (4mm): Float Glass Gap 1: Glass 3 (4mm): Float Glass Laminate 2: 0.8 PVB laminate Glass 4 (4mm): Tempered Glass  Mullion Size: 45mmx95mm - Horizontal Mullions, End of Range Terminations and Door Frames 90mmx95mm - Perpendicular Butt Joint Walls, Extra Clear Silicone butt joints all remaining vertical locations  Frame Colour: Dark Grey / Graphite RGB Colour Code: 60,61,6 Doors: Wood doors by Division 8	All interior Glass Fronts (STC 45)

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
GS-3	<p><b>Glass Partition System</b></p> <p><b>Double Glazed</b></p>	<p>Aluminum Framed Full Height Glazed Partition System</p> <p>Glass: 12.5mm + Airspace + 12.5mm</p> <p>Glass 1 (5mm): Tempered Glass Laminate 1: 2.3 PVB laminate Glass 2 (5mm): Float Glass Gap 1: Glass 3 (5mm): Float Glass Laminate 2: 2.3 PVB laminate Glass 4 (5mm): Tempered Glass</p> <p>Mullion Size: 45mmx165mm - Horizontal Mullions, End of Range Terminations and Door Frames 90mmx165mm - Perpendicular Butt Joint Walls, Extra Clear Silicone butt joints all remaining vertical locations</p> <p>Colour: Dark Grey / Graphite RGB Colour Code: 60,61,6 Doors: Wood doors by Division 8</p>	<p>All interior Glass Fronts (STC 52)</p>
IGU-1V1	<p><b>Insulated Glass Vision Glazing</b></p> <p><b>Double Glazed</b></p> <p><b>Bird Friendly to meet (CSA) A460:19</b></p>	<p>VISIBLE LIGHT Transmittance - 68 % Reflectance outside - 11 % Reflectance inside - 12 % General Color Rendering Index (CRI) - 95.4</p> <p>ULTRAVIOLET Transmittance UV - 30 %</p> <p>SOLAR ENERGY Solar transmittance - 33 % Reflectance outside - 33 % Reflectance inside - 36 % Solar absorptance - 34 % SHGC - 0.37</p>	<p>On CW-2 at Floors 3-5</p> 

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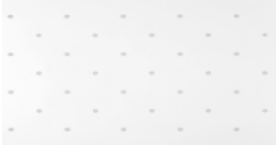
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		<p>Shading Coefficient - 0.43                      THERMAL PROPERTIES                      Winter night U-Value - 0.245                      Summer day U-value - 0.220                      Light to Solar Gain - 1.82</p> <p>25mm IGU = 6 mm + 13mm air space + 6 mm.</p> <p>Glass 1 (6mm): Clear Float Glass w/ #1 Bird Friendly Acid Etch Pattern No. 17</p> <p>Gap 1 (13mm): Required min 0.25U Argon filled, Warm Edge spacer, black</p> <p>Glass 2 (6mm): Clear Float Glass w/ #2 Low-e Coating</p>	
<p><b>IGU-1V2</b></p>	<p><b>Insulated Glass Vision Glazing</b></p> <p><b>Double Glazed</b></p> <p><b>Bird Friendly to meet (CSA) A460:19</b></p>	<p>VISIBLE LIGHT                      Transmittance - 68 %                      Reflectance outside - 11 %                      Reflectance inside - 12 %                      General Color Rendering Index (CRI) - 95.4</p> <p>ULTRAVIOLET                      Transmittance UV - 30 %</p> <p>SOLAR ENERGY                      Solar transmittance - 33 %                      Reflectance outside - 33 %                      Reflectance inside - 36 %                      Solar absorptance - 34 %                      SHGC - 0.37                      Shading Coefficient - 0.43                      THERMAL PROPERTIES                      Winter night U-Value - 0.245                      Summer day U-value - 0.220                      Light to Solar Gain - 1.82</p> <p>25mm IGU = 6 mm + 9mm air space + 10 mm.</p> <p>Glass 1 (6mm): Clear Float Glass w/ #1</p>	<p>On CW-3 &amp; CW-4 at Floors 3-5</p> 



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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Bird Friendly Acid Etch Pattern No. 17 Gap 1 (9mm): Required min 0.25U Argon filled, Warm Edge spacer, black Glass 2 (10mm): Clear Float Glass w/ #2 Low-e Coating	
IGU-2V1	Insulated Glass Vision Glazing  Double Glazed  Bird Friendly to meet (CSA) A460:19  Security Interlayer to comply with ULC- S332	VISIBLE LIGHT Transmittance - 68 % Reflectance outside - 11 % Reflectance inside - 12 % General Color Rendering Index (CRI) - 95.4 ULTRAVIOLET Transmittance UV - 30 % SOLAR ENERGY Solar transmittance - 33 % Reflectance outside - 33 % Reflectance inside - 36 % Solar absorptance - 34 % SHGC - 0.37 Shading Coefficient - 0.43 THERMAL PROPERTIES Winter night U-Value - 0.245 Summer day U-value - 0.220 Light to Solar Gain - 1.82  25mm IGU = 6 mm + 9mm air space + 5 mm + .060 PVB interlayer + 5 mm.  Glass 1 (6mm): Clear Float Glass w/ #1 Bird Friendly Acid Etch Pattern No. 17 Gap 1 (9mm): Required min 0.25U Argon filled, Warm Edge spacer, black Glass 2 (5mm): Clear Float Glass w/ #2 Low-e Coating Interlayer: 060 PVB interlayer Glass 3 (5mm): Clear Float Glass	On CW-1 & CW-3 at Ground and 2nd Floor  


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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
IGU-2V2	<p><b>Insulated Glass Vision Glazing</b></p> <p><b>Double Glazed</b></p> <p><b>Bird Friendly to meet (CSA) A460:19</b></p> <p><b>Security Interlayer to comply with ULC-S332</b></p>	<p>VISIBLE LIGHT                      Transmittance - 68 %                      Reflectance outside - 11 %                      Reflectance inside - 12 %                      General Color Rendering Index (CRI) - 95.4</p> <p>ULTRAVIOLET                      Transmittance UV - 30 %</p> <p>SOLAR ENERGY                      Solar transmittance - 33 %                      Reflectance outside - 33 %                      Reflectance inside - 36 %                      Solar absorptance - 34 %                      SHGC - 0.37                      Shading Coefficient - 0.43</p> <p>THERMAL PROPERTIES                      Winter night U-Value - 0.245                      Summer day U-value - 0.220                      Light to Solar Gain - 1.82</p> <p>25mm IGU = 4 mm + 12mm air space + 5 mm + .060 PVB interlayer + 4 mm.</p> <p>Glass 1 (4mm): Clear Float Glass w/ #1 Bird Friendly Acid Etch Pattern No. 17</p> <p>Gap 1 (12mm): Required min 0.25U Argon filled, Warm Edge spacer, black</p> <p>Glass 2 (5mm): Clear Float Glass w/ #2 Low-e Coating</p> <p>Interlayer: 060 PVB interlayer</p> <p>Glass 3 (4mm): Clear Float Glass</p>	<p>On CW-2 at Ground and 2nd Floor.</p> 

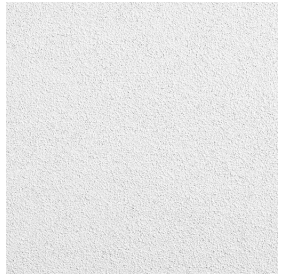
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
IGU-1S	<p><b>Insulated Glass Shadow Box</b></p> <p><b>Match IGU-1V glass</b></p> <p><b>Double Glazed</b></p> <p><b>Bird Friendly to meet (CSA) A460:19</b></p>	<p>VISIBLE LIGHT                      Transmittance - 68 %                      Reflectance outside - 11 %                      Reflectance inside - 12 %                      General Color Rendering Index (CRI) - 95.4</p> <p>ULTRAVIOLET                      Transmittance UV - 30 %</p> <p>SOLAR ENERGY                      Solar transmittance - 33 %                      Reflectance outside - 33 %                      Reflectance inside - 36 %                      Solar absorptance - 34 %                      SHGC - 0.37                      Shading Coefficient - 0.43</p> <p>THERMAL PROPERTIES                      Winter night U-Value - 0.245                      Summer day U-value - 0.220                      Light to Solar Gain - 1.82</p> <p>25mm IGU = 6 mm + 13mm air space + 6 mm.</p> <p>Glass 1 (6mm): Clear Float Glass w/ #1 Bird Friendly Acid Etch Pattern No. 17</p> <p>Gap 1 (13mm): Required min 0.25U Argon filled, Warm Edge spacer, black</p> <p>Glass 2 (6mm): Clear Float Glass w/ #2 Low-e Coating</p> <p>Insulation: 102mm INS-3Gun Welded Stick Pins – 1 per 0.1m2</p> <p>Linear Back Panel: Galvanized sheet metal</p>	

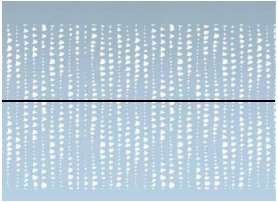
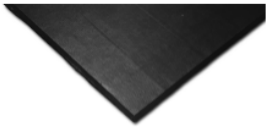
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
MIR-1	<b>Fixed Position Mirror</b>	<p>Product: Fixed-Position Mirror</p> <p>Material: Mirror Frame should be 18-8, Type-430, heavy-gauge stainless steel. 13 x 13 mm angle with vertical-grain satin finish. Wall Frame should be 18-8, Type-430, heavy-gauge stainless steel with satin finish. Mirror should be No.1 quality, 6mm select float glass.</p> <p>All mirror edges should be polished and protected by plastic filler strips.</p>	
MIR-2	<b>Mirror - Washrooms</b>	<p>Refer to Washroom Elevations for more information</p> <p>Frame Finish: Satin Stainless Steel</p>	<b>NO IMAGE</b>
MIR-3	<b>Mirror – Fitness Center</b>	<p>Refer to Fitness Center for more information</p> <p>Frame Finish: Satin Stainless Steel</p>	<b>NO IMAGE</b>

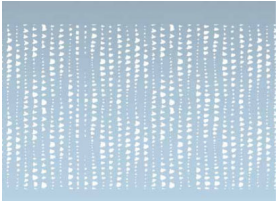

#### DIVISION 09 – FINISHES

ACT-1	<b>Acoustic Ceiling Tile</b>	<p>Product: Acoustic Ceiling Tile</p> <p>Edge: Tegular</p> <p>Colour: White</p> <p>Size: 500x1500mm</p> <p>NRC Rating: 0.75</p> <p>CAC rating: 35</p> <p>Fire Class: Class A (UL)</p> <p>Grid: 9/16" Suprafine White</p>	<p>General</p> 
<b>AWP-1 and AWP-2</b>		<b>Refer to description under Custom Atrium Acoustic Panels WD-PNL-2</b>	

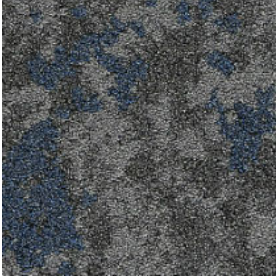
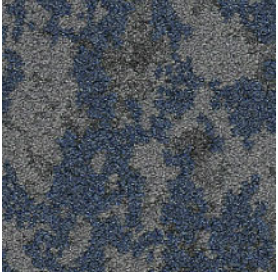
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
AWP-2	<b>Acoustical Wall Panel - Suspended</b>	<p>Product: Acoustical Wall Panel</p> <p>Material: 100% polyester, approximately 50% should be recycled water/soda bottles</p> <p>Colour: TBD</p> <p>Pattern: Custom Cut to Match Selected Film Pattern</p> <p>Size: Review floor plan locations for sizes</p> <p>Thickness: 1/2" (12mm)</p> <p>Hardware: Cable suspension at floor (carpet tile on slab) and ceiling (T bar). No top and bottom rails.</p> <p>*Refer to Signage Package for more information.</p>	<p>Various - Refer to Furniture and Equipment Plans for Locations</p> 
AWP-3	<b>Acoustic Board</b>	<p>Semi-rigid glass fibre sound attenuation board insulation with a black glass fibre mat surface.</p> <p>Thickness 25mm</p> <p>NRC = 0.70</p> <p>Compliance:                      Type I ASTM C553                      Type I ASTM C612                      Fire Flame Spread &lt;25; Smoke Developed &lt;50 CAN/ULC-S102</p>	<p>Custom Atrium Acoustic Panel:</p>  <p>Superior Acoustical Performance</p>


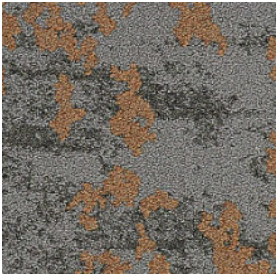

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
AWP-4	Acoustical Wall Panel - Suspended	<p><b>Product: Acoustical Wall Panel</b>  <b>Material: 100% polyester, approximately 50% should be recycled water/soda bottles</b>  <b>Colour: TBD</b>  <b>Pattern: Custom Cut: TBD</b>  <b>Size: 1220mm W x 2440mm H x 12mm thick</b>  <b>Hardware: Cable suspension at ceiling (T-bar).</b></p>	<p><b>Review A91 Series Wall Finishes Plans for Locations</b></p> 
CPTT-1	Carpet Tile	<p>Product: Grey Carpet Tile                      Material: 100% recycled nylon fiber                      Dye Method: 100% solution dyed                      Colour: Blend of gray tones to coordinate with CPTT-2                      Size: 305 mm x 914 mm                      Construction: Textured Pattern Multi-Colours Loop                      Installation Method: Half Lap                      *Water-based releasable adhesive</p>	<p>Corridors/ Locker Rooms                      NO IMAGE</p>
CPTT-2	Carpet Tile	<p>Product: Grey Carpet Tile                      Material: 100% recycled nylon fiber                      Dye Method: 100% solution dyed                      Colour: Grey tone blend                      Size: 305 mm x 914 mm                      Construction: Textured Patterned Multi-Coloured Loop                      Pattern: Bark look                      Installation Method: Half Lap                      *Water-based releasable adhesive</p>	<p>General Open Workstation</p> 

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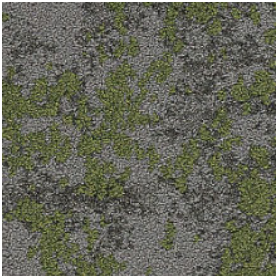
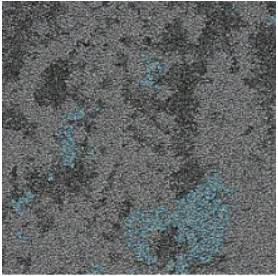
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CPTT-3	Carpet Tile	Product: Grey/Blue Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones and a small amount of indigo blue Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Pattern: Bark look Installation Method: Half Lap *Water-based releasable adhesive	Accent Open Workstation Floor 1 
CPTT-4	Carpet Tile	Product: Grey/Blue Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones and indigo blue Pattern: Bark look varying with colour Size: 305 mm x 9104 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Enclosed Rooms Floor 1 

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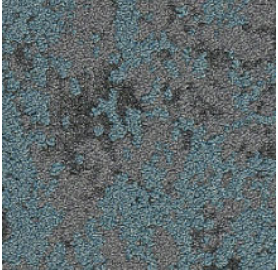

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CPTT-5	Carpet Tile	Product: Grey/ Terracotta Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones and small amount of terracotta Pattern: Bark look Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Accent Open Workstation Floor 2 
CPTT-6	Carpet Tile	Product: Grey/ Terracotta Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones and terracotta Pattern: Bark look varying with colour Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Enclosed Rooms Floor 2 
CPTT-7	Carpet Tile	Product: Green and Grey Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones with a small amount of green Pattern: Bark look Size: 305 mm x 914 mm Construction: Textured Patterned Multi-	Accent Open Workstation Floor 3 



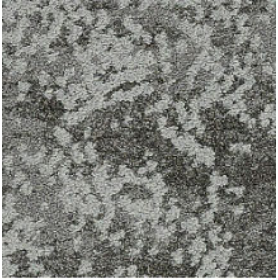

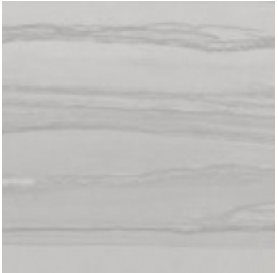
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	
CPTT-8	Carpet Tile	Product: Green, and Grey Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones with green Pattern: Bark look varying with colour Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method : Half Lap *Water-based releasable adhesive	Enclosed Rooms Floor 3 
CPTT-9	Carpet Tile	Product: Light Blue and Grey Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones with a small amount of light blue Pattern: Bark look Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Accent Open Workstation Floor 4 

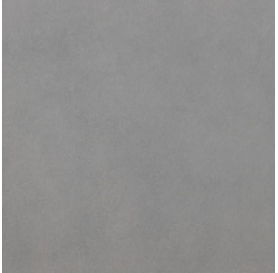
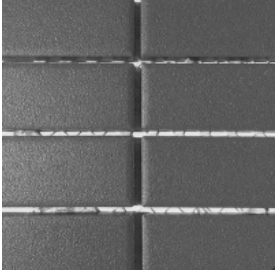

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CPTT-10	Carpet Tile	Product: Light Blue and Grey Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones with light blue Pattern: Bark look varying with colour Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Enclosed Rooms Floor 4 
CPTT-11	Carpet Tile	Product: Blue and Grey Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of two grey tones with a small amount of light grey Pattern: Bark look Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Accent Open Workstation Floor 5 




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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CPTT-12	Carpet Tile	Product: Beige and Grey Carpet Tile Material: 100% recycled nylon fiber Dye Method: 100% solution dyed Colour: Blend of three tones of grey Pattern: Bark look varying with colour Size: 305 mm x 914 mm Construction: Textured Patterned Multi-Coloured Loop Installation Method: Half Lap *Water-based releasable adhesive	Enclosed Rooms Floor 5 
CT-1	Porcelain Tile	Product : Porcelain Tile, rectified Colour : White Finish : Matte RT Size : 750x1500 mm Thickness : 9mm Grout Joint width : 2mm Slip Resistance: $\geq 0.42$	Floor Tile/Corridor & Atrium 
CT-2	Porcelain Tile	Product : Porcelain Tile, rectified Colour: Various gray shades with veining Finish: Matte Size: 300mm x 600mm Thickness: 9.5mm Grout Joint width: 2mm	Wall Tile/ Washroom 


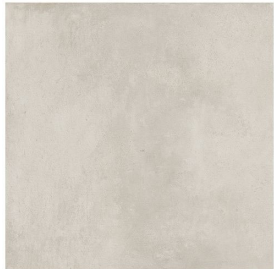

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CT-3	Porcelain Tile	Product : Porcelain Tile, rectified Colour: Grey Finish: Matte Size: 300mm x 600mm Thickness: 10mm Grout Joint width: 2mm Slip Resistance: 0.62	Wall & Floor Tile/ Washroom 
CT-3A	Porcelain Tile Mosaic	Product : Porcelain Tile Mosaic, rectified Colour: Gray to match CT-3 wall colour Finish: Matte Size: 23x48 mm/300x300 mm meshed Thickness: 10mm Grout Joint width: 2mm	Locker Room Showers 
CT-4	Porcelain Tile	Product : Porcelain Tile, rectified Colour: White with gray variation Finish: Matte Size: 800 x 800 mm Thickness: 10mm Grout Joint width: 2mm Slip Resistance: 0.71	Floor Tile/ Kitchenette/Lounge 



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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CT-5	Ceramic Tile	Product : Ceramic Tile Colour: White Finish: Gloss Size: 50mmx300mm Installation : Stacked Thickness: 8mm Grout Joint width: 2mm	Wall Tile/ Kitchenette/Lounge 
CT-6	Porcelain Tile	Product : Porcelain Tile , rectified Colour: Pearl Finish: Matte RT Size : 750x1500 mm Thickness : 9mm Grout Joint width: 2mm Slip Resistance: >=0.42	Floor Tile / Kitchenette Ground Floor & Elevator Lobbies 
CTB-1	Wall Base	Product : Porcelain stoneware wall base Colour: White Finish: Matte RT Size: 100mm High Thickness:9mm Grout Joint width:2mm	Wall Base/ Corridor & Atrium 
CTB-2	Wall Base	Product : Porcelain stone wall base Colour: White with gray variation Finish: Matte Size: 100mm High Thickness: 9.5mm	Wall Base/ Kitchenette/Lounge




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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Grout Joint width: 2mm	
CTB-3	Wall Base	Product : Porcelain stoneware wall base Colour: Pearl Finish: Matte RT Size: 100mm high  Thickness: 9mm  Grout Joint width: 2mm	Wall Base/ Kitchenette Ground Floor & Elevator Lobbies  
LVT-1	Luxury Vinyl Tile	Product: Luxury Vinyl Tile Tile Size: 250 mm x 1000 mm Thickness: 4.5mm Colour/ Finish: Light Oak colour with antiqued wood grain texture Construction: High performance Luxury Vinyl Tile Class: Class III Printed Vinyl Plank Wear Layer Thickness: 22mil  Installation: Ashlar, in Full Adhesive	Atrium Stage  

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
LVT-2	Luxury Vinyl Tile	Product: Luxury Vinyl Tile Tile Size: 500 mm x 500 mm Thickness: 4.5mm Colour/Finish: Blend of cool and warm grays/ Textured stone polished cement look Construction: High performance Luxury Vinyl Tile Class: Class III Printed Vinyl Tile Wear Layer Thickness: 22mil Installation Type: Non-Directional	Storage Rooms 
PT-1	Paint	Product: Off White Paint RGB Code: (229,227,220) Finish: Varies based on application	General/ Ceiling paint 
PT-2	Accent Paint	Product: Charcoal Grey RGB Code: (101,101,98) Finish: Dependant on application	Accent Walls – Kitchenettes, Business Centers, Meeting Rooms, Open Collab Workpoints Painted Exposed Ceilings

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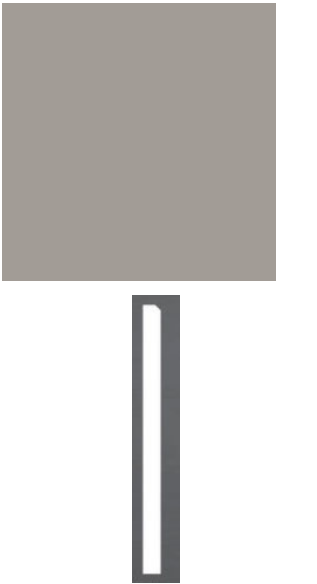
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
			
PT-3	Paint	Product: Light Grey Paint RGB Code: (207,205,203)	Accent Walls – Wellness Center, Focus Rooms, Phone Rooms, Reflection Rooms 
PT-4	Accent Paint	Product: Medium Grey Paint RGB Code: (183,181,179)	Accent Wall – Work Rooms, Project Rooms 





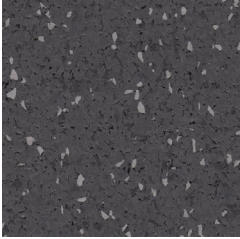
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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
PT-5	Accent Paint	Product: Dusty Grey Paint RGB Code: (159,160,158)	Accent Wall – SPS spaces 
PT-6	Writeable Surface Paint	Product: Dry Erase Top Coat Finish: Clear Gloss Coating Material: Waterbased Polyurethane Allow only for standard dry erase marker writing to be removed using a dry cotton cloth or dry eraser.	ITIM & Admin Application Management – Innovation Lab  <b>NO IMAGE</b>
PT-EP1	Epoxy Paint	Product: Two-component water based epoxy, VOC less than 50 g/l, gloss level 3 Application: two (2) coats, 3.0 mils DFT per coat	Basement, Janitor Closets 
PT-SPC	Spray-on Cementitious Wall Finish	Water based acrylic coating with integral quartz aggregates providing lustrous metallic finish  COATING THICKNESS 2 coats combined - 1.5 mm  Colour: TBD to complement adjacent Titanium Zinc Stair panels.	Atrium Stair E Wall Surfaces

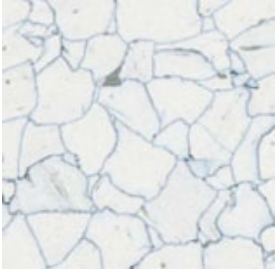


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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
<p><b>RB-1</b></p>	<p><b>Rubber Wall Base</b></p>	<p>Product: Rubber Wall Base                      Colour: White                      Style: Millworkbase with eased edge                      Size: 100mm high                      Material: Rubber</p>	<p>Varies, refer to floor finish plan for location</p> 
<p><b>RB-2</b></p>	<p><b>Rubber Wall Base</b></p>	<p>Product: Rubber Wall Base                      Colour: Silver Grey                      Style: Millworkbase with eased edge                      Size: 100mm high                      Material: Rubber</p>	<p>Varies, refer to floor finish plan for location</p> 

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
<p><b>RB-3</b></p>	<p><b>Rubber Wall Base</b></p>	<p>Product: Rubber Wall Base                      Colour: Grey                      Style: Millworkbase with eased edge                      Size: 100mm high                      Material: Rubber</p>	<p>Varies, refer to floor finish plan for location</p> 
<p><b>RST-1</b></p>	<p><b>Rubber stair tread</b></p>	<p>Product: Rubber Stair Tread with integral 50mm colour contrast strip at the nosing to conform to CSA B651-18 Article 5.4.2                      Material: Rubber                      Colour: TBD</p>	<p>Stairs A, B C &amp; D</p>  <p><small>Rubber Stair Treads</small></p> <p><small>PVIRH-KK-RD   Round Pattern - Square Nose                      PVIRH-KK-SQ   Square Pattern - Square Nose                      PVIRH-KK-RD   Rubber Tread &amp; Rise - Round Pattern - Square Nose                      PVIRH-KK-SQ   Rubber Tread &amp; Rise - Square Pattern - Square Nose                      PVIRH-KK   Rubber Tread &amp; Rise - Hammered Pattern - Square Nose</small></p>
<p><b>RSF-1</b></p>	<p><b>Rubber Sheet Flooring</b></p>	<p>Product : Roll good Rubber Flooring                      Colour : Dark grey with light grey specks                      Thickness : 4mm                      Material : Rubber</p>	<p>Floor Tile/ Wellness Center</p> 

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
SDT-1	<b>Static Dissipative Tile</b>	<p>Product: Static Dissipative Vinyl Tile with Copper Grounding Straps</p> <p>Material: Dissipative Vinyl, copper grounding strips.</p> <p>Colour: Finish should be white and grey marble finish</p> <p>Dimension of tile: 610mm x 610mm x 3mm THK</p> <p>Dimensions of Copper Strip should be 25.4mm wide, 45.7mm long and 0.1mm thick.</p>	<p>Data, Electrical Room</p> 
STN-1	<b>Natural Limestone</b>	<p>Native Canadian Limestone originating in Wiarton / Owen Sound, Ontario with a fleuri pattern.</p> <p>Vertical Faces: Vein Cut</p> <p>Horizontal Faces: Fleuri Cut</p> <p>Finish: Honed</p> <p>Thickness: 19mm</p> <p>Grout Joint: 1/8", colour to match</p> <p>Epoxy Quirk Mitre Corners, Pencile round edges. Shadow reveal cut at base</p> <p>Size 100mm height (TBD)– Font, layout.</p> <p>Stone joint spacing in coordination / alignment with floor tile</p>	<p>Atrium – Stage</p> <p>Vertical Face (front sides):</p> <p>Vein Cut</p>  <p>Horizontal Face (Top):</p> <p>Fleuri Cut</p> 
VWC-1	<b>Vinyl Wallcovering</b>	<p>Continuous Graphics throughout</p> <p>* Refer to Signage Package for Specification.</p>	<p>Parking Garage</p>

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<b>CODE</b>	<b>ITEM</b>	<b>DESCRIPTION</b>	<b>APPLICATION / LOCATION</b>
<b>VWC-2</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Wellness Center Interior
<b>VWC-3</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Wellness Center Exterior
<b>VWC-4</b>	<b>Vinyl Wallcovering</b>	Different Graphic Per Floor * Refer to Signage Package for Specification.	Washroom Core
<b>VWC-5</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Corridor 120
<b>VWC-6</b>	<b>Vinyl Wallcovering</b>	Different Graphic Per Floor * Refer to Signage Package for Specification.	Adjacent to Elevator Lobbies
<b>VWC-7</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Museum
<b>VWC-8</b>	<b>Vinyl Wallcovering</b>	RESERVED	
<b>VWC-9</b>	<b>Vinyl Wallcovering</b>	RESERVED	
<b>VWC-10</b>	<b>Vinyl Wallcovering</b>	Different Graphic Per Floor * Refer to Signage Package for Specification.	Locker Core


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<b>CODE</b>	<b>ITEM</b>	<b>DESCRIPTION</b>	<b>APPLICATION / LOCATION</b>
<b>VWC-11</b>	<b>Vinyl Wallcovering</b>	Different Graphic Per Floor * Refer to Signage Package for Specification.	Locker Core 2
<b>VWC-12</b>	<b>Vinyl Wallcovering</b>	Different Graphic Per Floor * Refer to Signage Package for Specification.	Washroom Cores – South Block
<b>VWC-13</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Meeting Room 2-86 Exterior
<b>VWC-14</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Locker 3-70 Exterior
<b>VWC-15</b>	<b>Vinyl Wallcovering</b>	* Refer to Signage Package for Specification.	Open Workspace 5-14
<b>VWC-16</b>	<b>Vinyl Wallcovering</b>	Different Graphic Per Floor * Refer to Signage Package for Specification.	Elevator Lobbies


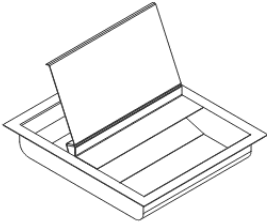

#### **DIVISION 10 – SPECIALTIES**

<b>BFL-1</b>	<b>Bottle Filler</b>	Supplied and installed under Division 22, Plumbing	
<b>BP-1</b>	<b>Fiberglass Ballistic Panel</b>	Product: Bullet-Resistant Fiberglass Thickness: 12mm Must have ballistic rating of UL 752, Level 3 and N.I.J 0108.01 Level IIIA Panels must be rated ULC-752-3	Security Office

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
CH-1	Coat Hook	<p>Product: Surface-Mounted Coat Hook</p> <p>Materials: Flange and Support Arm are 18-8, Type-304, 22-gauge (0.8mm) stainless steel.</p> <p>Concealed wall plate should be 18-8, Type-304, 16-gauge (1.6mm) stainless steel</p> <p>Cap should be 18-8, Type-304, 10-gauge (3.6mm) stainless steel</p> <p>Size: Flange is 50 x 50mm. Hook 13mm wide, projects 40mm from wall.</p> <p>Finish: Satin stainless steel</p> <p>Supplier/Installer: Contractor supplied/ Contractor Installed</p>	
CH-2	Coat Hook	Supplied and installed by Toilet Compartment Manufacturer	NO IMAGE
CG-1	Corner Guard	<p>Product: Stainless Steel Corner Guard</p> <p>Material: Type 304 Stainless Steel</p> <p>Finish: #4 Satin Finish</p> <p>Size: 50mm x 1219mm x 50mm (WxHxD)</p> <p>Installation: Mastic Construction Adhesive</p>	NO IMAGE

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
BCT-1	<b>Baby Changing Table</b>	<p>Product: Horizontal Stainless Steel Wall Mounted Baby Changing Table</p> <p>Size: Unit Dimensions: 892 mm x 508 mm Depth (closed): 102 mm Extension (open): 483 mm</p> <p>Material: 18 gauge, Type-304 satin stainless steel exterior finish with blow molded high-density grey polyethylene</p> <p>Finish: Stainless Steel</p> <p>Minimum holding capacity: 22.68 kg</p> <p>Supplier/Installer: Contractor supplied/ Contractor Installed</p>	
DT-1	<b>Deal Tray</b>	<p>Product: Recessed Flip Lid Currency Tray</p> <p>Material: 18 ga Stainless Steel with welded connections</p> <p>Should be bullet-proof.</p> <p>Dimensions: 368mm x 419mm x 70mm</p> <p>Standard of Acceptance: Total Security Solutions</p> <p>Product: Recessed Flip Lid Deal Tray 368mm x 419mm x 70mm</p> <p>Rated ULC-752-3</p>	
GRB-1	<b>Grab Bar</b>	<p>Product: 32mm Diameter Stainless Steel Grab Bars with Snap Flange</p> <p>Clearance from wall : 38mm</p> <p>Length : 610mm</p> <p>Material : 18-1, Type-304, 18-Gauge (1.2mm) Stainless steel tubing with a</p>	<p>Barrier Free WR/Stalls &amp; Universal Washrooms</p> 




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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		<p>satin finish and slip resistant surface.</p> <p>Mounting flanges to be 18-8, Type-304, 11-gauge (3.2mm) thick, Stainless steel plates.</p> <p>Snap Flange Covers to be 18-8, Type-304, 22-gauge (0.8mm) drawn stainless steel with satin finish.</p> <p>Strength : 408 kg</p> <p>Supplier/Installer: Contractor supplied/ Contractor Installed</p>	
<b>GRB-2</b>	<b>Grab Bar L-Shaped</b>	<p>Product: 32mmDiameter Stainless Steel Grab Bars with Snap Flange</p> <p>Clearance from wall : 38mm</p> <p>Material : Grab bar to be 18-1, Type-304, 18-Gauge (1.2mm) Stainless steel tubing with a satin finish and slip resistant surface.</p> <p>Mounting flanges to be 18-8, Type-304, 11-gauge (3.2mm) thick, Stainless steel plates.</p> <p>Snap Flange Covers to be 18-8, Type-304, 22-gauge (0.8mm) drawn stainless steel with satin finish.</p> <p>Strength : 408 kg</p> <p>Dimension : 760mm x 760mm</p>	<p>Barrier Free WR/Stalls &amp; Universal Washrooms</p> 
<b>GRB-3</b>	<b>Grab Bar – L-Shaped Shower</b>	<p>Product: 32mm Diameter Stainless Steel Grab Bars with Snap Flange</p> <p>Clearance from wall : 38mm</p>	<p>Barrier Free Shower – Vertical Installation</p>



NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		<p>Length : 750mm</p> <p>Material : Grab bar to be 18-1, Type-304, 18-Gauge (1.2mm) Stainless steel tubing with a satin finish and slip resistant surface.</p> <p>Mounting flanges to be 18-8, Type-304, 11-gauge (3.2mm) thick, Stainless steel plates.</p> <p>Snap Flange Covers to be 18-8, Type-304, 22-gauge (0.8mm) drawn stainless steel with satin finish.</p> <p>Strength : 408 kg</p> <p>Supplier/Installer: Contractor supplied/ Contractor Installed</p>	
GRB-4	Grab Bar	<p>Product: 32mm Diameter Stainless Steel Grab Bars with Snap Flange</p> <p>Clearance from wall : 38mm</p> <p>Length : 1000mm</p> <p>Material : Grab bar to be 18-1, Type-304, 18-Gauge (1.2mm) Stainless steel tubing with a satin finish and slip resistant surface.</p> <p>Mounting flanges to be 18-8, Type-304, 11-gauge (3.2mm) thick, Stainless steel plates.</p> <p>Snap Flange Covers to be 18-8, Type-304, 22-gauge (0.8mm) drawn stainless steel with satin finish.</p> <p>Strength : 408 kg</p>	<p>Barrier Free Shower – Vertical and Horizontal Installation</p> 


NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Supplier/Installer: Contractor supplied/ Contractor Installed	
<b>OP-1</b>	<b>Operable Partitions</b>	Product: Moveable Wall Partitions STC: 47 Panel Type: Full height marker board Size: Refer to Architectural Drawings for sizing – equal panel sizing as required to suite opening. Thickness: 76mm Frame: Roll Formed & Welded 16 Gage Steel Seals: Top: Fixed Sweep Bottom: 2" Automatic,	Teaching Centre 
<b>PTDD-1</b>	<b>Paper Towel Dispenser and Disposal</b>	Surface Mounted Paper Towel/ Waste Receptacle  Supplied/Installed: Owner Supplied/ Contractor Installed	<b>NO IMAGE</b>
<b>PTN-1</b>	<b>Toilet Partition</b>	Product: Full Height Toilet Compartments Solid colour partitions Colour - metallic stainless steel Material: HDPE Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments. Partition thickness: 25mm. Finish: #4 Brushed Stainless Steel Supplier/Installer: Contractor	<b>NO IMAGE</b>


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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		supplied/ Contractor Installed	
SD-1	Soap Dispenser	Automatic Wall-Mounted Foam Soap Dispenser Supplier/Installer: Owner supplied/ Contractor Installed	NO IMAGE
SD-2	Soap Dispenser	Automatic Wall-Mounted Foam Soap Dispenser Supplier/Installer: Owner supplied/ Contractor Installed	NO IMAGE
SD-3	Recessed Soap Shelf	RESERVED Supplier/Installer: Contractor supplied/ Contractor Installed	Showers/ Locker Room
SHCU-1	Shower Curtain	Product: Vinyl Shower Curtain  Materials : Curtain should be an opaque, vinyl material that is 0.2mm thick.  Curtain should have HDPE grommets every 150mm.  Standard of Acceptance: Bobrick Product: B-204-2 Size: To suite shower opening Colour: TBD  *Provide B-204-01 shower curtain hooks  Supplier/Installer: Contractor supplied/ Contractor Installed	
SHR-1	Shower Rod	Product: Heavy Duty Shower Curtain Rod with Concealed Mounting and Stainless Steel Shower Curtain Hooks  Size: To suite shower opening  Material : Curtain Rod to be 18-8,	

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

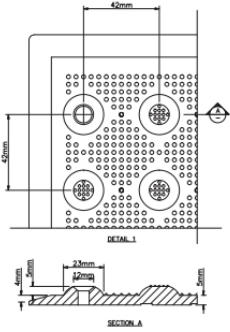
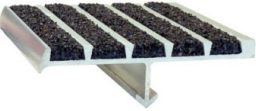
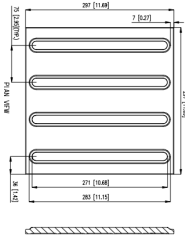
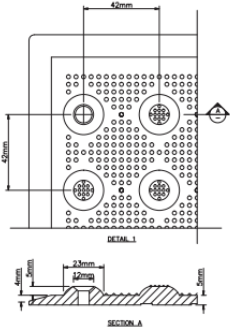
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		<p>Type-304, 20-gauge (1.0mm) stainless steel tubing with satin finish, 25mm outside diameter,</p> <p>Flanges to be 35mm diameter, chrome-plated plastic. Bright polished finish.</p> <p>Concealed mounting brackets to be Aluminum.</p> <p>Size: To suite shower opening</p> <p>Finish: Satin Finishes Stainless Steel</p> <p>Supplier/Installer: Contractor supplied/ Contractor Installed</p>	
SHST-1	Shower Seat	<p>Product: Reversible Folding Shower Seat</p> <p>Seat should be durable, water-resistant, ivory-coloured 13mm thick solid phenolic.</p> <p>Frame and mounting brackets are type 304 stainless steel with satin finish, and should have self-locking mechanisms.</p> <p>Must support up to 163kg.</p> <p>Seat dimensions are 840mm wide and projects 565mm from the wall when in use.</p> <p>Standard of Acceptance: Bobrick</p> <p>Product: B-5181</p> <p>Finish: Satin stainless steel and matter antique white phenolic</p> <p>Supplier/Installer: Contractor supplied/ Contractor Installed</p>	
SND-1	Sanitary Napkin Disposal	<p>Surface-Mounted Sanitary Napkin Disposal</p> <p>Supplier/Installer: Owner supplied/</p>	NO IMAGE

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.


CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		Contractor Installed	
SND-2	<b>Sanitary Napkin Dispenser</b>	Semi Recessed - Mounted Sanitary Napkin Dispenser Flat door design with 90° return. Size: 330mm W x 711mm H. Material: 18-8, Type-304, 18-gauge (1.2mm) stainless steel. All-welded construction Finish: Satin Stainless steel Projection: 100mm Operation: Push-Button Operation and two tumbler door locks keyed Capacity: Holds 30 tampons, 20 napkins Supplier/ Installer: Contractor supplied/ Contractor installed	
TBR-1	<b>Toilet Backrests</b>	Refer to Mechanical Schedules for Specification Supplier/Installer: Contractor supplied/ Contractor Installed	NO IMAGE
TPH-1	<b>Toilet Paper Holder</b>	Surface-Mounted Multi-Roll Toilet Tissue Dispenser Supplier/Installer: Owner supplied/ Contractor Installed	NO IMAGE

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CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
TWS-1	<b>Tactile Attention Indicator</b>	610mm x 610mm Tile Colour Contrasting Surface formed of Truncated Domes of 4mm height arranged in a square grid to conform to CSA B651-18 Article 4.3.5.3.1	
TWS-2	<b>Stair Nosing</b>	75 Deep x 12mm H Colour Contrast Carborundum Strips with integral mounting hooks	
TWS-3	<b>Tactile Direction Indicator</b>	305x305 Tile Colour Contrasting Surface formed of Truncated Bars of 4mm height and 270mm length arranged in a square grid to conform to CSA B651-18 Article 4.3.5.4.1	
TWS-4	<b>Tactile Attention Indicator</b>	Surface Applied 610mm Deep x Stair Width Colour Contrasting Surface formed of Truncated Dome of 4mm height arranged in a square grid to conform to CSA B651-18 Article 4.3.5.3.1	

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.


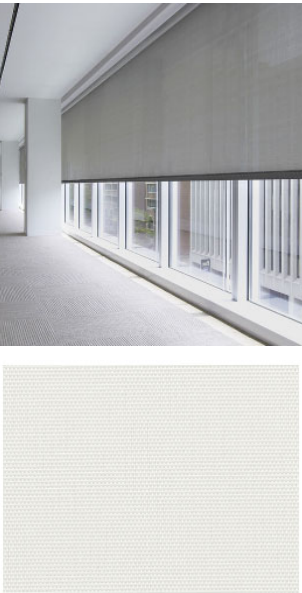
CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
LECT-1	Lectern	Metal, height adjustable, accessible base with cable pass through Finish: Ebony Black	

#### DIVISION 12 – FURNISHINGS

FG-1	Entrance Floor Grille	Aluminum Floor Grille 30 mm deep Aluminum Backpan 9.5 x 3 x 25mm Aluminum T-shaped Profile Bars Striated every 25mm with AntiSlip surface both directions Concealed Aluminum Integral Mounting Tracks at 100mm O.C. Bars Oriented perpendicular to travel direction Material: Aluminum Alloy 6061-T6 Mill Finish	
WTR-M-RS-1	Roller Shades - Manual	Product: Manual shades with pull chains Must have reverse roll fabric drop and concealed hembar Pull chains should be located at exterior edges of shade only. Fabric: White basket-weave design manual shade in standard pocket;	South Block 3 <sup>rd</sup> Floor New Windows



NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
		<p>reverse roll fabric drop;                      concealed, fabric-wrapped hembar;                      width to cover window opening in maximum 2 sections                      chains to be at outside edges only, no chains in the middle                      Fabric: TBD                      Openness: 5%                      Casing to match CW-4 mullion finish</p>	
<p><b>WTR-A-RS-2</b></p>	<p><b>Roller Shades - Motorized</b></p>	<p>Product: Concealed Motorized Roller Shade Scrim                      Product: MagnaShade by Mecho;                      Must include stiffened concealed hembar, channel tracks in jamb and sill, and base channel to receive and lock stiffened concealed hembar;                      Casing to match CW-1 mullion finish                      Fabric: White basket-weave design                      Openness: 5%</p>	<p>Ground Floor Kent St Façade Privacy Screen</p> 

NOTE: The application / location for the materials indicated is not limited to the list below and is to be used in conjunction with and may be supplemented by the Specifications, Schedules, and Drawings. Refer to Specifications, Schedules, and Drawings for full extent of material application and additional material types.

CODE	ITEM	DESCRIPTION	APPLICATION / LOCATION
WTR-M-RS-3	<b>Roller Shades – Strip Windows</b>	Product: Manual shades with pull chains Must have reverse roll fabric drop and concealed hembar Fabric: White basket-weave design Surface mounted manual shade; reverse roll fabric drop; concealed, fabric-wrapped hembar; Openness: 5%	Strip Windows

END OF SECTION

~~27 May~~ **18 Aug** 2022**Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 06 20 00 – Finish Carpentry
- .2 Section 08 14 16 – Flush Wood Doors
- .3 Section 08 34 73 - Sound Control Door Assemblies
- .4 Section 08 71 00 – Door Hardware
- .5 Section 08 71 10 – Hardware Schedule
- .6 Section 08 80 00 – Glazing
- .7 Section 09 91 13 - Exterior Painting
- .8 Section 09 91 23 – Interior Painting

**1.2 REFERENCE STANDARDS**

- .1 ASTM International (ASTM)
  - .1 ASTM A653/A653M-20, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 CSA Group (CSA)
  - .1 CSA G40.20-13/G40.21-13(R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-18, Welded Steel Construction.
- .3 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2006.
  - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors and Frame Products, 2009.
- .4 National Fire Protection Association (NFPA)
  - .1 NFPA 80-22, Standard for Fire Doors and Other Opening Protectives.
  - .2 NFPA 252-08, Standard Methods of Fire Tests of Door Assemblies.
- .5 South Coast Air Quality Management District (SCAQMD), California State
  - .1 SCAQMD Rule 1168-17, Adhesives and Sealants Applications.
- .6 Underwriters' Laboratories of Canada (ULC):
  - .1 CAN/ULC-S104-20, Standard Method for Fire Tests of Door Assemblies
  - .2 CAN/ULC-S105-20, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC-S104.
  - .3 CAN/ULC-S702.1-21, Standard for Mineral Fiber Thermal Insulation for Buildings.

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- .4 CAN/ULC-S704.1-17, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

### 1.3 SYSTEM DESCRIPTION

- .1 Design Requirements:
  - .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
  - .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.
  - .3 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN/ULC-S104 and CAN/ULC-S105 for ratings specified or indicated.
  - .4 Provide fire labelled frames for openings requiring fire protection ratings.
    - .1 Test products in conformance with CAN/ULC-S104 and listed by nationally recognized agency having factory inspection services.
    - .2 Install labelled steel fire rated doors and frames to NFPA 80.
  - .5 Sound Control metal doors and frames: for all acoustic door and frame assemblies requiring STC rating, identified on the Door & Hardware Schedules, refer to Section 08 34 73.**

### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, louvres, arrangement of hardware and fire rating and finishes.
  - .2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings, fire rating and finishes.
  - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
  - .4 Submit test and engineering data, and installation instructions.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Submit one 305 x 305 mm corner sample of each type of frame.
  - .1 Show butt cutout, glazing stops, 305 mm long removable mullion connection and snap-on trim with clips.
- .5 Sustainable Design Submittals:
  - .1 Submit in accordance with Section 01 47 15 Sustainable Requirements: Construction.
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

~~27 May~~ 18 Aug 2022**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
  - .1 Waste Management and Disposal:
    - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

**Part 2 Products****2.1 MATERIALS**

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75 with a minimum zinc coating of 76 g/sq.m, and a minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.
- .3 Composites: balance of core materials in accordance with manufacturers' proprietary design.
- .4 Mineral fibre insulation: to CAN/ULC-S702.1, minimum density 24 kg/m<sup>3</sup>.
- .5 Polyurethane: to CAN/ULC-S704.1 rigid, modified polyisocyanurate, closed cell board. Density 32 kg/m<sup>3</sup>.
- .6 Wood trim: solid wood trim per Section 06 20 00 – Finish Carpentry.
- .7 Veneer: per Section 08 14 16 – Flush Wood Doors.

**2.2 DOOR CORE MATERIALS**

- .1 Honeycomb construction:
  - .1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m<sup>3</sup> minimum sanded to required thickness.
- .2 Stiffened: face sheets welded, insulated core.
  - .1 Vertically stiffen with steel ribs all insulated doors.
  - .2 Fill all voids with mineral fibre insulation

**2.3 ADHESIVES**

- .1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
  - .1 Adhesive: maximum VOC content 50 g/L to SCAQMD Rule 1168.
- .2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
- .3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

**2.4 PRIMER**

- .1 Touch-up prime: Maximum VOC limit 50 g/L.

**2.5 PAINT**

- .1 Field paint steel doors and frames in accordance with Sections 09 91 23 - Interior Painting and 09 91 13 - Exterior Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

**2.6 ACCESSORIES**

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior top and bottom caps: steel.
- .3 Metallic paste filler: to manufacturer's standard.
- .4 Fire labels: metal rivited.
- .5 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- .6 Make provisions for glazing as indicated and provide necessary glazing stops.
  - .1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.
  - .2 Design exterior glazing stops to be tamperproof.
- .7 Glazing: in accordance with Section 08 80 00 - Glazing
- .8 Electrical Hardware Accessories: Where electrified hardware is specified on the approved hardware schedule, provide plug-in connectors and wiring system consisting of CSA approved conduit, junction boxes and wire harness complete with modular plugs for coordinated connection directly to the electrified hardware. Refer to Section 08 71 10 – Hardware Schedule for openings that require electrified hardware.

**2.7 FRAMES FABRICATION GENERAL**

- .1 Fabricate frames in accordance with CSDMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Exterior frames: 1.2 mm welded, thermally broken type construction.
- .4 Interior frames: 1.6 mm welded type construction.
- .5 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .6 Pre-wire door frames complete with CSA approved EMT metallic conduit and fittings for electrified hardware components where indicated on Door and Frame Hardware Schedule.
- .7 Protect mortised cutouts with steel guard boxes.
- .8 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

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- .9 Manufacturer's nameplates on frames and screens are not permitted.
- .10 Conceal fastenings except where exposed fastenings are indicated.
- .11 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .12 Insulate exterior frame components with polyurethane insulation.

## **2.8 FRAME ANCHORAGE**

- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
- .4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

## **2.9 FRAMES: WELDED TYPE**

- .1 Welding in accordance with CSA W59.
- .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
- .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
- .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
- .5 Securely attach floor anchors to inside of each jamb profile.
- .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

## **2.10 DOOR FABRICATION GENERAL**

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Exterior doors: insulated, hollow steel construction. Interior doors: honeycomb construction.
- .3 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .4 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware.
- .5 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
- .6 Pre-wire doors complete with CSA approved EMT metallic conduit and fittings for electrified hardware components where indicated on Door and Frame Hardware Schedule.

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- .7 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .8 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .9 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .10 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN/CSA-S104 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.
- .11 Manufacturer's nameplates on doors are not permitted.

## **2.11 DOORS: HONEYCOMB CORE CONSTRUCTION**

- .1 Form face sheets for interior doors from 1.6 mm sheet steel with honeycomb core laminated under pressure to face sheets.

## **2.12 HOLLOW STEEL CONSTRUCTION**

- .1 Form face sheets for exterior doors from 1.6 mm sheet steel.
- .2 Form face sheets for interior doors from 1.6 mm sheet steel.
- .3 Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.
- .4 Fill voids between stiffeners of exterior doors with mineral fibre core.
- .5 Fill voids between stiffeners of interior doors with honeycomb core.

## **2.13 THERMALLY BROKEN DOORS AND FRAMES**

- .1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
- .2 Thermal break: rigid polyvinylchloride extrusion.
- .3 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
- .4 Apply insulation.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.



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### **3.2 INSTALLATION GENERAL**

- .1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
- .2 Install doors and frames to CSDMA Installation Guide.

### **3.3 FRAME INSTALLATION**

- .1 Set frames plumb, square, level and at correct elevation.
- .2 Secure anchorages and connections to adjacent construction.
- .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
- .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
- .5 Caulk perimeter of frames between frame and adjacent material.
- .6 Maintain continuity of air barrier and vapour retarder.

### **3.4 DOOR INSTALLATION**

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions, Section 08 71 00 - Doors Hardware and Hardware Schedule.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
  - .1 Hinge side: 1.0 mm.
  - .2 Latchside and head: 1.5 mm.
  - .3 Finished floor, non-combustible sill and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.
- .4 Install louvres.

### **3.5 FINISH REPAIRS**

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

### **3.6 GLAZING**

- .1 Install glazing for doors and frames in accordance with Section 08 80 00 - Glazing.

### **3.7 CLEANING AND PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Upon completion of the work, remove all debris, equipment and excess material resulting from the work of this Section from the site.

- .3 Waste Management: in accordance with Section 01 74 19 – Construction Waste Management and Disposal.

**END OF SECTION**

**Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 08 34 73 - Sound Control Door Assemblies.
- .2 Section 08 71 10 – Hardware Schedule.
- .3 Section 09 91 23 – Interior Painting.
- .4 Section 10 00 00 – Manufactured Specialties.

**1.2 REFERENCES**

- .1 ASTM International (ASTM)
  - .1 ASTM A653/A653M-20, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 CSA Group (CSA)
  - .1 CSA G40.20-13/G40.21-13(R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-18, Welded Steel Construction.
- .3 GB Initiative Canada
  - .1 GREEN GLOBES Canada Design for New Construction and Major Retrofits v.2, <http://www.greenglobes.com>
- .4 National Association of Architectural Metal Manufacturers (NAAMM/HMMA):
  - .1 HMMA 862-21, Guide Specifications for Forced Entry/Bullet Resistant (FE/BR) Security Hollow Metal Doors and Frames.
  - .2 HMMA 841-13 (R2019), Tolerances and Clearances for Commercial Hollow Metal Doors and Frames.
- .5 Underwriters' Laboratories (UL):
  - .1 ANSI / UL 94-2013, (ANSI approved 2021), Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
  - .2 ANSI / UL 752-2005, (ANSI approved 2015), Standard for Bullet Resisting Equipment.

**1.3 PERFORMANCE/DESIGN REQUIREMENTS**

- .1 Security Level: Bullet resistant hollow metal doors, framing, glazing, hardware and accessories shall be rated and tested by an independent testing laboratory to ANSI / UL 752, Level 3, and include ANSI / UL 752 certification documentation.
  - .1 Unlisted bullet-resistant products are not acceptable.
- .2 Acoustic Criteria: Provide acoustic assemblies with minimum Sound Transmission Classification (STC) ratings indicated, tested as a fully operable unit in accordance with requirements of ASTM E90 and ASTM E413, as specified in Section 08 34 73 - Sound Control Door Assemblies.

- .3 Location, types and acoustical performance of listed ballistic resistant door and frame assemblies: identified on the Door & Hardware Schedules on drawings, and Section 08 71 10 - Door Hardware.

#### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Submit manufacturer's printed product literature on door construction, and include product characteristics specific for the project, performance criteria, UL listing verification, STC rating, and manufacturer's installation instructions.
- .3 Shop Drawings: Provide Shop Drawings showing:
  - .1 Door and frame elevations and sections, reinforcement, glazing, anchor types, closure methods, location of cut-outs for hardware, and cut-outs for glazing, and finishes.
  - .2 Locations and details of all openings.
  - .3 Operational clearances.
  - .4 Schedule listing locations, descriptions and details of openings, including material thickness, anchors, STC rating, and performance level.
- .4 Samples:
  - .1 Door: 305 mm x 305 mm corner section with hinge mortise and reinforcement showing internal construction.
  - .2 Frame: 305 mm x 305 mm corner section showing welding of head to jamb.
    - .1 Include glazing stop applied in both head and jamb section to show their intersection in the opposite rabbet.
  - .3 Submitted samples represent the minimum accepted quality of Work for all products furnished by the manufacturer. Do not begin fabrication until samples are approved; degradation of fabrication quality compared to the sample will be cause for rejection work.
- .5 Test Data:
  - .1 Submit independent test data from a recognized licensed laboratory indicating compliance with bullet resistant performance requirements.
- .6 Manufacturer's Installation Instructions: Indicate special installation instructions.
- .7 Sustainable Design Submittals:
  - .1 Submit in accordance with Section 01 47 15 Sustainable Requirements: Construction.

#### **1.5 QUALITY ASSURANCE**

- .1 Quality Criteria: Compliance with testing and performance requirements is required for all products provided under this Section.
- .2 Qualifications:
  - .1 Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum ten (10) years documented experience. Upon request, provide a list of successfully completed projects including date of completion.

- .2 Installer: Company specializing in performing the work of this section with minimum ten (10) years documented experience and approved by the manufacturer.
- .3 Perform all work to NAAMM/HMMA standards.
- .4 Pre-Installation Meeting:
  - .1 Convene a pre-installation meeting 3 weeks before installation of bullet resistant door and frame assemblies.
  - .2 Review requirements for storage and handling of materials, sequence and quality control, installation procedures and coordination with other work, having a direct bearing on the work of this section.
  - .3 Review requirements of field quality control to ensure qualified manufacturer's representative is available during installation and for inspection and testing upon completion of work of this Section

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address and applicable standard designation.
- .3 Deliver the materials to the site with the manufacturer's UL Labels intact and legible. Handle the material with care to prevent damage.
- .4 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
- .5 Store in vertical position, spaced with blocking to permit air circulation between components.
- .6 Store materials indoors, covered to protect from damage.
- .7 Packaging Waste Management:
  - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

#### **1.7 EXTENDED WARRANTY**

- .1 For the work of this Section 08 34 54, the 12-month warranty period is extended to 60 months.
- .2 Provide manufacturer's warranty commencing on date of Substantial Performance against defects in materials and workmanship.
- .3 Defects include but are not limited to buckling, opening of seams, and bond failure.

**Part 2 Products****2.1 MATERIALS**

- .1 Steel Sheet: Commercial quality (CS), free of scale, pitting, coil breaks or other surface blemishes.
  - .1 Zinc Coating: Hot-dip galvanized to ASTM A653/A653M, with minimum ZF75 coating designation, minimum 1.5 mm.
- .2 Reinforcement: same material as sheet steel.
- .3 Inserts, Bolts, and Fasteners: Manufacturer's standard, hot-dip galvanized in accordance with ASTM A153/A153M.
- .4 Welding Materials: CSA-W59.
- .5 Glazing: Type as tested to achieve bullet resistant ratings.

**2.2 ACCESSORIES**

- .1 Hardware: as specified in Section 08 71 10, Door Hardware.
- .2 Glazing Stops: Formed galvanized steel channel, with tight fitting mitred corners; prepared for countersink style, tamper resistant security screws.
- .3 Primer: Rust inhibitive zinc phosphate.

**2.3 DOOR CONSTRUCTION**

- .1 General: Slab construction, flush design.
- .2 Sheet steel faces, thickness, design, and core suitable to achieve specified ballistic performance.
- .3 Laminated core construction, longitudinal edges welded, filled and sanded with no visible edge seams.
- .4 Drill and tap for mortised, templated hardware.
- .5 Top and Bottom Channels: Inverted, recessed, welded steel channels.
- .6 Hardware Reinforcement: mortise, reinforce, drill and tap at factory, in accordance with approved hardware schedule and templates provided by hardware supplier.
- .7 Weld hardware reinforcement plates in place.

**2.4 FRAME CONSTRUCTION**

- .1 Provide fully welded, seamless construction without visible joints or seams, with integral stops. Fabricate frames with contact edges closed tight and corners mitred, reinforced, and continuously welded full depth and width of frame.
  - .1 Sheet steel and metal thickness appropriate to maintain bullet resistant door and frame ratings, mitred corners.
  - .2 Factory assemble and weld frames.
  - .3 Drill and tap for mortised, templated hardware.
  - .4 Reinforce frames wider than 1200 mm with roll formed steel channels welded tightly into frame head, flush with top.

- .5 Provide three single silencers for single doors on strike side.
- .2 Provide two temporary steel spreaders spot welded to bottom of jambs to act as bracing during shipping and storage. Remove prior to installation; touch-up finish damaged by spreader removal.
- .3 Hardware Reinforcement: mortise, reinforce, drill and tap at factory, in accordance with approved hardware schedule and templates provided by hardware supplier.
- .4 Factory installed glazing: in conformance with bullet resistant rating of door and frame assembly.

## **2.5 BULLET RESISTANT GLAZED WINDOWS AND FRAMES**

- .1 As specified in Section 10 00 00, Manufactured Specialties.

## **2.6 FABRICATION**

- .1 Fabricate doors and frames in accordance with HMMA 862, to security level indicated, with hardware reinforced welded securely.
- .2 Fabricate doors and frames to meet Acoustic Criteria required.
- .3 Fabricate components free of defects, warp, or buckles. Fabricate pressed steel members straight and of uniform profile throughout entire lengths.
- .4 Fabricate doors and frames within manufacturing tolerances listed in HMMA 862.
- .5 Form doors and frames to size and profiles as indicated. Continuously weld exposed joints; grind, fill, dress, and smooth, flush, with invisible seams.
- .6 Continuously weld joints between faces of abutted members and joints between stops of abutted members to provide a neat and uniform in appearance.
- .7 Hardware Preparation: Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
- .8 Hardware Location: Locate door hardware in accordance with HMMA 862.
- .9 Do welding to CSA-W59, prior to finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- .10 Affix permanent metal nameplates to door and frame, indicating manufacturer's name, door tag, model number, and ballistic rating.
- .11 Operational Clearances
  - .1 Critical clearances between doors and frames, and between doors and thresholds and floors required for optimum assembly performance are to be specifically noted in the submittal documents and manufacturer's installation instructions and recommendations.

## **2.7 FINISHES**

- .1 After fabrication, fill and sand all tool marks and surface imperfections as required to make face sheets, vertical edges and weld joints free from irregularities.
- .2 After appropriate metal preparation, factory apply shop primer on all exposed surfaces of doors and frames.

- .3 Primer Type: advanced acrylic emulsion, waterborne, corrosion resistant coating, single-component, VOC less than 50 g/l, Direct to Metal (DTM) Acrylic Primer-Finish, 1 coat, thickness 3 mils D.F.T.
- .4 Primer must be uniform in appearance, and be fully cured prior to shipment, to result in a smooth and hard surface.
- .5 Finish Coat: field applied topcoat, specified in Section 09 91 23 – Interior Painting.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verify existing conditions before starting work.
- .2 Verify that opening sizes and tolerances are acceptable.
- .3 Verify dimensions, tolerances, and method of attachment with other work.
- .4 Verify embedded plate installations before installing frames.
- .5 Prepare written report listing conditions detrimental to performance of doors and frames.

#### **3.2 PREPARATION**

- .1 Remove temporary spreaders. Check each door and frame product for correct size, swing, acoustic and ballistic requirements, and opening number.
- .2 Check the area of floor on which the frame product is to be installed and within the path of the door swing, for flatness and correct as necessary.
- .3 Prior to installation, adjust frames for squareness, alignment, twist, and plumbness to the following tolerances:
  - .1 Squareness: Plus or minus 1.5 mm, measured at door rabbet on a line 90 degrees from jamb and perpendicular to frame head.
  - .2 Alignment: Plus or minus 1.5 mm, measured at jambs on a horizontal line parallel to plane of face.
  - .3 Twist: Plus or minus 1.5 mm, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of door rabbet.
  - .4 Plumbness: Plus or minus 1.5 mm, measured at jambs on a perpendicular line from head to floor.

#### **3.3 INSTALLATION**

- .1 Install doors and frames plumb, rigid, properly aligned, and securely fastened in place, complying with Drawings, schedules, and manufacturer's written recommendations.
- .2 Coordinate with wall construction for anchor placement.
- .3 Set frames plumb, square, level and at correct elevation.
- .4 Allow for deflection to ensure that structural loads are not transmitted to frame.
- .5 Fit sound control doors accurately in frames.
- .6 Adjust operable parts for correct clearances and function.



- .7 Install hardware in accordance with hardware manufacturer's templates and instructions.
- .8 Door Silencers: Install door silencers to manufacturer's instructions.
- .9 Touch ups: Exposed metal surfaces which have been scratched or otherwise marred during installation, cleaning, or field welding, shall promptly be finished smooth, cleaned, treated for maximum paint adhesion and touched up with a rust inhibitive primer, formulated for Direct to Metal (DTM) application, comparable to and compatible with the factory applied primer.
- .10 Finish painting: as specified in Section 09 91 23 – Interior Painting.

### **3.4 ERECTION TOLERANCES**

- .1 Maximum deviation from square, alignment, twist and plumb: +/- 0.75 mm in compliance with HMMA standards

### **3.5 FIELD QUALITY CONTROL**

- .1 Contractor to engage qualified manufacturer's representative to:
  - .1 Instruct installers on the proper installation of door assemblies.
  - .2 Inspect completed installation of door and frame assemblies.
  - .3 Verify each component is correctly installed.
  - .4 Test all components through a minimum of five complete cycles of operation.
  - .5 Direct installer in adjusting components for correct operation of door assemblies.
  - .6 Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.
- .2 Correct any deficient doors and frames identified by manufacturer's representative.
- .3 Non-Conforming Work: Replace damaged work which cannot be satisfactorily repaired, restored or cleaned, to satisfaction of Departmental Representative.

### **3.6 ADJUSTING**

- .1 Adjust doors to swing freely, smoothly and easily, to remain stationary at any point, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force.
- .2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by Supplier's instructions
- .3 Before final connections to electrical power, test electrically operating items and adjust as required to provide proper functions. Test electrically controlled doors utilizing the control consoles under normal operating procedures.
- .4 Adjust components for smooth and balanced movement.

### **3.7 CLEANING**

- .1 Clean in accordance with Section 01 74 00 – Cleaning
- .2 Leave Work area clean at end of each day.

- .3 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt. Remove traces of primer, caulking; clean doors and frames.
- .4 Waste Management: in accordance with Section 01 74 19 - Waste Management and Disposal.
- .5 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**

**Part 1 General****1.1 RELATED SECTIONS**

- .1 Section 08 11 00 – Metal Doors and Frames.**
- ~~.2~~ Section 08 14 16 - Flush Wood Doors.
- .3 Section 08 34 54 - Bullet Resistant Doors and Frames.**
- ~~.4~~ Section 08 71 10 - Door Hardware Schedule.
- ~~.5~~ Section 09 91 23 – Interior Painting.

**1.2 REFERENCES**

- .1 ASTM International (ASTM)
  - .1 ASTM A653/A653M-20, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM E90-09(2016), Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
  - .3 ASTM E413-16, Classification for Rating Sound Insulation.
- .2 American National Standards Institute (ANSI) / Window & Door Manufacturers Association (WDMA)
  - .1 ANSI/WDMA I.S. 1A-21, Interior Architectural Wood Flush Doors.
- .3 CSA Group (CSA)
  - .1 CAN/CSA B651-18, Accessible design for the built environment,
  - .2 CSA W59-18, Welded Steel Construction, includes Errata (2020).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Selection and Usage Guide for Commercial Steel Doors and Frame Products, 2009.
- .5 GB Initiative Canada
  - .1 GREEN GLOBES Canada Design for New Construction and Major Retrofits v.2, <http://www.greenglobes.com>
- .6 FSC – Forest Stewardship Council Standard for Chain of Custody Certification.
- .7 Health Canada / Workplace Hazardous Materials Information System 2015 (WHMIS)
  - .1 Safety Data Sheets (SDS).
- .8 Hollow Metal Manufacturers Association (HMMA)
  - .1 HMMA 802-07 - Manufacturing of Hollow Metal Doors and Frames.
  - .2 HMMA 820-08 - Hollow Metal Frames.

- .3 HMMA 840-16 - Installation and Storage of Hollow Metal Doors and Frames.
- .4 HMMA 865-13 - Guide Specifications for Swinging Sound Control Hollow Metal Doors and Frames.
- .9 National Fire Protection Association (NFPA)
  - .1 NFPA 80-22, Standard for Fire Doors and Other Opening Protectives.
  - .2 NFPA 105-22 Standard for Smoke Door Assemblies and Other Opening Protectives.
- .10 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S104-20, Standard Method for Fire Tests of Door Assemblies
  - .2 CAN/ULC-S105-20, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC-S104.
  - .3 CAN/ULC-S106-15(R2020), Standard Method for Fire Tests of Window and Glass Block Assemblies.

### 1.3 TESTING AND PERFORMANCE REQUIREMENTS

- .1 Provide tested acoustical door and frame assemblies certified to have the required Sound Transmission Classification (STC) ratings per ASTM E90 test method. **Apply label indicating sound transmission class to the doors and door frames.**
  - .1 Provide swinging sound control hollow metal doors and steel frames, STC 52.
  - .2 Provide swinging sound control, bullet resistant metal door and steel frame assemblies, STC 52.**
  - ~~.2.3~~ Provide swinging sound control wood doors and steel frames, STC 51.
  - ~~.3.4~~ Location, types and acoustical performance of certified acoustical door and frame assemblies: identified on the Door & Hardware Schedules on drawings, and Section 08 71 10 - Door Hardware.
- .2 All other acoustic door and frame assemblies with STC rating, identified on the Door & Hardware Schedules, do not require certification by an independent testing laboratory.**
- ~~.2.3~~ Conduct sound control performance testing in accordance with ASTM E90 by an independent testing laboratory qualified under the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Science and Technology (NIST) or the International Accreditation Service (IAS) under the International Laboratory Accreditation Cooperation (ILAC) agreement.
- ~~.3.4~~ Labeled Fire-Rated and Smoke Control Door and Frame Products - where scheduled:
  - .1 Provide Listed or Classified doors, panels, frames, transom frames, sidelight, borrowed light and window assemblies bearing the label of a testing agency having a factory inspection service for openings requiring fire protection and/or smoke control ratings.
  - .2 Test doors, panels, frames, transom frames and sidelight assemblies in accordance with CAN/ULC-S104 and CAN/ULC-S105.
  - .3 Test borrowed light and window assemblies in accordance with CAN/ULC-S106.
  - .4 Manufacture products as Listed or Classified for labeling.

- .4.5** Conform to CAN/CSA B651.

#### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Section 01 33 00: Submission Procedures.
- .2 Schedule: Provide a schedule of sound control door assemblies prepared using same reference numbers for details and openings as those on Drawings.
- .3 Product Data:
  - .1 Provide manufacturer's product data on door and frame construction for each type of product.
  - .2 Submit sound seal manufacturer's product data.
  - .3 Submit manufacturer's installation instructions, including critical operational clearances.
- .4 Shop Drawings:
  - .1 Include a door schedule with acoustical rating, and fire rating, door panel thickness, size, door swing (handing), frame, frame anchorage, tolerances, acoustical gasketing and retainers, hardware functions, threshold and sill conditions, and, where required, vision lite and glazing materials.
  - .2 Indicate dimensioned door and frame elevations and sections, material thicknesses, anchor types and spacing, closure methods, finishes, location of cut-outs for hardware and cut outs for glazing.
  - .3 Critical clearances between doors and frames, and between doors and thresholds or floors required for optimum assembly performance are to be specifically noted in the submittal documents.
  - .4 Advise Departmental Representative in in the submittal documents, prior to fabrication, if any door or frame product specified to be fire-rated, cannot qualify for labeling due to design, hardware, glazing or other reasons.
  - .5 Advise Departmental Representative in the submittal documents, prior to fabrication, if scheduled glazing compromises the sound control capabilities of the door.
- .5 Samples: Submit manufacturer's door finish samples, frame corners, and perimeter acoustic seals.
- .6 Test Data:
  - .1 Submit test data indicating compliance with the STC requirements. Include accredited laboratory name, test report number, and date of test.
  - .2 Submit certification from accredited test laboratory qualified under the National Voluntary Accreditation Program (NVLAP) of the U.S. Bureau of Standards.
- .7 Submit two copies of WHMIS SDS - Safety Data Sheets. Indicate VOC's:
  - .1 For caulking materials during application and curing.
  - .2 For door materials and adhesives.

- .8 Sustainable Design Submittals:
  - .1 Submit in accordance with Section 01 47 15 Sustainable Requirements: Construction.
  - .2 Construction Waste Management:
    - .1 Submit project Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .3 Provide the following documentation in accordance with Section 01 47 15 Sustainable Requirements: Construction:
    - .1 Environmental Product Declarations (EPDs): where available for products in this section provide compliant EPDs.
    - .2 Provide cost of materials excluding on-site labour and equipment.
    - .3 Wood Certification: submit manufacturer's Chain-of-Custody Certificate number for CAN/CSA-Z809 or FSC or SFI certified wood.

## **1.5 QUALITY ASSURANCE**

- .1 Manufacturer's Qualifications:
  - .1 Minimum 5 years documented experience manufacturing sound control door assemblies.
  - .2 Provide evidence of having personnel and plant equipment capable of fabricating sound control doors, frames and window assemblies of the types specified.
- .2 Quality Criteria: Compliance with testing and performance requirements is required for all products provided under this Section.
- .3 Perform Work to requirements of CSDMA (Canadian Steel Door Manufacturers Association), HMMA (Hollow Metal Manufacturers Association) standards.
- .4 Pre-installation Meeting:
  - .1 Convene a pre-installation meeting 3 weeks before installation of certified acoustic door and frame assemblies. Require attendance from relevant subcontractors, consultants, and manufacturer's representative.
  - .2 Review installation procedures and coordination with other work.
  - .3 Review requirements of field quality control to ensure qualified manufacturer's representative is available during installation and for inspection and testing upon completion of work of this Section.

## **1.6 DELIVERY, STORAGE AND PROTECTION**

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Comply with HMMA 840, and manufacturer's written instructions.
- .3 Weld minimum two temporary jamb spreaders per frame prior to shipment.
- .4 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage. Leave doors covered for protection until hung. Store in vertical position, spaced with blocking to permit air circulation between components.

- .5 Store materials out of water and covered to protect from damage.
- .6 Clean and touch up scratches or disfigurement to wood and metal surfaces.

### **1.7 EXTENDED WARRANTY**

- .1 For the work of this Section 08 34 73, the 12-month warranty period is extended to 60 months.
- .2 Provide manufacturer's warranty commencing on date of Substantial Performance against defects in materials and workmanship.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Sheet Steel: commercial quality steel sheet, free of scale, pitting or surface defects, conforming to ASTM A653/A653M CS Type B, Coating Designation A25 (ZF75) for zinc-coated steel, nominal thickness 1.5 mm or thicker as required to provide STC rating indicated.
- .2 Reinforcement: Same material as face sheet steel.
- .3 Insulation inside door frames: Mineral-Fiber Insulation, composed of rock-wool fibers, slag-wool fibers, or glass fibers.
- .4 Door Cores: Manufacturer's internal construction of doors as required to meet indicated STC rating.
- .5 Glass: Type and thickness as required by sound control door assembly manufacturer to comply with sound control requirements.
- .6 Wood door panels: flush design, FSC Certified, Urea-formaldehyde free, with specifically designed acoustic (sound-retardant) core, to provide STC rating indicated, and PLAM facing.
  - .1 Materials: Comply with Section 08 14 16 Flush Wood Doors for grade, faces, fabrication, finishing, and other requirements unless otherwise indicated or required to meet acoustic performance requirements.
- .7 Hardware
  - .1 Sound Control Door Hardware: Manufacturer's standard sound control system, including acoustic seals, head and jamb seals, automatic door bottoms, and smooth unfluted thresholds, tested as part of the ASTM E90 assembly to meet the specified STC rating.
  - .2 Other Hardware: Comply with requirements in Section 08 71 10 - Door Hardware.

**2.2 FABRICATION**

- .1 Contractor responsible for coordination and installation of products covered under this Section shall:
  - .1 Verify and provide to the manufacturer, actual opening sizes and site conditions by field measurements before fabrication. Coordinate field measurements with fabrication and construction schedules to avoid delays.
  - .2 Verify that substrate conditions are as detailed in the architectural drawings and are acceptable for product installation in accordance with the manufacturer's instructions.
- .2 Do not proceed with fabrication without receipt of finalized hardware schedule and reviewed submittals. Fabricate in strict accordance with the reviewed submittals.
- .3 Manufacture complete certified assemblies with door, frame, and other material required of the manufacturer to obtain indicated STC ratings measured in accordance with ASTM E90.
- .4 Sound Control Hollow Metal Doors:
  - .1 Fabricate doors of flush design, of seamless edge construction, with manufacturer's standard sound-retardant core as required to provide STC rating indicated.
  - .2 Fabricate doors with faces joined at vertical edges by welding; welds shall be ground, filled, and dressed to make them invisible and to provide a smooth, flush surface.
  - .3 Fabricate according to HMMA 865.
  - .4 Prior to shipment mark each door with an identification number as shown on the reviewed submittal drawings.
  - .5 Top and Bottom Channels: Inverted, recessed, welded steel channels.
- .5 Glazed Lites: Factory install glazed lites according to requirements of tested assembly to achieve STC rating indicated. Provide steel fixed stops and moldings welded on secure side.
- .6 Sound Control Steel Frames:
  - .1 Fabricate sound control door frames with corners mitered, reinforced, and continuously welded the full depth and width of frame.
  - .2 The use of gussets or splice plates as a substitute for welding is not permitted.
  - .3 Fabricate all finished work neat in appearance, square, and free of defects, warps or buckles, with pressed steel members straight and of uniform profile through their lengths.
  - .4 Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated from same thickness metal as frames, in accordance with reviewed shop drawings. Weld joints, grind smooth and prime paint.
  - .5 Fabricate according to HMMA 865.
  - .6 Anchors: Provide number and spacing of anchors as indicated in HMMA 865.
  - .7 Factory assemble and fully weld frames according to HMMA 820.



- .7 Sound Control Wood Door:
  - .1 Factory fit doors to suit frame-opening sizes indicated, with uniform clearances and bevels according to WDMA I.S.1-A unless otherwise indicated. Comply with final door hardware schedules and hardware templates.
- .8 Hardware Reinforcements and Preparations
  - .1 Coordinate measurements of hardware mortises in steel frames to verify dimensions and alignment before factory machining.
  - .2 Factory prepare sound control doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping.
  - .3 Reinforce doors and frames to receive nontemplated mortised and surface-mounted door hardware.
  - .4 Weld all edge mounted hardware reinforcements to door.
  - .5 Where electronic hardware is indicated on the approved hardware schedule, provide wire access from hinge edge to device in accordance with the templates provided.
- .9 Affix permanent nameplates to door and frame, indicating manufacturer's name, and STC rating.
- .10 Sill Condition:
  - .1 The floor area under a sound control door must be flat, level, and smooth.
  - .2 Where required for assembly compliance, furnish a smooth, flush unfluted threshold for the door bottom to seal against when the door is in the closed position.
- .11 Operational Clearances
  - .1 Critical clearances between doors and frames, and between doors and thresholds and floors required for optimum assembly performance are to be specifically noted in the submittal documents and manufacturer's installation instructions and recommendations.
  - .2 Where fire-rated and smoke control doors are specified, clearances must comply with NFPA 80 and/or NFPA 105

## **2.3 FINISHES**

- .1 Hollow Metal Doors, and Frames:
  - .1 After fabrication, fill and sand all tool marks and surface imperfections as required to make face sheets, vertical edges and weld joints free from irregularities and dressed smooth.
  - .2 After appropriate metal preparation, factory apply primer on exposed surfaces of doors and frames.
  - .3 Primer Type: advanced acrylic emulsion, waterborne, corrosion resistant coating, single-component, VOC less than 50 g/l, Direct to Metal (DTM) Acrylic Primer-Finish, 1 coat, thickness 3 mils D.F.T.
  - .4 Primer must be uniform in appearance, and be fully cured prior to shipment, to result in a smooth and hard surface.

.5 Finish Coat: field applied topcoat, specified in Section 09 91 23 – Interior Painting.

.2 Wood Doors:

.1 PLAM finish: Refer to Section 01 61 10, List of Materials.

### **Part 3 Execution**

#### **3.1 PREPARATION**

.1 Prior to installation:

.1 check the area of floor on which the frame product is to be installed and within the path of the door swing, for flatness and correct as necessary.

.2 remove temporary spreaders. Check each door and frame product for correct size, swing, acoustic and fire rating and opening number.

#### **3.2 INSTALLATION**

.1 Install components to manufacturer's written instructions.

.2 Coordinate with masonry, gypsum board, and concrete wall construction for anchor placement.

.3 Set frames plumb, square, level at correct elevation, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

.4 Allow for deflection to ensure that structural loads are not transmitted to frame.

.5 Perform welding work in accordance with CSA W59. Utilize welders certified by Canadian Welding Bureau (CWB) for field welding.

.6 Fit sound control doors accurately in frames.

.7 Install hardware in accordance with hardware manufacturer's templates and instructions.

.8 Install factory supplied glazing to frames.

.9 Adjust operable parts for correct clearances and function.

.10 Install and adjust perimeter and bottom acoustic seals.

.11 Touch ups: Exposed metal surfaces which have been scratched or otherwise marred during installation, cleaning, or field welding, shall promptly be finished smooth, cleaned, treated for maximum paint adhesion and touched up with a rust inhibitive primer, formulated for Direct to Metal (DTM) application, comparable to and compatible with the factory applied primer.

.12 Finish paint in accordance with Section 09 91 23 – Interior Painting.

**3.3 ERECTION TOLERANCES**

- .1 Maximum deviation from square, alignment, twist and plumb: +/- 0.75 mm in compliance with HMMA standards.

**3.4 FIELD QUALITY CONTROL**

- .1 Contractor to engage qualified manufacturer's representative to:
  - .1 Instruct installers on the proper installation of door assemblies.
  - .2 Inspect completed installation of door and frame assemblies.
  - .3 Verify each component is correctly installed.
  - .4 Test all components through a minimum of ten complete cycles of operation.
  - .5 Direct installer in adjusting components for correct operation of door assemblies.
  - .6 Issue certified statement of compliance of installed door and frame assemblies to Departmental Representative.

**3.5 ADJUSTMENT**

- .1 Adjust doors to swing freely, smoothly and easily, to remain stationary at any point, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force
- .2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by Supplier's instructions.

**3.6 CLEANING**

- .1 Progress cleaning: Clean in accordance with Section 01 74 00 – Cleaning
- .2 Leave Work area clean at end of each day.
- .3 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt. Remove traces of primer, caulking; clean doors and frames.
- .4 Waste Management: in accordance with Section 01 74 19 - Waste Management and Disposal.
- .5 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**

# REVISIONS TO DOOR HARDWARE

## 08 71 10



PROJECT:

Daniel J MacDonald Modernization  
Charlottetown, P.E.I.

ARCHITECT:

# NORR

175 Bloor Street East, North Tower, 15<sup>th</sup> Floor  
Toronto, Ontario, Canada

Prepared By: Paul Kasak  
& Crystal Bradley  
Date: September 21, 2021  
Revised: September 24, 2021 - Client Changes  
January 25, 2022  
February 18, 2022  
May 27, 2022 IFT  
**August 18, 2022 Addendum 08**



Heading# 50

Opening Information					
Opening Type:	Single	Opening Size:	965 x 2150 x 44	STC Rating	None
Door Material:	HMD-BR3	Frame Material:	HMF-BR3	Fire Rating	None

1 Total Openings								
1	Door#	1-80A	Location:	Atrium 1-96	To	Security Operations Centre	Handing:	LH

Web Link  
Site Verified

By Hardware Supplier						
3	Concealed Bearing Hinge	TA786 127 x 114 x NRP	652 / US26D / Satin Chrome	McKinney		<input type="checkbox"/>
1	Storeroom Lockset	60-8204-LNP	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
1	Electric Strike	1500C	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
1	Closer	1431-OT	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
1	Floor Stop	441H	626 / US26D / Satin Chrome	Rockwood		<input type="checkbox"/>
1	Kick Plate	K1050, 254 x 927 x SA	630 / US32D / Satin Stainless Steel	Rockwood		<input type="checkbox"/>
1	Sound / Smoke Seal	S773 x 5265	Black	Pemko		<input type="checkbox"/>

By Security Supplier						
1	Card Reader	To Suit Building System	Black			<input type="checkbox"/>
1	Rex Sensor	XMS	White	Securitron		<input type="checkbox"/>
1	Door Contact	DPS-M	White	Securitron		<input type="checkbox"/>
1	Access Controller	To Suit Building System				<input type="checkbox"/>
1	Power Supply	To Suit Building System – Located in Nearest IT Closet				<input type="checkbox"/>

By PWGSC						
1	Permanent Core	To Suit Building System	626 / US26D / Satin Chrome	Sargent		<input type="checkbox"/>

-----End of Heading-----



Heading# 51

Opening Information					
Opening Type:	Single	Opening Size:	965 x 2150 x 44	STC Rating	None
Door Material:	HMD-BR3	Frame Material:	HMF-BR3	Fire Rating	None

1 Total Openings								
1	Door#	1-80B	Location:	Corridor 1-87	To	Security Operations Centre	Handing:	RH

Web Link  
Site Verified

By Hardware Supplier					
3	Concealed Bearing Hinge	TA786 127 x 114 x NRP	652 / US26D / Satin Chrome	McKinney	<input type="checkbox"/>
1	Storeroom Lockset	60-8204-LNP	630 / US32D / Satin Stainless Steel	Sargent	<input type="checkbox"/>
1	Electric Strike	1500C	630 / US32D / Satin Stainless Steel	HES	<input type="checkbox"/>
1	Overhead Stop	6ADJ-336	630 / US32D / Satin Stainless Steel	Rixson	<input type="checkbox"/>
1	Closer	1431-O	689 / US28 / Painted Aluminum	Sargent	<input type="checkbox"/>
1	Kick Plate	K1050, 254 x 927 x SA	630 / US32D / Satin Stainless Steel	Rockwood	<input type="checkbox"/>
1	Sound / Smoke Seal	S773 x 5265	Black	Pemko	<input type="checkbox"/>
1	Auto Door Bottom	420APKL x 965	719 Milled Aluminum	Pemko	<input type="checkbox"/>
By Security Supplier					
1	Card Reader	To Suit Building System	Black		<input type="checkbox"/>
1	Rex Sensor	XMS	White	Securitron	<input type="checkbox"/>
1	Door Contact	DPS-M	White	Securitron	<input type="checkbox"/>
1	Access Controller	To Suit Building System			<input type="checkbox"/>
1	Power Supply	To Suit Building System – Located in Nearest IT Closet			<input type="checkbox"/>
By PWGSC					
1	Permanent Core	To Suit Building System	626 / US26D / Satin Chrome	Sargent	<input type="checkbox"/>

.....End of Heading.....



Heading# 63

Opening Information					
Opening Type:	Single	Opening Size:	965 x 2150 x 44	STC Rating	52
Door Material:	HMD-BR3	Frame Material:	HMF-BR3	Fire Rating	None

1 Total Openings								
1	Door#	1-98B	Location:	Fingerprint Photo ID	From	Corridor 1-81	Handing:	LHR

Web Link  
Site Verified

By Hardware Supplier						
3	Heavy Weight Concealed Bearing Hinge	TA786, 127 x 114 x NRP	652 / US26D / Satin Chrome	McKinney		<input type="checkbox"/>
1	Power Transfer	CDL	628 / US28 / Clear Anodized	Command Access		<input type="checkbox"/>
1	Electrified Storeroom Lockset	60-8271-LNP	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
1	Closer	351-CPS	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
1	STC Seals	By STC Door Manufacturer				<input type="checkbox"/>
By Security Supplier						
1	Card Reader	To Suit Building System	Black			<input type="checkbox"/>
1	Rex Sensor	XMS	White	Securitron		<input type="checkbox"/>
1	Door Contact	DPS-M	White	Securitron		<input type="checkbox"/>
1	Access Controller	To Suit Building System				<input type="checkbox"/>
1	Power Supply	To Suit Building System – Located in Nearest IT Closet				<input type="checkbox"/>
By PWGSC						
1	Permanent Core	To Suit Building System	626 / US26D / Satin Chrome	Sargent		<input type="checkbox"/>

Notes:

- Security Interlock with Door #1-98A.
- Door #1-98B cannot be electronically unlocked from the secure side until / unless door #1-98A is in the closed / locked position.
- Door #1-98A cannot be electronically unlocked from the secure side until / unless door #1-98B is in the closed / locked position.

.....End of Heading.....

**Part 1 General****1.1 RELEATED REQUIREMENTS**

- .1 Section 07 21 16 - Blanket Insulation.
- .2 Section 07 92 00 - Joint Sealants.
- .3 Section 09 22 16 - Non-structural Metal Framing.
- .4 Section 23 05 00 – Common Work Results for HVAC, for access doors and panels.

**1.2 REFERENCE STANDARDS**

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C475/C475M-17, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .2 ASTM C514-04(2020), Standard Specification for Nails for the Application of Gypsum Board.
  - .3 ASTM C557-03(2017), Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
  - .4 ASTM C834-17, Standard Specification for Latex Sealants
  - .5 ASTM C840-20, Standard Specification for Application and Finishing of Gypsum Board.
  - .6 ASTM C954-18, Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
  - .7 ASTM C1002-20, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
  - .8 ASTM C1047-19, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
  - .9 ASTM C1177/C1177M-17, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
  - .10 ASTM C1178/C1178M-18, Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.
  - .11 ASTM C1280-18, Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing.
  - .12 ASTM C1325-21, Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units.
  - .13 ASTM C1396/C1396M-17, Standard Specification for Gypsum board.
  - .14 ASTM D3273-21, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
  - .15 ASTM E695-03(2015)e1, Standard Test Method of Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading.
  - .16 ASTM F1267-18, Standard Specification for Metal, Expanded, Steel.**



- .2 American National Standards Institute (ANSI):
  - .1 ANSI A108/A118/A136.1:2020, Installation of Ceramic Tile
- .3 Association of the Wall and Ceilings Industries International (AWCI)
  - .1 AWCI Levels of Gypsum Board Finish-GA-214-2015.
- .4 GB Initiative Canada
  - .1 GREEN GLOBES Canada Design for New Construction and Major Retrofits v.2, <http://www.greenglobes.com>
- .5 Health Canada / Workplace Hazardous Materials Information System 2015 (WHMIS)
  - .1 Safety Data Sheets (SDS).
- .6 IEEE Electromagnetic Compatibility Society
  - .1 ANSI / IEEE 299-2006(2000), Standard Method for Measuring the Effectiveness of Electromagnetic Shielding Enclosures.
- .7 National Research Council Canada (NRC)
  - .1 National Building Code of Canada 2015, with Revisions and Errata 2018.
- .8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards.
  - .1 SCAQMD Rule 1168 – 2017, Adhesive and Sealant Applications.
- .9 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S101-14, Standard Methods of Fire Endurance Tests of Building Construction and Materials.
  - .2 CAN/ULC-S102-18, Standard Method of Test of Surface Burning Characteristics of Building Materials and Assemblies.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for gypsum board assemblies and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Include material descriptions, dimensions of individual components and profiles, and finishes for acoustical closure trim cap system.
- .3 Shop Drawings:
  - .1 Submit gypsum board assembly drawings. Indicate components such as fastener type, dimensions, spacing and locations at gypsum board edges, ends and in field of board as well as installation methods. Components and work to confirm to ASTM C840 standard specification for application and finishing of gypsum board.
  - .2 Indicate type of joint compound, and number of joint compound layers.
  - .3 Indicate Level of Finish of gypsum board walls and ceilings.

- .4 Include construction details, dimensioned cross-sections at the location where drywall partition terminates at the perimeter curtain wall, indicating dimensions and finish, and the acoustical closure trim caps.
- .5 Indicate number and location of electrical boxes for wall and ceiling.
- .6 Indicate number, location and sizes of access doors and panels for walls and ceilings.
- .4 Engineered Shop drawings:
  - .1 Submit engineered shop drawings and associated design calculations bearing the stamp and signature of the qualified professional engineer, registered or licensed to practice in the Province of Prince Edward Island.
  - .2 Engineered submittals shall include associated design calculations and load diagrams, complete with references to codes and standards used in such calculations, supporting the proposed design represented by the submittal. Prepare calculations in a clear and comprehensive manner so that they can be properly reviewed.
  - .3 Submit Engineered Shop drawings including but not limited to the following elements:
    - .1 Walls acting as guards.
- .5 Samples:
  - .1 Submit for review and acceptance of each component specified or necessary for complete installation. Include technical descriptive data.
  - .2 Submit duplicate full width samples in 300 mm long length for each trim accessory.
  - .3 Submit duplicate closure trim cap: for each exposed product and for each colour and texture required: 150 mm sound barrier mullion trim cap sample and 50 mm x 90 mm custom colour paint sample. Certifications:
  - .4 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

#### **1.4 SUSTAINABLE DESIGN SUBMITTALS**

- .1 Adhere to the requirements of the Construction Waste Management plan as per Section 01 74 19 Construction Waste Management and Disposal.
- .2 Provide the following documentation in accordance with Section 01 47 15 Sustainable Requirements: Construction:
  - .1 Environmental Product Declarations (EPDs): where available for products in this section provide compliant EPDs as per Section 01 47 15 Sustainable Requirements: Construction.
    - .1 Provide cost of materials excluding on-site labour and equipment.
- .3 Low-Emitting Materials - Interior site -applied Adhesives and Sealants:
  - .1 Submit product data/MSDS sheets for VOC emitting materials that clearly identifies the VOC content for compliance with Green Globes.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address and applicable standard designation.
- .3 Exercise care in unloading gypsum board materials shipment to prevent damage.
- .4 Storage and Handling Requirements in accordance with ASTM C840:
  - .1 Store gypsum board assemblies' materials level flat indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.
  - .3 Protect ready mix joint compounds from freezing, exposure to extreme heat and direct sunlight.
  - .4 Protect from weather, elements and damage from construction operations.
  - .5 Handle gypsum boards to prevent damage to edges, ends or surfaces.
  - .6 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.
  - .7 Replace defective or damaged materials with new.
- .5 Develop Construction Waste Management Plan to Work of this Section.

**1.6 AMBIENT CONDITIONS**

- .1 Maintain temperature 10 °C minimum, 21 °C maximum for 48 hours prior to and during application of gypsum boards and joint treatment, and for 48 hours minimum after completion of joint treatment.
- .2 Apply board and joint treatment to dry, clean, frost free surfaces.
- .3 Ventilation: ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

**Part 2 Products****2.1 PERFORMANCE/DESIGN CRITERIA**

- .1 Single source responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.
- .2 Fire resistance rating: Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.
- .3 Follow applicable requirements of ASTM C754 for installation of steel framing.
- .4 Design system members to withstand own dead load, super-imposed dead loads, to maximum allowable deflection of L/240, without permanent deformation.

- .5 Loads on walls acting as guards: Where the floor elevation on one side of a wall is more than 600 mm higher than the elevation of the floor or ground on the other side, the wall shall be designed to resist the lateral design loads prescribed in the building code or 0.5 kPa, whichever produces the greatest effect.
- .6 For walls acting as guards provide engineered shop drawings, load diagrams, and design calculations signed and stamped by a professional engineer licensed in the Province of PEI.
- .7 Upon completion of the parts of the Work covered by the engineered submittal, the professional engineer responsible for the preparation of the engineered submittal, shall prepare and submit to the Departmental Representative and authorities having jurisdiction, as required, a letter of conformance for those parts of the Work, certifying that they have been provided in accordance with the requirements of the Contract.
- .8 Sheet metal thicknesses indicated herein pertains to the “minimum base steel thickness exclusive of coating”.

## 2.2 MATERIALS

- .1 Standard board: to ASTM C1396/C1396M–14 regular, and Type X, 1200 mm wide x maximum practical length, ends square cut, edges bevelled.
- .2 Tile Backboards:
  - .1 Cementitious Backer Units/**Cement Board**: alkali resistant glass fiber-mat reinforced board, free of asbestos, gypsum, organic fibres or cellulose, thicknesses as indicated.
    - .1 Conform to the following standards: ANSI A108/A118/A136.1 and ASTM C1325.
    - .2 Mould-resistance rating of 10 in accordance with ASTM D3273, ends square cut, square edges, in maximum lengths available to minimize end-to-end butt joints, complete with self-adhering alkali-resistant fiberglass mesh tape and fasteners.
  - .2 Coated Glass Mat Tile Backing Board: Conforming to ASTM C1178/C1178M, Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel
    - .1 Mould-resistance rating of 10 in accordance with ASTM D3273, ends square cut, square edges, in maximum lengths available to minimize end-to-end butt joints, glass mat on both sides, face side treated with heat-cured copolymer water and vapour resistant coating, thicknesses as indicated, complete with self-adhering alkali-resistant fiberglass mesh tape and fasteners.
    - .3 Fasteners: Corrosion resistant, specifically designed for attaching various types of backboards, self-drilling thread design for metal stud, length to suit the board thickness. Roofing nails are not permitted.
- .3 Water-resistant board: to ASTM C1396/C1396M regular and Type X, maximum practical length.
- .4 Exterior gypsum soffit board: to ASTM C1396/C1396M, 1200 mm wide x maximum practical length.

- .5 Glass mat gypsum substrate sheathing: to ASTM C1177/C1177M, 1200 mm wide x maximum practical length.
- .6 Metal furring runners, hangers, tie wires, inserts, and anchors: to manufacturer's standard.
- .7 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .8 Resilient clips: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .9 Nails: to ASTM C514.
- .10 Steel drill screws: to ASTM C1002 or to ASTM C954.
- .11 Stud adhesive: to ASTM C557.
- .12 Laminating compound: as recommended by manufacturer, asbestos-free.
- .13 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, Zinc metal, zinc-coated by hot-dip process zinc-coated by electrolytic process aluminum coated phosphatized, 0.5 mm base thickness, perforated flanges, one piece length per location.
- .14 Shadow mould: 35 mm high, snap-on trim, of 0.6 mm base steel thickness galvanized sheet pre-finished in satin enamel, white colour.
- .15 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
  - .1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.
- .16 Acoustical insulation: to CAN/ULC-S702, in accordance with Section 07 21 16, Blanket Insulation.
- .17 Acoustic sealant: nonsag, paintable, nonstaining latex sealant complying with ASTM C834, tested to reduce airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- .18 Backer rod: Polyethylene foam rod or other compatible non-waxing, non-extruding, non-staining resilient material in dimension 25 percent to 50 percent wider than joint width as recommended by sealant manufacturer for conditions and exposures indicated.
- .19 Acoustic putty pads: asbestos free gypsum based synthetic rubber moldable putty pad, 177.8 mm x 177.8 mm x 3 mm, non-conductive, of 1.6 kg/l density, having an STC59 rating in accordance with ASTM E90, with flame spread of 15 and smoke development of 10, tested to UL 263 or equivalent, red colour, for covering electrical boxes in acoustic partitions.
- .20 Insulating strip: rubberized, moisture resistant, 3 mm thick cork closed cell neoprene strip, 12 mm wide, with self-sticking permanent adhesive on one face, lengths as required.
- .21 Joint compound: to ASTM C475, asbestos-free.

- .22 Adjustable partition closure: for vertical junctions between partitions and the curtain wall, aluminum of extruded alloy 6063 T5, wall-to-mullion and wall-to-glass acoustical closures, providing sound-transmission control, pre-finished.
- .1 Acoustical closure trim cap where interior metal stud and drywall partitions abut aluminum curtainwall mullions or glass in locations indicated, complete with fasteners and snap-on fastener cover.
  - .2 Fire-rated where required, with STC Sound Rating where partition is STC rated and where required.
  - .3 Profile: to allow solid attachment and fastening to the partition wall framing, type as selected by Departmental Representative.
  - .4 Mullion trim cap to be sized to accommodate thermal movement from ambient and surface temperature changes.
  - .5 Fasteners: self-tapping or other appropriate threaded fasteners, compatible with all materials fasteners will contact with and not causing galvanic corrosion.
  - .6 Double-sided installation.
  - .7 Acoustical Sound Sealant: Acrylic latex based.
  - .8 Custom lengths as required to meet project requirements.
  - .9 Furnish units in sufficient additional length to allow for field trimming to required length to match variations in construction tolerances of adjacent systems.
  - .10 Pre-finished to match mullions, acrylic-polyester hybrid powder coat finish, in custom colour. Confirm finish colour with Departmental representative.
- .23 Access doors and panels: specified in Section 23 05 00, Common Work Results for HVAC.
- .24 Security Metal Mesh: ASTM F1267, Type II (flattened) expanded metal panel, style 3/4-#9F; 3.8 mm carbon steel expanded metal flattened to 3.4 mm weighing 8.3 kg/m<sup>2</sup> minimum, with 19 mm nominal openings and with bond shearing at edges.**
- .25 Security Clips: carbon steel mill finish, 38 mm wide diamond shape clips with recessed center hole.**

## 2.3 RADIO FREQUENCY SHIELDING MATERIALS

- .1 Radio-Frequency Shielding (RF) assemblies to have the following performance characteristic:
- .1 RF Shielding Effectiveness: Average field magnitude of RF ranges tested in accordance with IEEE-299:
    - .1 30 dB at 20 to 200 MHz.
    - .2 40 dB at 200 MHz to 1 GHz.
    - .3 40 dB at 2 to 10 GHz.
  - .2 STC Rated Assemblies: STC52-74 per ASTM E90.
  - .3 Shear-rated: average 487 lbs/ft per ASTM E2126.
  - .4 Impact Rated, tested in accordance with ASTM E695.

- .2 Radio Frequency Shielding Gypsum Board (RF Board): to ASTM C1396/C1396M, high performance multilayer products constructed of two layers of gypsum board sandwiching a viscoelastic sound-absorbing polymer core with radio frequency shielding, for radio frequency transmission mitigation:
  - .1 Board width 1220 mm x 1200 mm wide x maximum practical length.
  - .2 Core: 15.9 mm, Type X; long edges tapered.
- .3 Required RF Components:
  - .1 RF conductive sealing and bedding compound to maintain metal to metal and grounded connectivity on field-modified RF Board.
  - .2 RF Shielding Tape, electrically conductive tape to maintain metal to metal connectivity at the joints and when RF Boards are cut to size in the field.
  - .3 Fasteners: black phosphate fine thread drywall screws. No nails permitted.
  - .4 Specialty Sealant: high performing, water-based, non-hardening acoustical sealant to maintain optimum performance of the assembly, meeting NFPA Class A Fire-Rating
    - .1 Colour: Light Blue
    - .2 Volume shrinkage: 20%
    - .3 VOC: < 0.1 g/l
  - .5 Specialty Putty: Class-A fire-resistant, moldable, acoustical putty, asbestos free, non-corrosive to metal and plastics, for sealing electrical outlet, phone outlet boxes, electrical switches, plumbing hook-ups, and internet connection boxes:
    - .1 Thickness: 5 mm
    - .2 Colour: Red

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged. Remove from site and replace them at no additional cost to Departmental Representative.
  - .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 mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.
- .2 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for gypsum board assemblies installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.2 ERECTION**

- .1 Do application and finishing of gypsum board to ASTM C840 except where specified otherwise.
- .2 Do application of gypsum sheathing to ASTM C1280.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings to ASTM C840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
- .7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .10 Install wall furring for gypsum board wall finishes to ASTM C840, except where specified otherwise.
- .11 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .13 Erect drywall resilient furring transversely across studs, between layers of gypsum board, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 38 mm common nail 25 mm drywall screw.
- .14 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

### **3.3 APPLICATION**

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work have been reviewed by Departmental Representative.
- .2 In double layer application, do not apply second layer until base layer has been reviewed by Departmental Representative. First side gypsum board and insulation and sealant to be reviewed before second side first layer is applied.
- .3 Apply single or double layer gypsum board to metal furring or framing using screw fasteners for first layer, screw fasteners for second layer unless otherwise indicated or required by fire resistance rated assembly. Each layer of gypsum board shall have no gap over 9 mm where abutting a fixed building component. Provide backer rod for any gap larger than 5 mm.



- .1 Single-Layer Application:
  - .1 Apply gypsum board on ceilings prior to application of walls to ASTM C840.
  - .2 Apply gypsum board on walls vertically or horizontally, providing sheet lengths that will minimize number of board edges or end joints.
- .2 Double-Layer Application:
  - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
  - .2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.
  - .3 Apply base layers at right angles to supports unless otherwise indicated.
  - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .4 Apply single and double layer gypsum board to concrete or concrete block surfaces, where indicated, using laminating adhesive.
  - .1 Comply with gypsum board manufacturer's recommendations.
  - .2 Brace or fasten gypsum board until fastening adhesive has set.
  - .3 Mechanically fasten gypsum board at top and bottom of each sheet.
- .5 Exterior Soffits and Ceilings: install exterior gypsum board perpendicular to supports; stagger end joints over supports. Install with 6 mm gap where boards abut other work.
- .6 Install tile backboards where wall tiles to be applied **and where shown on drawings, under Partition Types.**
- .7 Install water-resistant gypsum board adjacent to slop sinks and janitor's closets, where paint finish is to be applied. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads.
- .8 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.
- .9 Apply board using stud adhesive on furring or framing laminating adhesive on base layer of gypsum board.
- .10 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .11 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .12 Install gypsum board with face side out.
- .13 Do not install damaged or damp boards.
- .14 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

- .15 Partition framing with gypsum panels in concealed spaces.
- .1 Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 0.7 sq.m. in area.
  - .2 Fit gypsum panels around ducts, pipes, and conduits.
  - .3 Where partitions intersect open joists and other structural members projecting below underside of slabs and decks, cut gypsum panels to fit profile formed by joists and other structural members; allow 6 mm to 10 mm wide joints to install sealant.
- .16 Acoustic putty pads: Apply acoustic putty pads to the exterior of electrical boxes in acoustic partitions, completely sealing pads against the stud within the stud cavity and fitting around conduit and cables, in accordance with manufacturer's recommendations.
- .17 Radio Frequency (RF) Shielding Assemblies installation:
- .1 Install RF materials on the interiors of Room 1-49, walls and ceiling.
  - .2 Comply with manufacturer's product data, including product technical bulletins, and follow manufacturer's written installation instructions. Make sure to properly treat the corners and along perimeters of the floor and ceiling.
  - .3 Request RF Board installation inspection by the Departmental Representative. Do not cover until inspection is complete.
  - .4 Finish the walls and ceiling smooth and ready for painting.
- .18 Security Mesh:**
- .1 Install security mesh panels where indicated on the drawings. Make sure security mesh panels join, begin and terminate on metal stud.**
  - .2 Attach security mesh panels to each stud using security clips and flat head bugle type self-tapping fine thread screws with minimum through penetration of 9.5 mm at maximum 200 mm o.c. and within 50 mm of mesh edge or secure mesh with 3 mm x 13 mm long fillet welds at maximum 200 mm o.c. and within 50 mm of mesh edge.**
  - .3 Where electrical service boxes are installed within these security partitions, install additional security mesh on the side opposite and directly behind the electrical service boxes. Provide the additional mesh in sizes to further enhance the security level of the partition but not less than 400 mm x 400mm.**

### 3.4 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre using contact adhesive for full length.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.
- .6 Control Joints
  - .1 Prior to installation review exact locations of control joints with the Departmental Representative.
  - .2 Construct control joints in gypsum board facing and supported independently on both sides of joint.
  - .3 Provide continuous polyethylene dust barrier behind and across control joints.
  - .4 Install control joints full height floor to ceiling or door header to ceiling in partitions and furring runs.
  - .5 Install control joints from wall to wall in ceiling areas.
  - .6 Install control joints straight and true.
  - .7 Install purpose made control joint metal trim at following locations:
    - .1 Where partition, wall, or ceiling traverses a construction joint (expansion, seismic, or building control element) in the base building structure.
    - .2 Furring or partition abuts a structural element or dissimilar wall or ceiling.
    - .3 Ceiling abuts a structural element, column or dissimilar wall, partition, or other vertical penetration.
    - .4 Construction changes within a partition or ceiling.
    - .5 Partition or furring runs exceeding 9100 mm and total area between control joints exceeding 84 m<sup>2</sup>.
    - .6 Partition and ceiling runs on column lines or at joints in ceiling runs.
    - .7 In interior ceilings without perimeter relief exceeding 9100 mm in either direction and total area between control joints exceeding 84 m<sup>2</sup>.]
    - .8 In interior ceilings with perimeter relief exceeding 15000 mm and total area between control joints exceeding 230 m<sup>2</sup>.
    - .9 In exterior ceilings or soffits exceeding 9100 mm in either direction and total area between control joints exceeding 84 m<sup>2</sup>.
- .7 Ensure that screws or nails are properly applied in process of attaching gypsum board to framing without damaging of gypsum board edges and ends.
- .8 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous polyethylene dust barrier.
- .9 Install expansion joint straight and true.
- .10 Install cornice cap where gypsum board partitions do not extend to ceiling.

- .11 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.
- .12 Splice corners and intersections together and secure to each member with 3 screws.
- .13 Install under the work of this section access doors and panels in walls and ceilings where access is required to electrical and mechanical fixtures specified in respective sections.
  - .1 Rigidly secure frames to furring or framing systems.
- .14 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .15 Aluminum adjustable partition closure: install at vertical junctions where interior metal stud and drywall partitions abut curtainwall mullions in locations indicated.
- .16 Gypsum Board Finish: finish gypsum board walls and ceilings to following Levels of Finish in accordance with AWCI Levels of Gypsum Board Finish:
  - .1 Level 1:
    - .1 in plenum areas above ceilings, except provide higher level of finish as required to comply with fire resistance ratings and acoustical ratings;
  - .2 Level 2:
    - .1 surfaces used as a substrate for tile.
    - .2 surfaces permanently hidden or concealed in their final arrangement
  - .3 Level 3:
    - .1 service areas;
    - .2 surfaces receiving medium- or heavy-textured finishes before painting.
  - .4 Level 4:
    - .1 all staff areas - walls, except where Level 5 is specified.
  - .5 Level 5:
    - .1 all areas to receive wall coverings;
    - .2 all areas to receive vinyl graphics and signage;
    - .3 all staff areas – ceilings;
    - .4 all public areas – walls and ceilings;
- .17 Fill joints, casing beads, corner beads, screwholes and depressions on gypsum board surfaces exposed to view to provide smooth seamless surfaces and square neat corners.
- .18 Apply joint compounds and reinforcing tapes in accordance with manufacturer's specifications.
- .19 Fill joints and apply joint compounds by three-coat method. Apply cover coat 175 mm wide, level coat 250 mm wide, and skim coat 300 mm wide.
- .20 Embed reinforcing tape in a cover coat of joint compound. Apply level coat of joint compound when cover coat has dried. Apply skim coat of compound when level coat has dried.
- .21 Feather edges of compounds into surfaces of gypsum boards. After skim coat has dried for at least 24 hours sand to leave smooth for decoration. Do not sand paper face of gypsum board.

- .22 At internal corners: First fill gaps between boards with joint compound. Imbed creased reinforcing tape into a thin coat of joint compound applied 50 mm wide at each side of corner. Apply cover coat. Apply skim coat to one side of joint, and when dry apply skim coat to other side.
- .23 At external corners: Fill to nose of corner bead with joint compound and sand smooth.
- .24 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board, invisible after surface finish is completed.
- .25 Finish gypsum board joints above finished ceiling with tape and first coat of joint compound.
- .26 Where Tile Backboards are used in Public Areas identified to have paint (PT) finish, bring surfaces to Gypsum Board Finish Level 5. Make surfaces smooth, uniform, free of tool marks and ridges, and ready to be painted.**
- ~~.26~~.27 Make sure completed installation is smooth, level or plumb, free from waves, depressions, ridges and other defects, and ready for surface finish.

### 3.5 INSTALLATION - ACOUSTICAL INSULATION

- .1 Install acoustical (Sound attenuation) insulation to partitions indicated. Provide continuous coverage between studs and run continuously from floor to ceiling, or to structure for full height partitions, over door frames and openings and around corners.
- .2 Trim insulation to provide close-fit contact to framing assemblies and fill the partition cavity or acoustic insulation assemblies to thicknesses indicated
- .3 Cut insulation and pack to provide close-fit contact around cut openings in gypsum board, behind outlet boxes around plumbing, heating or structural items passing through the system and at abutting walls, and other obstructions and penetrations through and within acoustic assemblies.
- .4 Extend acoustic partition assemblies to underside of structure. Incorporate approved provision to prevent transmittance of structural deflection to partition assembly.
- .5 Secure acoustical insulation to one interior face of gypsum board with adhesive or mechanical fasteners or by other approved means.
- .6 Where studs are not faced with gypsum board on both sides, mechanically fasten wire mesh to non-faced side of stud to retain insulation.
- .7 Mechanically attach sound attenuation insulation in wall assemblies where cavity of wall assembly is greater than 150 mm.
- .8 Secure insulation in such a manner that it will not sag or settle away from required locations
- .9 For partitions receiving acoustical insulation, provide minimum two continuous beads of acoustical sealant at junctions between top and bottom tracks and the structure.
- .10 Sound flanking paths:
  - .1 Where sound rated partition walls intersect non-rated gypsum board partition walls, extend sound rated construction to completely close sound flanking paths through non-rated construction.

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- .2 Seal joints between face layers at vertical interior angles of intersecting partitions.

### **3.6 INSTALLATION - FIRE RATED ASSEMBLIES**

- .1 Construct fire rated assemblies where indicated, to requirements of authorities having jurisdiction.

### **3.7 INSTALLATION TOLERANCES**

- .2 Installation tolerances for gypsum and tile backer board panels:
  - .1 Do not exceed 3 mm in 3 m variation from plumb, level, and plane in exposed surfaces, except at end joint between gypsum board panels.
  - .2 Do not exceed 10 mm from indicated location.
  - .3 Do not exceed 1.5 mm variation between planes of abutting edges or ends.
  - .4 Surface flatness shall not exceed 1.5 mm within 305 mm straight edge. For non-tapered-edge end joints between boards, measure flatness tolerance with end of straight end at centreline of joint.
- .3 Installation tolerances accessories:
  - .1 Alignment with board panels shall not exceed tolerances specified above.
  - .2 End joints shall be flush aligned to maximum offset of 0.5 mm

### **3.8 CLEANING**

- .1 Progress Cleaning: Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: in accordance with Section 01 74 19 - Waste Management and Disposal.

### **3.9 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by gypsum board assemblies' installation.

**END OF SECTION**

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**Part 1            General**

**1.1                RELATED SECTIONS**

- .1    Section 05 50 00 – Metal Fabrications
- .2    Section 06 05 73 - Wood Treatment.
- .3    Section 06 10 53 - Miscellaneous Rough Carpentry.
- .4    Section 06 20 00 - Finish Carpentry.

**1.2                REFERENCE STANDARDS**

- .1    GB Initiative Canada
  - .1    GREEN GLOBES Canada Design for New Construction and Major Retrofits v.2, <http://www.greenglobes.com>
- .2    Health Canada/Workplace Hazardous Materials Information System 2015 (WHMIS)
  - .1    Safety Data Sheets (SDS).
- .3    Underwriter's Laboratories of Canada (ULC)
  - .1    CAN/ULC S102-2018, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product Data:
  - .1    Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, limitations and colours.
  - .2    Provide two copies of Workplace Hazardous Materials Information System (WHMIS) - Safety Data Sheets (SDS) in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3    Samples:
  - .1    Provide duplicate sample of each type of acoustical unit, size 600mm x 600 mm, including support system.
- .4    Engineered Shop drawings:
  - .1    Submit engineered shop drawings and associated design calculations, bearing the stamp and signature of the registered professional engineer, licensed to practice in the Province of PEI, responsible for the fabrication and installation of Custom Atrium Acoustic Panel (WD-PNL-2).
  - .2    Engineered submittals shall include associated design calculations and load diagrams, complete with references to codes and standards used in such calculations, supporting the proposed design represented by the submittal. Prepare calculations in a clear and comprehensive manner so that they can be properly reviewed.

- .3 Submit shop drawings indicating typical plans, reflected ceiling plans, and sections of the ceiling system as well as details on connections to the building, system layout, spacing, locations, member sizes and thicknesses. Include installation details and special installation requirements, including perimeter conditions requiring special attention. Verify site conditions with dimensions on shop drawings.
  - .4 Show locations of items that are to be coordinated with, or supported by.
  - .5 Load diagrams: Indicate dead and live loads to be carried by the building structure, and method in which vertical building deflections are handled.
  - .6 Design calculations: Provide complete set of design calculations showing all applicable loads.
- .5 Samples: a 300 mm x 450 mm sample for each type of grille panel, showing full range of exposed colour and grain variation to be expected in completed work. Sample shall be labelled to fully identify wood species and selected finish. Sample shall be original production material in finish specified for final use.
  - .6 Provide sustainable design submittals in accordance with Section 01 47 15 Sustainable Requirements: Construction.
  - .7 Installer Instructions: provide manufacturer's installation instructions, including storage, handling, safety and cleaning.

#### **1.4 REGULATORY REQUIREMENTS**

- .1 Surface Burning Characteristics: Class A system to comply with CAN/ULC-S102. Identify products with appropriate markings of qualified testing agency.
  - .1 Flame Spread Index: 25 or less
  - .2 Smoke Developed Index: 50 or less

#### **1.5 CLOSEOUT SUBMITTALS**

- .1 Provide manufacturer's instructions for care, cleaning and maintenance of Acoustical Panels for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

#### **1.6 QUALITY ASSURANCE**

- .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
- .2 Construct one representative mock-up of each type acoustical wall treatment system to indicate method of assembly, installation and fixing.
- .3 Construct mock-up where directed.
- .4 Allow minimum 48 hours for inspection of mock-up by Departmental Representative before proceeding with work.
- .5 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of the finished work.

#### **1.7 ENVIRONMENTAL REQUIREMENTS**

- .1 Commence installation after building enclosed and dust generating activities are completed.



- .2 Permit wet work to dry prior to commencement of installation.

## **1.8 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and unloading:
  - .1 Coordinate sizes, weights, unloading options, and delivery schedule with manufacturer prior to fabrication. Deliver items to Project site in original, unopened packages and store them flat and level in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other mistreatment. Handle Acoustic Panel carefully to avoid chipping edges or damaging units
- .3 Climatization: Before installing, permit Custom Atrium Acoustic Panel to reach room temperature and stabilized moisture content (at least 72 hours).

## **1.9 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordinate layout and installation of materials with other work penetrating through the ceiling, or wall, such as light fixtures and similar components.
- .2 Sequencing: sequence work to ensure installation does not commence until building is enclosed, sufficient heat is provided, dust-generating activities have terminated, ambient temperature and humidity conditions are being maintained at the levels indicated for Project when occupied for its intended use and overhead work is completed, tested and approved.
- .3 Install work of this Section after interior wet work is dry. Heating and cooling systems shall be fully operational and running prior to installation.
  - .1 Maintain uniform temperature of minimum 20 degrees C, and humidity of 35% minimum and 55% maximum prior to, during, and after Custom Atrium Acoustic Panel installation.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Acoustic Wall Panels – Suspended (~~AWP-2~~) (**AWP-4**):
  - .1 100% polyester fiber panels, made-to-order, custom pattern, fire-retardant treated, complete with weighted rod pocket, contains no formaldehyde, 100% VOC free, no chemical irritants, free of harmful substances.
  - .2 Flame Spread: to CAN/ULC S102, Flame Spread rating 25, Smoke Development classification 50 (flame treated).
  - .3 Recycled Content: minimum 50%.
  - .4 Hanging Panel System:
    - .1 Mounting: Ceiling Cable Suspended.
    - .2 Refer to Section 01 61 10, List of Materials, for additional requirements.

- .2 Custom Atrium Acoustic Panel (WD-PNL-2):
  - .1 Solid Wood Grille Panel – Acoustic, with solid wood slats (WD-2) in steel angle frame complete with acoustic board
  - .2 Steel angle frame MET-S4 and flashing and closures MET-A5: as per Section 05 50 00 – Metal Fabrications
  - .3 Solid wood slats (WD-2): as per Section 06 20 00 - Finish Carpentry
  - .4 Fire retardant treatment: as per Section 06 05 73 - Wood Treatment.
  - .5 Acoustic Board (**AWP-3**): Semi-rigid glass fibre sound attenuation board insulation with black glass fibre mat surface.
    - .1 Thickness 25mm
    - .2 Fire Rating to CAN/ULC-S102: Fire Flame Spread <25; Smoke Developed <50
- .3 Refer to Section 01 61 10, List of Materials for additional information and requirements on Product types, thicknesses, sizes, composition and finishes.

### **Part 3 Execution**

#### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Comply with manufacturer's written recommendations and specifications, including product technical bulletins, handling, storage, and datasheets.

#### **3.2 INSTALLATION**

- .1 Follow manufacturer's written installation instructions.
- .2 Refer to drawings for additional requirements.

#### **3.3 INSTALLATION – ACOUSTICAL WALL PANELS**

- .1 Locate and space panels as detailed on plans and on the interior elevation drawings.
- .2 Secure firmly by means of stainless steel cable suspension system in accordance with the manufacturer written instructions.

#### **3.4 INSTALLATION – CUSTOM ATRIUM ACOUSTIC PANELS**

- .1 Install in accordance with reviewed Engineered Shop drawings.
- .2 Do not fasten panels into the brick face of the wall to allow for future reversibility of installation.

#### **3.5 CLEANING AND PROTECTION**

- .1 Cleaning: clean in accordance with Section 01 74 00- Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
- .2 Protect acoustical panel installation against damage from construction activities.

- .3 Remove protection and vacuum prior to Substantial Completion to remove general air-born debris. Use manufacturer recommended methods to clean panels.

**END OF SECTION**

**Part 1 General****1.1 REFERENCE STANDARDS**

- .1 American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
  - .1 ASHRAE Standard 90.1-01, Energy Standard for Buildings Except Low-Rise Residential Buildings (IESNA co-sponsored; ANSI approved; Continuous Maintenance Standard).
- .2 ASTM International (ASTM)
  - .1 ASTM B209/B209M-21a, Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.
  - .2 ASTM C335/C335M-17, Standard Test Method for Steady State Heat Transfer Properties of Pipe Insulation.
  - .3 ASTM C411-19, Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
  - .4 ASTM C449-07(2019), Standard Specification for Mineral Fiber-Hydraulic-Setting Thermal Insulating and Finishing Cement.
  - .5 ASTM C533-17, Standard Specification for Calcium Silicate Block and Block and Pipe Thermal Insulation.
  - .6 ASTM C547-19, Standard Specification for Mineral Fiber Pipe Insulation.
  - .7 ASTM C795-08(2013), Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
  - .8 ASTM C921-10, Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.
- .3 Canadian General Standards Board (CGSB)
  - .1 CGSB 51-GP-52Ma-89, Vapour Barrier, Jacket and Facing Material for Pipe, Duct and Equipment Thermal Insulation.
  - .2 CAN/CGSB-51.53-95, Poly (Vinyl Chloride) Jacketing Sheet, for Insulated Pipes, Vessels and Round Ducts
- .4 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Assessment Act (CEAA), 2012, c.19, s. 52.
  - .2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  - .3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
- .5 Health Canada/Workplace Hazardous Materials Information System 2015 (WHMIS)
  - .1 Safety Data Sheets (SDS).
- .6 Manufacturer's Trade Associations
  - .1 Thermal Insulation Association of Canada (TIAC): National Insulation Standards (Revised 2004).

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- .7 GB Initiative Canada:
  - .1 GREEN GLOBES Canada Design for New Construction and Major Retrofits v.2, <http://www.greenglobes.com>
- .8 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-18, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
  - .2 CAN/ULC-S701-17, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  - .3 CAN/ULC-S702-2014, Standard for Mineral Fibre Thermal Insulation for Buildings
  - .4 CAN/ULC-S702.2-10, Standard for Mineral Fibre Thermal Insulation for Buildings Part 2: Installation

## **1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures. Include product characteristics, performance criteria, and limitations.
    - .1 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Safety Data Sheets (SDS) in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Shop Drawings:
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Samples:
  - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures
  - .2 Submit for approval: complete assembly of each type of insulation system, insulation, coating, and adhesive proposed. Mount sample on 12 mm plywood board. Affix label beneath sample indicating service.
- .5 Quality assurance submittals: submit following in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
  - .2 Instructions: submit manufacturer's installation instructions.
    - .1 Departmental Representative will make available 1 copy of systems supplier's installation instructions.
- .6 Sustainable Design Submittals:
  - .1 Adhere to the requirements of the Construction Waste Management plan as per Section 01 74 19 Construction Waste Management and Disposal.

- .2 Provide the following documentation in accordance with Section 01 47 15 Sustainable Requirements: Construction:
  - .1 Environmental Product Declarations (EPDs): where available for products in this section provide compliant EPDs as per Section 01 47 15 Sustainable Requirements: Construction.
    - .1 Provide cost of materials excluding on-site labour and equipment.
  - .2 Low-emitting materials: Insulation
    - .1 Submit 3rd-party testing documentation for that clearly identifies the TVOC emissions for compliance with Green Globes. (e.g.: SCS Indoor Advantage Gold, Greenguard Gold, or the Collaborative for High Performance Schools (CHPS.)

### **1.3 QUALITY ASSURANCE**

- .1 Qualifications:
- .2 Installer: specialist in performing work of this Section, and have at least 3 years successful experience in this size and type of project, qualified to standards/member of TIAC.
- .3 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Packing, shipping, handling and unloading:
  - .1 Deliver, store and handle in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.
  - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
  - .3 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.
- .2 Storage and Protection:
  - .1 Protect from weather, construction traffic.
  - .2 Protect against damage.
  - .3 Store at temperatures and conditions required by manufacturer.
- .3 Waste Management and Disposal: adhere to the requirements of the Construction Waste Management plan as per Section 01 74 19 Construction Waste Management and Disposal.

~~07 Jul~~ **18 Aug** 2022**Part 2 Products****2.1 SUSTAINABLE REQUIREMENTS**

- .1 Materials and products in accordance with Section 01 47 15 - Sustainable Requirements: Construction.

**2.2 FIRE AND SMOKE RATING**

- .1 In accordance with CAN/ULC-S102
  - .1 Maximum flame spread rating: 25.
  - .2 Maximum smoke developed rating: 50.

**2.3 INSULATION**

- .1 Mineral fibre specified includes glass fibre, rock wool, slag wool.
- .2 Thermal conductivity ("k" factor) not to exceed specified values at 24 degrees C mean temperature when tested in accordance with ASTM C335
- .3 TIAC Code A-1: rigid moulded mineral fibre without factory applied vapour retarder jacket.
  - .1 Mineral fibre: to CAN/ULC-S702, ASTM C547.
  - .2 Maximum "k" factor: to CAN/ULC-S702
- .4 TIAC Code A-3: rigid moulded mineral fibre with factory applied vapour retarder jacket.
  - .1 Mineral fibre: to CAN/ULC-S702, ASTM C547.
  - .2 Jacket: to CGSB 51-GP-52 Ma
  - .3 Maximum "k" factor: to CAN/ULC-S702, ASTM C547.
- .5 TIAC Code C-2: mineral fibre blanket faced with factory applied vapour retarder jacket (as scheduled in PART 3 of this section).
  - .1 Mineral fibre: to CAN/ULC-S702, ASTM C547.
  - .2 Jacket: to CGSB 51-GP-52 Ma
  - .3 Maximum "k" factor: to CAN/ULC-S702, ASTM C547.
- .6 TIAC Code A-6: flexible unicellular tubular elastomer
  - .1 Insulation: with vapour retarder jacket.
  - .2 Jacket: to CGSB 51-GP-52 Ma
  - .3 Maximum "k" factor: as per code requirements
  - .4 Certified by manufacturer: free of potential stress corrosion cracking corrodants.
- .7 TIAC Code A-2: rigid moulded calcium silicate in sections and blocks, and with special shapes to suit project requirements
  - .1 Insulation: to ASTM C533
  - .2 Maximum "k" factor: as per code requirements
  - .3 Design to permit periodic removal and re-installation.

~~07 Jul~~ **18 Aug** 2022**2.4 INSULATION SECUREMENT**

- .1 Tape: self-adhesive, aluminum, plain/ reinforced, 50 mm wide minimum.
- .2 Contact adhesive: quick setting.
- .3 Canvas adhesive: washable.
- .4 Tie wire: 1.5 mm diameter stainless steel.
- .5 Bands: stainless steel, 19mm wide, 0.5 mm thick.

**2.5 CEMENT**

- .1 Thermal insulating and finishing cement:
  - .1 Air drying on mineral wool, to ASTM C449/C449M

**2.6 VAPOUR RETARDER LAP ADHESIVE**

- .1 Water based, fire retardant type, compatible with insulation.

**2.7 INDOOR VAPOUR RETARDER FINISH**

- .1 Vinyl emulsion type acrylic, compatible with insulation.

**2.8 OUTDOOR VAPOUR RETARDER FINISH**

- .1 Vinyl emulsion type acrylic, compatible with insulation.
- .2 Reinforcing fabric: fibrous glass, untreated 305 g/m<sup>2</sup>.

**2.9 JACKETS**

- .1 Polyvinyl Chloride (PVC):
  - .1 One-piece moulded type and sheet to CAN/CGSB-51.53 with pre-formed shapes as required
  - .2 Colours: to match adjacent finish paint by Departmental Representative.
  - .3 Minimum service temperatures: -20 degrees C.
  - .4 Maximum service temperature: 65 degrees C.
  - .5 Moisture vapour transmission: 0.02 perm.
  - .6 Thickness: as per code requirements
  - .7 Fastenings:
    - .1 Use solvent weld adhesive compatible with insulation to seal laps and joints.
    - .2 Tacks.
    - .3 Pressure sensitive vinyl tape of matching colour.
  - .8 Special requirements:
    - .1 Indoor: as per code requirements
    - .2 Outdoor: UV rated material at least 0.5 mm thick.
- .2 ABS Plastic:
  - .1 One-piece moulded type and sheet with pre-formed shapes as required.



- .2 Colours: to match adjacent finish paint by Departmental Representative.
- .3 Minimum service temperatures: -40 degrees C.
- .4 Maximum service temperature: 82 degrees C.
- .5 Moisture vapour transmission: 0.012 perm.
- .6 Thickness: 0.75 mm.
- .7 Fastenings:
  - .1 Solvent weld adhesive compatible with insulation to seal laps and joints.
  - .2 Tacks.
  - .3 Pressure sensitive vinyl tape of matching colour.
- .8 Locations:
  - .1 For outdoor use ONLY.
- .3 Canvas:
  - .1 220 and 120 gm/m<sup>2</sup> cotton, plain weave, treated with dilute fire retardant lagging adhesive to ASTM C921
  - .2 Lagging adhesive: compatible with insulation.
- .4 Aluminum:
  - .1 To ASTM B209
  - .2 Thickness: 0.50 mm sheet.
  - .3 Finish: smooth
  - .4 Joining: longitudinal and circumferential slip joints with 50 mm laps.
  - .5 Fittings: 0.5 mm thick die-shaped fitting covers with factory-attached protective liner.
  - .6 Metal jacket banding and mechanical seals: stainless steel, 19 mm wide, 0.5mm thick at 300 mm spacing.
- .5 Stainless steel:
  - .1 Type: 316.
  - .2 Thickness: 0.25 mm.
  - .3 Finish: smooth
  - .4 Joining: longitudinal and circumferential slip joints with 50 mm laps.
  - .5 Fittings: 0.5 mm thick die-shaped fitting covers with factory-attached protective liner.
  - .6 Metal jacket banding and mechanical seals: stainless steel, 19 mm wide, 0.5mm thick at 300 mm spacing.

**2.10 WEATHERPROOF CAULKING FOR JACKETS INSTALLED OUTDOORS**

- .1 Caulking to: Section 07 92 00 - Joint Sealants.

**2.11 REMOVABLE, PRE-FABRICATED, INSULATION AND ENCLOSURES**

- .1 Design: to permit movement of expansion joint and to permit periodic removal and replacement without damage to adjacent insulation.

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- .2 Insulation, fastenings and finishes: same as system.
- .3 Jacket: aluminum, PVC , high temperature fabric.

### **Part 3 Execution**

#### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

#### **3.2 PRE-INSTALLATION REQUIREMENT**

- .1 Pressure testing of piping systems and adjacent equipment to be complete, witnessed and certified.
- .2 Surfaces clean, dry, free from foreign material.

#### **3.3 INSTALLATION**

- .1 Install in accordance with TIAC National Standards
- .2 Apply materials in accordance with manufacturers instructions and this specification.
- .3 Use two layers with staggered joints when required nominal wall thickness exceeds 75 mm.
- .4 Maintain uninterrupted continuity and integrity of vapour retarder jacket and finishes.
  - .1 Install hangers, supports outside vapour retarder jacket.
- .5 Supports, Hangers:
  - .1 Apply high compressive strength insulation, suitable for service, at oversized saddles and shoes where insulation saddles have not been provided.

#### **3.4 REMOVABLE, PRE-FABRICATED, INSULATION AND ENCLOSURES**

- .1 Application: at expansion joints, valves, chilled water pumps, primary flow measuring elements flanges and unions at equipment.
- .2 Collar of pre-fabricated insulation to clear flanges.
- .3 Provide end cover and seal in outdoor installations.

#### **3.5 INSTALLATION OF ELASTOMERIC INSULATION**

- .1 Insulation to remain dry. Overlaps to manufacturers instructions. Ensure tight joints.
- .2 Provide vapour retarder as recommended by manufacturer.

#### **3.6 PIPING INSULATION SCHEDULES**

- .1 Includes valves, valve bonnets, strainers, flanges and fittings unless otherwise specified.
- .2 TIAC Code: A-1.
  - .1 Securements: SS wire/bands Tape at 300 mm on centre.

- .2 Seals: lap seal adhesive, lagging adhesive.
- .3 Installation: TIAC Code 1501-H.
- .3 TIAC Code: A-3.
  - .1 Securements: SS wire/bands Tape at 300 mm on centre.
  - .2 Seals: VR lap seal adhesive, VR lagging adhesive.
  - .3 Installation: TIAC Code: 1501-C.
- .4 TIAC Code: A-6.
  - .1 Insulation securements: as per code requirements
  - .2 Seals: lap seal adhesive, lagging adhesive.
  - .3 Installation: TIAC Code: as per code requirements
- .5 TIAC Code: C-2 with without vapour retarder jacket.
  - .1 Insulation securements: as per code requirements
  - .2 Seals: lap seal adhesive, lagging adhesive.
  - .3 Installation: TIAC Code: 1501-C.
- .6 TIAC Code: A-2.
  - .1 Insulation securements: as per code requirements
  - .2 Seals: lap seal adhesive, lagging adhesive.
  - .3 Installation: TIAC Code: 1501-H.
- .7 Thickness of insulation as listed in following table.
  - .1 Run-outs to individual units and equipment not exceeding 4000 mm long.
  - .2 Do not insulate exposed runouts to plumbing fixtures, chrome plated piping, valves, fittings.

Application	Temp degrees C	TIAC code	Pipe sizes (NPS) and insulation thickness (mm)					
			Run out	to 1	1 1/4 to 2	2 1/2 to 4	5 to 6	8 & over
Steam	up to 175	A-1	38	50	65	75	90	90
Condensate Return	60 - 94	A-1	25	38	38	38	38	38
Pumped Condensate return	up to 94	A-1	25	38	38	38	38	38
Hot Water Heating	60 - 94	A-1	25	38	38	38	38	38
Hot Water Heating	up to 59	A-1	25	25	25	25	38	38
Glycol Heating	60 - 94	A-1	25	38	38	38	38	38
Glycol Heating	up to 59	A-1	25	25	25	25	38	38
Domestic HWS		A-1	25	25	25	38	38	38
Chilled Water	4 - 13	A-3	25	25	25	25	25	25
Chilled Water or Glycol (GTS/R, GLS/R)*	below 4	A-3	25	25	38	38	38	38
Chilled Water Pump Casing		A-3	25	25	25	25	25	25

Condenser Water Outdoors			_____	_____	_____	_____	_____	_____
Condenser Water Indoors			_____	_____	_____	_____	_____	_____
Refrigerated Drinking Water		A-3	25	25	25	25	25	25
Domestic CWS		A-3	25	25	25	25	25	25
Domestic CWS with vapour retarder		C-2	25	25	25	25	25	25
Refrigerant hot gas liquid suction	4 - 13	A-6	25	25	25	25	25	25
Refrigerant hot gas liquid suction	below 4	A-6	25	25	38	38	38	38
RWL and RWP		C-2	25	25	25	25	25	25
Cooling Coil cond. drain		C-2	25	25	25	25	25	25
Domestic hot and recirculating water	40.5 to 82	A1	25	25	25	38	38	38
Hot water and cold water supply to sanitary drain from barrier free use lavatories and sinks	4.4 to 82	A1	12	12	12	12	12	12
Storm and sanitary drainage Equipment condensate drains	38	A1	25	25	25	25	25	25
Pure water, RO water, de-Ionized water	4.4 to 93	A1	25	25	25	38	38	38

\*Except for section of GTS/GTR piping to/from the dry cooler to connections to the GTS/GTR mains (running between heat recovery chillers and heat exchangers) in the mechanical room. Refer to drawings M60-03 and M73-01.

.8 Finishes:

- .1 Exposed indoors: PVC jacket.
- .2 Exposed in mechanical rooms: PVC jacket.
- .3 Concealed, indoors: canvas on valves, fittings. No further finish.
- .4 Use vapour retarder jacket on TIAC code A-3 insulation compatible with insulation
- .5 Outdoors: water-proof aluminum/ jacket.
- .6 Finish attachments: SS screws at 150 mm on centre. Seals: closed.
- .7 Installation: to appropriate TIAC code CRF/1 through CPF/5
- .8 Self-adhesive aluminum jacket membrane.

**3.7 FIELD QUALITY CONTROL**

- .1 Verification requirements in accordance with Section 01 33 29 - Sustainable Design Reporting, include:
  - .1 Materials and resources.

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- .2 Storage and collection of recyclables.
- .3 Construction waste management.
- .4 Resource reuse.
- .5 Recycled content.
- .6 Local/regional materials.
- .7 Certified wood.
- .8 Low-emitting materials.

### **3.8 CLEANING**

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment: Adhere to the requirements of the Construction Waste Management plan as per Section 01 74 19 Construction Waste Management and Disposal.

**END OF SECTION**

**CS 901****Geothermal Field Management System****Control  
Diagram**

Drawing: M73-01.

**System  
Description**

The geothermal system is used to reject heat in the summer and provide heat in the winter. During the cooling mode of operation, part of the heat rejection is directed towards the geothermal system with the remaining being handled by the dry cooler. During the heating season, the geothermal field will act either as the primary source of heat for the heat recovery chillers, when there is no cooling operation, or as a compensatory source, when heat is recovered from the chilled water and transferred to the heating system.

Over the year, these two operation modes of the geothermal system might create an imbalance between the amount of heat being rejected to and absorbed from the field. Uncompensated, this imbalance could change the ground temperature in the long term and, thus, reduce the field capacity. To preserve field performance, the energy injected into and withdrawn from the ground will be monitored long term and, when a surplus (or deficit) is detected, the EMCS will initiate a control sequence to achieve balance.

Based on the geothermal loop flow (GL FLOW) and supply/return temperatures (GLS T, GLR T), the EMCS monitors and calculates the energy exchanged with the ground and generates a yearly total (GL EN YEAR). A positive value of GL EN YEAR signifies excess heat being rejected to the ground, while a negative value signifies heat absorption from the ground as predominant for the year. GL EN YEAR will be calculated as time-integrated heat flow over one year duration. The heat flow (Q) formula is:

$$Q = d \times cp \times GL \text{ FLOW} \times (GLR \text{ T} - GLS \text{ T})$$

where

Q - heat flow rate (kW)

d – density (kg/m<sup>3</sup>)

cp - specific heat (kJ/kg K)

GL FLOW – ground loop flow rate (m<sup>3</sup>/s)

GLS T, GLR T – ground loop supply, return temperatures (°C)

**System Start** When GL EN YEAR returns consistently positive or negative values for three (3) consecutive years, EMCS will initiate the compensatory sequence of operation.

**CS 901****Geothermal Field Management System****Normal  
Operation***Excessive Heat Rejection - GL EN YEAR > 0*

In normal cooling operation, the ground loop is the primary source for heat rejection and the dry cooler acts as the auxiliary source (refer to CS 601). When GL EN TOT > 0 for three (3) consecutive years EMCS will invert roles and have the dry cooler act as the primary source for heat rejection with the geothermal system compensating for the remaining load. In this case, when the system is in cooling mode, P-17A, B (C) will start and ramp up until GTS T reaches setpoint. The dry cooler fans will modulate to achieve GTS DC T setpoint. When P-17A, B (C) have reached maximum speed, then P-15A, B (C) will start and heat will be rejected to the geothermal field.

**If outdoor air temperature is lower than -10C and cooling is needed, the excess heat (not used for heating) will be rejected to the geothermal field regardless of the GL EN TOT value. The dry cooler and P-17A,B will not operate below -10C ambient temperature.**

*Excessive Heat Absorption - GL EN YEAR < 0*

If there is a heating deficit over three (3) consecutive years (GL EN TOT < 0), EMCS will use the electric boilers to provide heating to the building in unoccupied mode. In this case, both heat recovery chillers will be shut off, normally closed valve V2 will open, pumps P-07 or P-08 will start and electric boilers (EB-1, EB-2) will begin to operate as described in CS 621. In occupied mode, V2 closes and operation resumes as per CS 621.

EMCS calculates GL EN TOT as sum of GL EN YEAR.

**System Stop**

EMCS will cancel the compensatory sequence of operation when GL EN TOT reverses sign.

**Fire Alarm**

No

**Emergency  
Power**

No

**Control  
Points**

Refer to Control Points List appended at the end of this section

End of Section

~~27 May~~ **18 Aug** 2022**Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical
- .2 Section 26 08 02 Field Testing and Commissioning – Low Voltage Installations
- .3 Section 26 28 16.02 – Moulded Case Circuit Breakers

**1.2 REFERENCE STANDARDS**

- .1 CSA Group
  - .1 CSA C22.2 No.29-15 (R2019), Panelboards and Enclosed Panelboards.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 26 05 00 Common Work Results for Electrical.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for panelboards and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Include on drawings electrical detail of panel, branch breaker type, quantity, ampacity and enclosure dimension.

**1.4 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 26 05 00 Common Work Results for Electrical.
- .2 Operation and Maintenance Data: submit operation and maintenance data for panelboards for incorporation into manual.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 26 05 00 Common Work Results for Electrical and with manufacturer's written instructions.

**Part 1 ~~Part 1~~ Part 2 Products****~~1.6~~ 2.1 PANELBOARDS**

- .1 Panelboards: to CSA C22.2 No.29 and product of one manufacturer.
  - .1 Install circuit breakers in panelboards before shipment.
  - .2 In addition to CSA requirements manufacturer's nameplate must show fault current that panel including breakers has been built to withstand.
- .2 250 and 600 V panelboards: bus and breakers rated for symmetrical interrupting capacity or as indicated on schedules and single line diagrams.



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- .3 Sequence phase bussing with odd numbered breakers on left and even on right, with each breaker identified by permanent number identification as to circuit number and phase.
- .4 Panelboards: mains, number of circuits, and number and size of branch circuit breakers as indicated.
- .5 Two keys for each panelboard and key panelboards alike.
- .6 Copper bus with neutral of same ampere rating as mains, unless shown otherwise.
- .7 Mains: suitable for bolt-on breakers.
- .8 Trim with concealed front bolts and hinges.
- .9 Trim and door finish: baked grey enamel.

#### **1.7.2 BREAKERS**

- .1 Breakers: to Section 26 28 16.02 Moulded Case Circuit Breakers.
- .2 Breakers with thermal and magnetic tripping in panelboards except as indicated otherwise.
- .3 Main breaker: separately mounted on top or bottom of panel to suit cable entry. When mounted vertically, down position should open breaker.
- .4 Lock-on devices for breakers installed as indicated.

#### **2.3 TRANSIENT VOLTAGE SURGE SUPPRESSOR (TVSS)**

- .1 Install TVSS at the panelboards where is shown on single line diagram.**
- .2 Provide a three-pole circuit breaker as a dedicated disconnecting means for each TVSS.**
- .3 TVSS to be externally connected to panelboards via 3-pole circuit breaker with conductors between suppressor and points of attachment as short and straight as possible, not exceeding manufacturer's recommended lead length.**
- .4 TVSS features as follows:**
  - .1 Short-circuit current rating matching or exceeding the equipment short-circuit rating and redundant suppression circuits; with individually fused metal-oxide varistors**
  - .2 Fabrication using bolted compression lugs for internal wiring.**
  - .3 An integral safety interlocked disconnect switch with an externally mounted manual operator.**
  - .4 Arrangement with wire connections to phase buses, neutral bus, and ground bus.**
  - .5 LED indicator lights for power and protection status.**
  - .6 Audible alarm, with silencing switch, to indicate when protection has failed.**
  - .7 Form-C contacts rated at 5 Amp and 250-VAC, one normally open and one normally closed. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device.**
  - .8 Six-digit transient-event counter set to totalize transient surges.**
  - .9 Minimum Surge Current Capacity Rating 100 kA minimum.**

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- .10 Nominal discharge current (In): 20 kA.**
- .11 Short circuit current rating (SCCR): 200 kA.**
- .12 Maximum Continuous Operating Voltage (MCOV) with 208/120 V: 150 V.**
- .13 UL 1449 VPR for grounded wye circuits with 208Y/120 V, 3-phase, 4-wire circuits shall be as follows: Line to Neutral, Line to Ground and Neutral to Ground: 700 V for 208Y/120V, and Line to Line: 1200 V for 208/120 V.**

#### ~~1.8~~**2.4** EQUIPMENT IDENTIFICATION

- .1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Nameplate for each panelboard size 4 engraved.
- .3 Nameplate for each circuit in distribution panelboards size 2 engraved.
- .4 Complete circuit directory with typewritten legend showing location and load of each circuit, mounted in plastic envelope at inside of panel door.

#### ~~Part 2~~**Part 3** Execution

##### ~~2.13~~**2.1** INSTALLATION

- .1 Locate panelboards as indicated and mount securely, plumb, true and square, to adjoining surfaces.
- .2 Install surface mounted panelboards on plywood backboards in accordance with Section 06 10 53 - Miscellaneous Rough Carpentry. Where practical, group panelboards on common backboard.
- .3 Mount panelboards to height specified in Section 26 05 00 - Common Work Results for Electrical or as indicated.
- .4 Connect loads to circuits.
- .5 Connect neutral conductors to common neutral bus with respective neutral identified.
- .6 Where panels of different systems (i.e. Standard and Vital Power) supply a common patient care area, ground busses in panels to be interconnect with a minimum #6 AWG ground conductor.

##### ~~2.23~~**2.2** CLEANING

- .1 Progress Cleaning, Final Cleaning and Waste Management as per Section 26 05 00 Common Work Results for Electrical.

##### ~~2.33~~**2.3** PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by panelboards installation.

##### ~~2.43~~**2.4** FIELD QUALITY CONTROL

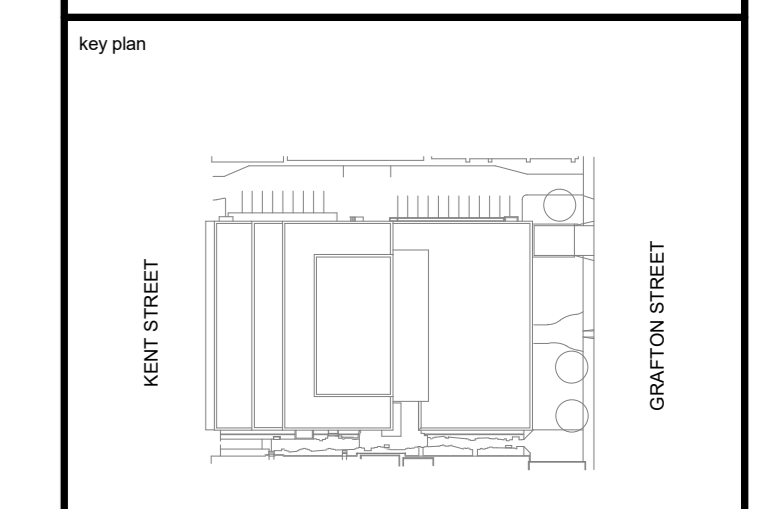
- .1 Perform tests in accordance with Section 26 05 00 Common Work Results for Electrical, Section 26 08 02 Field Testing and Commissioning – Low Voltage Installations, and

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- complete commissioning forms as per 01 91 13.16 – Static Verification Forms and CMMS Forms.
- .2 Check bolted lug connections with torque wrench, to manufacturer's values. Mark with adhesive tape or label when satisfactory.
  - .3 Measure contact resistance on circuit breakers. Acceptable Values for 208V to 1000 V – 100 Microhms.
  - .4 Megger test insulation resistance phase to phase and phase to ground of all circuit breakers. Acceptable values for 208V to 1000 V – 50 Megohms. Duration of each test – one (1) minute.
  - .5 Check ground bus and ground path for continuity, and connection to all non-current carrying metalwork. Maximum acceptable reading – 0.1 ohms.
  - .6 Check for physical faults: damaged or dirty insulators, alignment of contacts, switchblades, operating mechanism, clearances, barriers, mounting.
  - .7 Operate circuit breakers 3 times.
  - .8 Operate equipment through design functions, including remote control operation, actuation of alarm and indication devices, mechanical and electrical operation and operation from protective relays.
  - .9 Subsequent to energization, verify current flow using current injection test in all current transformer circuits.

**END OF SECTION**





Project and True North

Project Legend

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2		2022-06-27

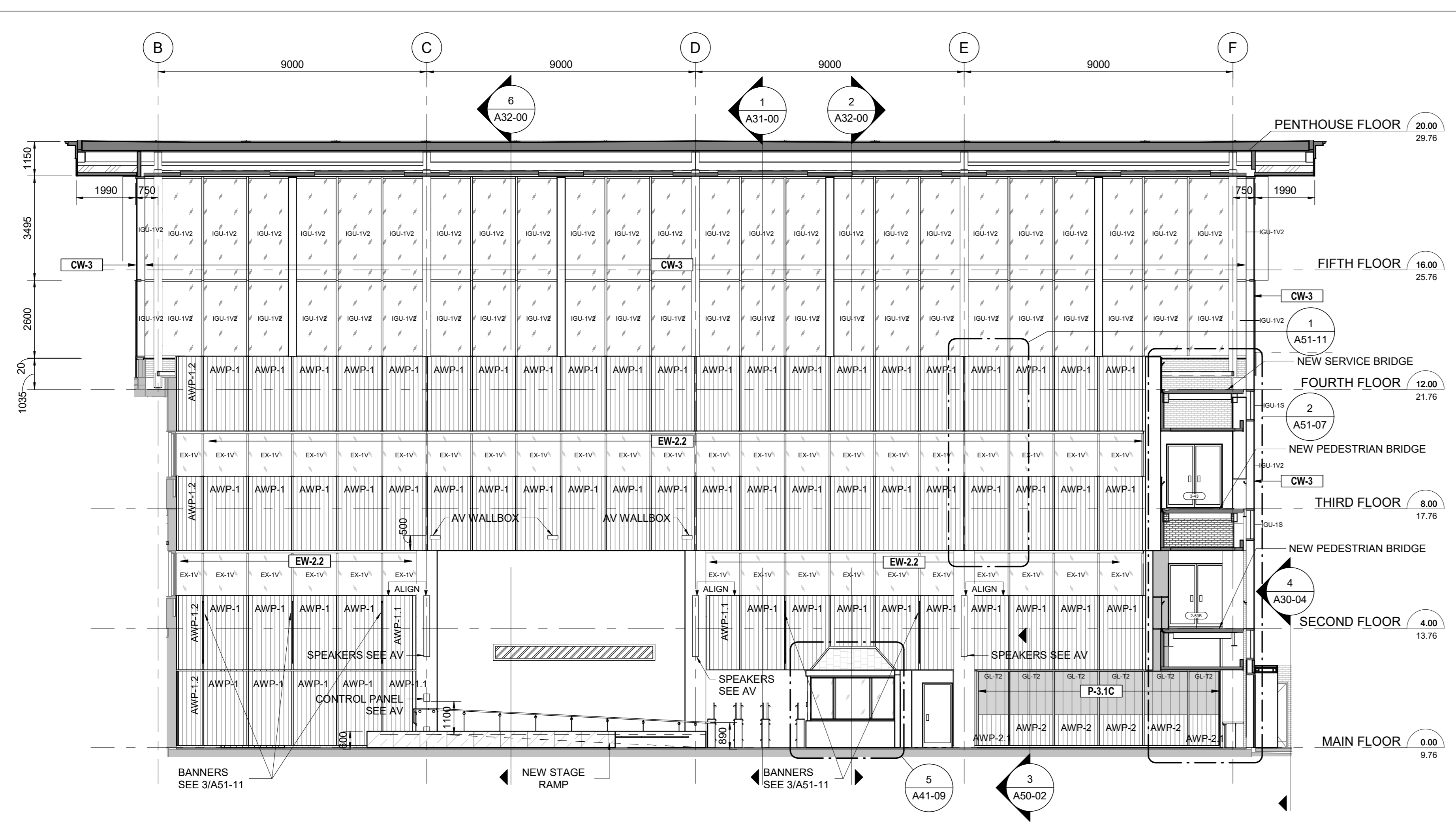
revisions

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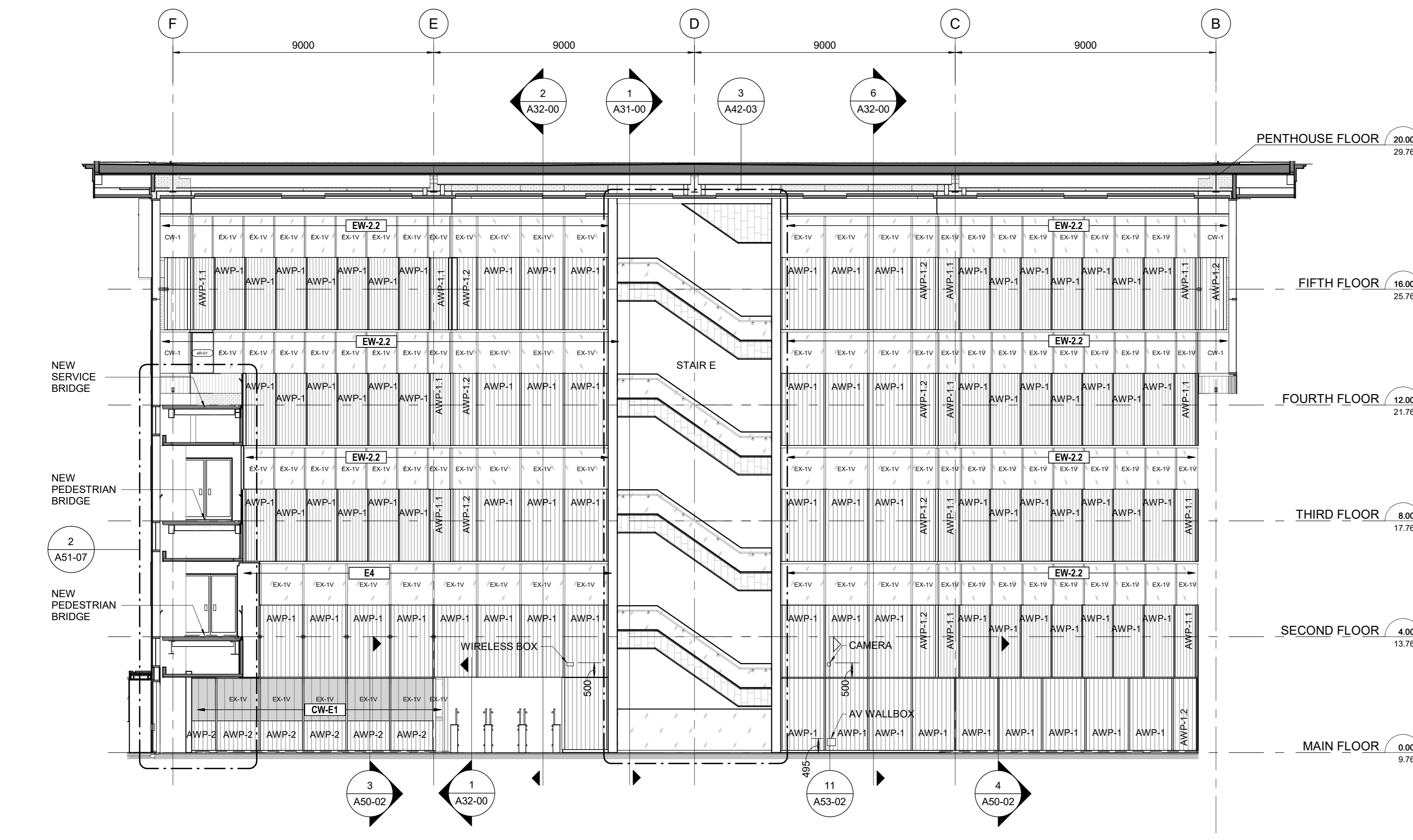
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 CHARLOTTETOWN, PEI C1A 1L1

design  
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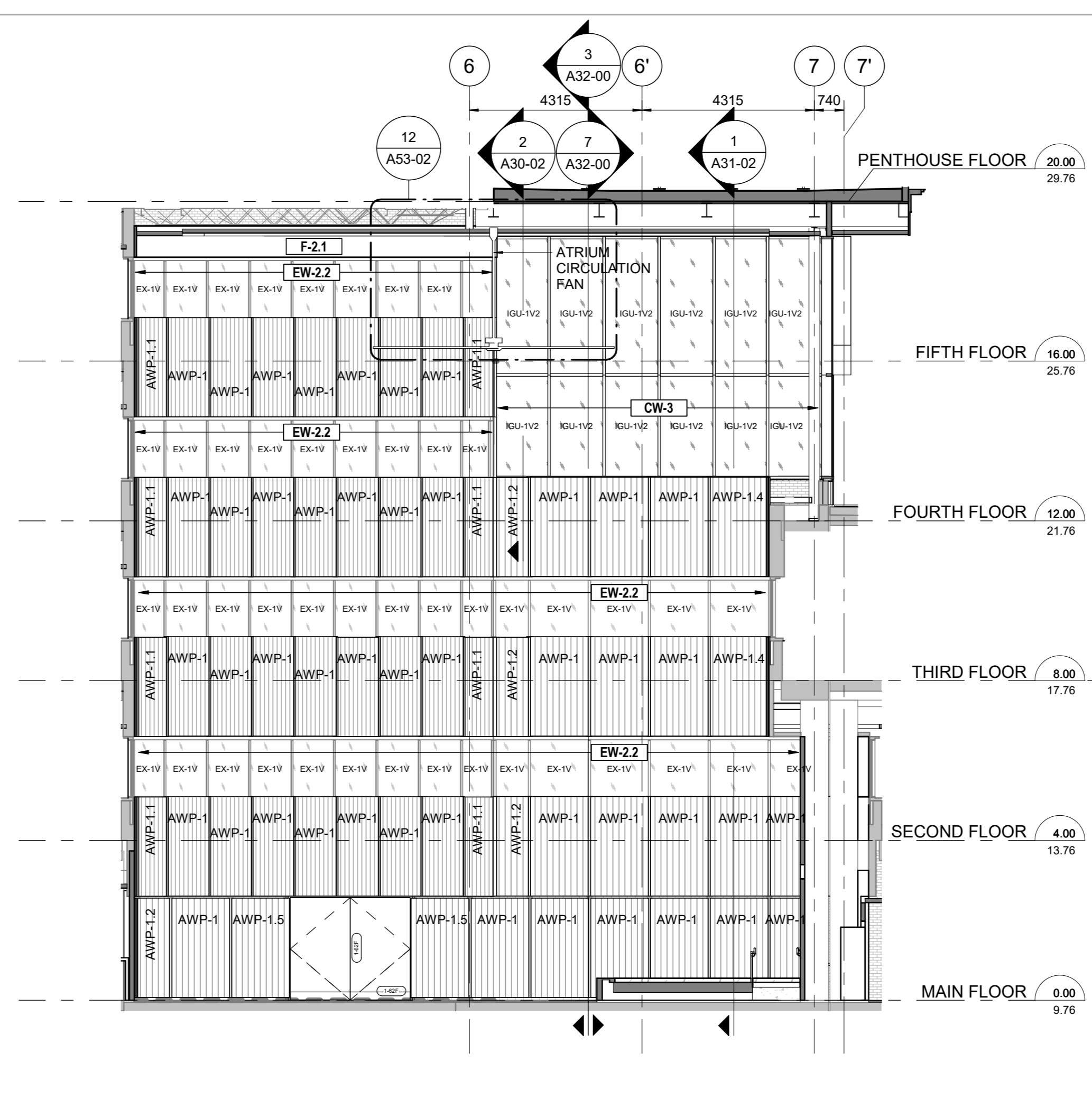
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date 2020-08-31	date 2020-08-31
drawn	dessiné
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date 2020-08-31	date 2020-08-31
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date 2022-06-18	date 2022-06-18
Tender	Submission
PWGS Project Manager	Administrateur de projets TPSC
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<b>R.056687.005</b>	
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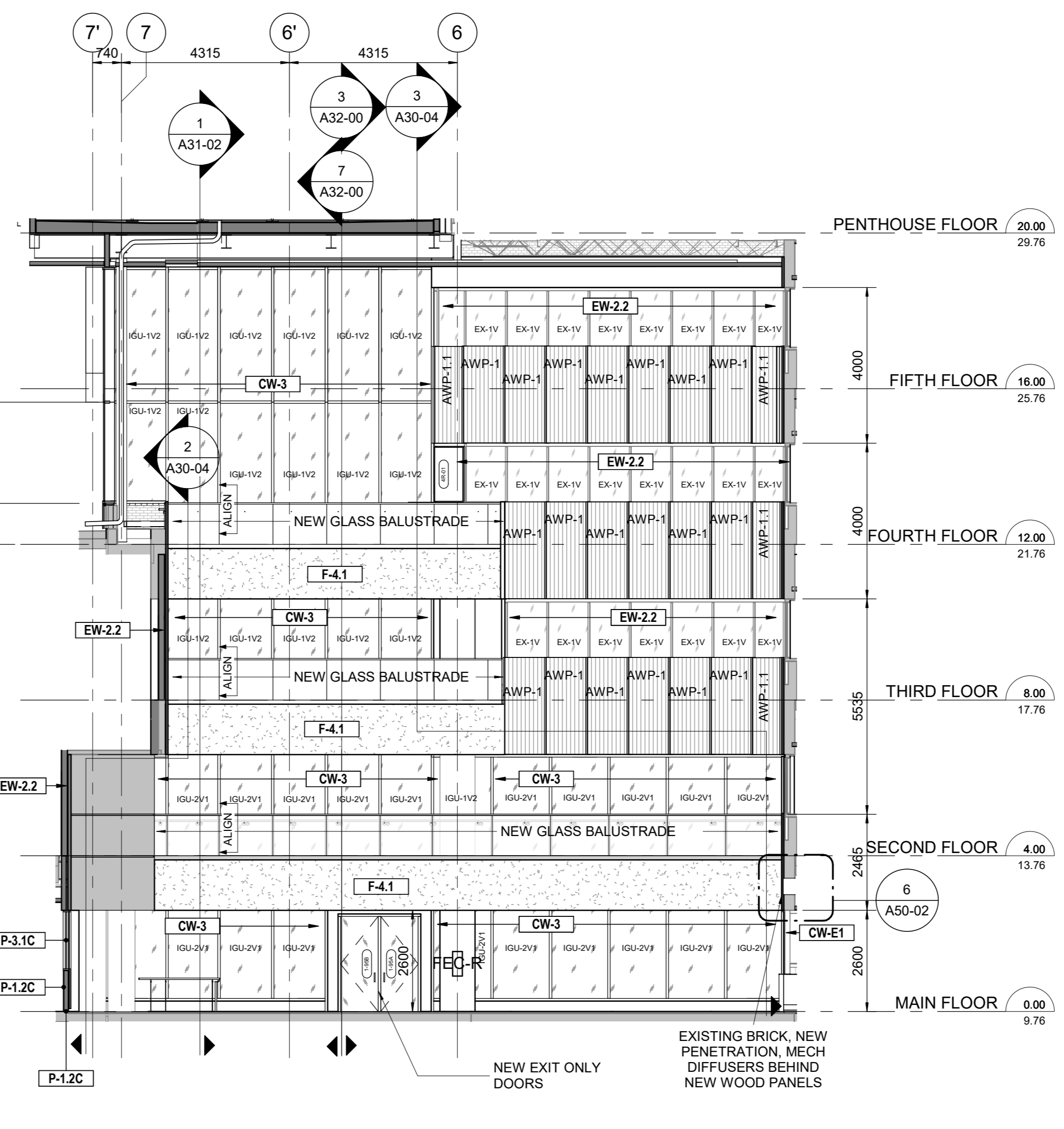
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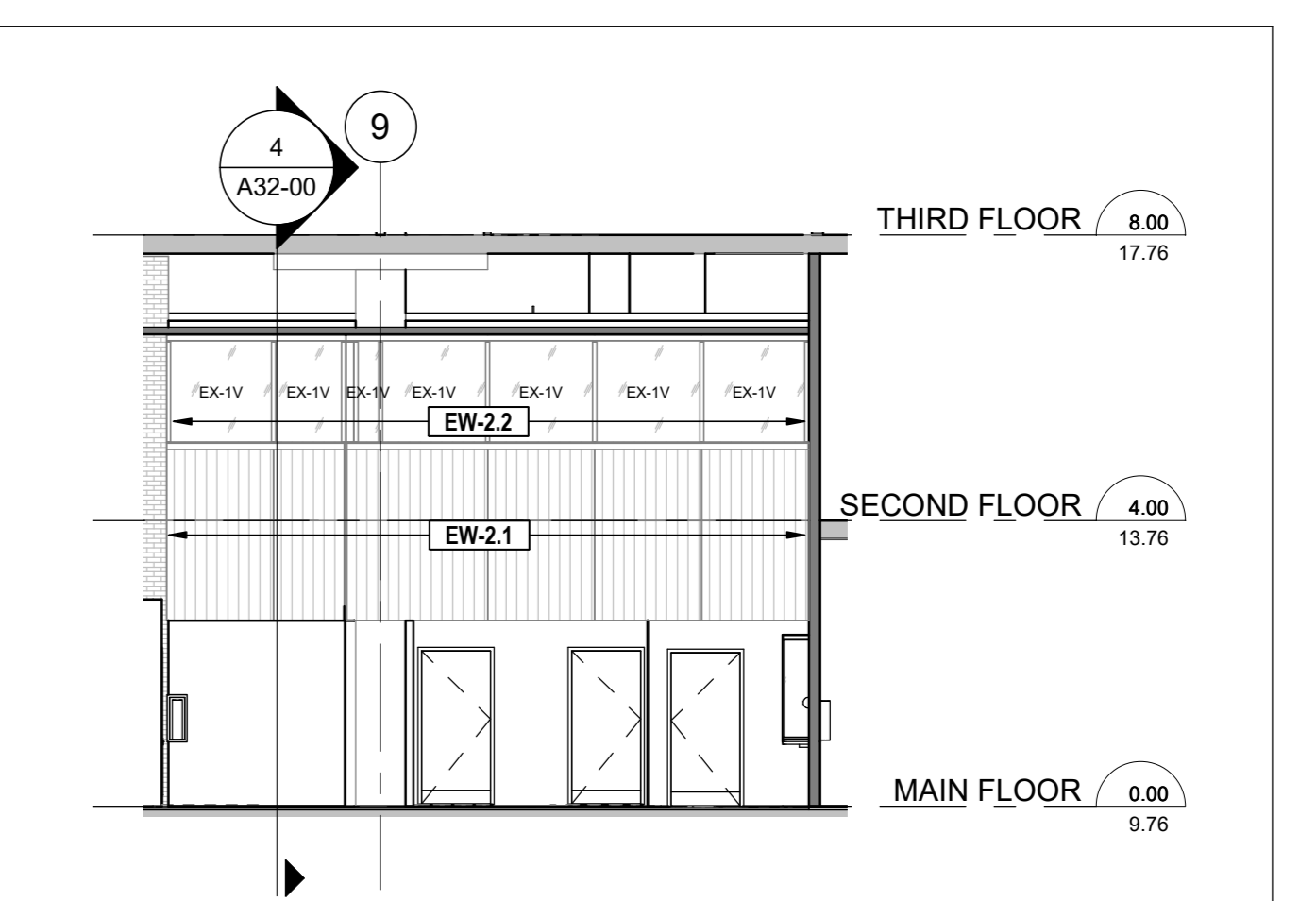
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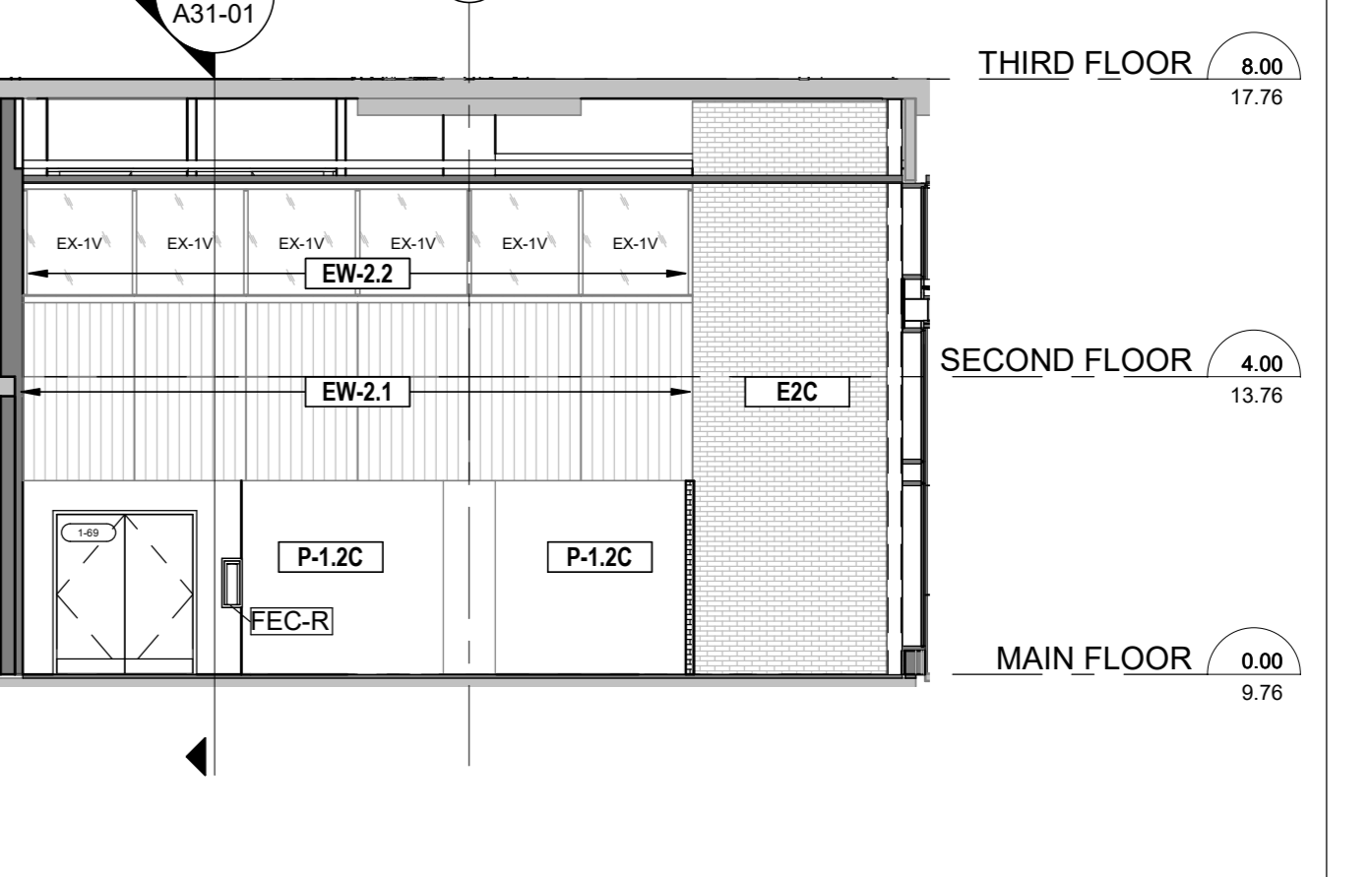
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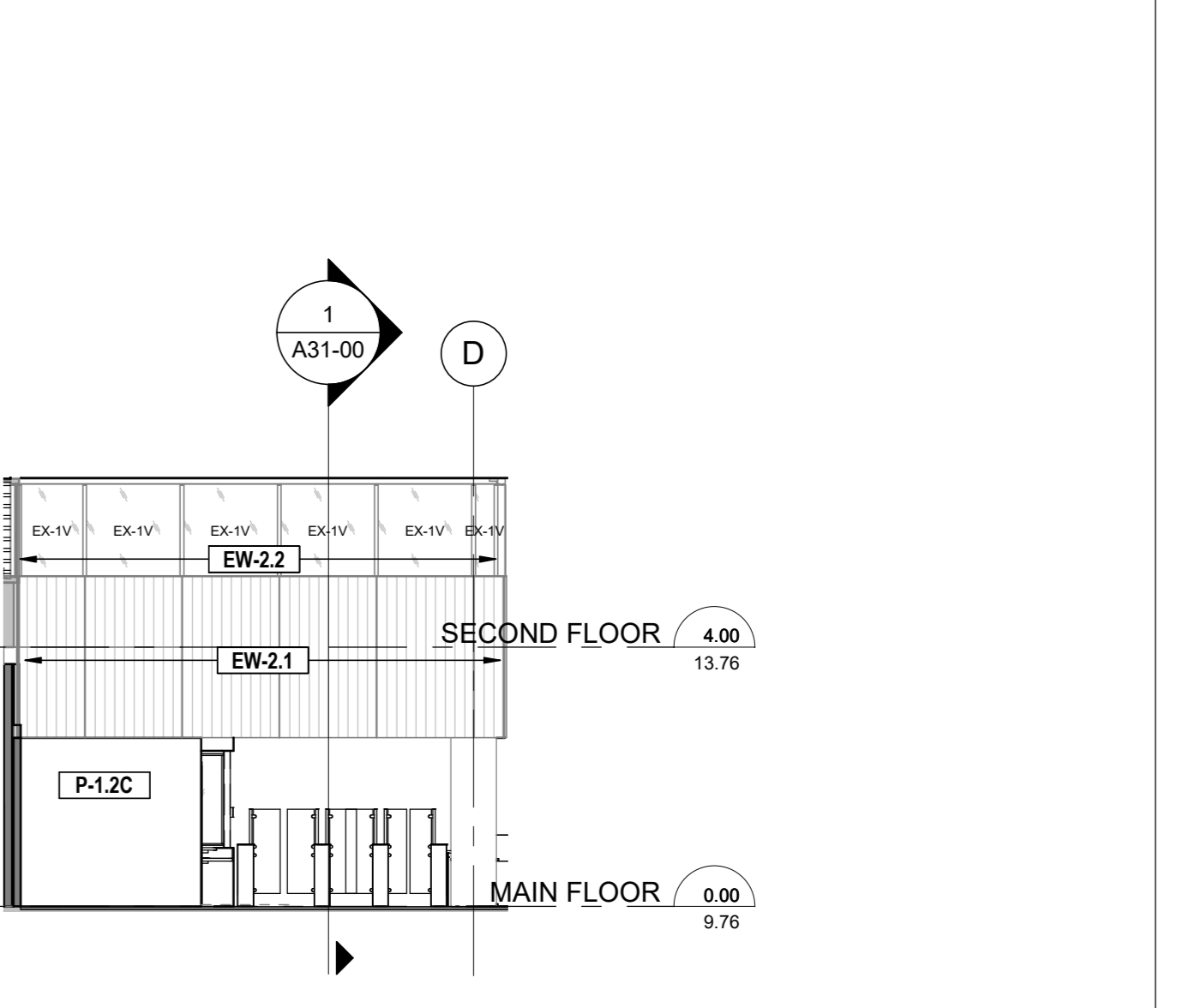
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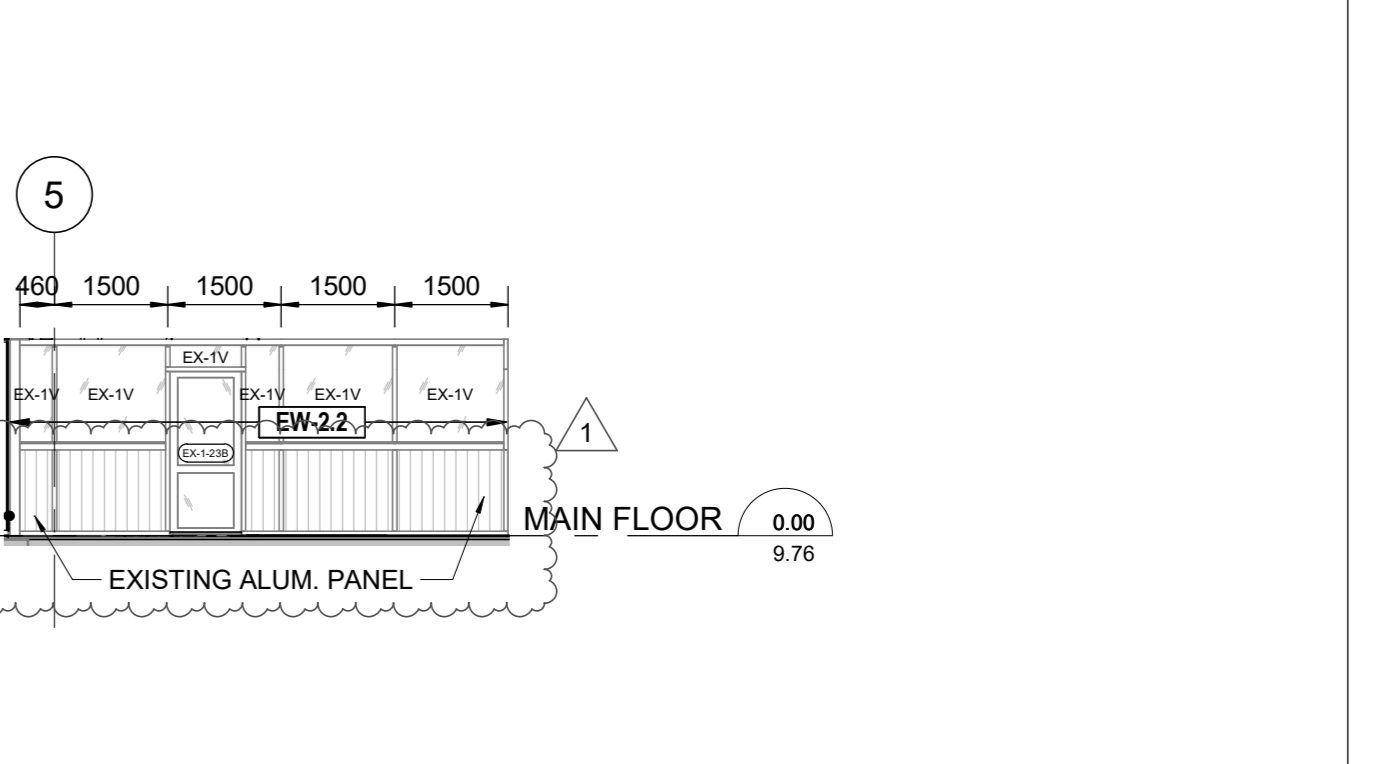
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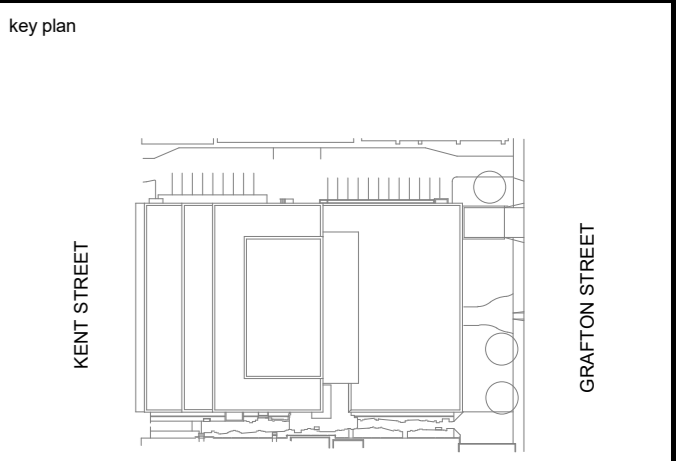
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**4 GRAFTON ENTRY - NORTH ELEVATION**  
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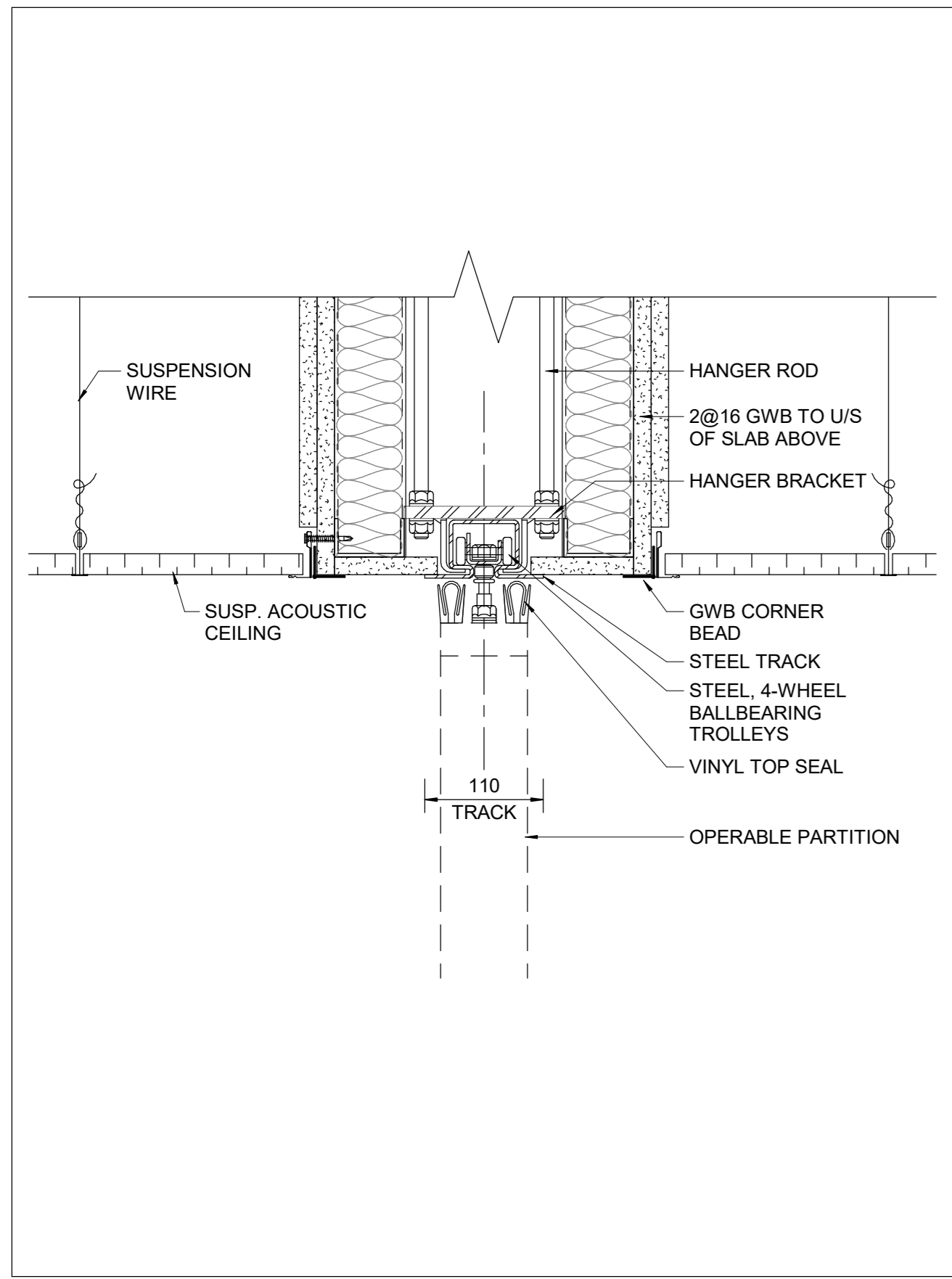


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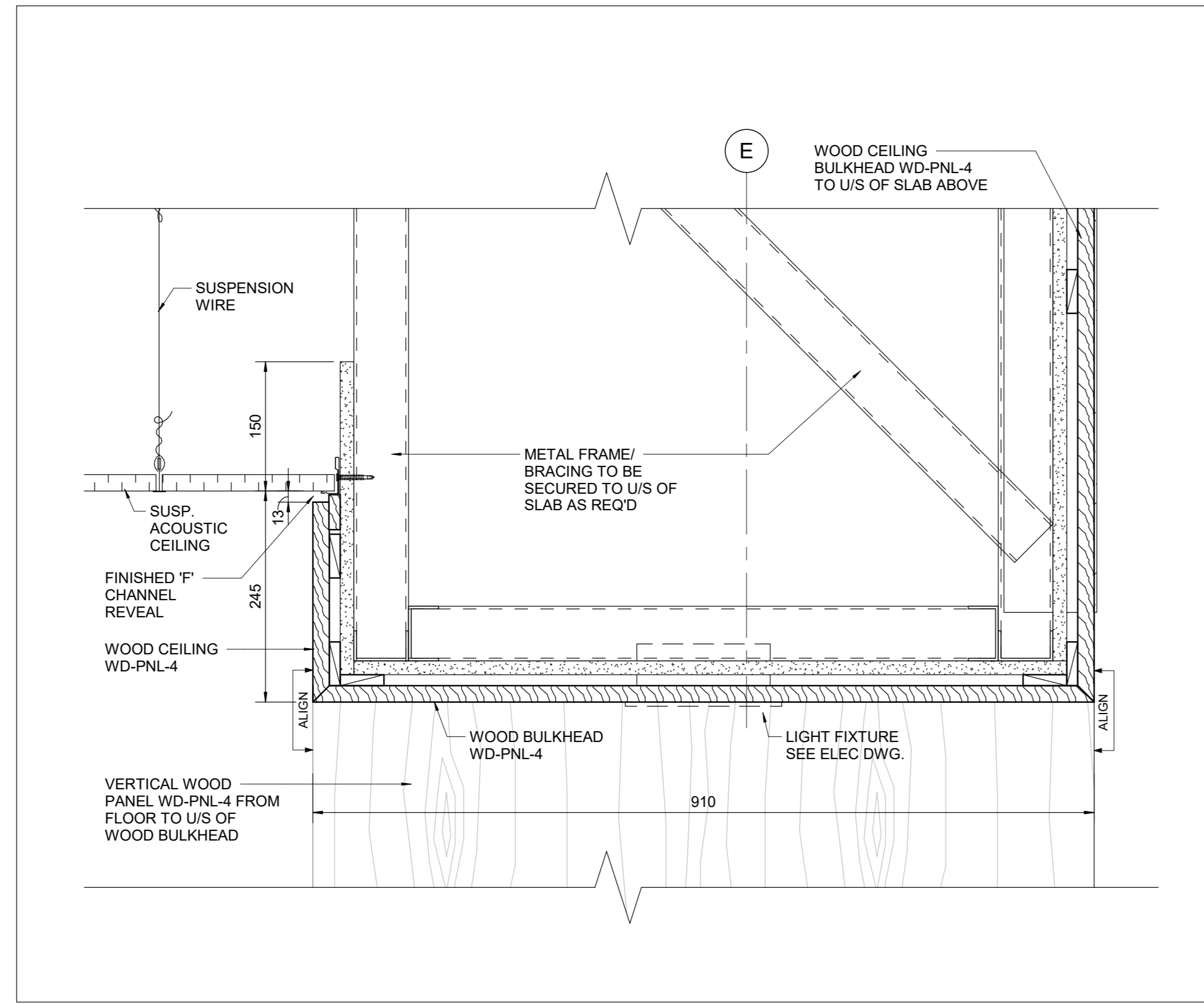


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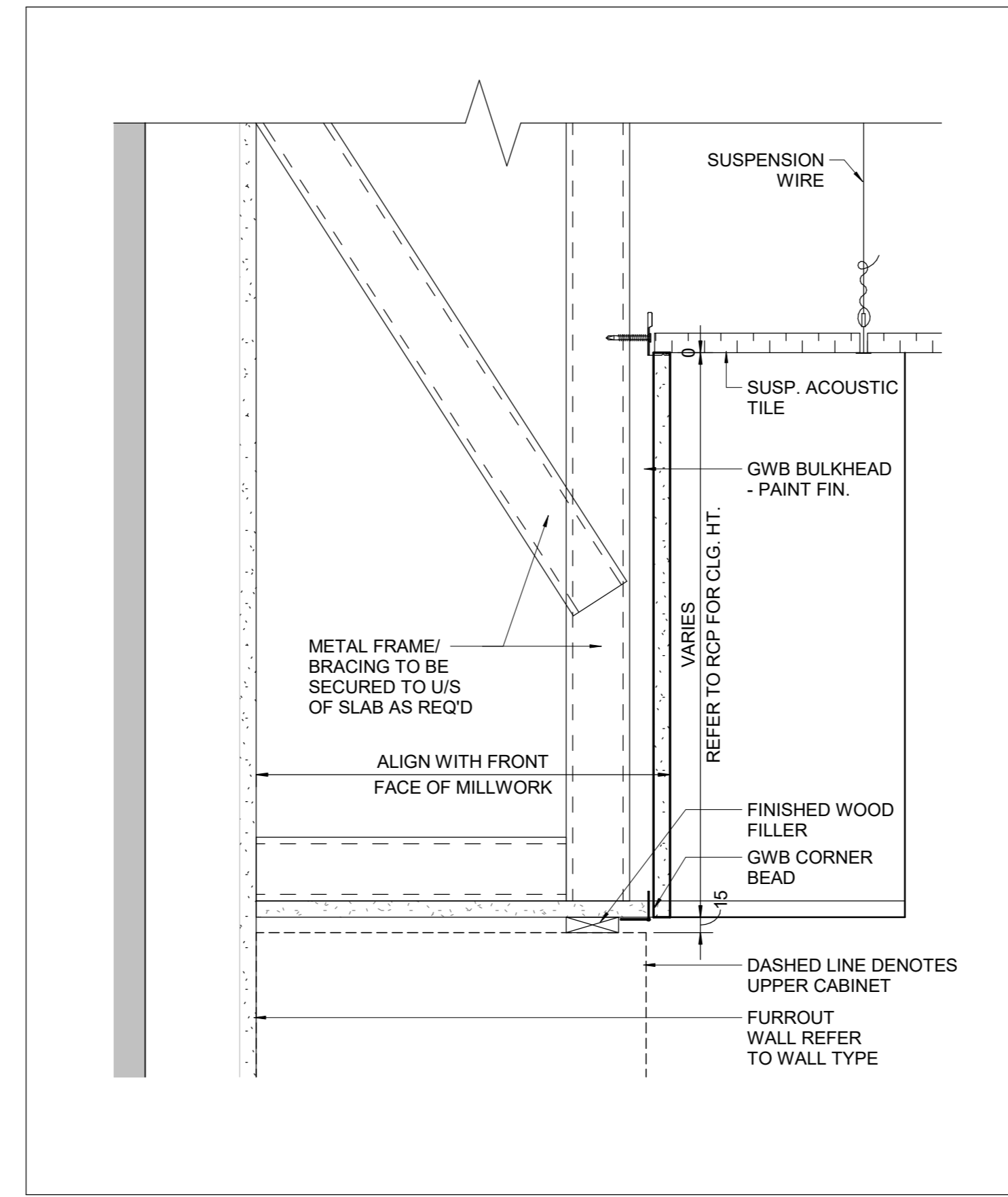
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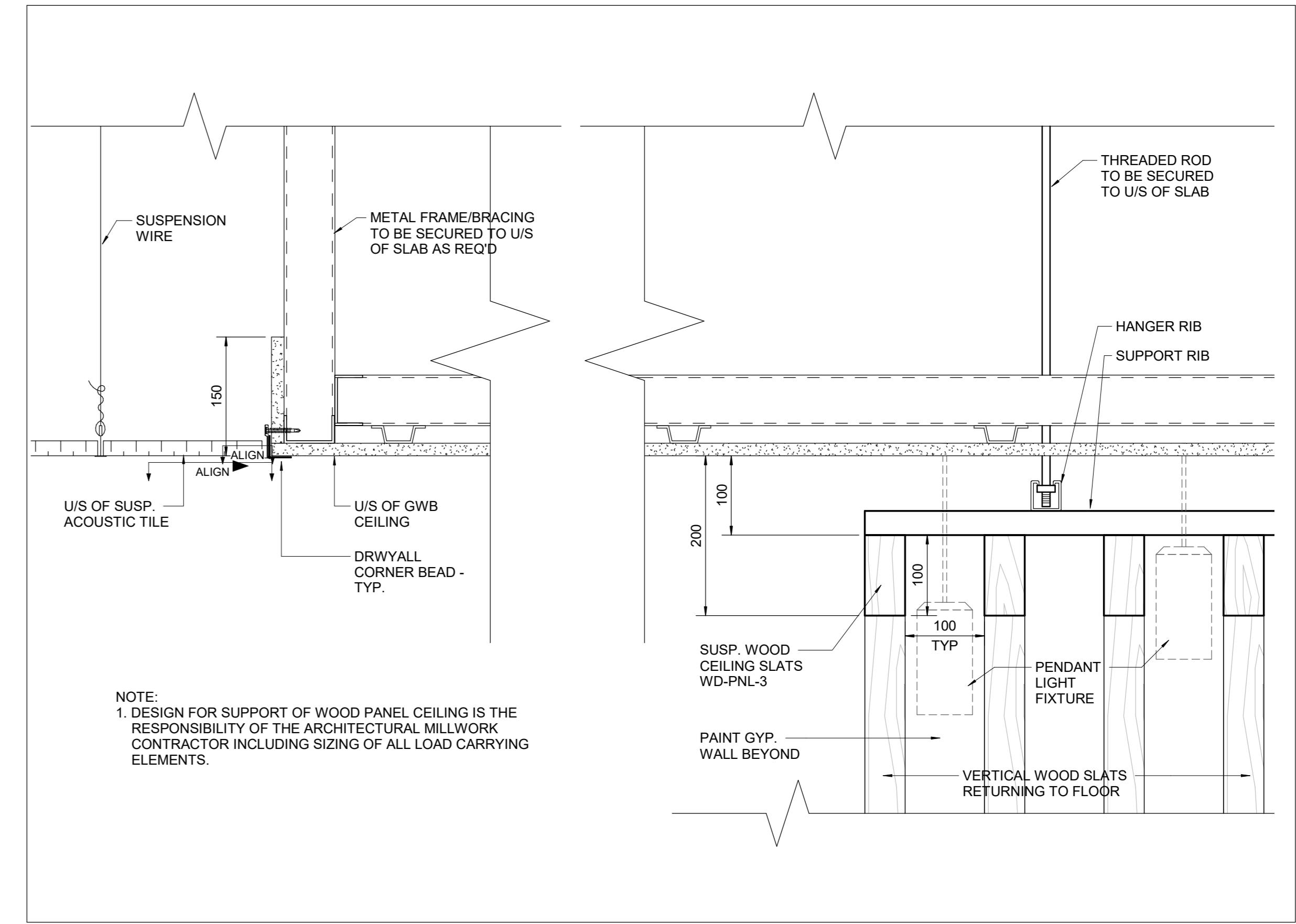
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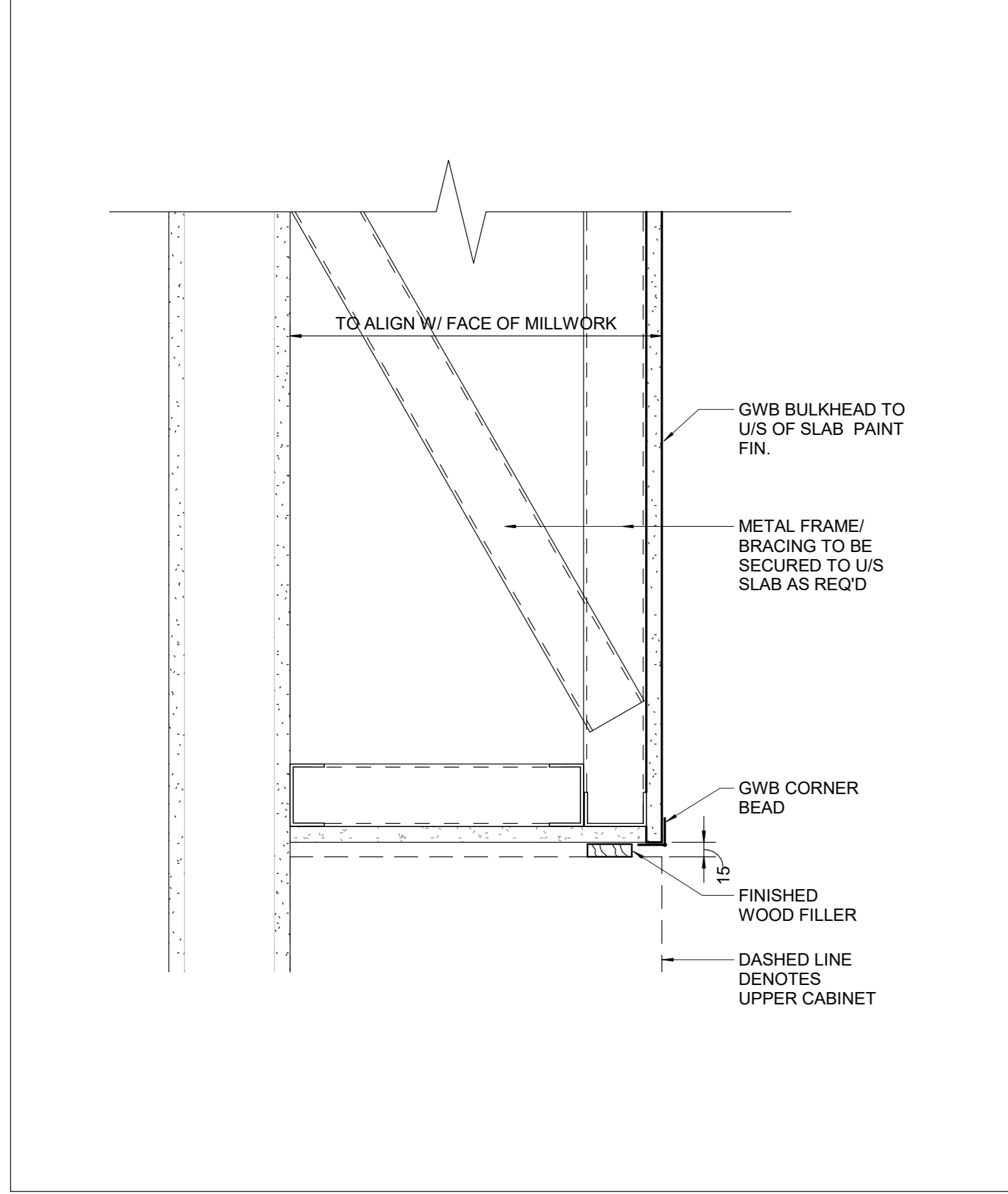
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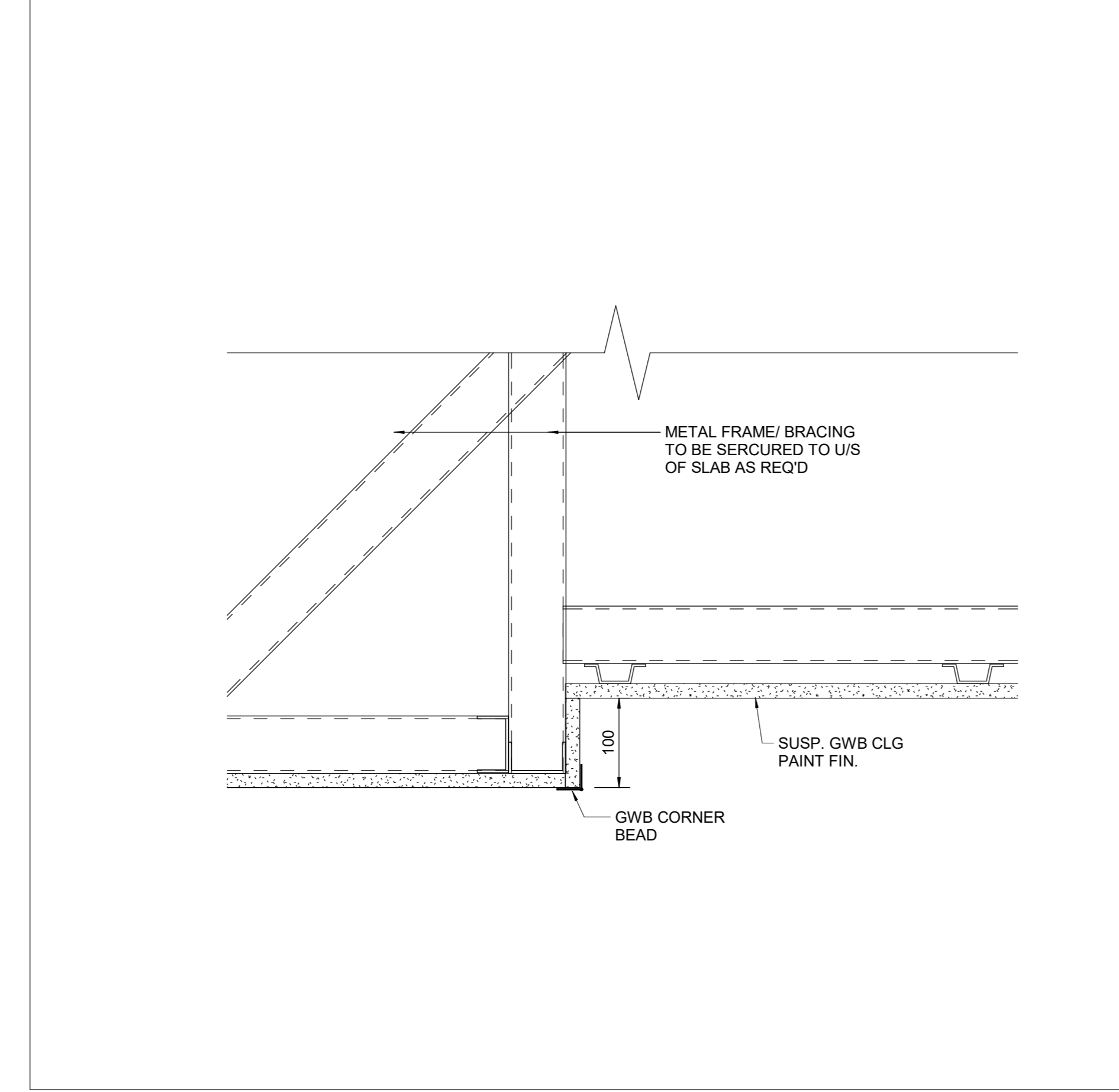
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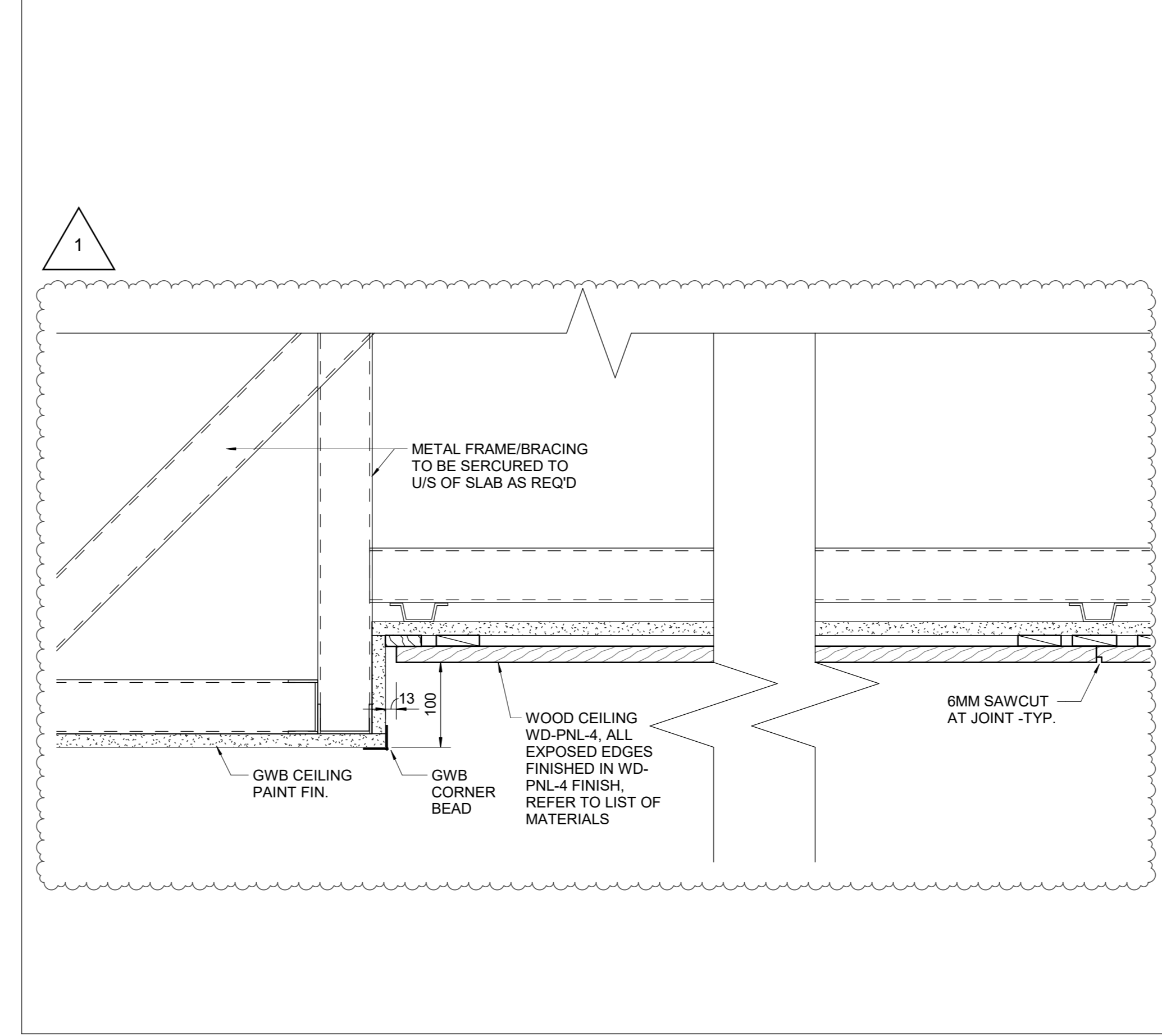
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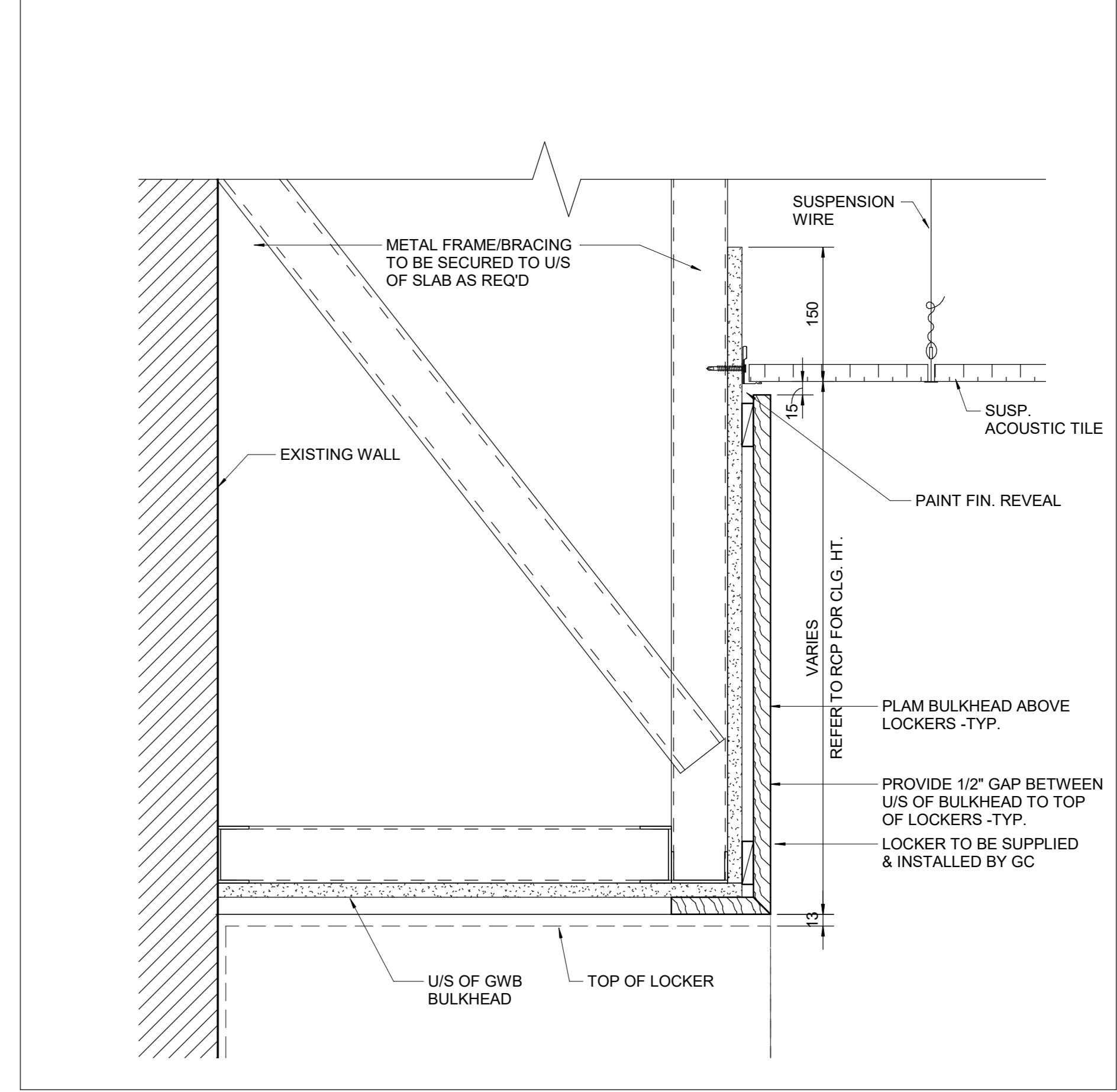
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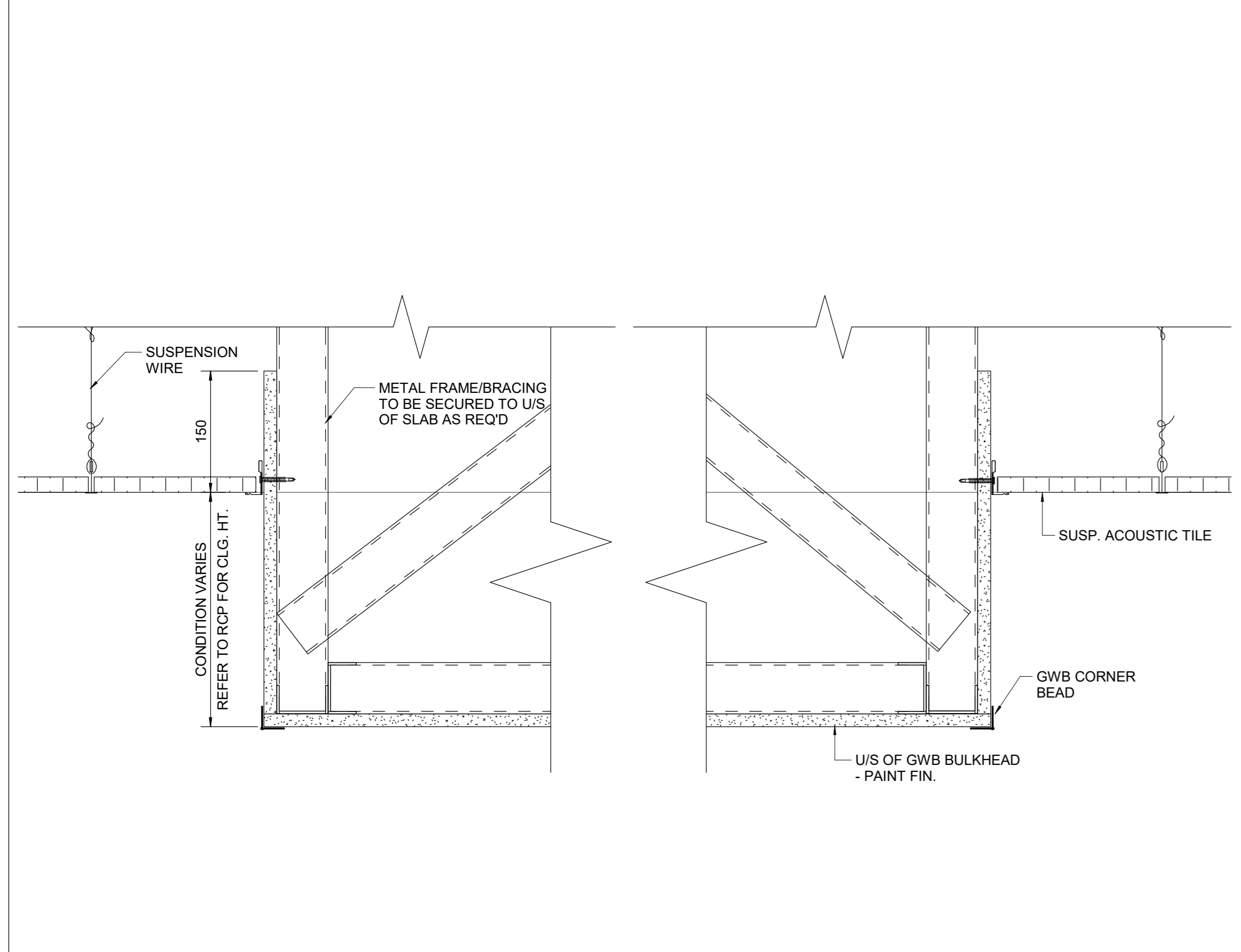
7 SECTION - MEETING ROOM CEILING DETAIL 2 - TYP.  
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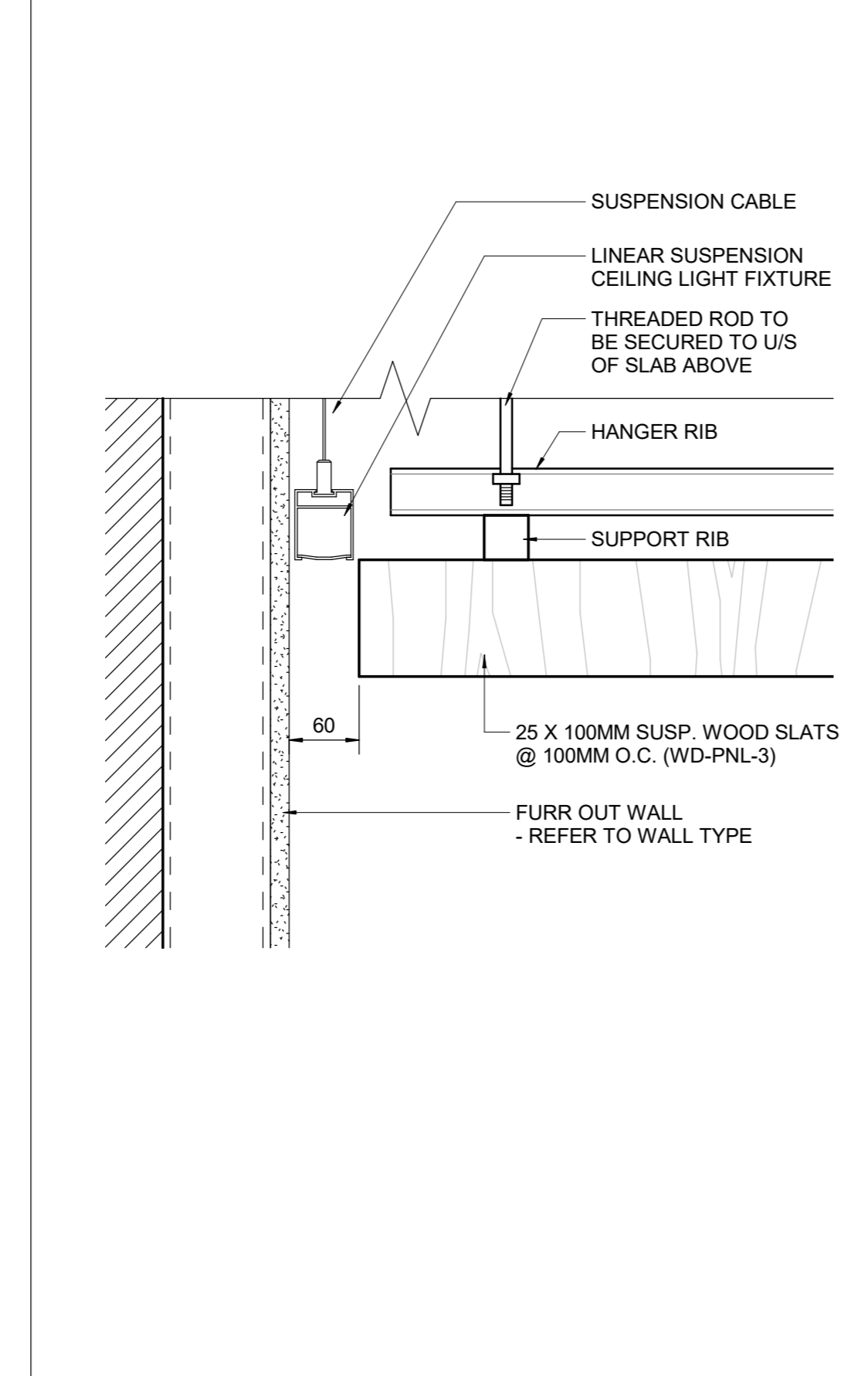
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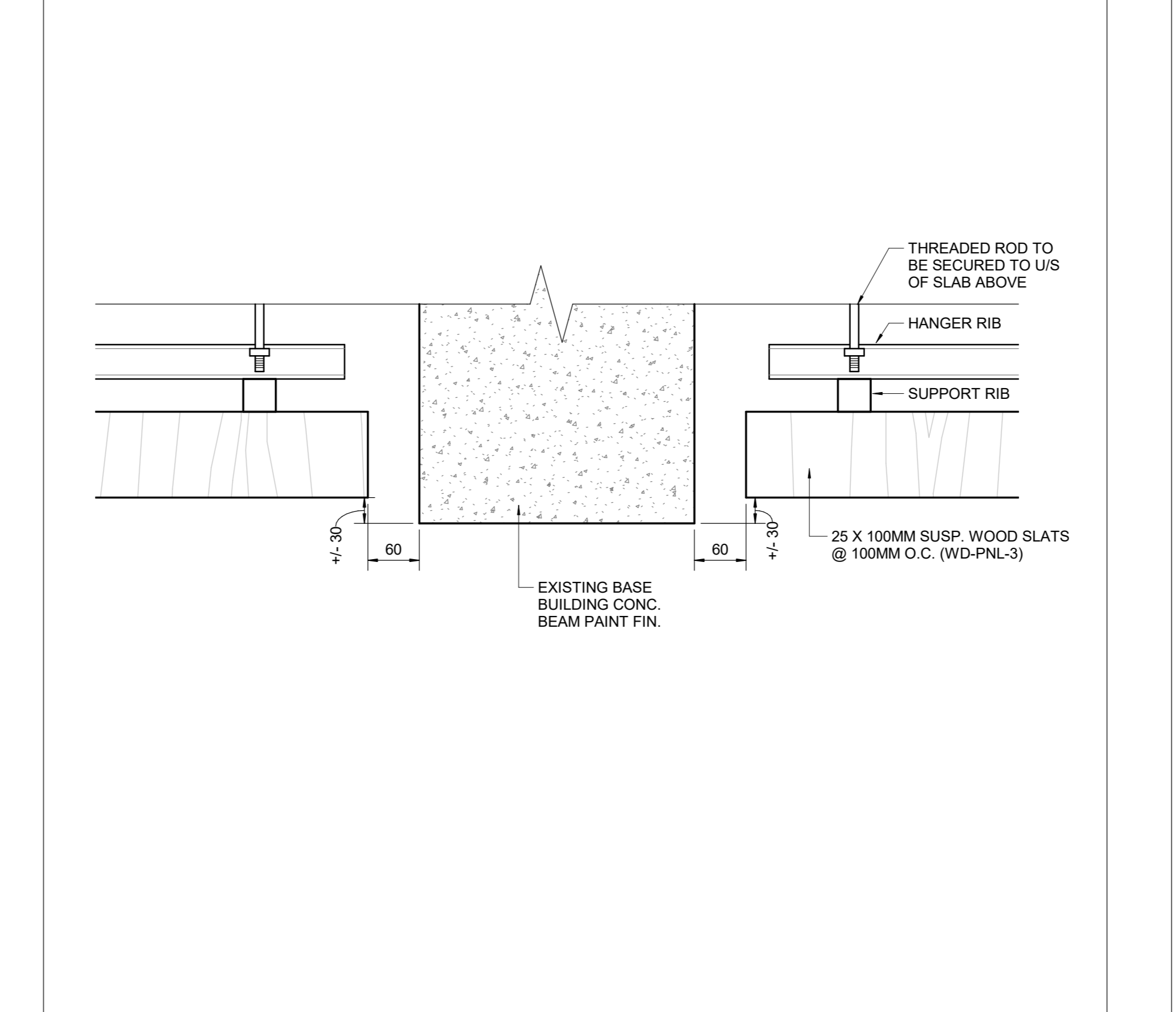
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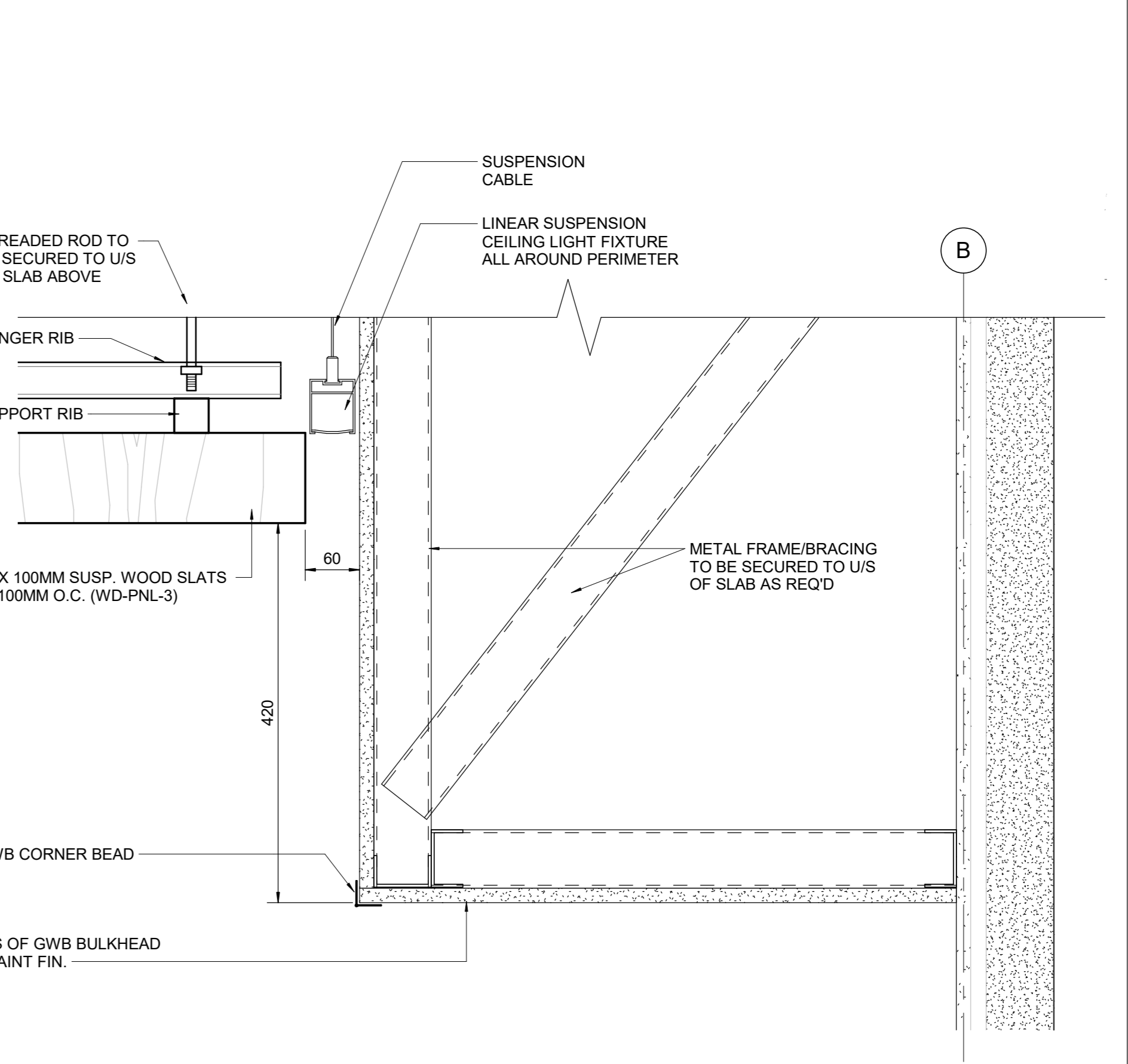
4 SECTION - DRYWALL BULKHEAD @ PARKING LEVEL CORRIDOR  
 SCALE: 1:5  
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3 SECTION - WELLNESS CTR. CEILING DETAIL 3  
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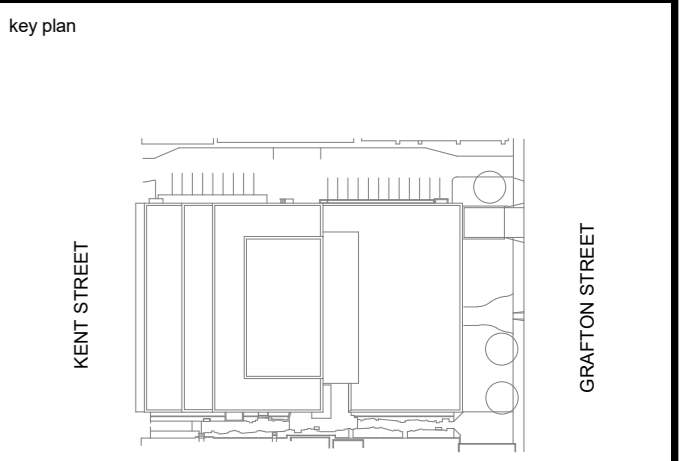


2 SECTION - WELLNESS CENTER CEILING DETAIL 2  
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1 SECTION - WELLNESS CENTER CEILING DETAIL 1  
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1	ADDENDUM # 1	2022-08-18
2	ISSUED FOR TENDER	2022-06-07
Revisions	date	project
DANIEL J MACDONALD MODERNIZATION		
161 GRAFTON STREET CHARLOTTETOWN, PEI C1A 1L1		
designed	NORR	conçu
date	2021-09-17	
drawn	NORR	dessiné
date	2021-09-17	
approved	AS	approuvé
date	2022-08-18	
Tender	Submission	
PWGSC Project Manager	Administrateur de projets TPSC	
project number	no. du projet	R.056687.005
drawing no.	no. du dessin	A61-01



Project and true North

Project legend

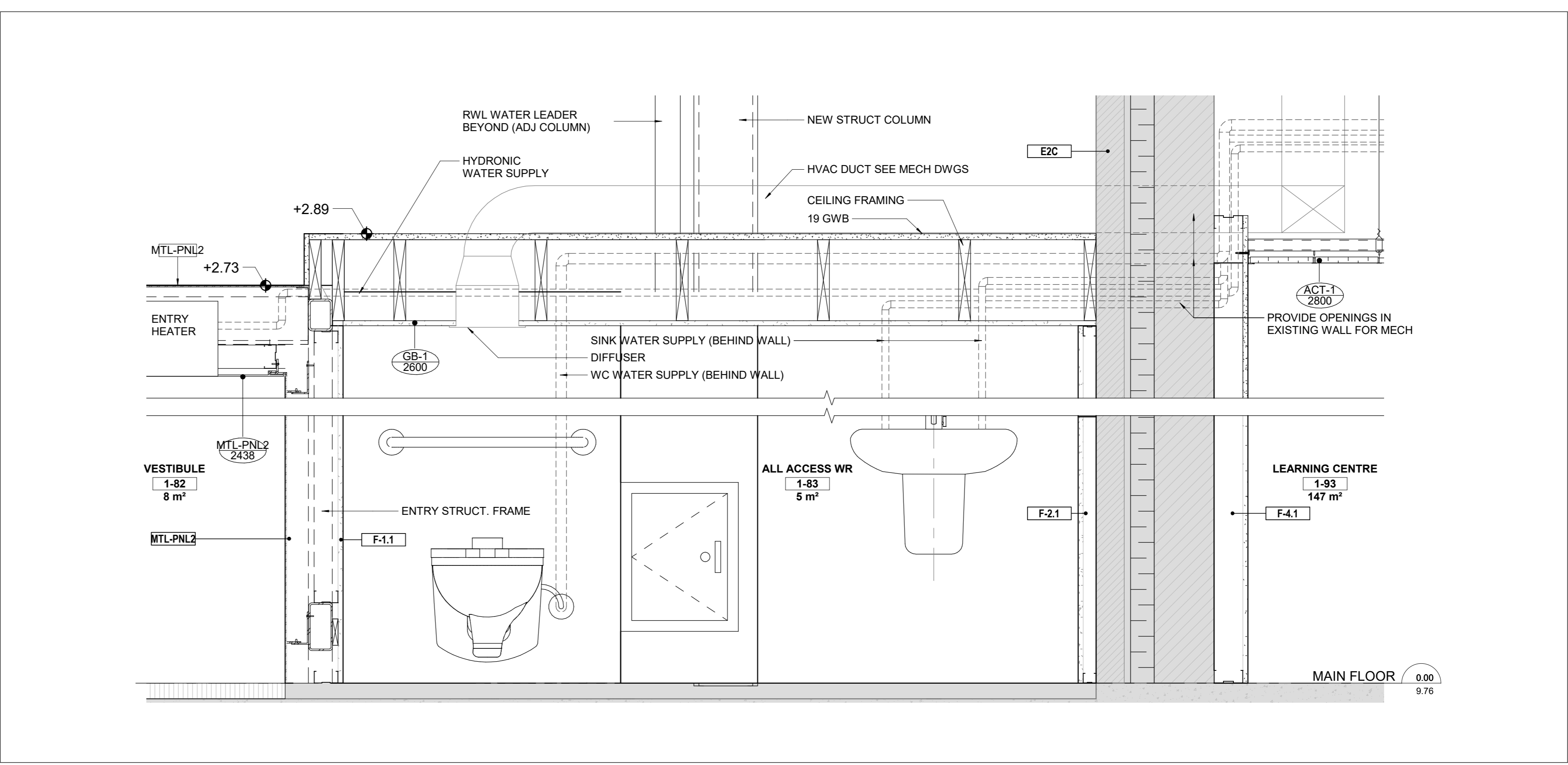
no.	DESCRIPTION	DATE
1	ISSUED FOR TENDER	2022-08-18
2		2022-08-27

PROJECT  
**DANIEL J MACDONALD MODERNIZATION**  
 161 GRAFTON STREET  
 CHARLOTTETOWN, PEI C1A 1L1

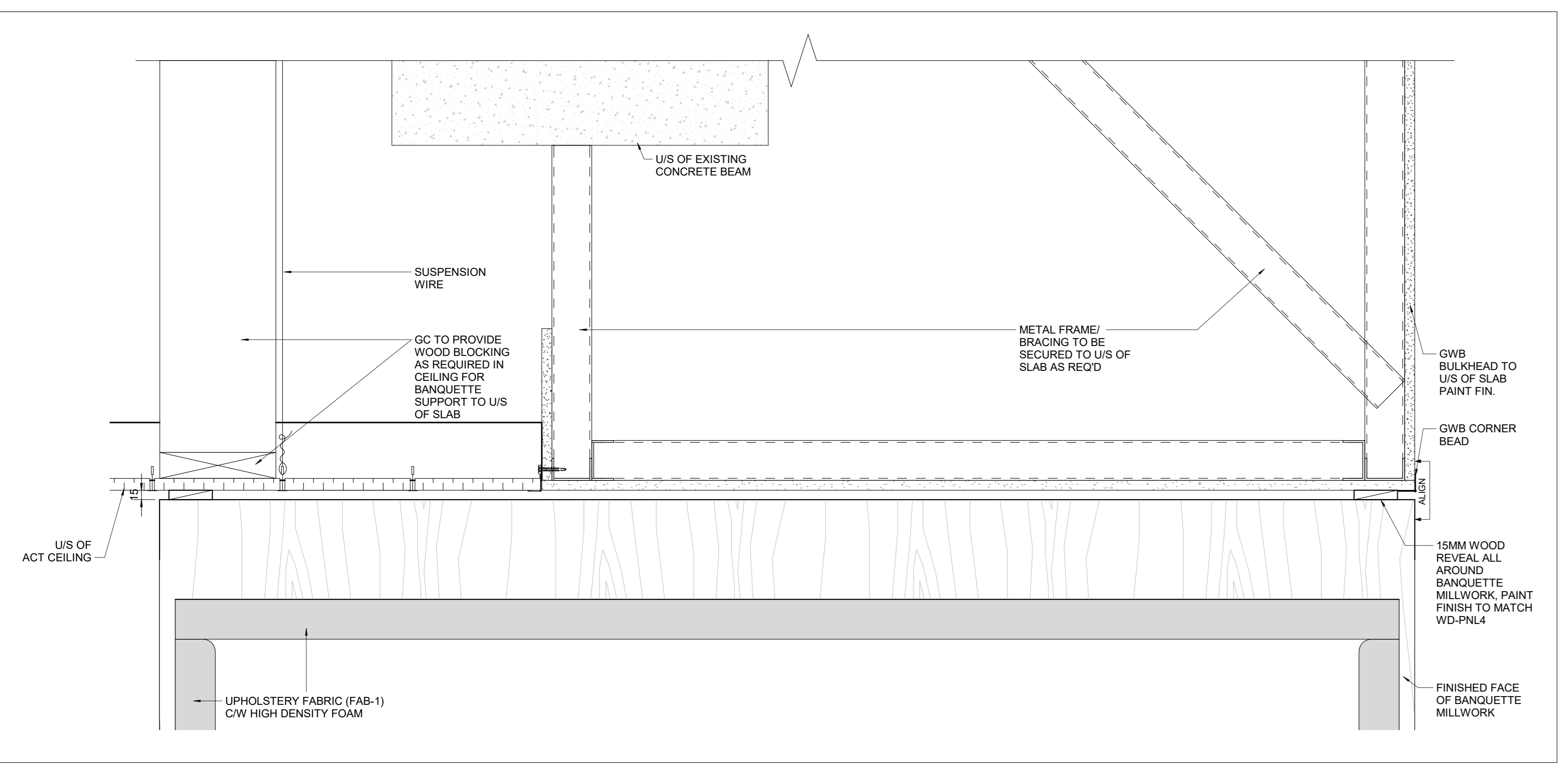
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DESIGNED	CONP
date 2021-09-17	
DRAWN	DESSINÉ
date 2021-09-17	
APPROVED	APPROUVÉ
date 2022-08-18	
TENDER	SUBMISSION
date 2022-08-18	
PROJECT NUMBER	NO. DU PROJET
PWGS Project Manager / Administrateur de projets TPSC	

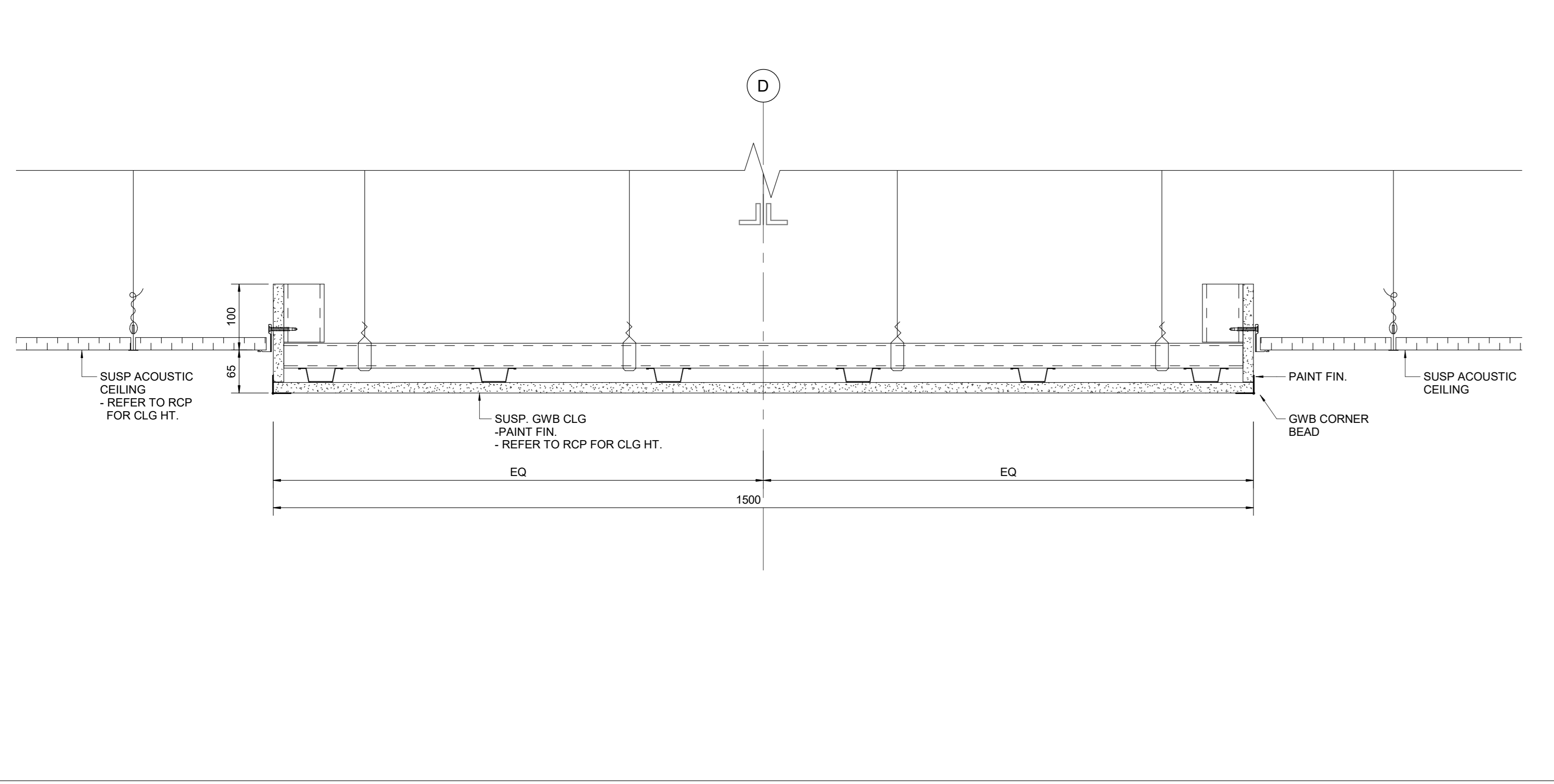
**R.056687.005**  
 drawing no. / no. du dessin  
**A61-02**



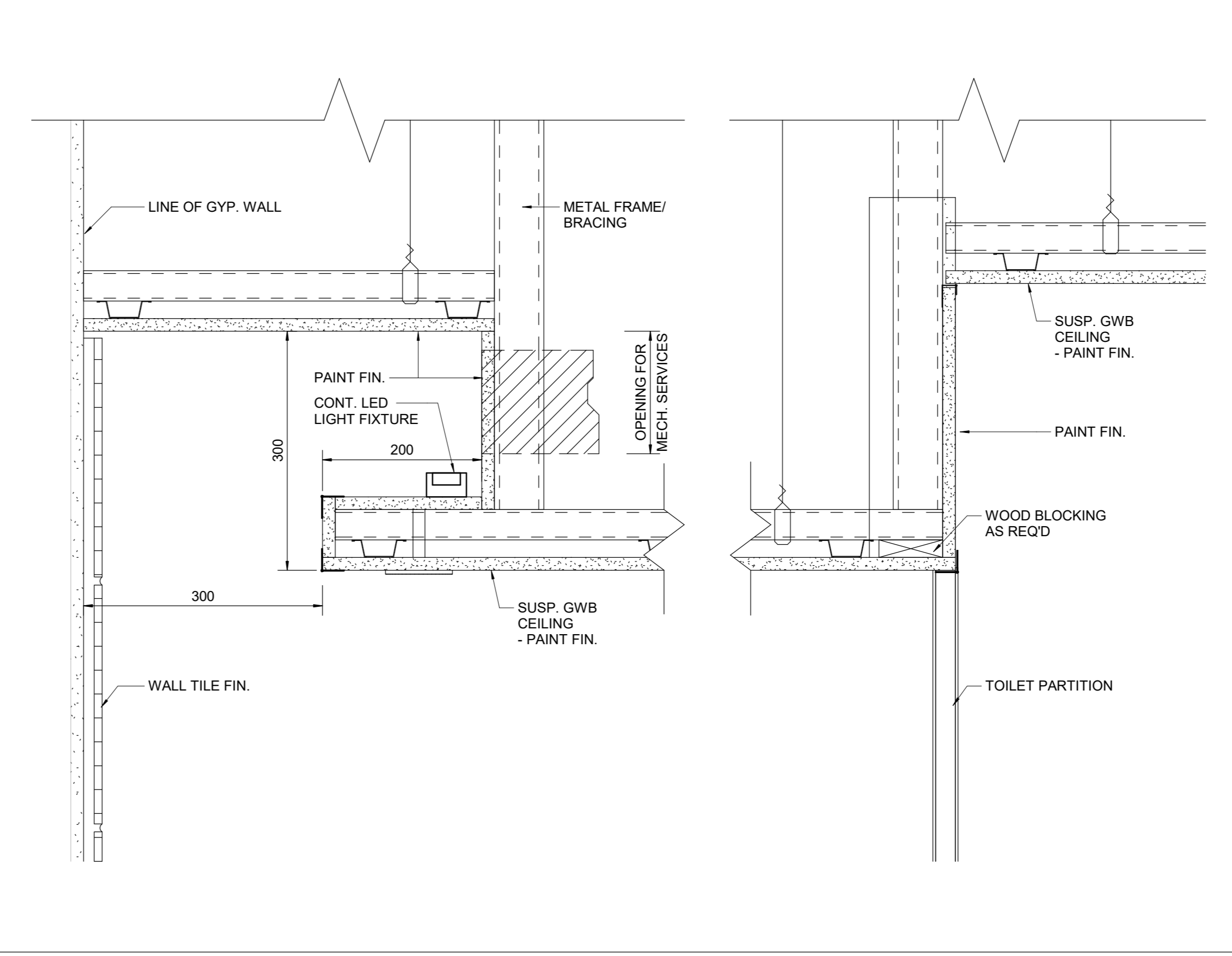
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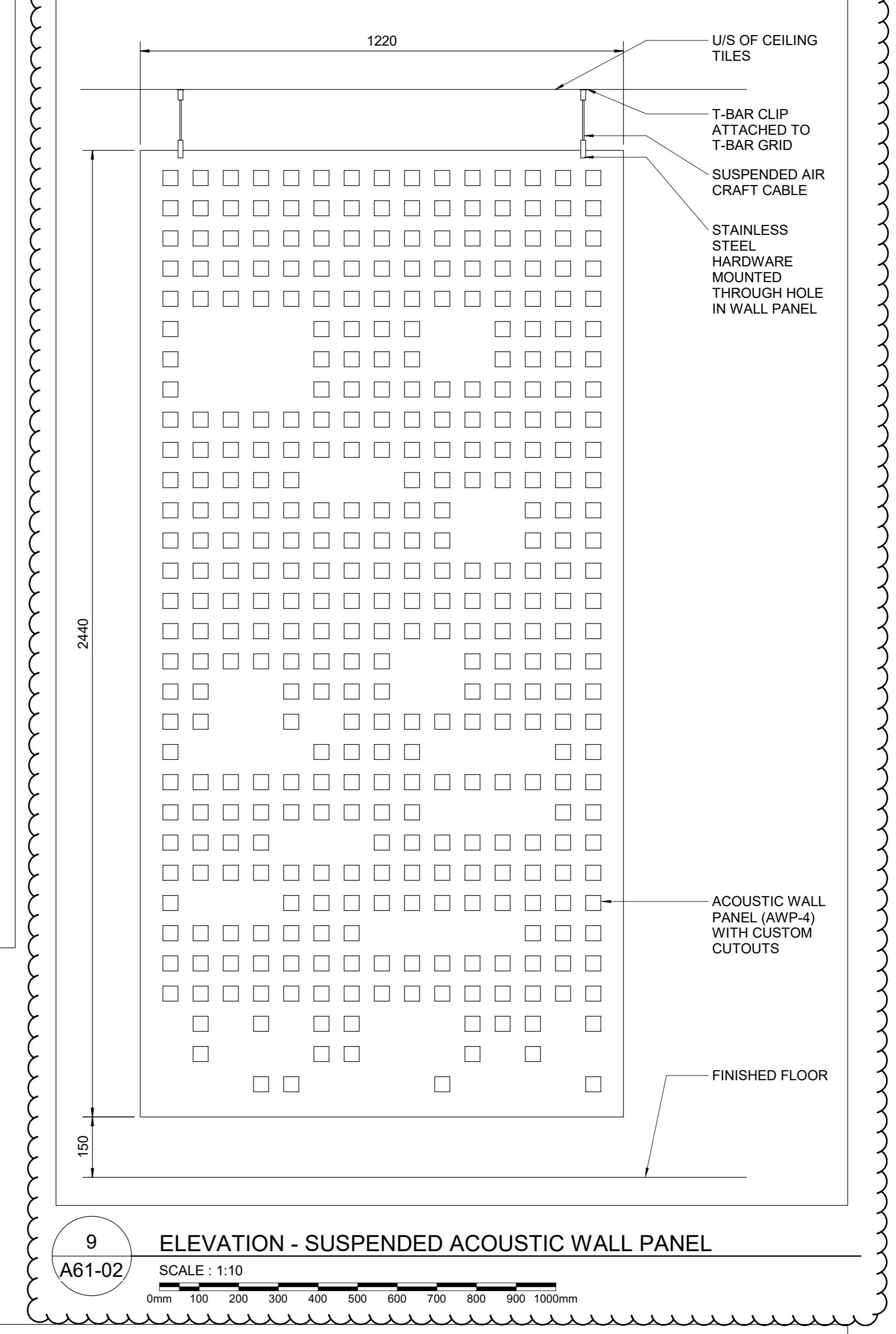
8 SECTION - BANQUETTE DRYWALL/CEILING TILE DETAIL - TYPICAL  
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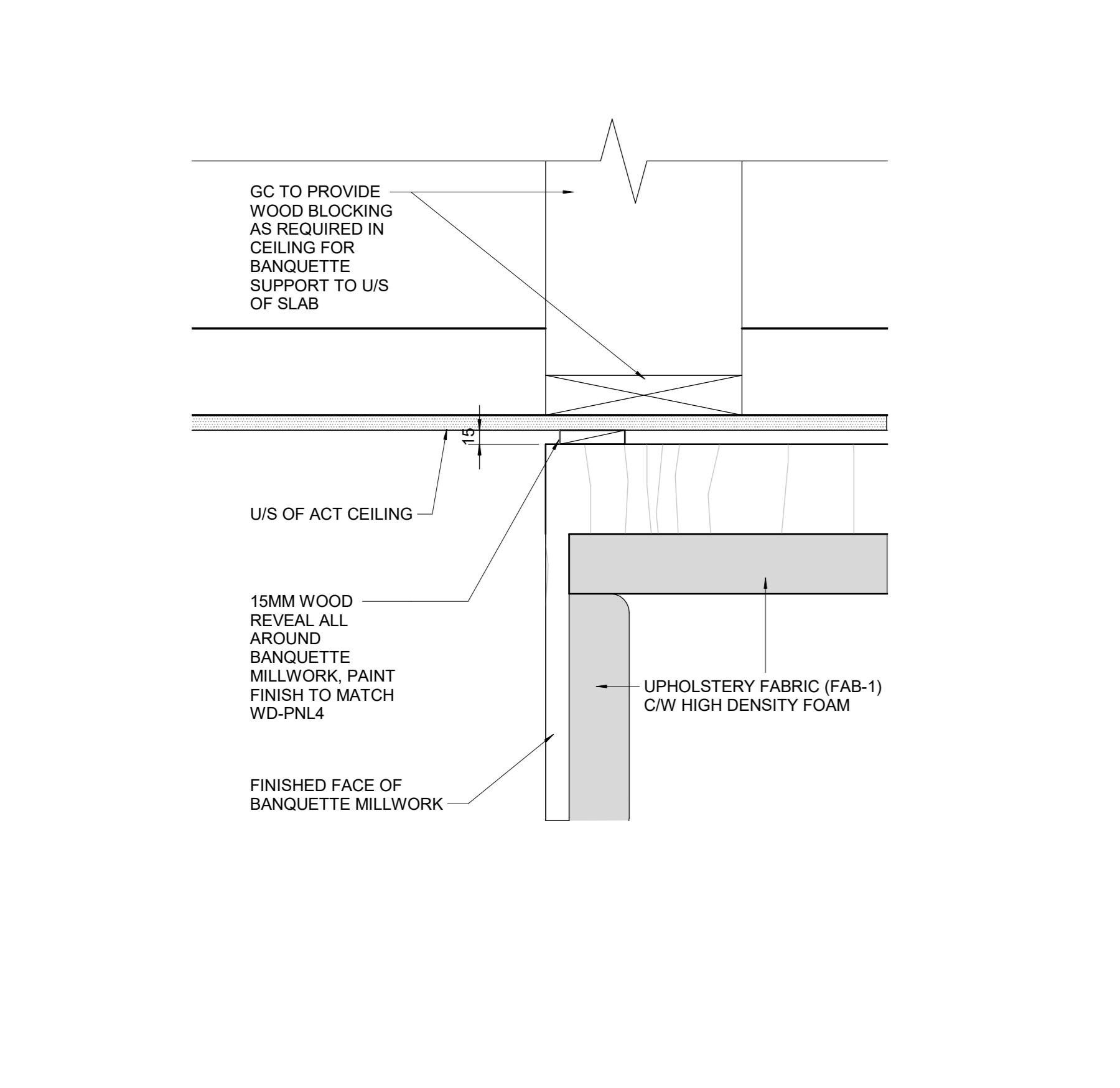
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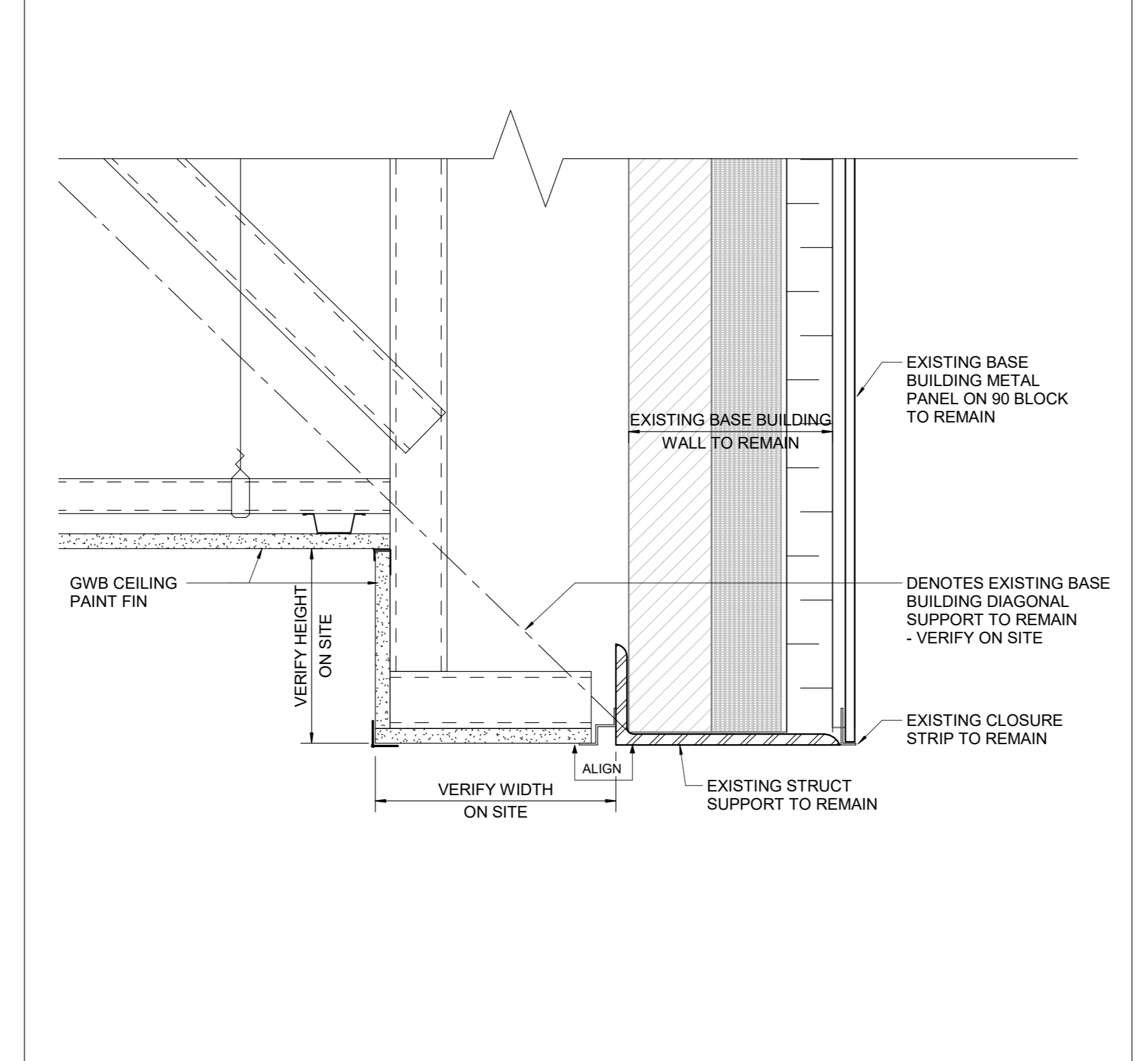
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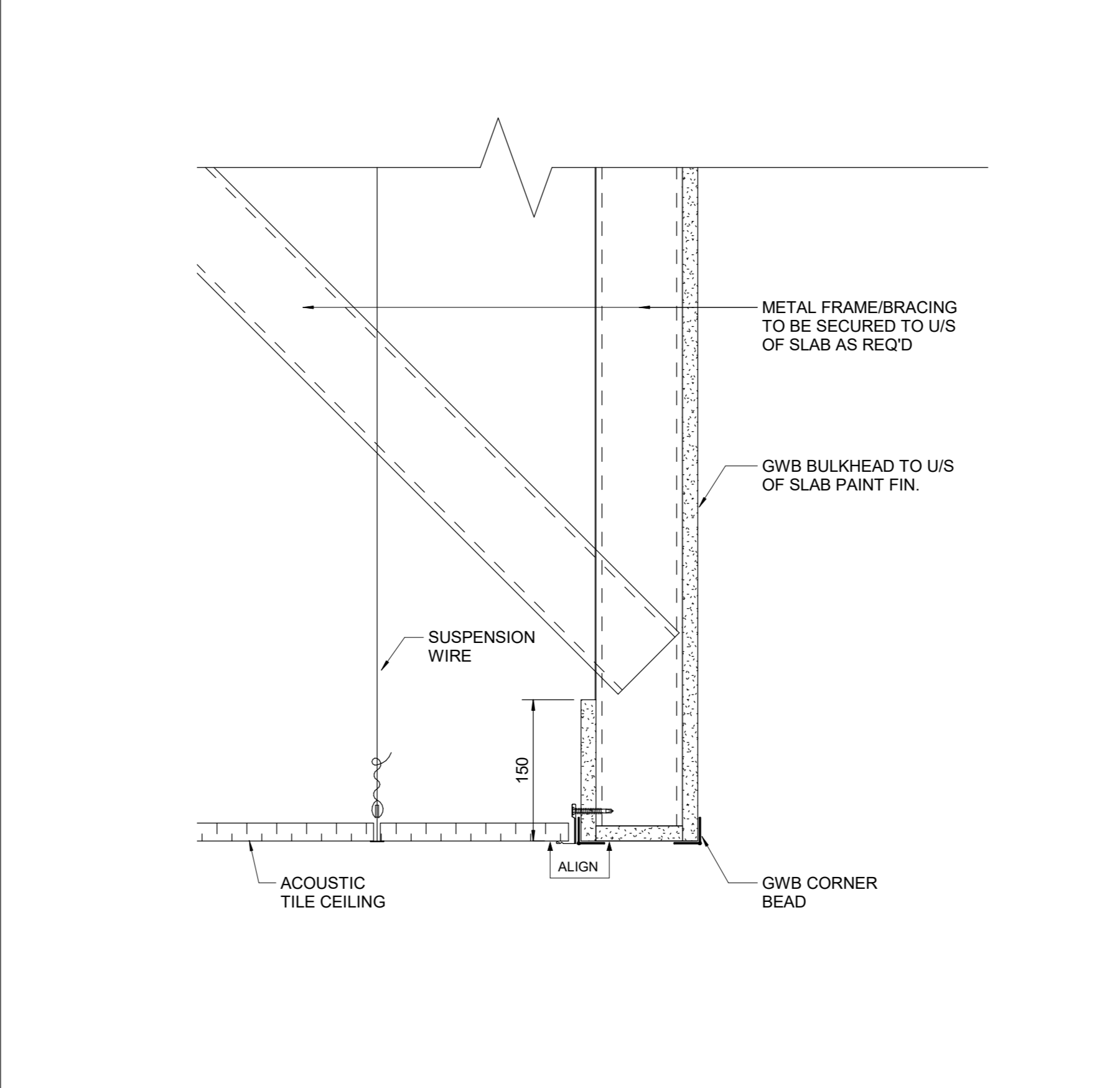
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 SCALE: 1:10



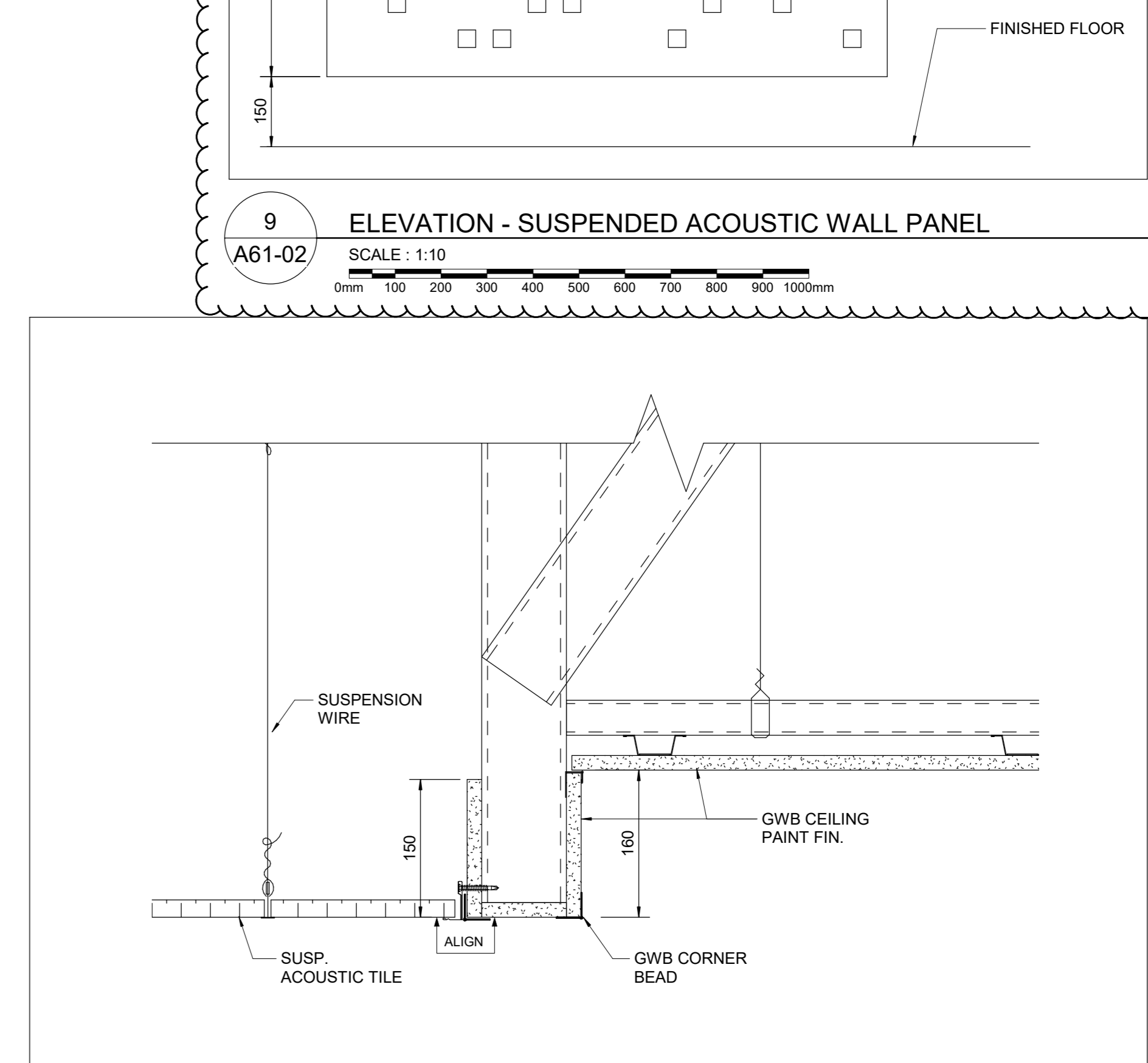
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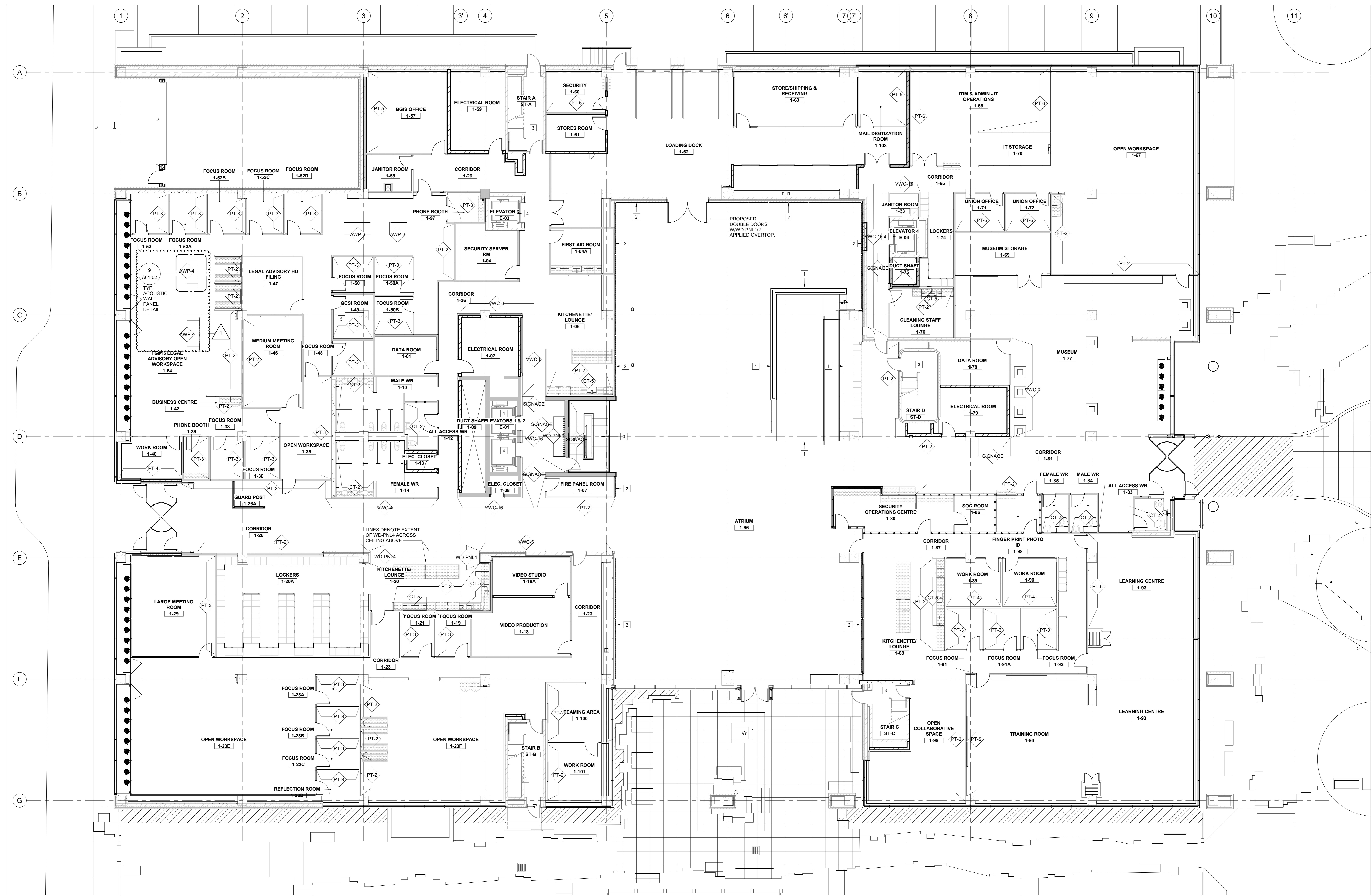
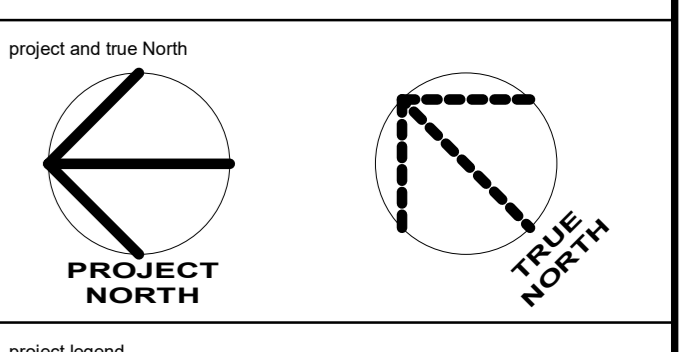
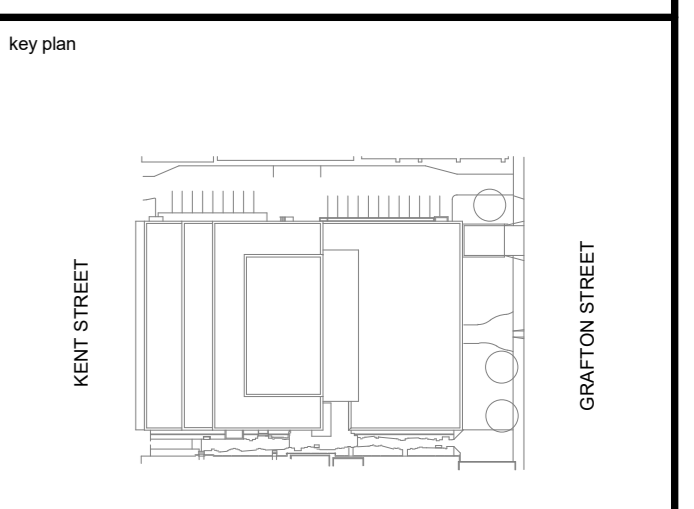
3 SECTION - DRYWALL CEILING TO EXISTING METAL PANEL DETAIL  
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2 SECTION - ACOUSTIC TILE TO DRYWALL CEILING DETAIL 2 - TYPICAL  
 SCALE: 1:5



1 SECTION - ACOUSTIC TILE TO DRYWALL CEILING DETAIL 1 - TYPICAL  
 SCALE: 1:5



**GENERAL WALL FINISH PLAN NOTES**

- WALLS TO BE PAINTED PT-1 EXCEPT IN SHOWER/WASHROOMS AND UNLESS OTHERWISE NOTED.
- WALLS IN SHOWER/WASHROOMS TO RECEIVE CT-3 TO U/S OF CEILING THROUGHOUT AND CT-2 WHERE INDICATED ON PLAN.
- WALLS TO RECEIVE GRAPHICS/BRANDING REQUIRE A LEVEL 5 FINISH PRIOR TO GRAPHIC VENDOR INSTALLATION.
- ALL GLASS FRONTS TO RECEIVE FLM-1 CUSTOM PATTERN. DESIGN TO BE COORDINATED W/ SIGNAGE PACKAGE.
- REFER TO ELEVATIONS FOR EXTENT OF FINISHES.
- REFER TO SIGNAGE PACKAGE FOR EXTENT OF ALL SIGNAGE LOCATIONS. GC TO PREP ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES/ GRAPHICS.
- REFER TO SHEETS A42-01 & A42-02 FOR STAIR FINISH NOTES AND UPGRADES.
- ACCESS PANELS IN TILE WALLS TO BE COORDINATED W/ DEPARTMENTAL REPRESENTATIVE.

**WALL FINISH LEGEND**

AWP-X	ACOUSTIC WALL PANEL. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	PT-6	WRITABLE SURFACE PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
CT-X	PORCELAIN TILE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	VWC-X	VINYL GRAPHIC. REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.
FLM-2	GLASS FILM REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.	WD-PNLX	SOLID WOOD GRILLE W/ACOUSTIC COMPOSITE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
MIR-3	FULL HEIGHT MIRROR. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	WD-PNL4	SOLID WOOD PANEL REFER TO LIST OF MATERIALS FOR SPECIFICATION.
PT-1	FIELD PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	SIGNAGE	SIGNAGE GRAPHIC
PT-X	ACCENT PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.		

**WALL FINISH KEYNOTES**

- REFER TO SHEETS A53-01 FOR LIVINGWALL/ STAGE FINISHES AND DETAILS.
- REFER TO A30 SERIES FOR EXTENT OF AWP-1/2 EXTENT IN ATRIUM. REFER TO SHEETS A51-11 FOR ATRIUM PANEL DETAILS.
- REFER TO A42 SERIES FOR STAIR FINISH UPGRADES. ENSURE ANY NEW SURFACES NOTING GRAPHICS ARE PREPARED TO RECEIVE.
- ELEVATOR CAB INTERIOR TO REMAIN. GC TO PROTECT FROM DAMAGE DURING CONSTRUCTION AND TO CLEAN AS PART OF SCOPE.
- CONTRACTOR TO PROVIDE TWO COATS OF RF PAINT ON WALLS UNDER SPECIFIED PAINT FINISHES.

ACCORDANCE # 1  
ISSUED FOR TENDER  
2022-08-18  
2022-08-27

**DANIEL J MACDONALD  
MODERNIZATION**

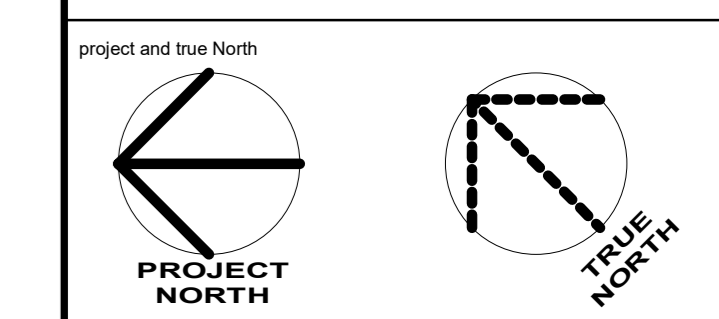
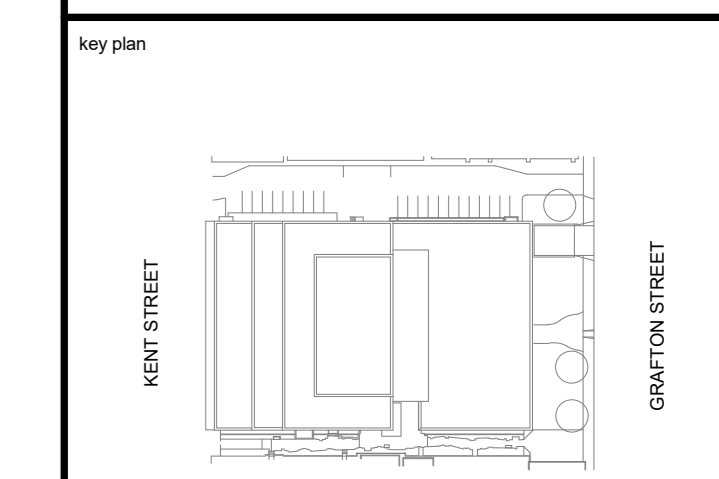
161 GRAFTON STREET  
CHARLOTTETOWN, PEI C1A 1L1

**MAIN FLOOR - WALL  
FINISHES PLAN**

1:100

designed NORR	compu
date 2020-11-13	
drawn NORR	dessiné
date 2020-11-13	
approved AS	approuvé
date 2022-08-18	
Tender	Submission
FWGSC Project Manager	Administrateur de projets TPSC
project number	no. du projet
<b>R.056687.005</b>	
drawing no.	no. du dessin
<b>A91-01</b>	





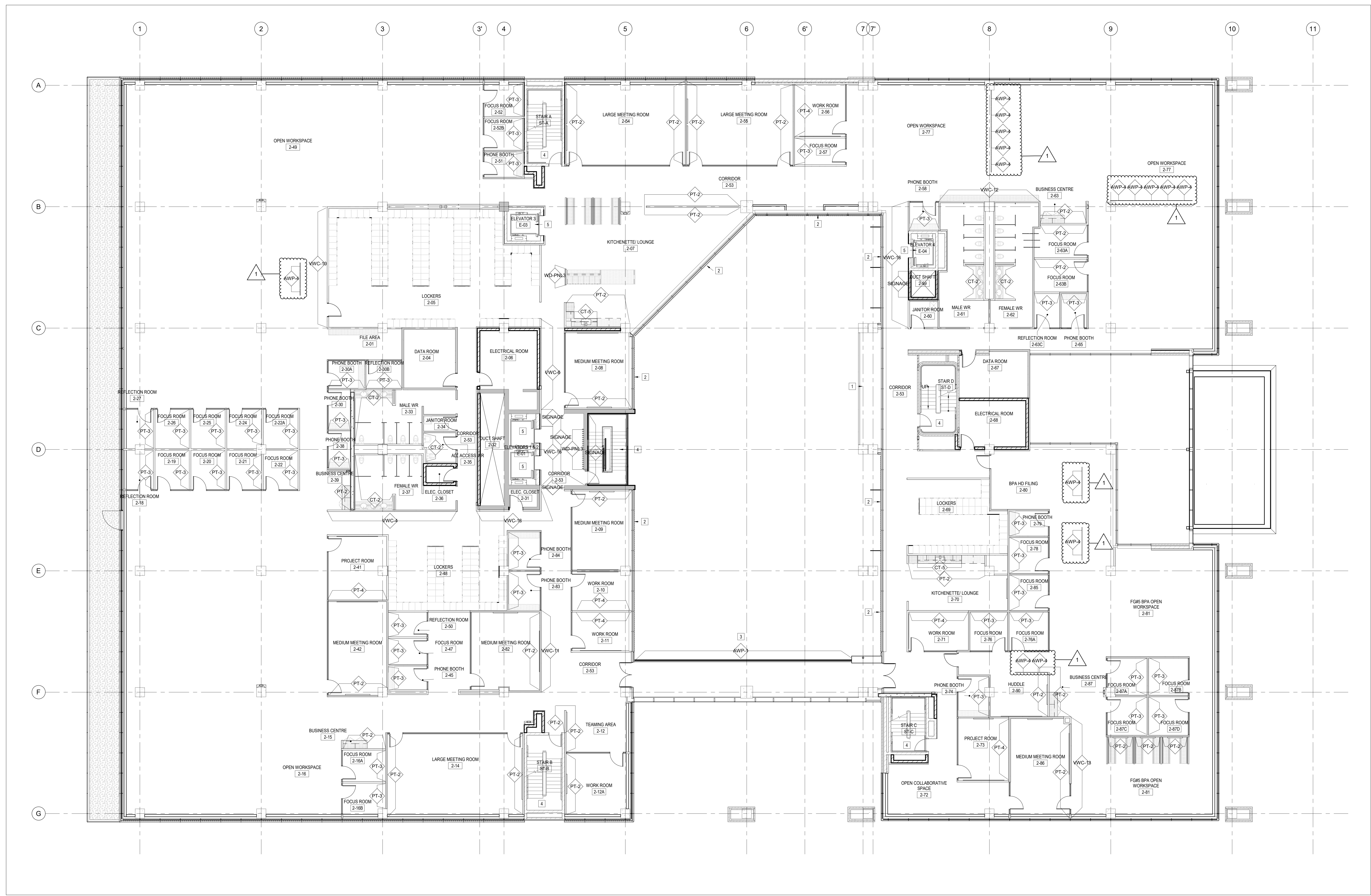
1	ADDENDUM #1	2022-07-11
2	ISSUED FOR TENDER	2022-06-27
revisions		date

project  
**DANIEL J MACDONALD  
 MODERNIZATION**

161 GRAFTON STREET  
 CHARLOTTETOWN, PEI C1A 1L1

drawing  
**SECOND FLOOR -  
 WALL FINISHES PLAN**

designed	NORR	compu
date	2020-11-13	
drawn	NORR	dessiné
date	2020-11-13	
approved	AS	approuvé
date	2022-07-11	
Tender		Submission
Project Manager	Administrateur de projets	TPS&C
project number		no. du projet
<b>R.056687.005</b>		
drawing no.		no. du dessin
<b>A91-02</b>		



SCALE: 1:100  
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**GENERAL WALL FINISH PLAN NOTES**

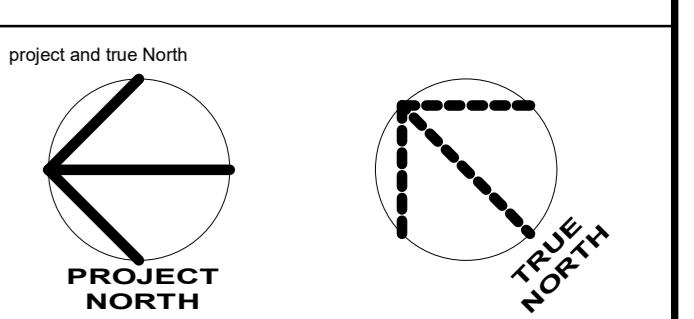
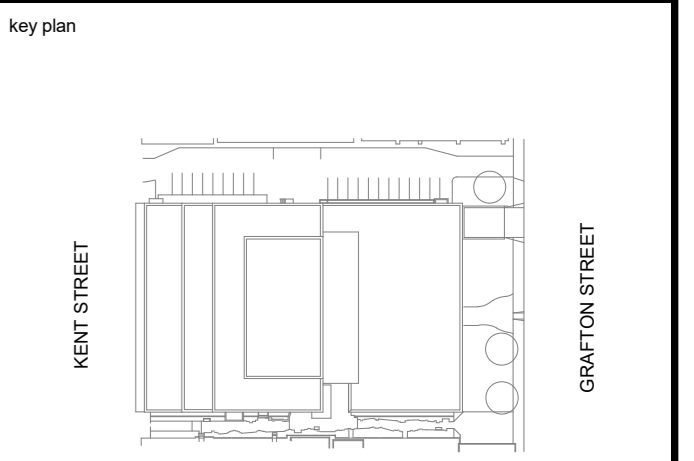
- WALLS TO BE PAINTED PT-1 EXCEPT IN SHOWER/WASHROOMS AND UNLESS OTHERWISE NOTED.
- WALLS IN SHOWER/ WASHROOMS TO RECEIVE CT-3 TO U/S OF CEILING THROUGHOUT AND CT-2 WHERE INDICATED ON PLAN.
- WALLS TO RECEIVE GRAPHICS/ BRANDING REQUIRE A LEVEL 5 FINISH PRIOR TO GRAPHIC VENDOR INSTALLATION.
- ALL GLASS FRONTS TO RECEIVE FLM-1 CUSTOM PATTERN. DESIGN TO BE COORDINATED W/ SIGNAGE PACKAGE.
- REFER TO ELEVATIONS FOR EXTENT OF FINISHES.
- REFER TO SIGNAGE PACKAGE FOR EXTENT OF ALL SIGNAGE LOCATIONS. GC TO PREP ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES/ GRAPHICS.
- REFER TO SHEETS A42-01 & A42-02 FOR STAIR FINISH NOTES AND UPGRADES.
- ACCESS PANELS IN TILE WALLS TO BE COORDINATED W/ DEPARTMENTAL REPRESENTATIVE.

**WALL FINISH LEGEND**

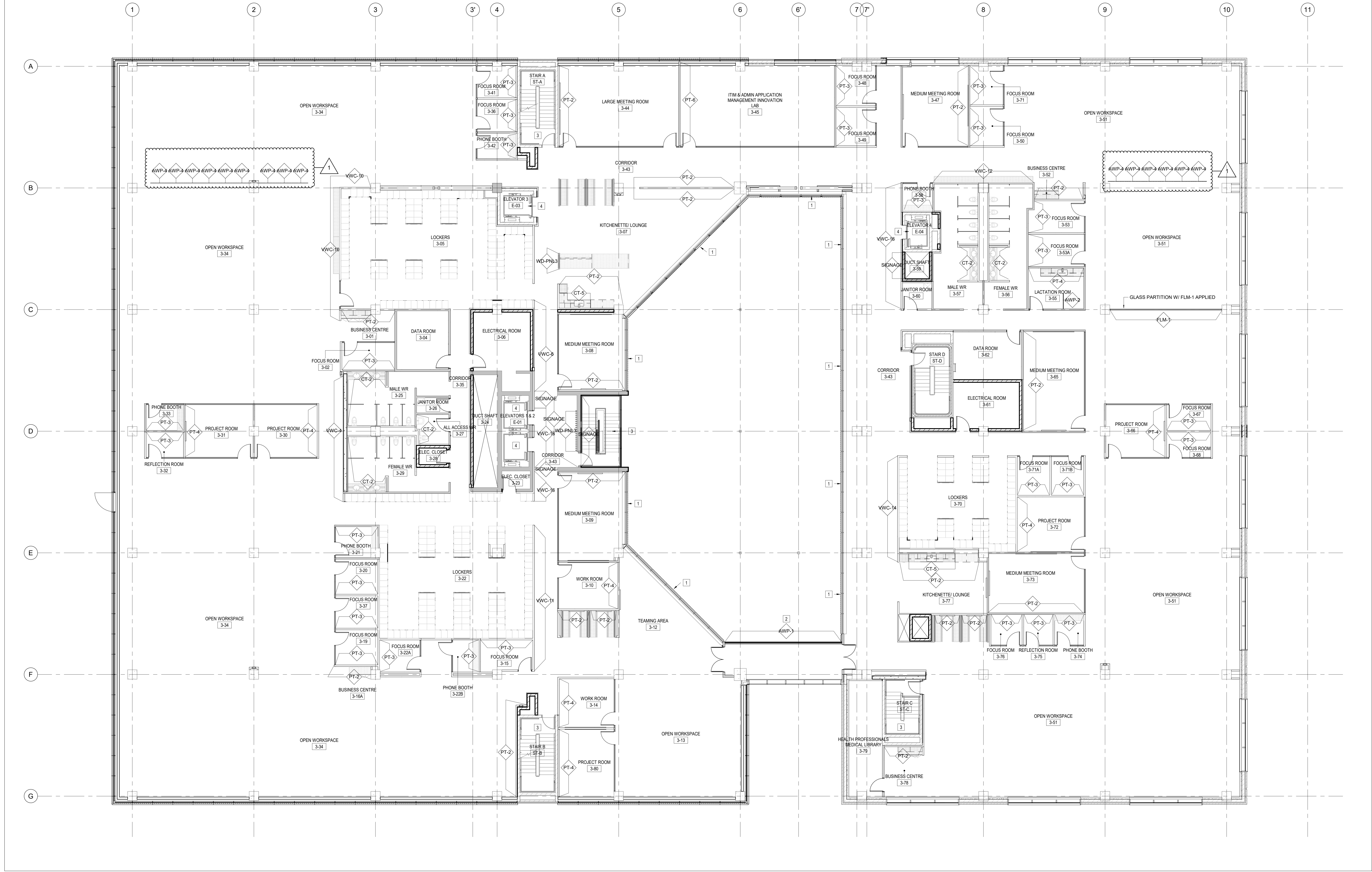
<b>AWP-X</b>	ACOUSTIC WALL PANEL. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>PT-6</b>	WRITABLE SURFACE PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
<b>CT-X</b>	PORCELAIN TILE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>VWC-X</b>	VINYL GRAPHIC. REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.
<b>FLM-2</b>	GLASS FILM REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.	<b>WD-PNL-X</b>	SOLID WOOD GRILLE W/ACOUSTIC COMPOSITE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
<b>MIR-3</b>	FULL HEIGHT MIRROR. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>WD-PNL-4</b>	SOLID WOOD PANEL REFER TO LIST OF MATERIALS FOR SPECIFICATION.
<b>PT-1</b>	FIELD PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>SIGNAGE</b>	SIGNAGE GRAPHIC
<b>PT-X</b>	ACCENT PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.		

**WALL FINISH KEYNOTES**

- REFER TO SHEETS A53-01 FOR LIVINGWALL FINISHES AND DETAILS.
- REFER TO A30 SERIES FOR EXTENT OF WD-PNL1/2 EXTENT IN ATRIUM. REFER TO SHEETS A51-01 FOR ATRIUM PANEL DETAILS.
- REFER TO SHEETS A51-07 FOR BRIDGE DETAILS.
- REFER TO A42 SERIES FOR STAIR FINISH UPGRADES. ENSURE ANY NEW SURFACES NOTING GRAPHICS ARE PREPPED TO RECEIVE.
- ELEVATOR CAB INTERIOR TO REMAIN. GC TO PROTECT FROM DAMAGE DURING CONSTRUCTION AND TO CLEAN AS PART OF SCOPE.



project legend



SCALE: 1:100  
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

- GENERAL WALL FINISH PLAN NOTES**
1. WALLS TO BE PAINTED PT-1 EXCEPT IN SHOWER/WASHROOMS AND UNLESS OTHERWISE NOTED.
  2. WALLS IN SHOWER/WASHROOMS TO RECEIVE CT-3 TO UIS OF CEILING THROUGHOUT AND CT-2 WHERE INDICATED ON PLAN.
  3. WALLS TO RECEIVE GRAPHICS/ BRANDING REQUIRE A LEVEL 5 FINISH PRIOR TO GRAPHIC VENDOR INSTALLATION.
  4. ALL GLASS FRONTS TO RECEIVE FLM-1 CUSTOM PATTERN DESIGN TO BE COORDINATED W/ SIGNAGE PACKAGE.
  5. REFER TO ELEVATIONS FOR EXTENT OF FINISHES.
  6. REFER TO SIGNAGE PACKAGE FOR EXTENT OF ALL SIGNAGE LOCATIONS. GC TO PREP ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES/ GRAPHICS.
  7. REFER TO SHEETS A42-01 & A42-02 FOR STAIR FINISH NOTES AND UPGRADES.
  8. ACCESS PANELS IN TILE WALLS TO BE COORDINATED W/ DEPARTMENTAL REPRESENTATIVE.

**WALL FINISH LEGEND**

<b>AWP-X</b> ACOUSTIC WALL PANEL. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>PT-6</b> WRITABLE SURFACE PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
<b>CT-X</b> PORCELAIN TILE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>VWC-X</b> VINYL GRAPHIC. REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.
<b>FLM-2</b> GLASS FILM REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.	<b>WD-PNLX</b> SOLID WOOD GRILLE W/ACOUSTIC COMPOSITE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
<b>MIR-3</b> FULL HEIGHT MIRROR. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>WD-PNL4</b> SOLID WOOD PANEL REFER TO LIST OF MATERIALS FOR SPECIFICATION.
<b>PT-1</b> FIELD PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	<b>SIGNAGE</b> SIGNAGE GRAPHIC
<b>PT-X</b> ACCENT PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	

- WALL FINISH KEYNOTES**
- 1 REFER TO A30 SERIES FOR EXTENT OF WD-PNL1/2 EXTENT IN ATRIUM. REFER TO SHEETS A51-01 FOR ATRIUM PANEL DETAILS.
  - 2 REFER TO SHEETS A51-07 FOR BRIDGE DETAILS.
  - 3 REFER TO A42 SERIES FOR STAIR FINISH UPGRADES. ENSURE ANY NEW SURFACES NOTING GRAPHICS ARE PREPPED TO RECEIVE.
  - 4 ELEVATOR CAB INTERIOR TO REMAIN. GC TO PROTECT FROM DAMAGE DURING CONSTRUCTION AND TO CLEAN AS PART OF SCOPE.

1	ADDENDUM # 1	2022-08-18
2	ISSUED FOR TENDER	2022-09-07
revisions		date

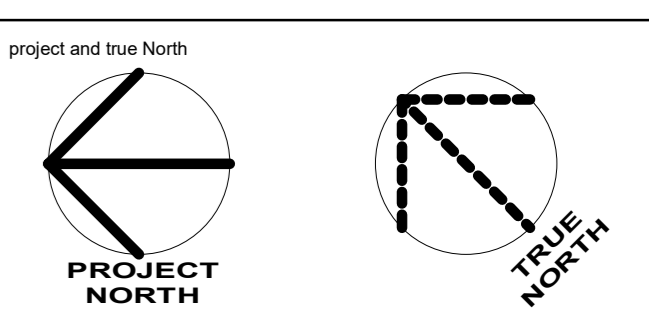
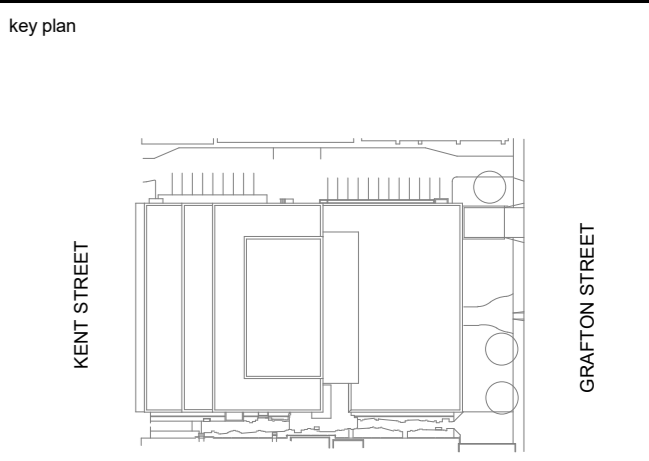
project  
**DANIEL J MACDONALD MODERNIZATION**

161 GRAFTON STREET  
CHARLOTTETOWN, PEI C1A 1L1

**THIRD FLOOR - WALL FINISHES PLAN**

1:100

designed NORR	compu
date 2020-11-13	
drawn NORR	dessiné
date 2020-11-13	
approved AS	approuvé
date 2022-08-18	
Tender	Submission
FWGSC Project Manager	Administrateur de projets TP/SGC
project number	no. du projet
<b>R.056687.005</b>	
drawing no.	no. du dessin
<b>A91-03</b>	



project legend

1	ADDENDUM # 1	2022-08-18
2	ISSUED FOR TENDER	2022-09-27

revisions

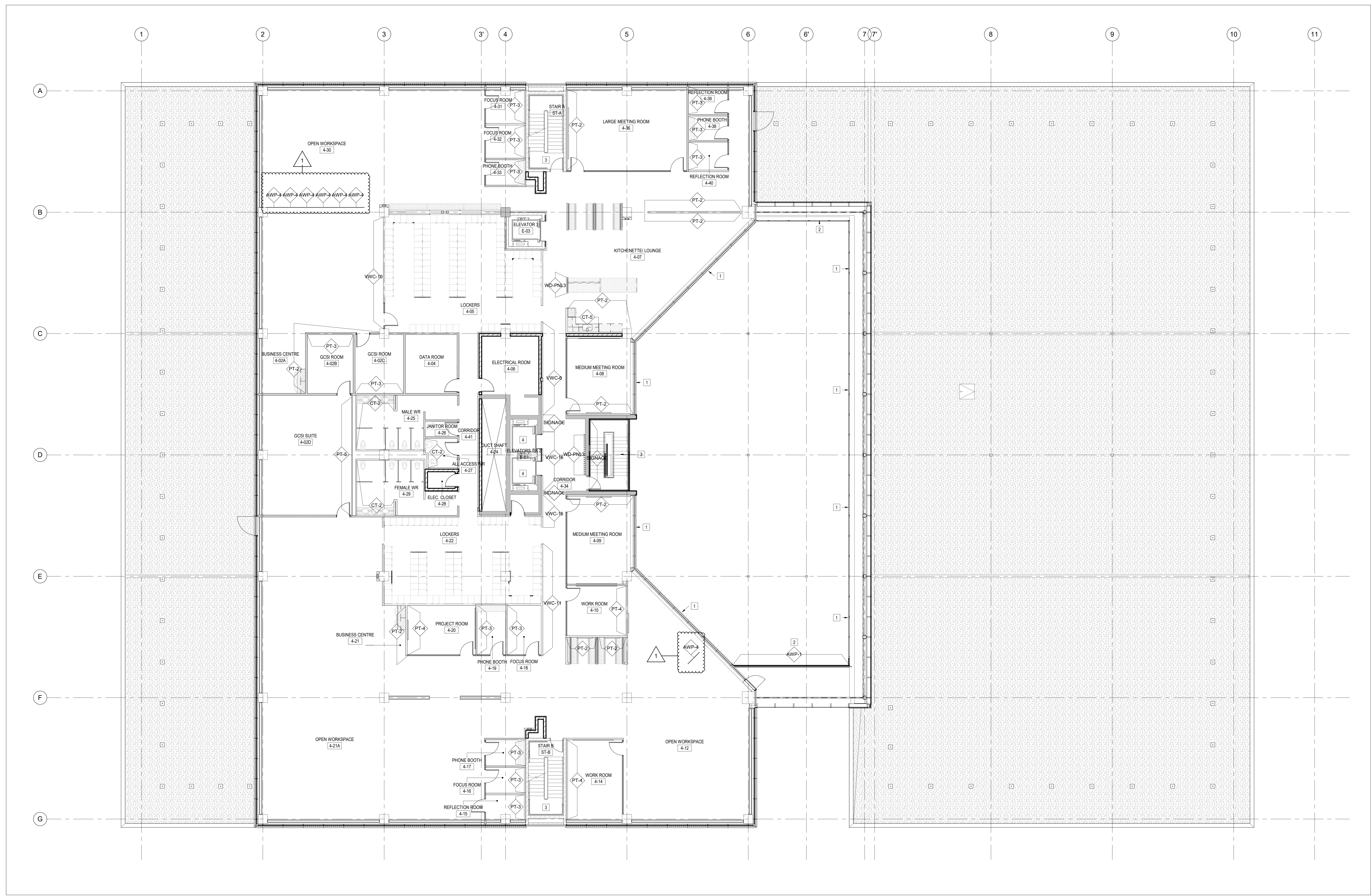
project  
**DANIEL J MACDONALD MODERNIZATION**

161 GRAFTON STREET  
 CHARLOTTETOWN, PEI C1A 1L1

**FOURTH FLOOR - WALL FINISHES PLAN**

1:100

designed NORR	compu
date 2020-11-13	
drawn NORR	dessiné
date 2020-11-13	
approved AS	approuvé
date 2022-08-18	
Tender	Submission
FWGSC Project Manager	Administrateur de projets TPSCG
project number	no. du projet
<b>R.056687.005</b>	
drawing no.	no. du dessin
<b>A91-04</b>	



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**GENERAL WALL FINISH PLAN NOTES**

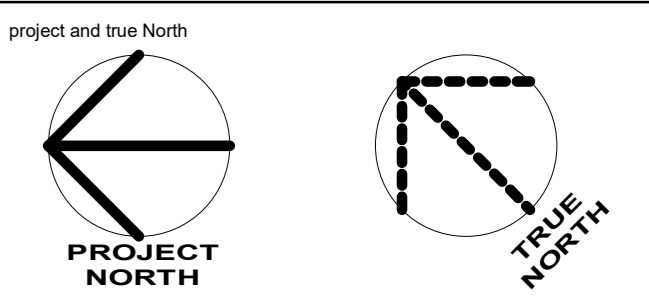
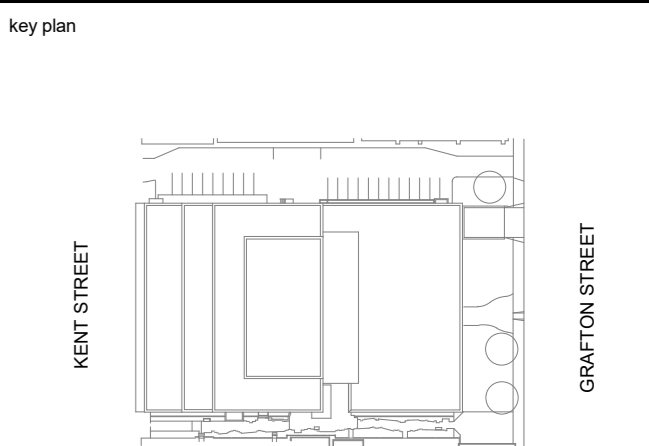
1. WALLS TO BE PAINTED PT-1 EXCEPT IN SHOWER/WASHROOMS AND UNLESS OTHERWISE NOTED.
2. WALLS IN SHOWER/WASHROOMS TO RECEIVE CT-3 TO U/S OF CEILING THROUGHOUT AND CT-2 WHERE INDICATED ON PLAN.
3. WALLS TO RECEIVE GRAPHICS/ BRANDING REQUIRE A LEVEL 5 FINISH PRIOR TO GRAPHIC VENDOR INSTALLATION.
4. ALL GLASS FRONTS TO RECEIVE FLM-1 CUSTOM PATTERN DESIGN TO BE COORDINATED W/ SIGNAGE PACKAGE.
5. REFER TO ELEVATIONS FOR EXTENT OF FINISHES.
6. REFER TO SIGNAGE PACKAGE FOR EXTENT OF ALL SIGNAGE LOCATIONS. GC TO PREP ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES/ GRAPHICS.
7. REFER TO SHEETS A42-01 & A42-02 FOR STAIR FINISH NOTES AND UPGRADES.
8. ACCESS PANELS IN TILE WALLS TO BE COORDINATED W/ DEPARTMENTAL REPRESENTATIVE.

**WALL FINISH LEGEND**

AWP-X	ACOUSTIC WALL PANEL. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	PT-6	WRITABLE SURFACE PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
CT-X	PORCELAIN TILE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	VWC-X	VINYL GRAPHIC. REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.
FLM-2	GLASS FILM REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.	WD-PNLX	SOLID WOOD GRILLE W/ACOUSTIC COMPOSITE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
MIR-3	FULL HEIGHT MIRROR. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	WD-PNL4	SOLID WOOD PANEL REFER TO LIST OF MATERIALS FOR SPECIFICATION.
PT-1	FIELD PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	SIGNAGE	SIGNAGE GRAPHIC
PT-X	ACCENT PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.		

**WALL FINISH KEYNOTES**

- 1 REFER TO A30 SERIES FOR EXTENT OF WD-PNL1/2 EXTENT IN ATRIUM. REFER TO SHEETS A51-01 FOR ATRIUM PANEL DETAILS.
- 2 REFER TO SHEETS A51-07 FOR BRIDGE DETAILS.
- 3 REFER TO A42 SERIES FOR STAIR FINISH UPGRADES. ENSURE ANY NEW SURFACES NOTING GRAPHICS ARE PREPPED TO RECEIVE.
- 4 ELEVATOR CAB INTERIOR TO REMAIN. GO TO PROTECT FROM DAMAGE DURING CONSTRUCTION AND TO CLEAN AS PART OF SCOPE.



project legend

1	ADDENDUM #1	2022-08-18
2	ISSUED FOR TENDER	2022-09-27

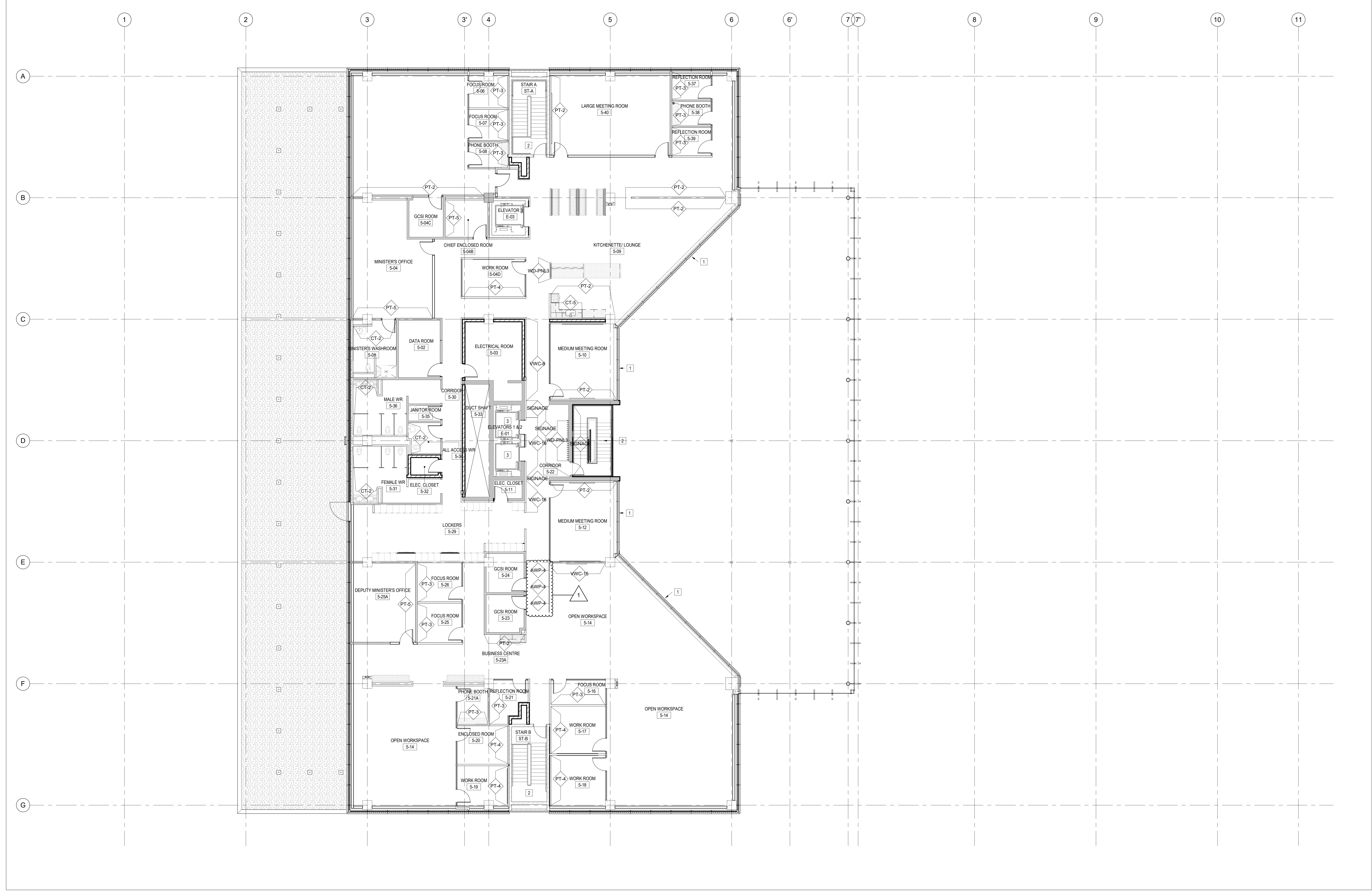
project  
**DANIEL J MACDONALD MODERNIZATION**

161 GRAFTON STREET  
CHARLOTTETOWN, PEI C1A 1L1

drawing  
**FIFTH FLOOR - WALL FINISHES PLAN**

1:100

designed	NORR	compu
date	2020-11-13	
drawn	NORR	dessiné
date	2020-11-13	
approved	AS	approuvé
date	2022-08-18	
Tender	Soumission	
FWGSC Project Manager	Administrateur de projets TP/SC	
project number	no. du projet	
	<b>R.056687.005</b>	
drawing no.	no. du dessin	
	<b>A91-05</b>	

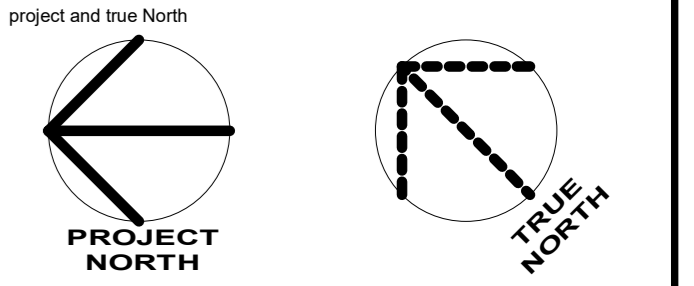
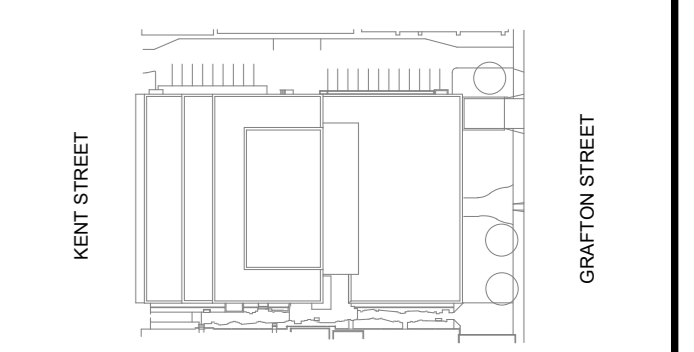


- GENERAL WALL FINISH PLAN NOTES**
1. WALLS TO BE PAINTED PT-1 EXCEPT IN SHOWER/WASHROOMS AND UNLESS OTHERWISE NOTED.
  2. WALLS IN SHOWER/WASHROOMS TO RECEIVE CT-3 TO UIS OF CEILING THROUGHOUT AND CT-2 WHERE INDICATED ON PLAN.
  3. WALLS TO RECEIVE GRAPHICS/ BRANDING REQUIRE A LEVEL 5 FINISH PRIOR TO GRAPHIC VENDOR INSTALLATION.
  4. ALL GLASS FRONTS TO RECEIVE FLM-1 CUSTOM PATTERN DESIGN TO BE COORDINATED W/ SIGNAGE PACKAGE.
  5. REFER TO ELEVATIONS FOR EXTENT OF FINISHES.
  6. REFER TO SIGNAGE PACKAGE FOR EXTENT OF ALL SIGNAGE LOCATIONS. GC TO PREP ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES/ GRAPHICS.
  7. REFER TO SHEETS A42-01 & A42-02 FOR STAIR FINISH NOTES AND UPGRADES.
  8. ACCESS PANELS IN TILE WALLS TO BE COORDINATED W/ DEPARTMENTAL REPRESENTATIVE.

**WALL FINISH LEGEND**

AWP-X	ACOUSTIC WALL PANEL. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	PT-6	WRITABLE SURFACE PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
CT-X	PORCELAIN TILE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	VWC-X	VINYL GRAPHIC. REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.
FLM-2	GLASS FILM REFER TO LIST OF MATERIALS & SIGNAGE PACKAGE FOR SPECIFICATION.	WD-PNLX	SOLID WOOD GRILLE W/ACOUSTIC COMPOSITE. REFER TO LIST OF MATERIALS FOR SPECIFICATION.
MIR-3	FULL HEIGHT MIRROR. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	WD-PNL4	SOLID WOOD PANEL REFER TO LIST OF MATERIALS FOR SPECIFICATION.
PT-1	FIELD PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.	SIGNAGE	SIGNAGE GRAPHIC
PT-X	ACCENT PAINT. REFER TO LIST OF MATERIALS FOR SPECIFICATION.		

- WALL FINISH KEYNOTES**
- 1 REFER TO A30 SERIES FOR EXTENT OF WD-PNL1/2 EXTENT IN ATRIUM. REFER TO SHEETS A51-01 FOR ATRIUM PANEL DETAILS.
  - 2 REFER TO A42 SERIES FOR STAIR FINISH UPGRADES. ENSURE ANY NEW SURFACES NOTING GRAPHICS ARE PREPPED TO RECEIVE.
  - 3 ELEVATOR CAB INTERIOR TO REMAIN. GC TO PROTECT FROM DAMAGE DURING CONSTRUCTION AND TO CLEAN AS PART OF SCOPE.



PROJECT NORTH  
TRUE NORTH

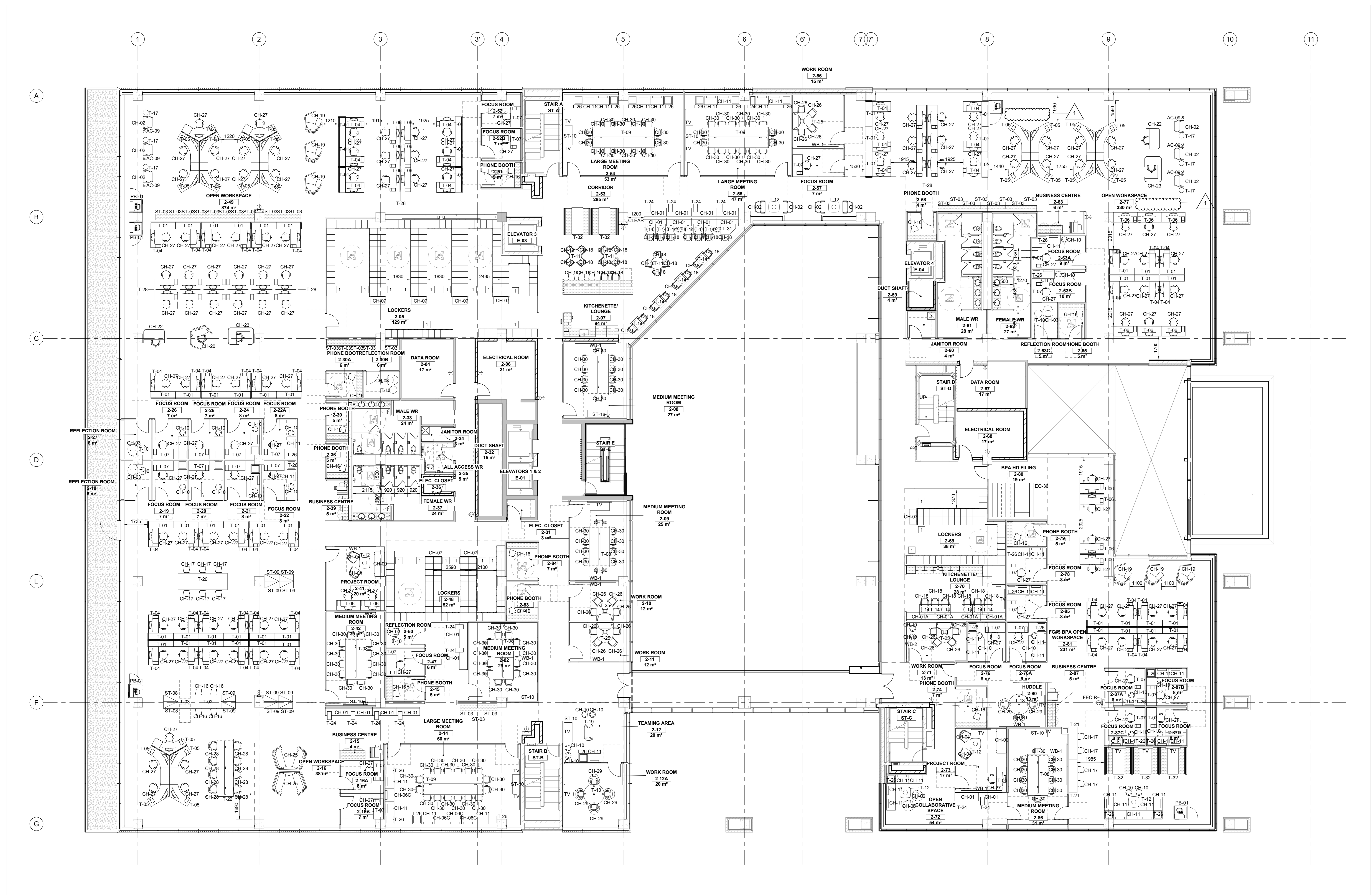
1	ADDENDUM #1	2022-08-18
2	ISSUED FOR TENDER	2022-08-27

PROJECT  
**DANIEL J MACDONALD  
MODERNIZATION**

161 GRAFTON STREET  
CHARLOTTETOWN, PEI, C1A 1L1

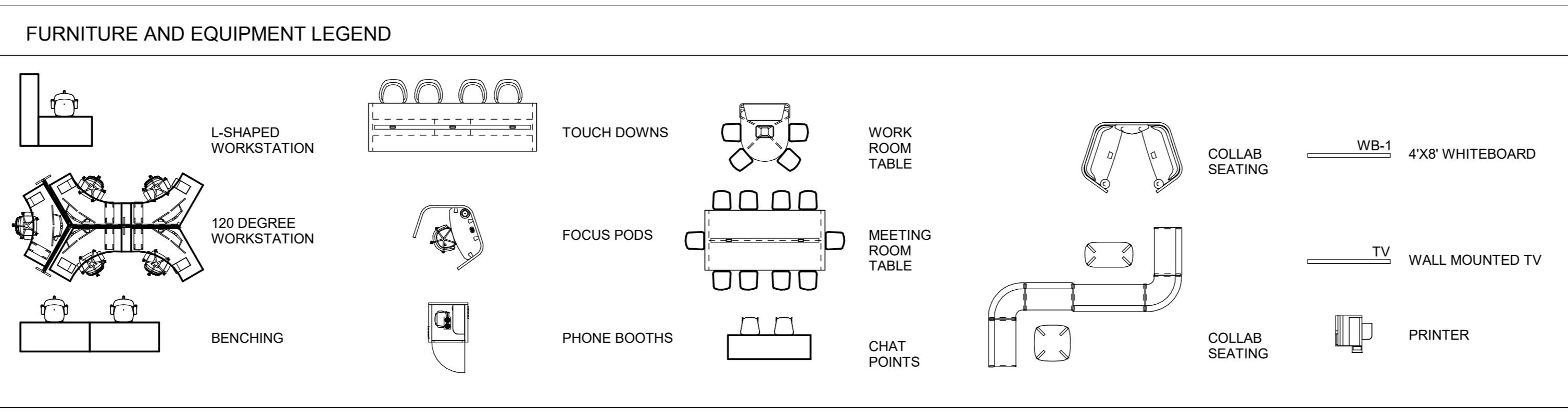
**SECOND FLOOR  
FURNITURE &  
EQUIPMENT PLAN**  
1:100

designed NORR	compu
date 2018-12-19	
drawn NORR	dessiné
date 2018-12-19	
approved AS	approuvé
date 2022-08-18	
Tender	Submission
FWGSC Project Manager	Administrateur de projets TPSC
project number	no. du projet
<b>R.056687.005</b>	
drawing no.	no. du dessin
<b>A93-02</b>	



**GENERAL FURNITURE AND EQUIPMENT PLAN NOTES**

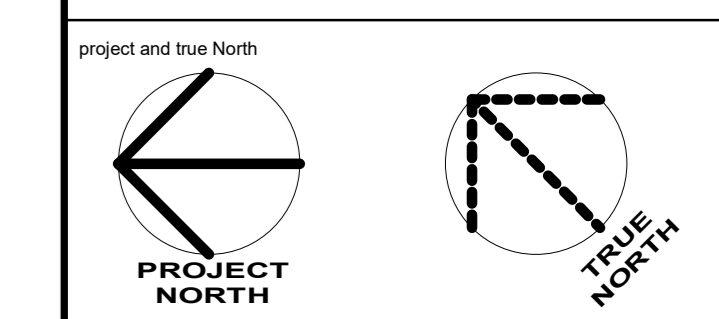
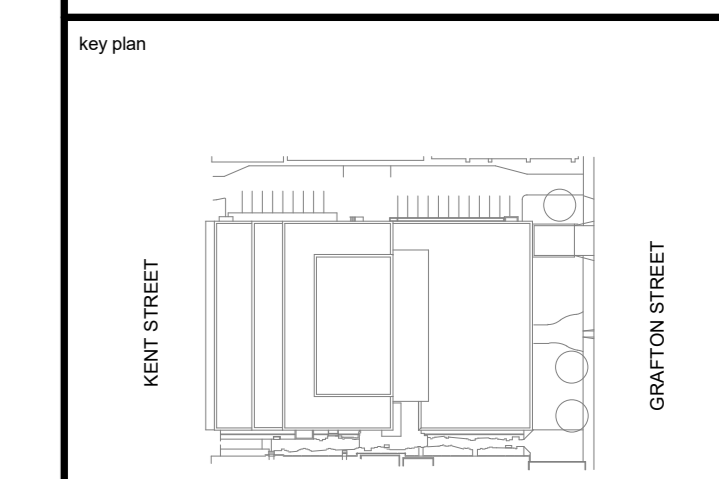
- ALL FURNITURE AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY OTHERS UNLESS OTHERWISE NOTED. THIS DRAWING IS TO BE USED FOR FURNITURE AND EQUIPMENT COORDINATION ONLY.
- G.C. TO COORDINATE EQUIPMENT (EQ-X) SUPPLIED BY OWNER. REFER TO EQUIPMENT SCHEDULE ON SHEET A93-05 FOR MORE INFORMATION.
- ALL T.V.'S & WHITEBOARDS ARE SUPPLIED AND INSTALLED BY OTHERS. G.C. TO PROVIDE BLOCKING IN WALL CAVITY IN LOCATION AS SHOWN ON PLAN.
- WHERE SHELVING (ST-X) IS SHOWN ON PLAN AGAINST A WALL, G.C. TO PROVIDE BLOCKING IN WALL CAVITY.
- G.C. TO REUSE EXISTING LEARNING CENTRE/MEETING ROOM FURNITURE FOR NEW 1-93 LEARNING CENTRE AND 1-94 TRAINING ROOM.



**FURNITURE AND EQUIPMENT KEYNOTES**

1. LOCKERS TO BE SUPPLIED AND INSTALLED BY GC. GC TO COORDINATE POSITION OF LOCKERS WITH BULKHEAD ABOVE. 75% OF TOTAL LOCKERS TO BE FULL HEIGHT AND 25% TO BE HALF HEIGHT. TO COORDINATE FINAL LOCATION OF LOCKERS WITH DESIGNER.

SCALE: 1:100  
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m



Project and True North

Project Legend

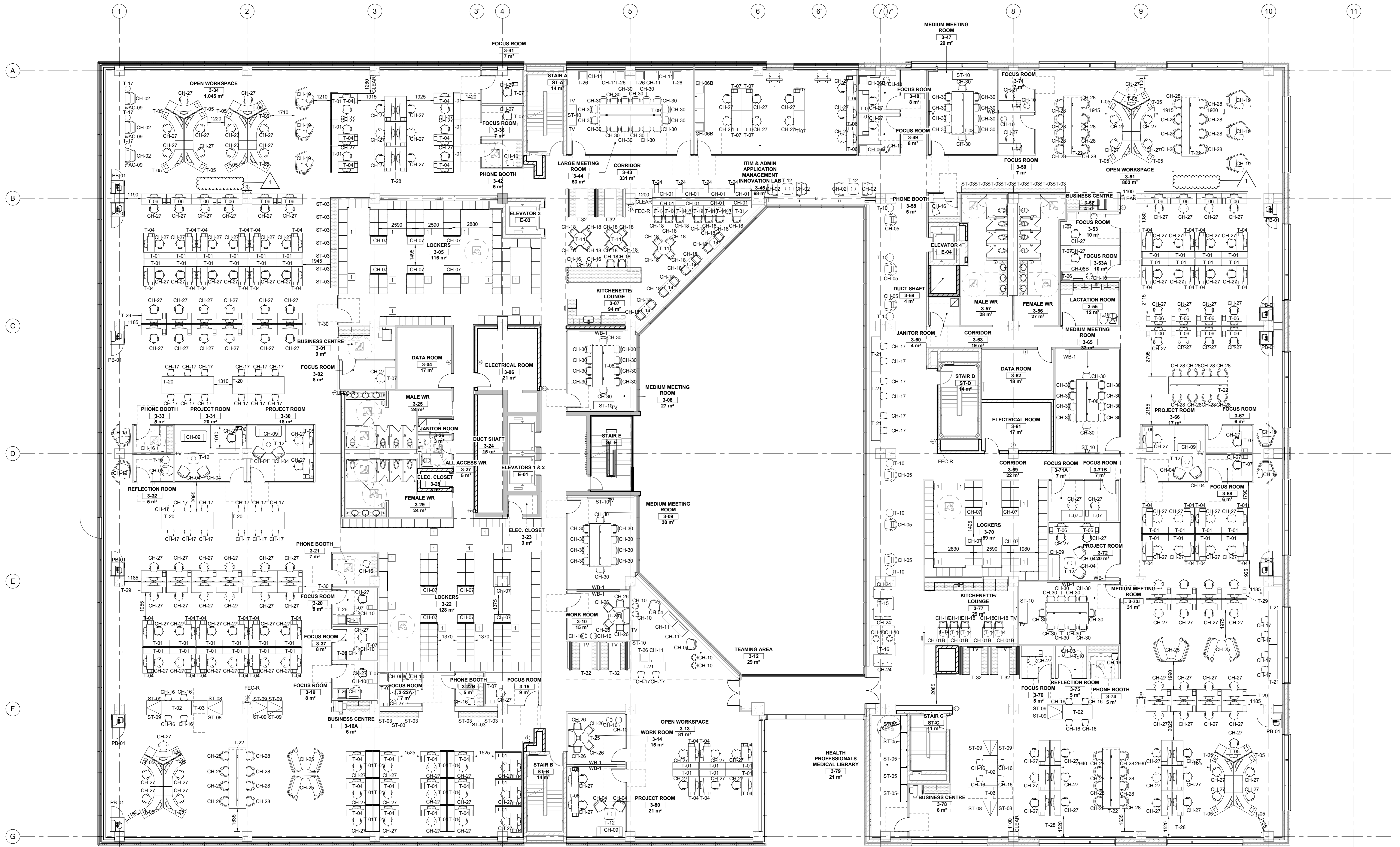
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2		2022-08-27

PROJECT  
**DANIEL J MACDONALD  
MODERNIZATION**

161 GRAFTON STREET  
CHARLOTTETOWN, PEI C1A 1L1

**THIRD FLOOR  
FURNITURE &  
EQUIPMENT PLAN**  
1:100

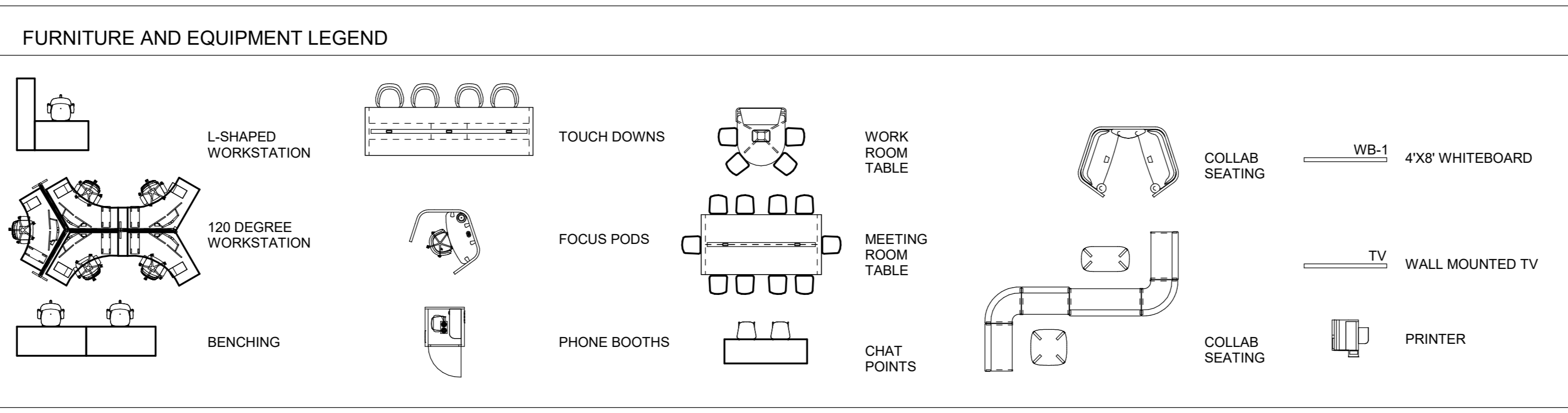
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date 2018-12-19	
drawn NORR	dessiné
date 2018-12-19	
approved AS	approuvé
date 2022-08-18	
Tender	Submission
PWGC Project Manager	Administrateur de projets TPSC
project number	no. du projet
<b>R.056687.005</b>	
drawing no.	no. du dessin
<b>A93-03</b>	



SCALE: 1:100  
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

**GENERAL FURNITURE AND EQUIPMENT PLAN NOTES**

- ALL FURNITURE AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY OTHERS UNLESS OTHERWISE NOTED. THIS DRAWING IS TO BE USED FOR FURNITURE AND EQUIPMENT COORDINATION ONLY.
- G.C. TO COORDINATE EQUIPMENT (EQ-XX) SUPPLIED BY OWNER. REFER TO EQUIPMENT SCHEDULE ON SHEET A93-05 FOR MORE INFORMATION.
- ALL T.V.'S & WHITEBOARDS ARE SUPPLIED AND INSTALLED BY OTHERS. G.C. TO PROVIDE BLOCKING IN WALL CAVITY IN LOCATION AS SHOWN ON PLAN.
- WHERE SHELVING (ST-X) IS SHOWN ON PLAN AGAINST A WALL, G.C. TO PROVIDE BLOCKING IN WALL CAVITY.
- G.C. TO REUSE EXISTING LEARNING CENTRE/MEETING ROOM FURNITURE FOR NEW 1-93 LEARNING CENTRE AND 1-94 TRAINING ROOM.

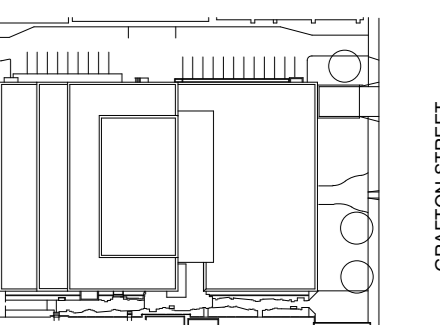


**FURNITURE AND EQUIPMENT KEYNOTES**

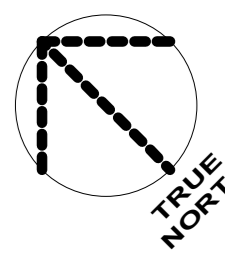
- LOCKERS TO BE SUPPLIED AND INSTALLED BY GC. GC TO COORDINATE POSITION OF LOCKERS WITH BULKHEAD ABOVE. 75% OF TOTAL LOCKERS TO BE FULL HEIGHT, AND 25% TO BE HALF HEIGHT. TO COORDINATE FINAL LOCATION OF LOCKERS WITH DESIGNER.



Key plan



Project and true North



Project legend



revisions	date
3	2022-08-15
2	2022-08-03
1	2022-07-25
0	2022-06-07

project

**DANIEL J MACDONALD  
MODERNIZATION**

161 GRAFTON STREET  
CHARLOTTETOWN, PEI C1A 1L1

design  
**HYDRONIC - PARKING  
LEVEL NEW WORK**

designed NORR  
date 2020-8-31  
drawn NORR  
date 2020-8-31

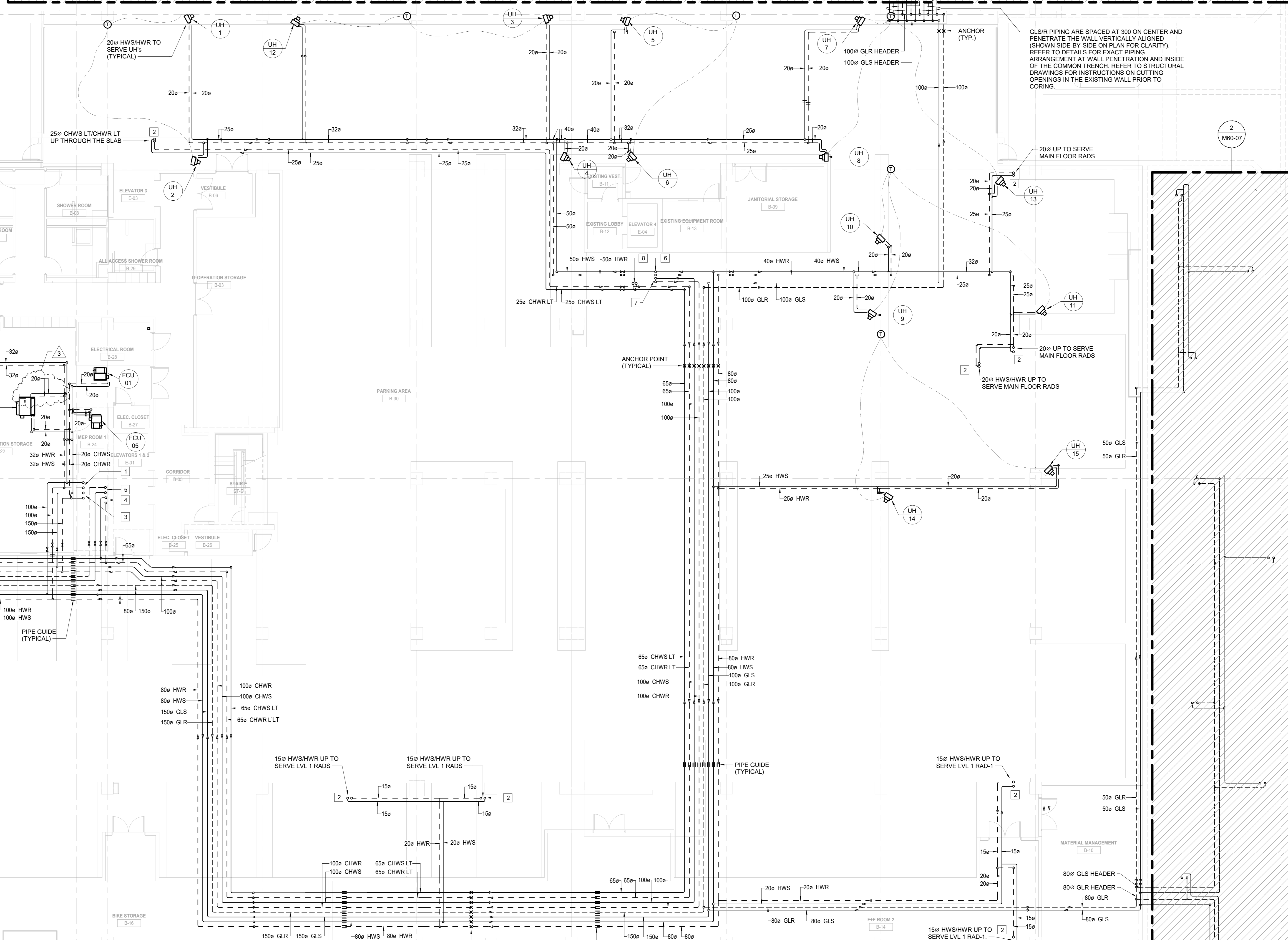
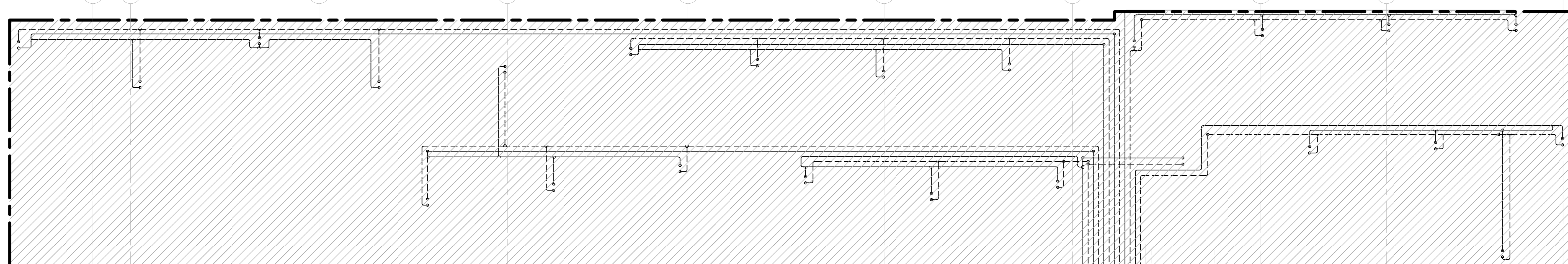
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Tender  
Project Manager Administrateur de projets TPSCG  
project number no. du projet

**R.056687.005**

drawing no. no. du dessin

**M53-00**

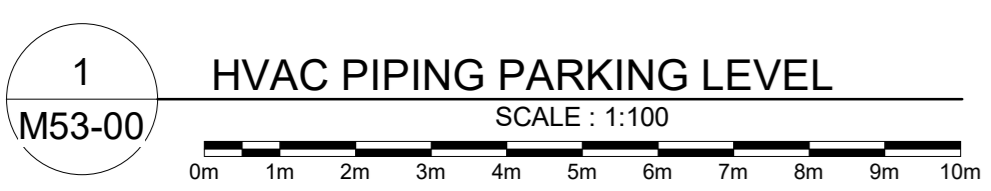
E-DRM/GDD-E: 553185 v1



- DRAWING NOTES:**
- 1 100e HWS/HWR UP TO FLOORS AND PENTHOUSE.
  - 2 PROVIDE NEW FLOOR OPENINGS, SCAN FLOOR PRIOR TO CORING AND COORDINATE WITH STRUCTURAL.
  - 3 150e CHWS/CHWR UP TO FLOORS TO SERVE COOLING REQUIREMENTS.
  - 4 100e CHWS LT/CHWR LT UP TO PENTHOUSE.
  - 5 150e GTS/GTR UP TO PENTHOUSE.
  - 6 65e HWS/HWR UP TO FLOORS TO SERVE HEATING REQUIREMENTS.
  - 7 100e CHWS/CHWR UP TO FLOORS TO SERVE COOLING REQUIREMENTS.
  - 8 65e CHWS LT/CHWR LT UP TO SERVE FCU-20, 21, AND 22 ON MAIN FLOOR.
  - 9 RESERVED

**GENERAL NOTES:**

- DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL FLOOR PLANS AND SPECIFICATIONS.
- ALL EXISTING SERVICES SHOWN ARE APPROXIMATE AND BASED ON EXISTING DRAWINGS. CONTRACTOR SHALL VERIFY ALL LOCATIONS ON SITE.
- CONTRACTOR TO COORDINATE INSTALLATION WITH ALL OTHER TRADES INVOLVED ON SITE.
- ENSURE NOT TO DISTURB SERVICES COVERING AREAS NOT INCLUDED IN THE SCOPE. ALL WORK MUST BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
- CONTRACTOR SHALL VISIT SITE TO EXAMINE EXISTING CONDITIONS.
- CONTRACTOR TO PROPOSE SOLUTIONS FOR REVIEW TO THE CONSULTANT IF ANY INTERFERENCES OCCUR DUE TO SITE CONDITIONS.
- ALL MATERIAL USED IN THE CEILING SPACE (RETURN AIR PLENUM) SHALL MEET AND EXCEED THE N.B.C. REQUIREMENTS FLAME AND SMOKE SPREAD/DEVELOPMENT RATINGS.
- CONTRACTOR TO PROVIDE CONNECTION TO RELOCATED EXISTING EQUIPMENT AND ADDED EQUIPMENT DIRECTLY TO BUILDING HVAC SYSTEM AND UPDATE THE BMS ARCHITECTURE AS REQUIRED.
- CONTRACTOR TO REMOVE ALL MECHANICAL EQUIPMENT AND INSTALL NEW ONES, SALVAGE AND REINSTALL ONLY WHEN SPECIFICALLY INDICATED.
- HEADROOM CLEARANCE VARIES THROUGHOUT THE PARKING GARAGE. INSTALL UNIT HEATERS AT MINIMUM 2000 A.F.F. INSTALL PIPING AS HIGH AS POSSIBLE AND MAINTAIN ABOVE 2000 A.F.F. AT ALL TIMES.
- SUPPLY AND INSTALL ALL NECESSARY EXPANSION COMPENSATORS, ANCHORS AND ALIGN GUIDES ON ALL HYDRONIC PIPING TO SUIT INSTALLATION. EXPANSION CONTROL SHOWN ON THE DRAWING ONLY SUGGESTS THE DESIGN INTENT.
- ALL THERMOSTATS IN PUBLIC AREAS TO BE EITHER BLANK PLATE-TYPE SENSORS OR PROVIDED WITH PROTECTIVE GUARDS.



**1** HVAC PIPING PARKING LEVEL  
SCALE: 1:100