

Bristol LR

ARCHITECTURAL

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ISSUED FOR TENDER

24-04-05

Architect

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Electrical

HAMMERSCHLAG & JOFFE INC.

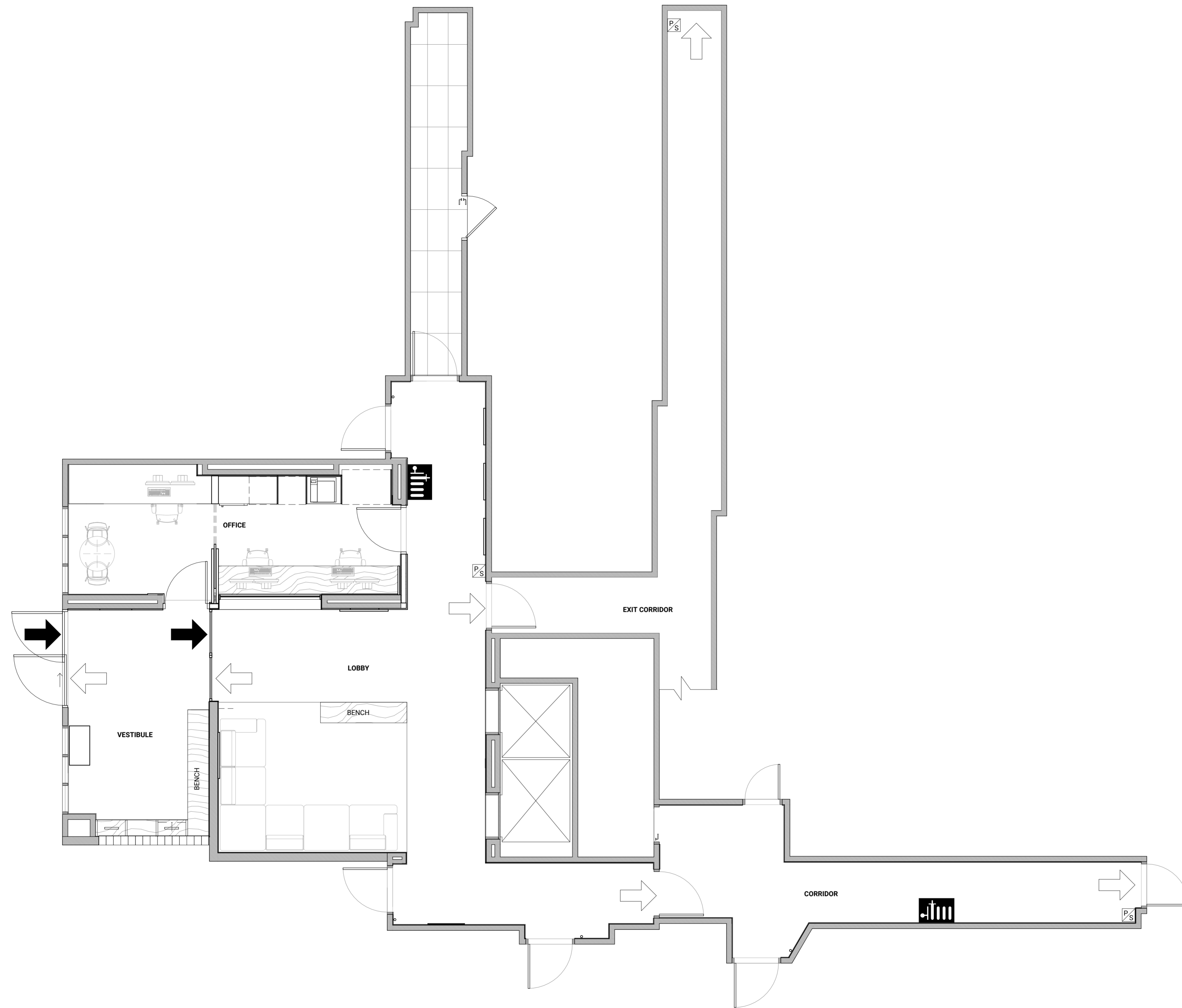
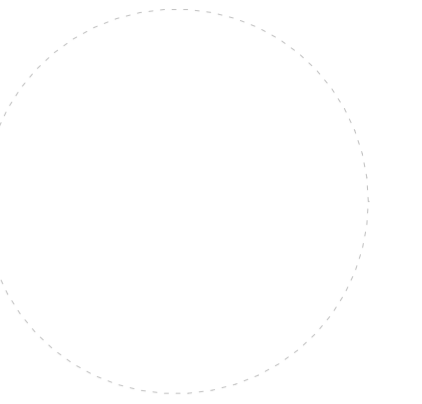
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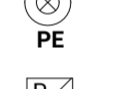


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1	24-04-05	ISSUED FOR PERMIT
2	24-04-25	ISSUED FOR TENDER

LEGEND

-  Designated Exit
-  Main Entrance
-  Fire Extinguisher
-  Pull Station
-  Fire Hose Cabinet

Contractor Must Check & Verify all Dimensions on the Job.

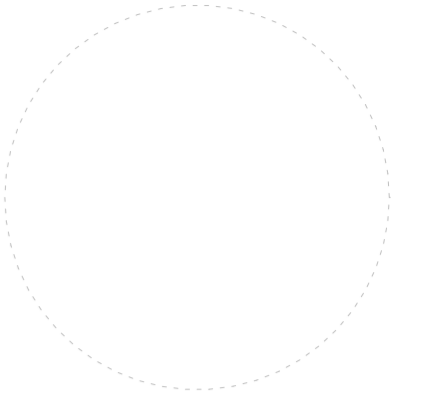
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Bristol LR

231047

SAFETY PLAN
As indicated

A020



GENERAL NOTES

Definitions

The Term "General Contractor" or "G.c." Shall Mean Any Person, Firm or Corporation Named as Such in the Construction Contract Herein. The Term "EFC" Shall Mean Economical Insurance, or its Designated Personnel as Representative of Economical Insurance.

Notes:

- General Contractor Shall Visit the Site, Compare the Drawings and Specifications and Inform Themselves of All Conditions Pertaining to the Work. Discrepancies Between the Drawings and Existing Site and Building Conditions Shall Be Brought to the Attention of Economical Insurance During the Time of Pricing in Sufficient Time to Permit Issuance of Addendum. Failure to Report Discrepancies Will Not Relieve the Contractor Performing the Work as Intended, at No Additional Cost to Economical Insurance.
- The Drawings Are to Be Read in Conjunction With Consultants Drawings. General Contractor to Advise the Designer of Any Discrepancies. Failure to Report Discrepancies Will Not Relieve the General Contractor From Performing the Work as Intended, at No Additional Cost to Economical Insurance.
- General Contractor to Ensure That All Work Conforms to Building Tenant Manual(S). Any Discrepancies Must Be Brought to the Attention of the Efc.
- All Dimensions on Drawings Are to Supersede Measurements by Scale.
- Should It Appear That Any Part of the Work is Not Sufficiently Detailed on the Drawings, the General Contractor Should Consult With the Designer for Further Information or Clarification.
- Should Any Questions, Dispute or Difference of Opinion Arise as to the Meaning or Interpretation of the Drawings, It is to Be Understood That the Decision of the Efc Shall Be Final.
- Should the General Contractor Wish to Make Any Changes or Substitutions, Including but Not Limited to:
 - Sizes, Details or Method of Construction
 - Manufacturer or Type of Materials,
 - The General Contractor Must Have Approval by Designer Prior to Purchase and Installation.
- General Contractor Shall Store All Materials and/ or Equipment in Area Provided by Efc / Building Manager.
- General Contractor to Provide Time Frame of Product Availability Prior to Ordering and Commencing the Work.
- General Contractor Shall Be Responsible for All Damages to Cabling, Surfaces, Finishes and Materials Due to Work Under This Contract and Bear All Costs Incurred to Make Good, Repair or Replace Same to Efc's Satisfaction.
- All Access to the Site to Be Approved by EFC.
- General Contractor Must Maintain a Sealed Barrier Between Existing Office Area & Demolition / Construction Area. General Contractor Must Also Enforce Dust and Odour Control Within Construction Area.
- General Contractor to Ensure That "Nuisance Fire Alarm" Visits From the Fire Department Do Not Happen While Managing Sub-trades. General Contractor to Ensure Dust Volume is Controlled in Construction Area. Heat Does Not Rise to an Unacceptable Level, and Disruption or Tampering of the Fire Alarm System Does Not Take Place. Any Fees Incurred From Unnecessary Visits From the Fire Department Due to Tripping the Fire Alarm Will Be at the General Contractors Expense.
- General Contractor is Responsible for Maintaining a Clean Construction Site With a Daily Clean-up. Construction With Minimal Noise Disruption May Be Performed During Regular Building Business Hours. All Work Requiring the Use of Loud Equipment to Be Performed After Building Business Hours.
- Arrangements for the Removal of All Garbage and Debris to Be Made by the General Contractor to the Satisfaction of the Owner / Building Manager.
- General Contractor to Confirm All Specifications, Finishes and Colours of Materials, Fittings, Fixtures and Accessories With Designer Prior to Purchase and Installation.
- All Materials for Installation and Finishing to Be Utilized as Per Manufacturer's Instructions, Recommendations and Specifications for the Application. All Materials to Have a Flame Spread Rating Approved by the Applicable Building Code. General Contractor to Provide Flame Spread Ratings for Any Alternatives.
- General Contractor Guarantees That All Work Shall Be Free From All Inherent Defects in Workmanship or Materials. General Contractor Shall Give Proper and Continuous Service Under All Conditions of Service Required and Specified or Which May Be Reasonably Inferred From the Specifications. General Contractor Shall Replace Promptly and at Their Own Expense, F.o.b. Their Plant, Any Part of Their Work Proving Defective Within Agreed Warranty Period.
- General Contractor to Provide a List of Subcontractors Whose Costs Are Reflected in the Quote.
- All Materials and Services Furnished by the General Contractor Shall Be Subject to Inspection and Approval by Designer, Acting as the Owner's Representative With the Right to Reject Materials and/or Require Additional Services to Correct the Defective Work. The Above Will Be at the General Contractor's Expense.
- Extended Warranties, i.e., Warranties Which Extend Beyond the Twelve Months Required Under the General Conditions of the Contract or Which Have Special Conditions Attached to Them.
 - This List is Given for Convenience Only and May Not Be Complete. There May Exist Warranties in the Specifications or Elsewhere in the Contract Documents or Warranties May Be Available for the Products Supplied for the Work Without Said Warranties Being Stipulated in the Contract Documents.
- All Contractors Must Review Tenant Manual and/or Building Design Manual Before Quoting or Performing Any Construction on Site. Contractor's Must Conform to All Building Rules and Specifications Outlined in This Manual.
- Go to Follow Economical Insurance Sustainable Program by Providing Separate Materials Bins on Site for Demolished Materials and Track/Fill in the Sustainable Tracking Sheet and Return to Efc at the End of the Project. Receipts Including Weights / Amount Disposed or Recycled / or Diversion Method to Be Supplied With Tracking Sheet.
- All Work and Materials Shall Conform to the Building Codes of Authorities Having Jurisdiction.

GENERAL NOTES

Partitions

- Extend Gypsum Board Partitions Full Height to U/S of Floor or Roof Slab Above, Unless Otherwise Indicated.
- At Non-Rated Fire Separations, Acoustic and Fire Rated Partitions, Provide Joint Sealant at Perimeter Joints and All Penetrations Through Gypsum Board.
- Provide Backer Plates for Wall Mounted Millwork etc. Refer to Plans for Extent and Locations.
- At Acoustic Partitions, Recessed Electrical Boxes on Opposite Sides of Partition to be Staggered Minimum 600mm.
- See Room Wall and floor finishes drawings for type and extent of interior finishes
- Height of Furring Wall to be 150mm Above Finished Ceiling Unless Otherwise Noted. Review as Required in the Specifications.
- All Partitions and Furring Walls Hosting Plumbing Transfers to receive Additional Structural Support as Required. Refer to Mechanical for Plumbing Transfers Locations.
- Mechanical for Plumbing Transfers Locations.
- All Concrete Masonry Unit Walls and Partitions to Extend to U/S of Floor or Roof Slab Above, Unless Noted Otherwise.
- Provide Compressible Joint Filler Continuous at Top of All CMU Walls and Partitions. Seal Joints where Exposed.
- Provide Firestopping and Smoke Seals at Perimeter Joints and Penetrations in Fire Rated Partitions.
- Provide Lateral Bracing at Top of CMU Walls and Partitions. Refer to Structural for Details.
- Provide Reinforcement of CMU Walls and Partitions as Required by Structural.
- Refer to Fire Separation Plans - Fire Separation Requirements.
- At All Fire Rated Partitions: Install Continuous Firestopping and Smoke Seals at All Perimeter Joints and Penetrations.
- At Recessed Panel Installations (Eg. Electrical Panels) Within Rated Walls: Provide Continuity of the Required Rating Behind and Around the Panel.
- General Contractor Shall Use Ceiling Plan in Conjunction With Partition Plan to Establish Exact Location of Partitions.
- All Drywall Partitions Shall Be Marked on Floor for Approval by Designer. General Contractor Must Consult Designer During Location of Partitions.
- Where New Work Connects With Existing Core/column, All Necessary Cutting and Fitting Required
- To Make Satisfactory to Fc Shall Be Performed Under This Contract.
- If Core Drilling is Required, General Contractor Must Refer to Tenant Manual and Receive Approval From Fc and Building Manager.
- Contractor to Ensure That Final Clean-up Includes Cleaning of Partitions, Walls, Floors, Window Treatments, Windows & Ceiling. Premises to Be in Move-in Condition.
- All Wall Surfaces to Be Patched and Repaired and Made Good to Receive Specified Wall Finish. For Wall Finishes Refer to Wall and Floor Finishes Plans.
- Patch & Repair as Required to Make Good, All Areas Where Demolition Has Occurred.
- For Support Provide Wood Blocking Within Drywall Partitions or Ceiling, Wherever Wall or Ceiling Mounted Fixtures May Occur. In Addition, Provide Additional Support Inside Walls Where Wall-mounted Millwork is Located and Noted.
- All Walls to Meet Window Mullions. See Tenant Manual for Fastening Instructions.
- Drywall and Metal Stud Wall Partitions Are Non-load Bearing Type. All Shelving and Fixtures Shall Be Supported From the Floor.
- Partitions Are Not to Be Connected to Base Building Curtainwall Frames or Mullions.
- Partitions are built @ 9° to the underside of the ceiling and have a rigid insulation sound baffle above the grid to the deck.

GENERAL NOTES

Plans

- Refer to Building Elements Schedule for Exterior Wall, Partition, Roof, Ceiling, and Soffit Types.
- Refer to Mechanical and Electrical Drawings for Additional Requirement.
- At Locations Where Mech. Ducts Interfere with Full Height Construction of Interior Partitions, Offset Partition Above Ceiling and Brace as Required. Maintain Fire Separation/Sound Rating of Partition. Offsetting of Partitions Will Only Be Permitted Where Ductwork Cannot be Positioned.
- All Dimensions are Taken to Face of Masonry or Concrete at Masonry and Concrete Walls and Partitions. At Steel Stud Partitions, Dimensions are Taken to Face of Gypsum Board, Unless Otherwise Noted.
- Increase Thickness of Walls or Furr Out Wall Thickness as Required to Accommodate Mechanical and Electrical Panels and Services. Maintain Fire Separation Around Back of Panels Where Applicable.
- For Dimensions of Concrete Refer to Slab Edge Drawings.

Metal Stud Partition Types

TYPE	STC	FRR	ASSEMBLY	DESCRIPTION
P30A	-	-		Metal Stud Partition Types 13mm Gypsum Board 92mm Metal Studs 80 mm Insulation 13mm Gypsum Board

Annotation Symbols Legend

Drawing Symbols Legend

Issued

No.	Date	Description
1	24-04-05	ISSUED FOR PERMIT
2	24-04-25	ISSUED FOR TENDER

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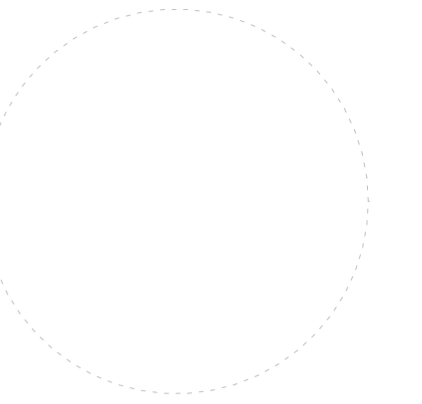
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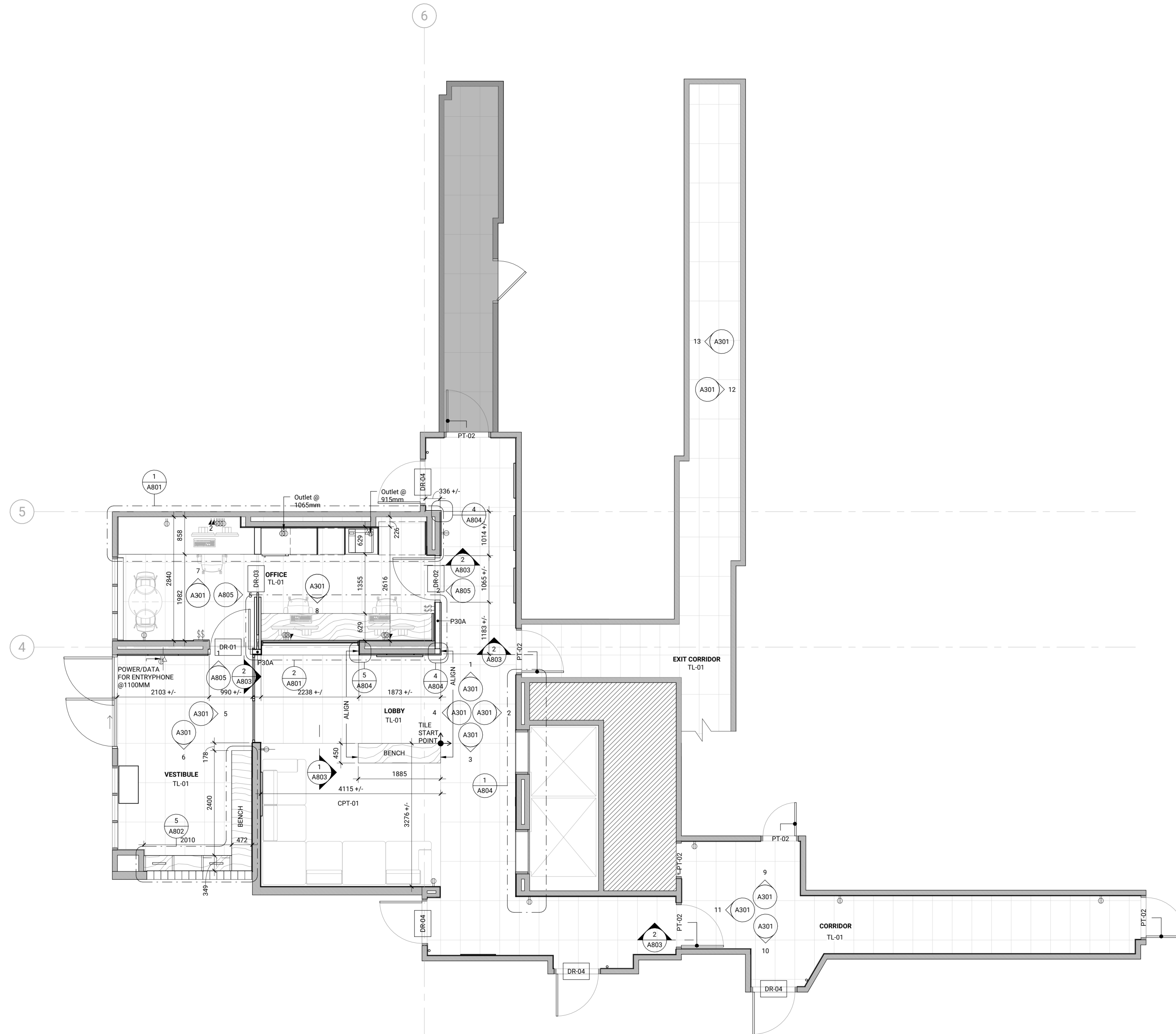
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No.	Date	Description
1	24-04-05	ISSUED FOR PERMIT
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LEGEND - ELECTRICAL

⊕	WALL MOUNTED DUPLEX RECEPTACLE AS SPECIFIED BY ELECTRICAL ENGINEER. TO BE MOUNTED @ 400 MM A.F.F UNLESS NOTED ON THE DRAWINGS
⚡	WALL MOUNTED SPLIT DATA & VOICE OUTLET AS SPECIFIED BY COMMUNICATION CONSULTANT. TO BE MOUNTED @ 400 MM A.F.F UNLESS NOTED ON THE DRAWINGS
⚡	WALL MOUNTED DATA OUTLET AS SPECIFIED BY COMMUNICATION CONSULTANT. TO BE MOUNTED @ 400 MM A.F.F UNLESS NOTED ON THE DRAWINGS
⚡	WALL MOUNTED SWITCH MOUNTED @ 1220 UNLESS NOTED ON THE DRAWINGS

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GROUND FLOOR - PROPOSED PLAN

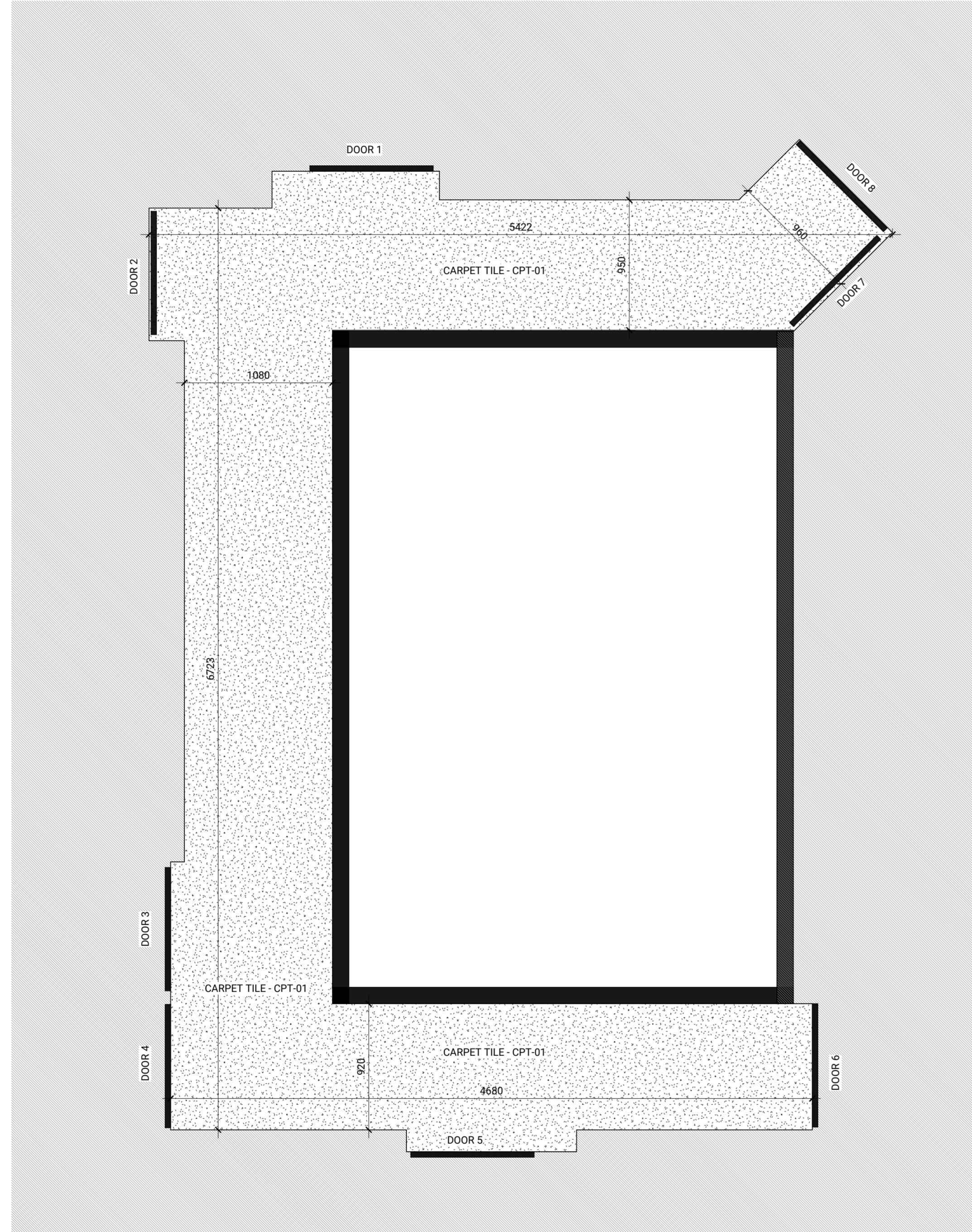
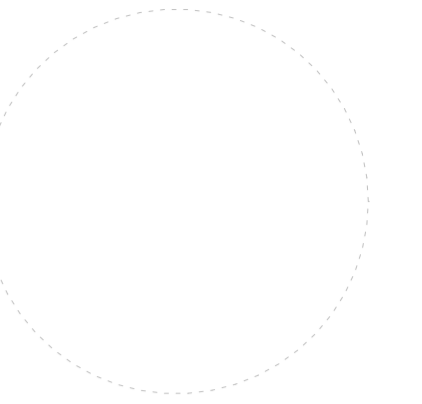
1:50

1
A102

PROPOSED GROUND FLOOR PLAN

1:50

A102



FLOOR: TARKETT CACHE TWEED A0002 SATEEN 42715

WALL: MOMENTUM NOTTING HILL - MARBLE ARCH LLN-NH-02

CEILING: BENJAMIN MOORE CHANTILLY LACE OC-65

DOORS:

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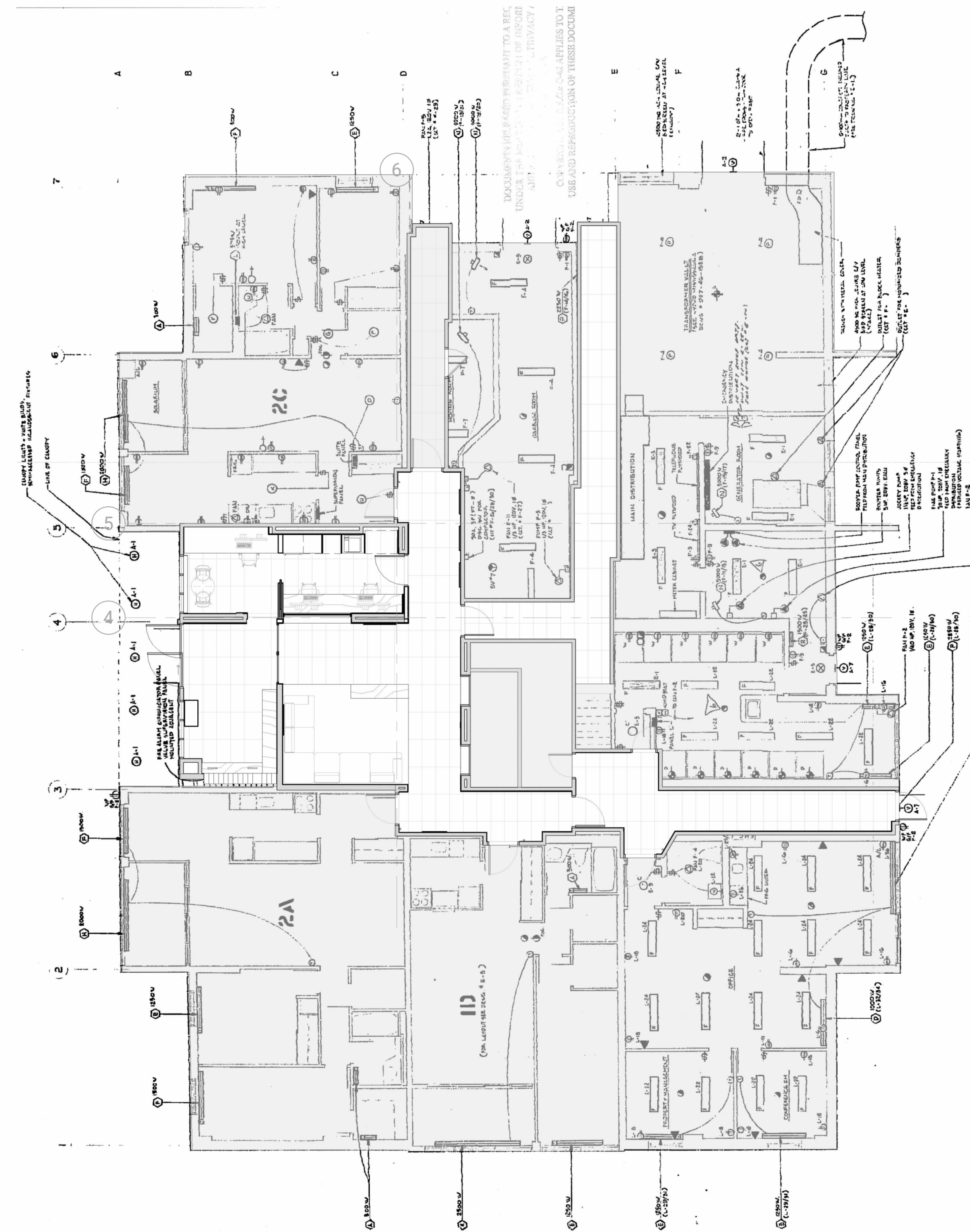
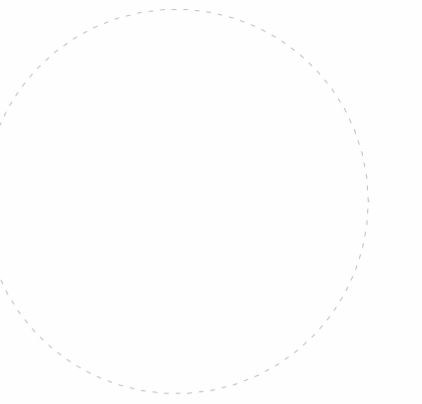
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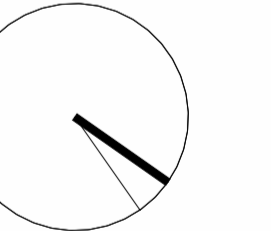
TYPICAL CORRIDOR

1 : 25

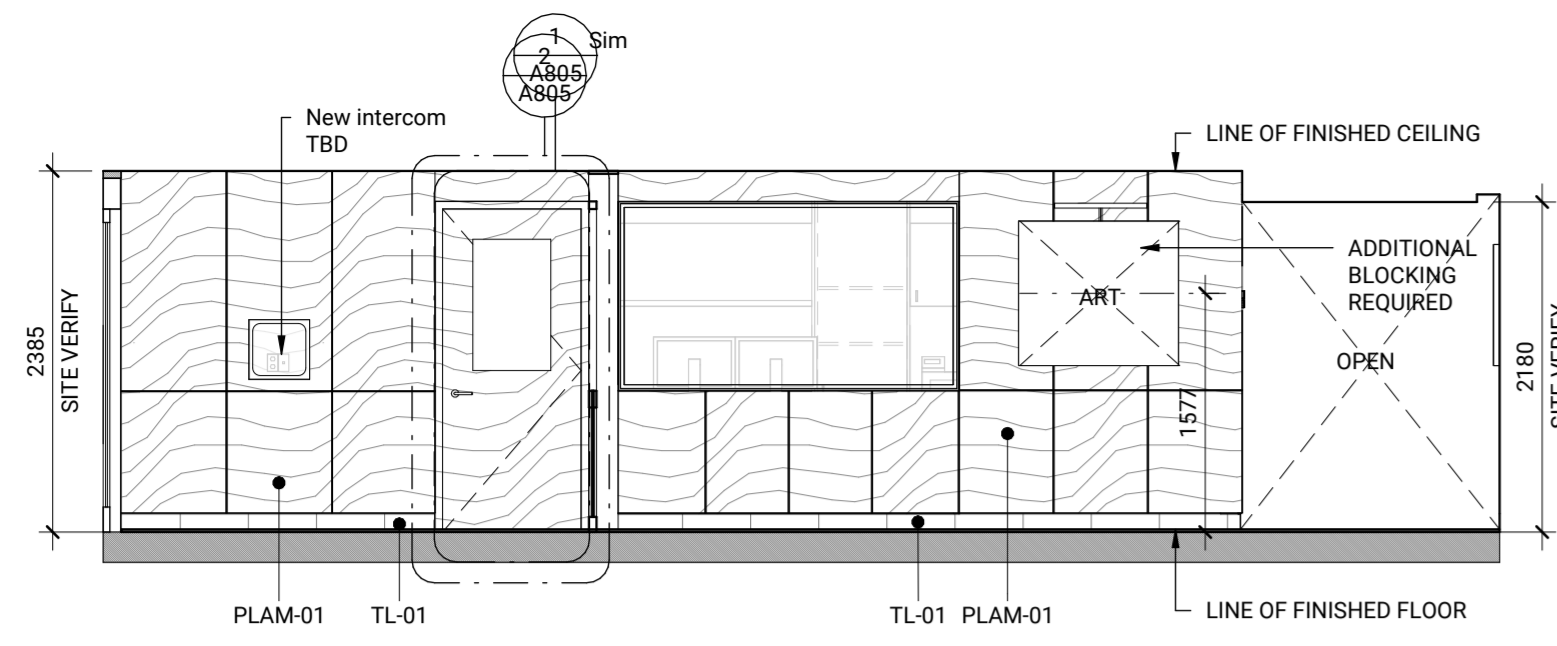
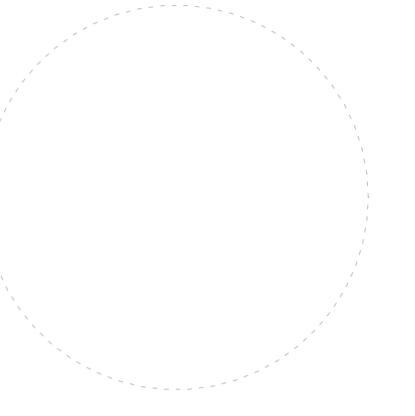
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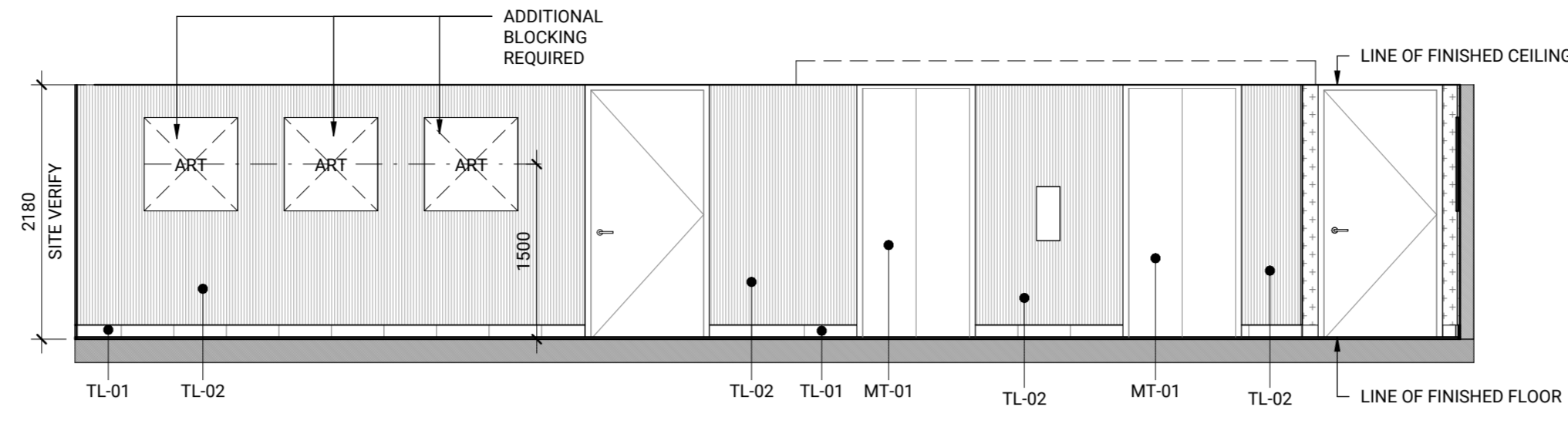
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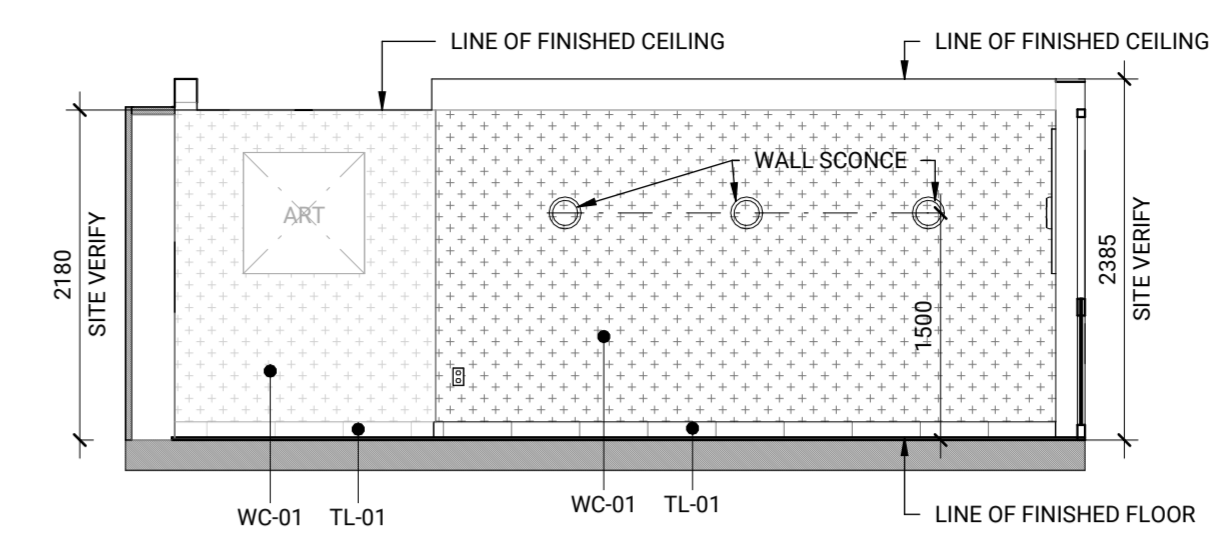
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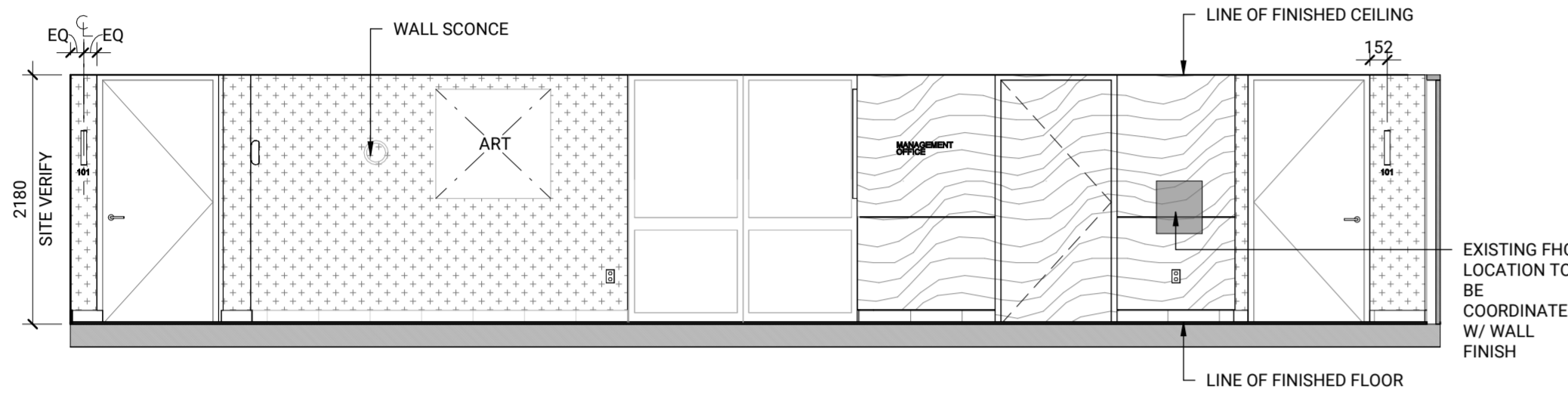
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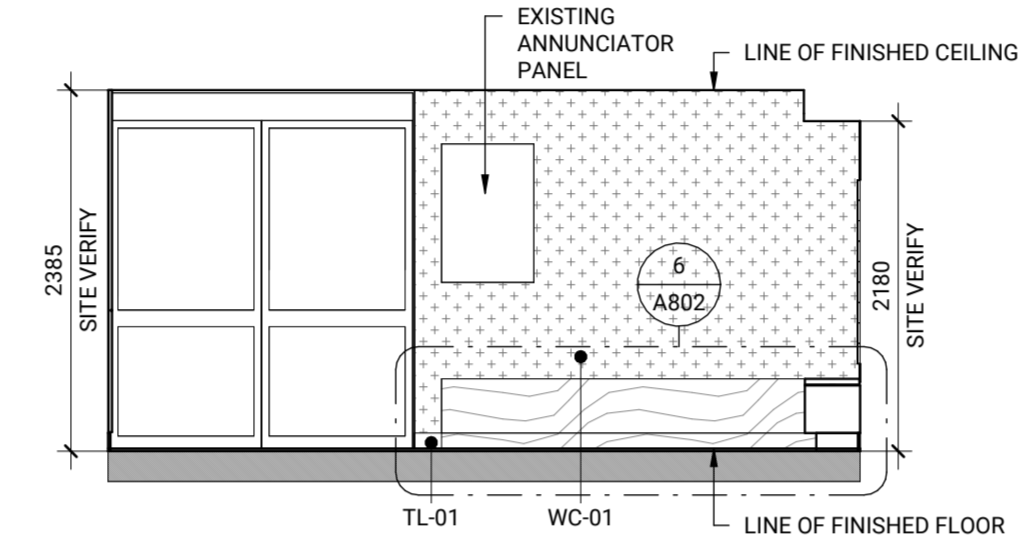
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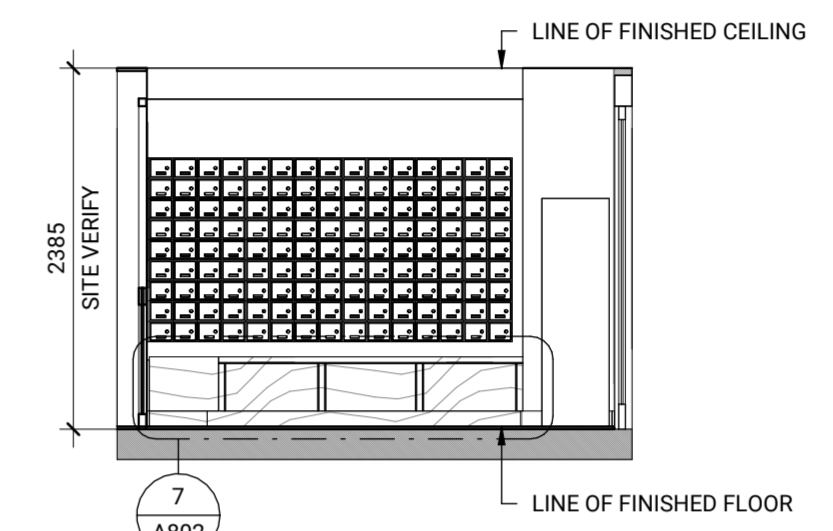
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LOBBY WEST ELEVATION 1:50 (4) A301



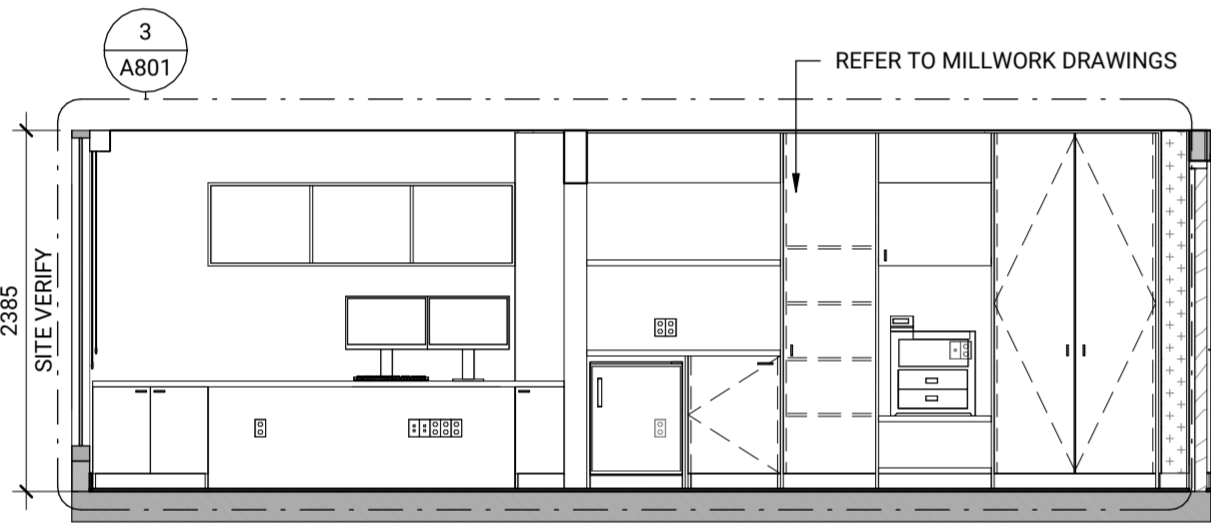
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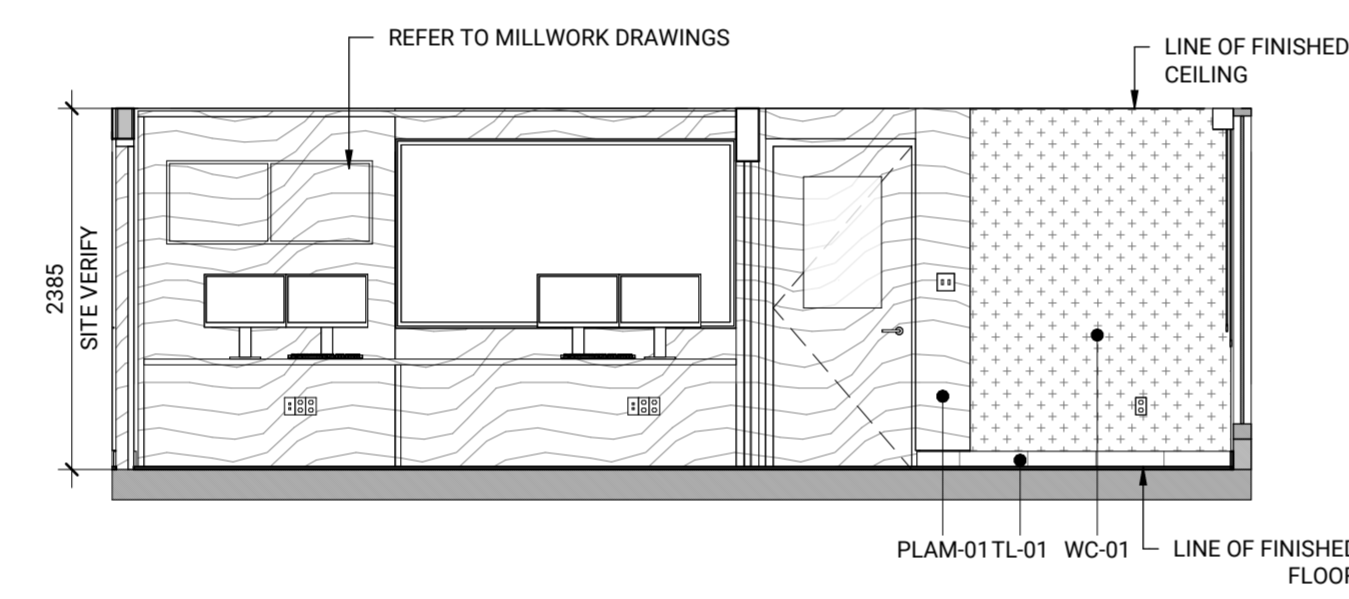
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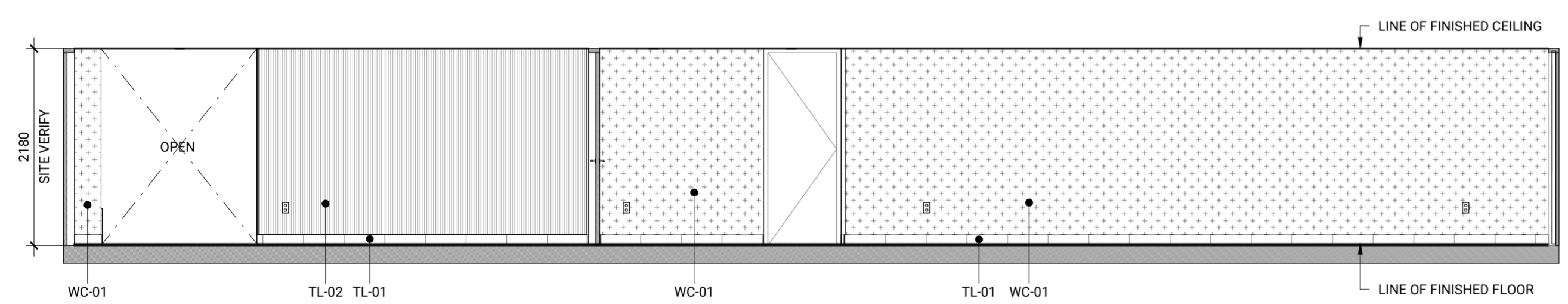
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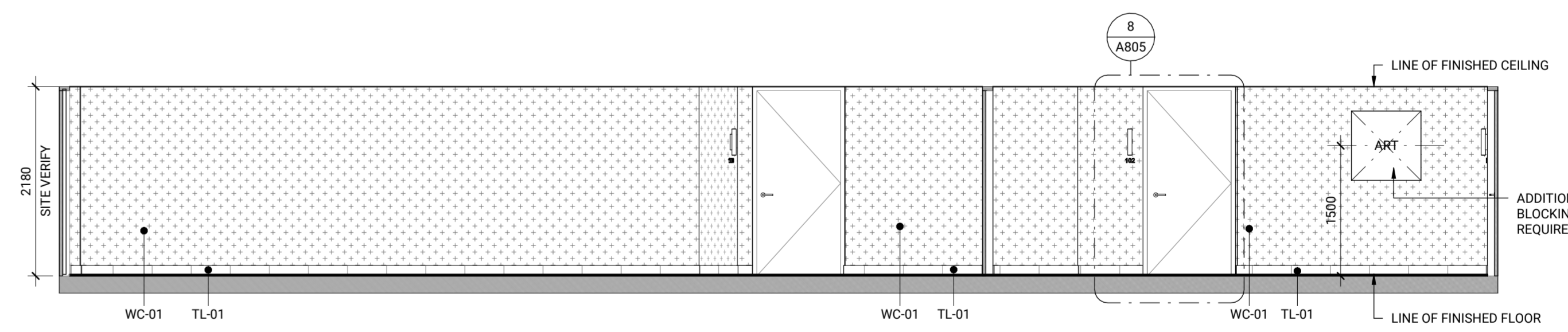
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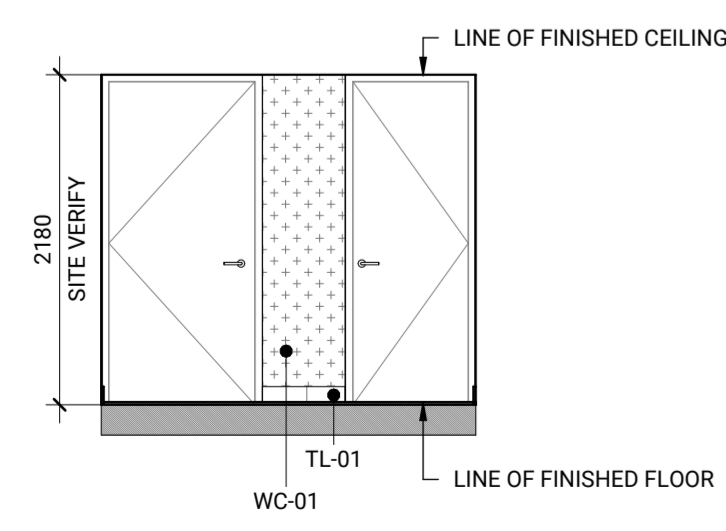
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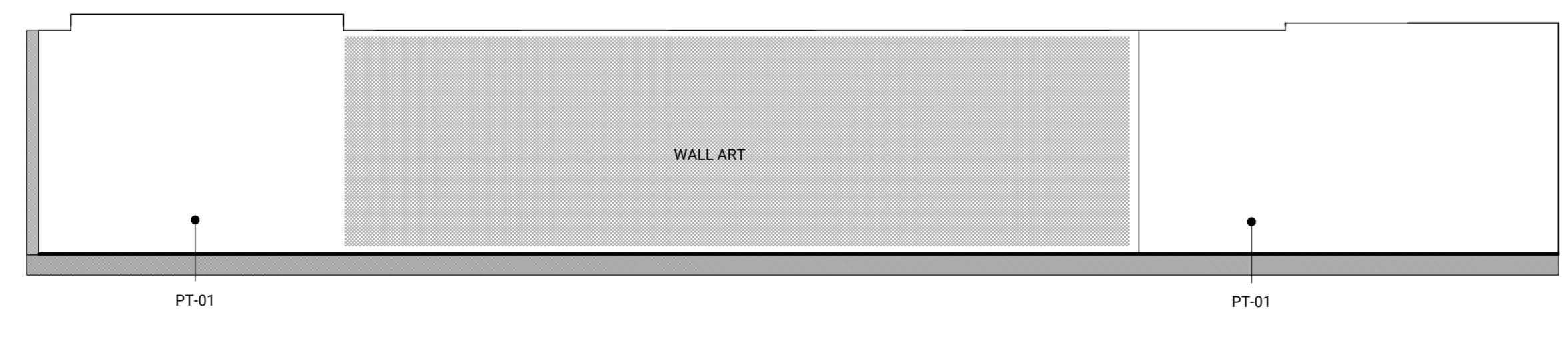
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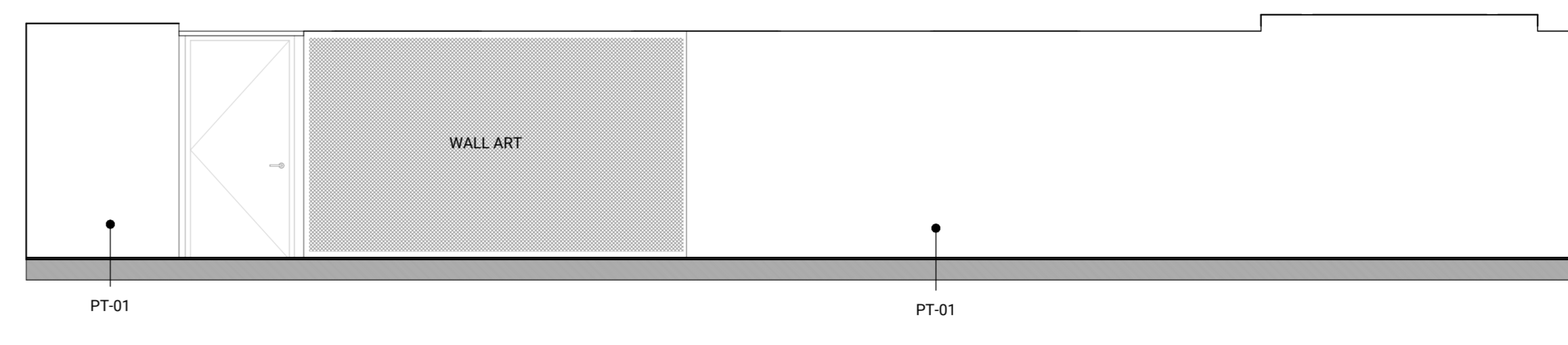
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CORRIDOR WEST ELEVATION 1:50 (11) A301



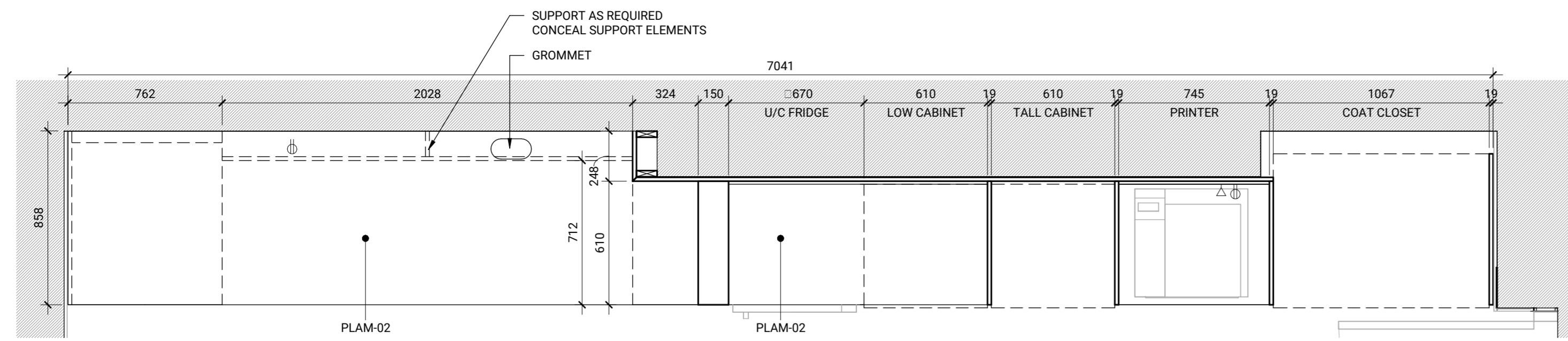
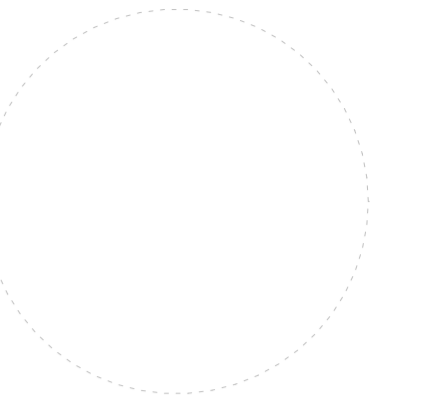
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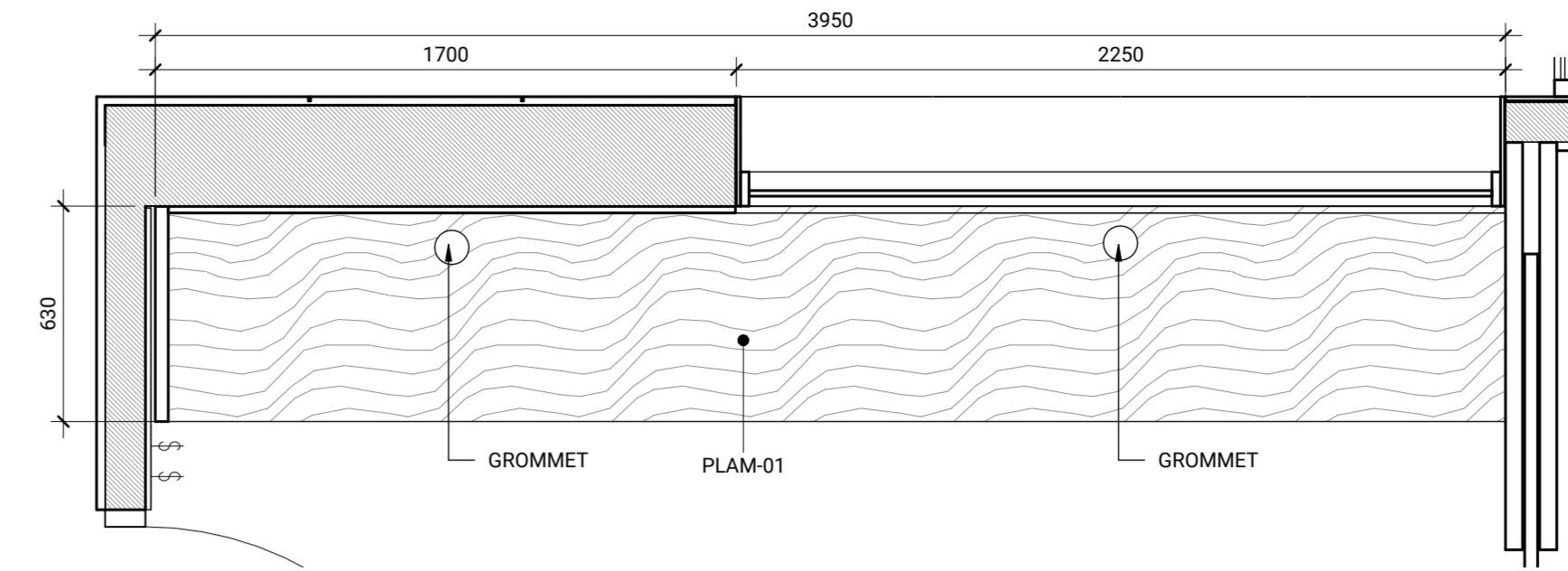
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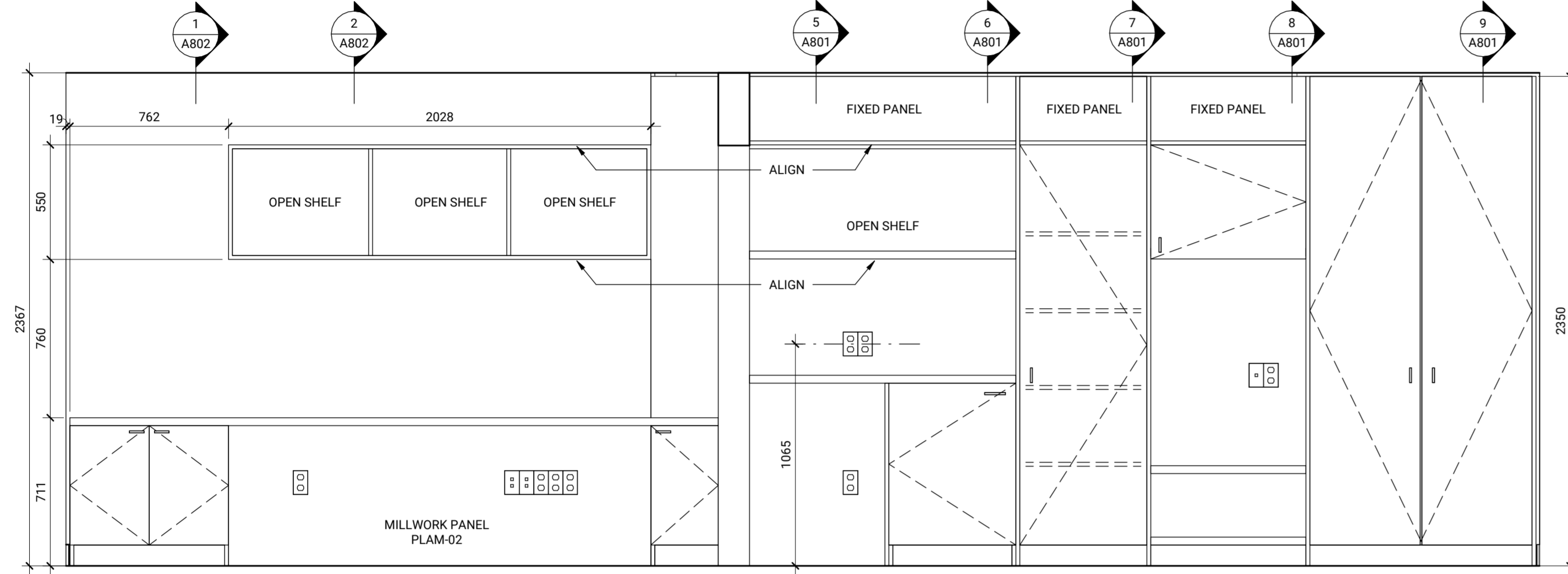
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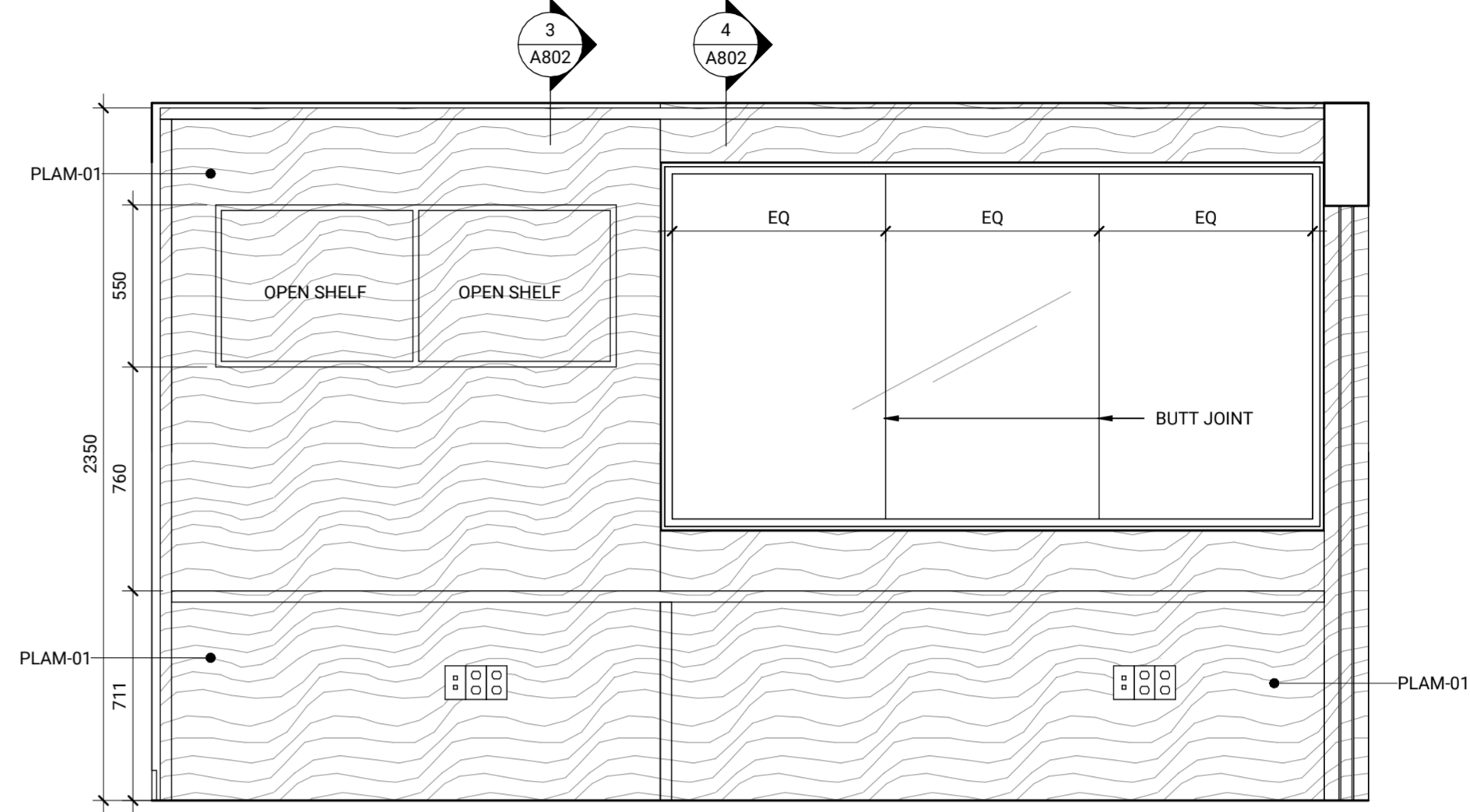
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OFFICE MILLWORK PLAN - 2 2
1:20 A801



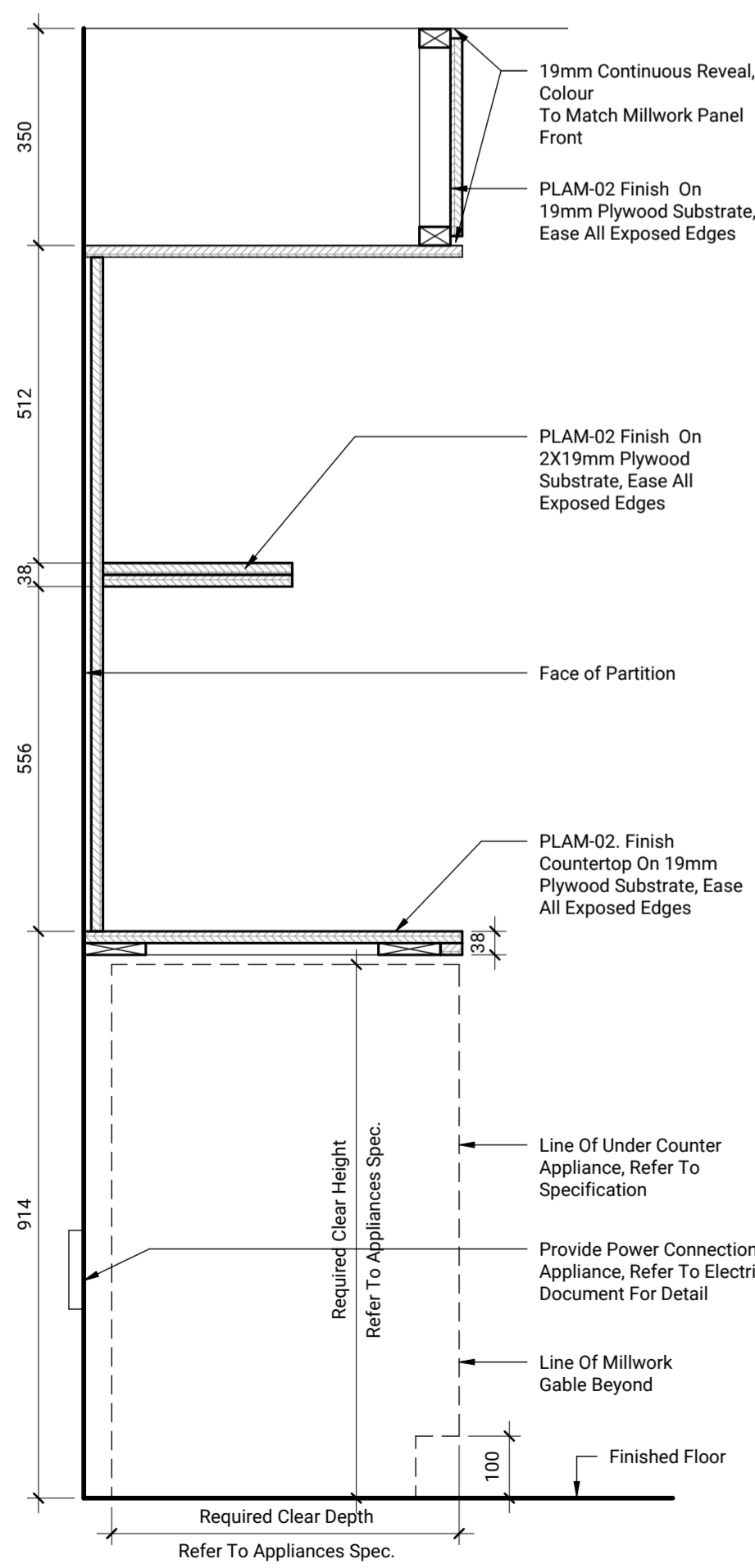
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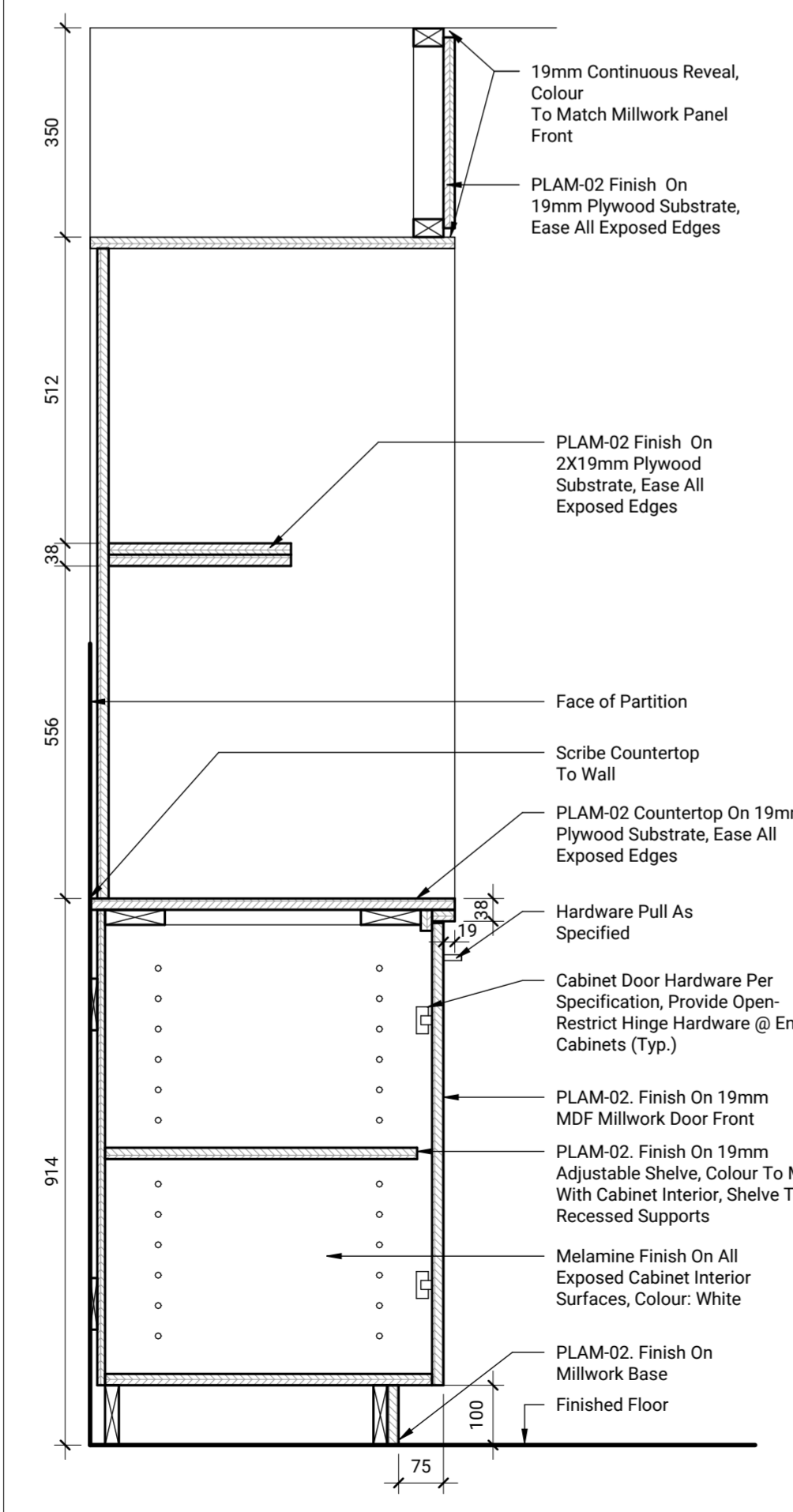
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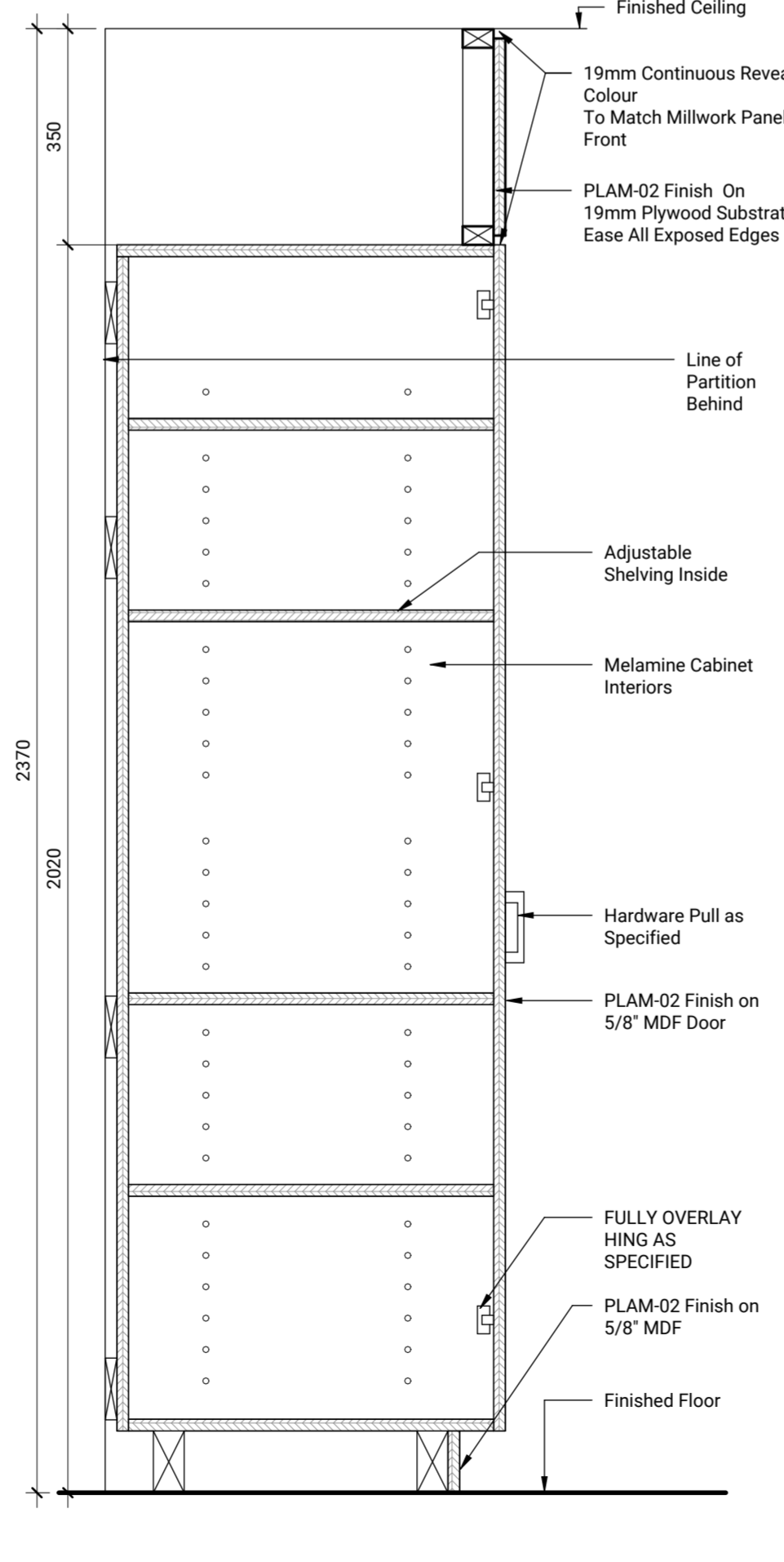
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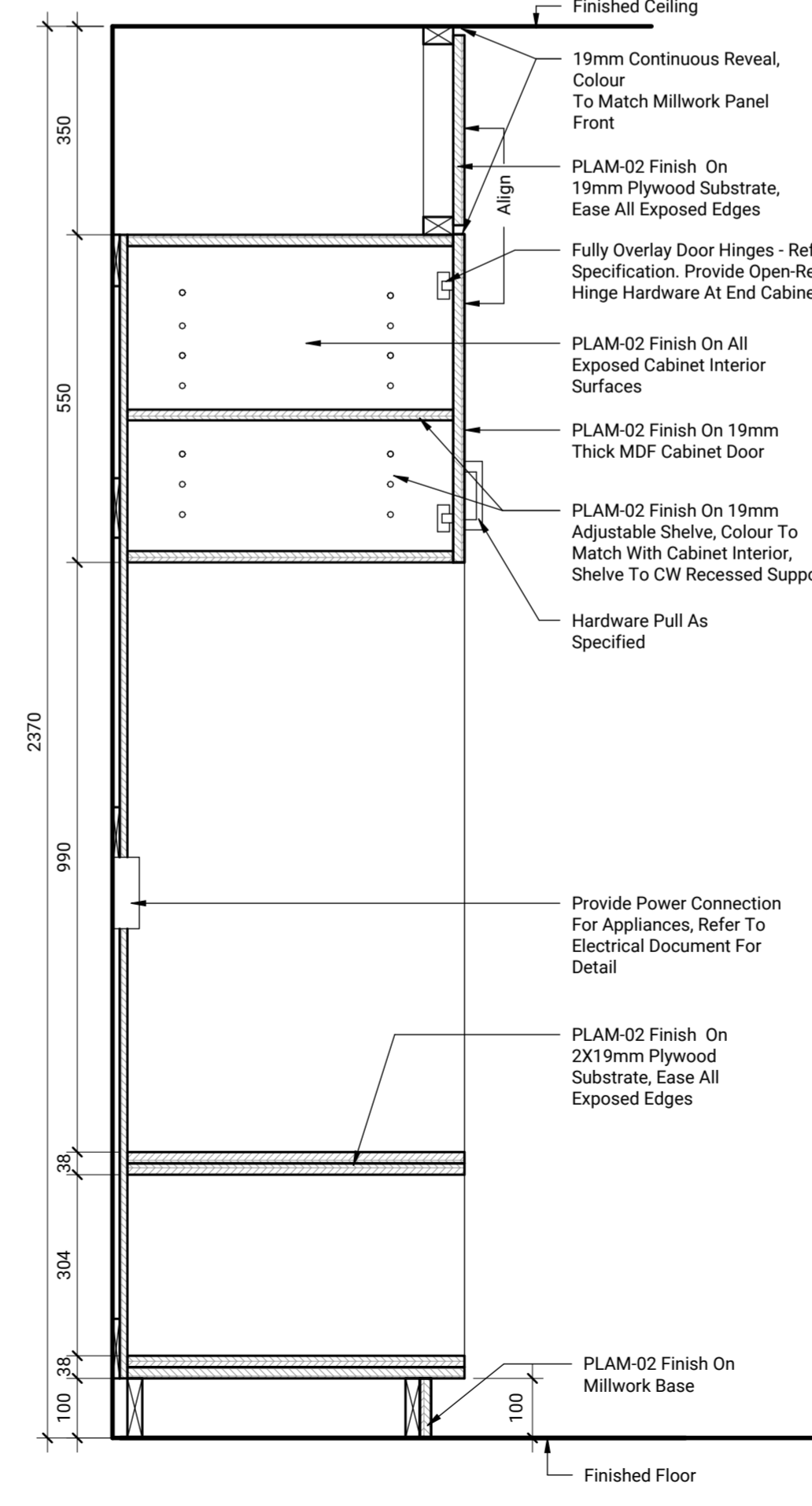
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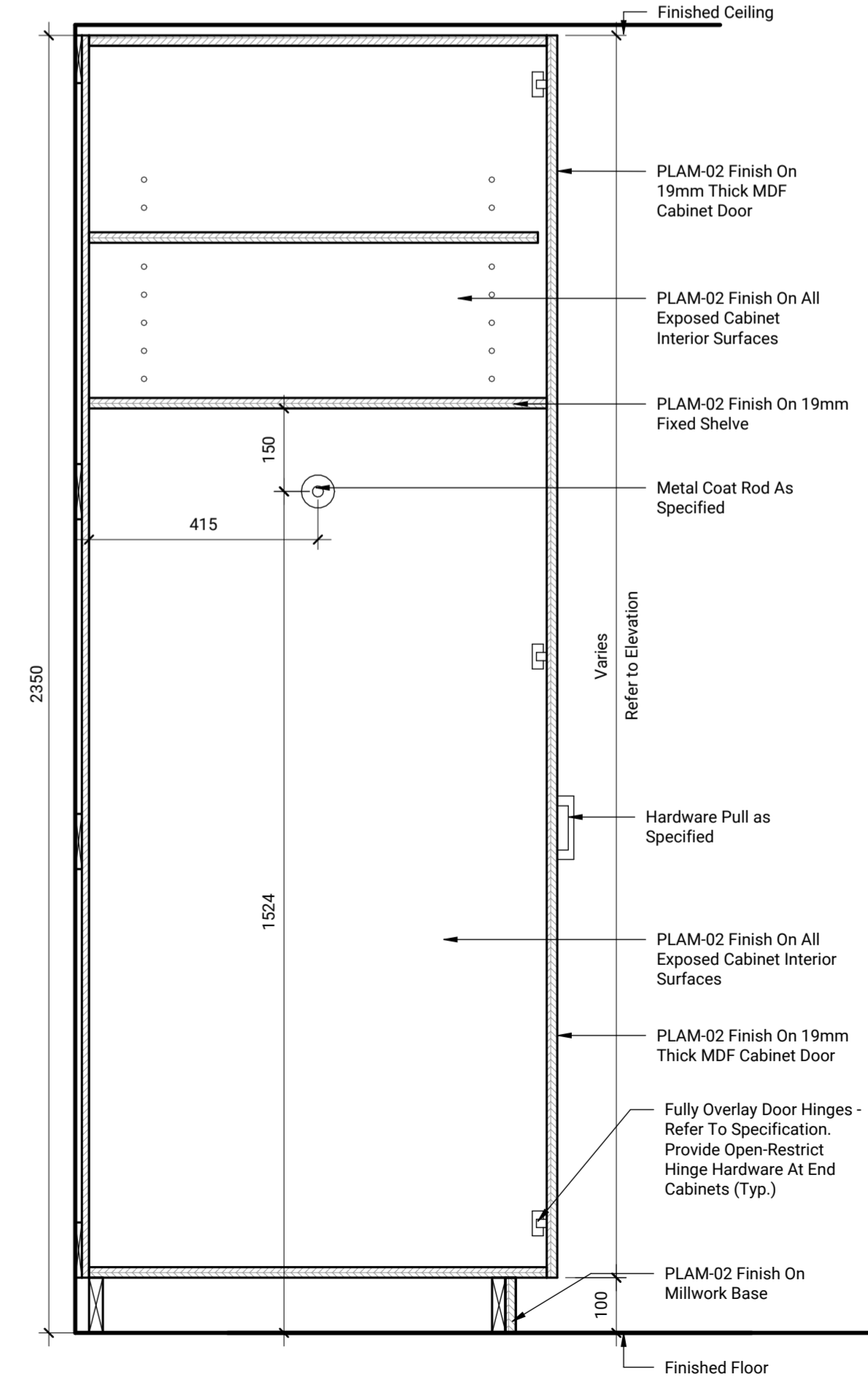
SECTION - BASE CABINET 6
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SECTION - FULL HEIGHT CABINET 7
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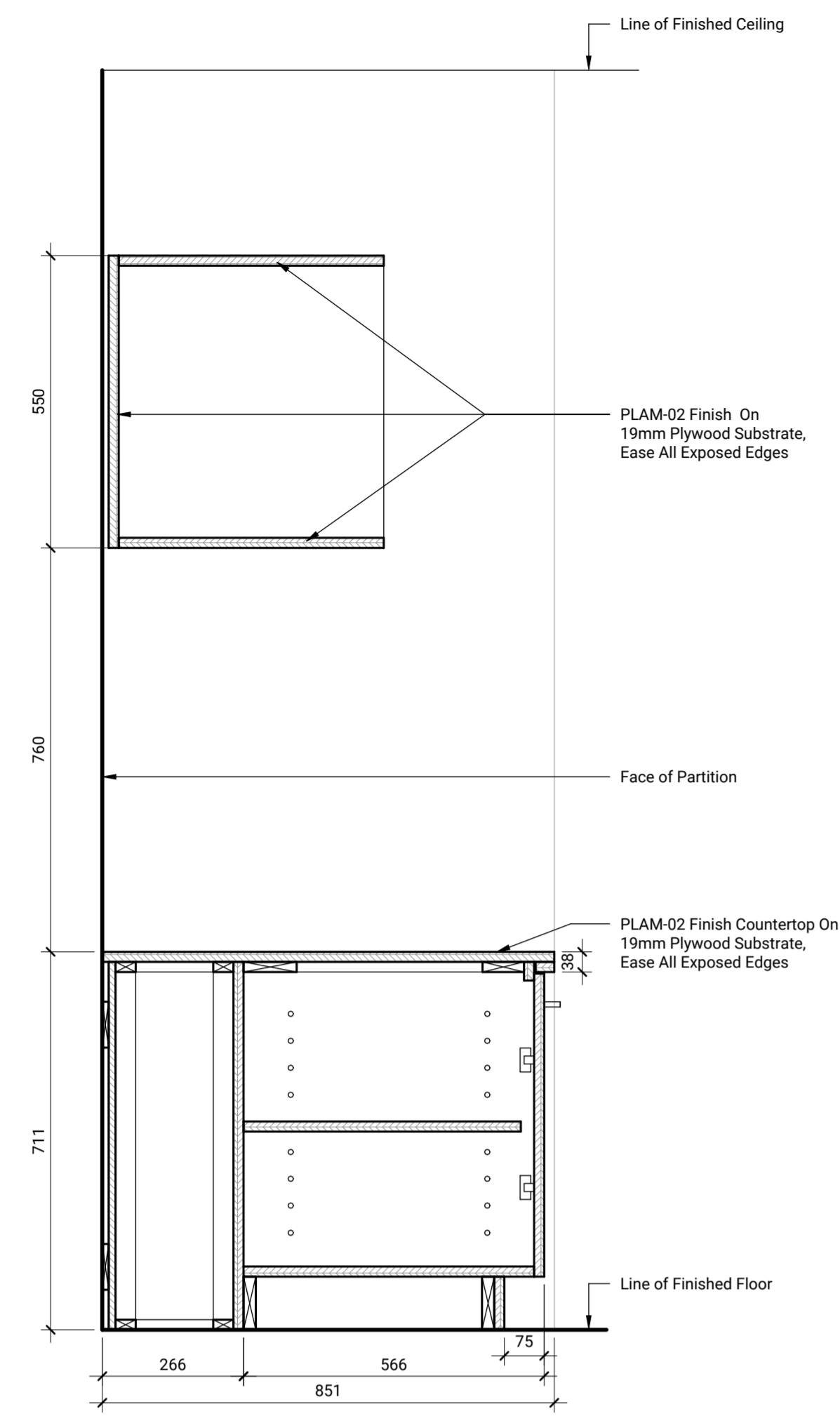
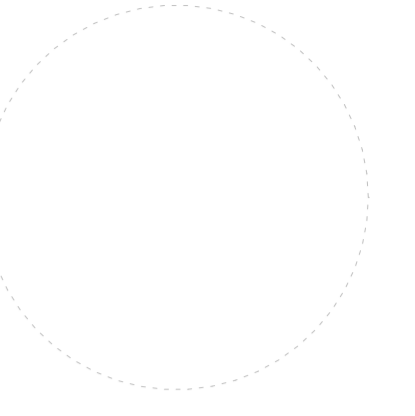


SECTION - CABINET W/ PRINTER 8
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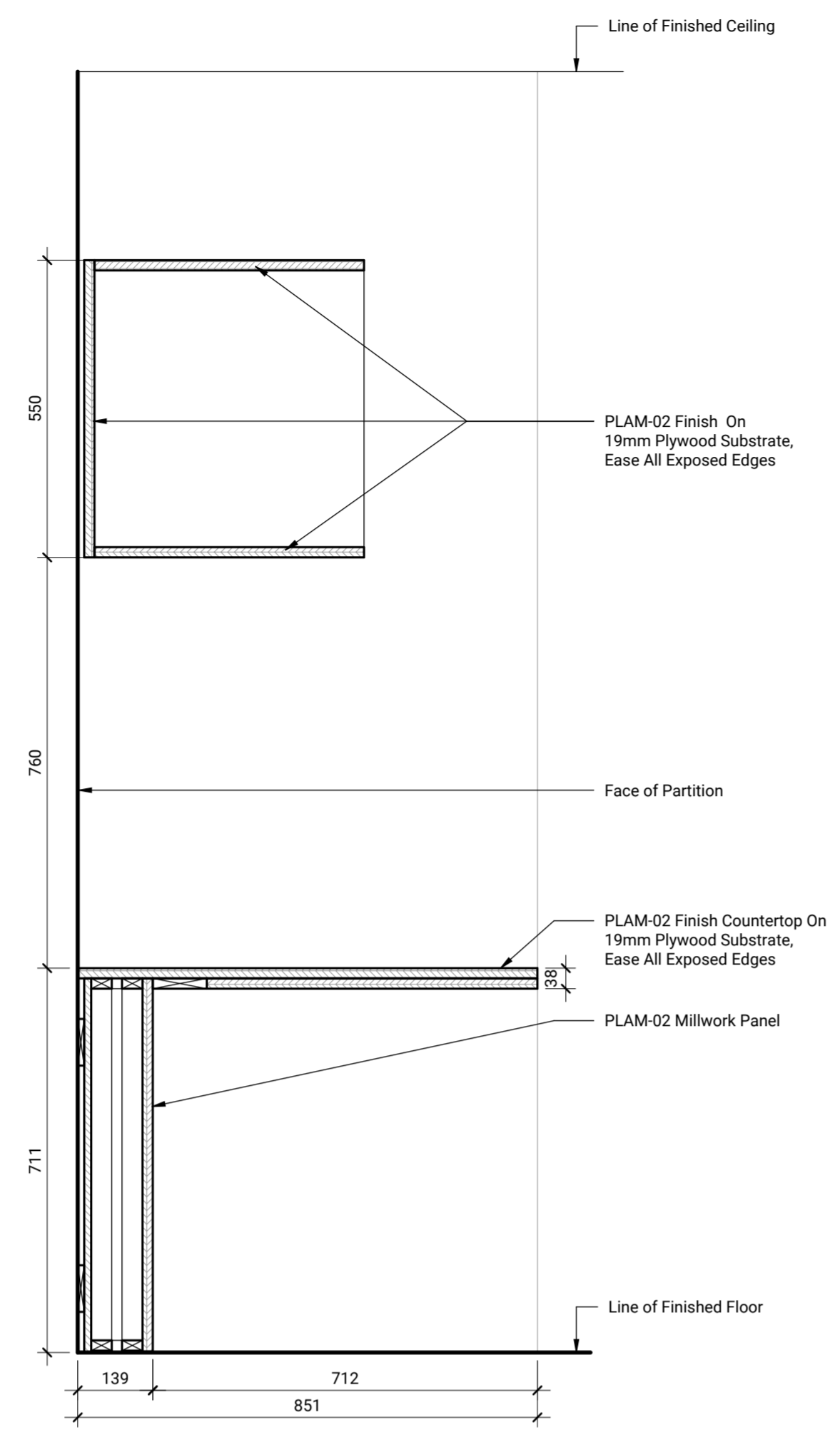


SECTION - FULL HEIGHT CABINET W/ ROD 9
1:10 A801

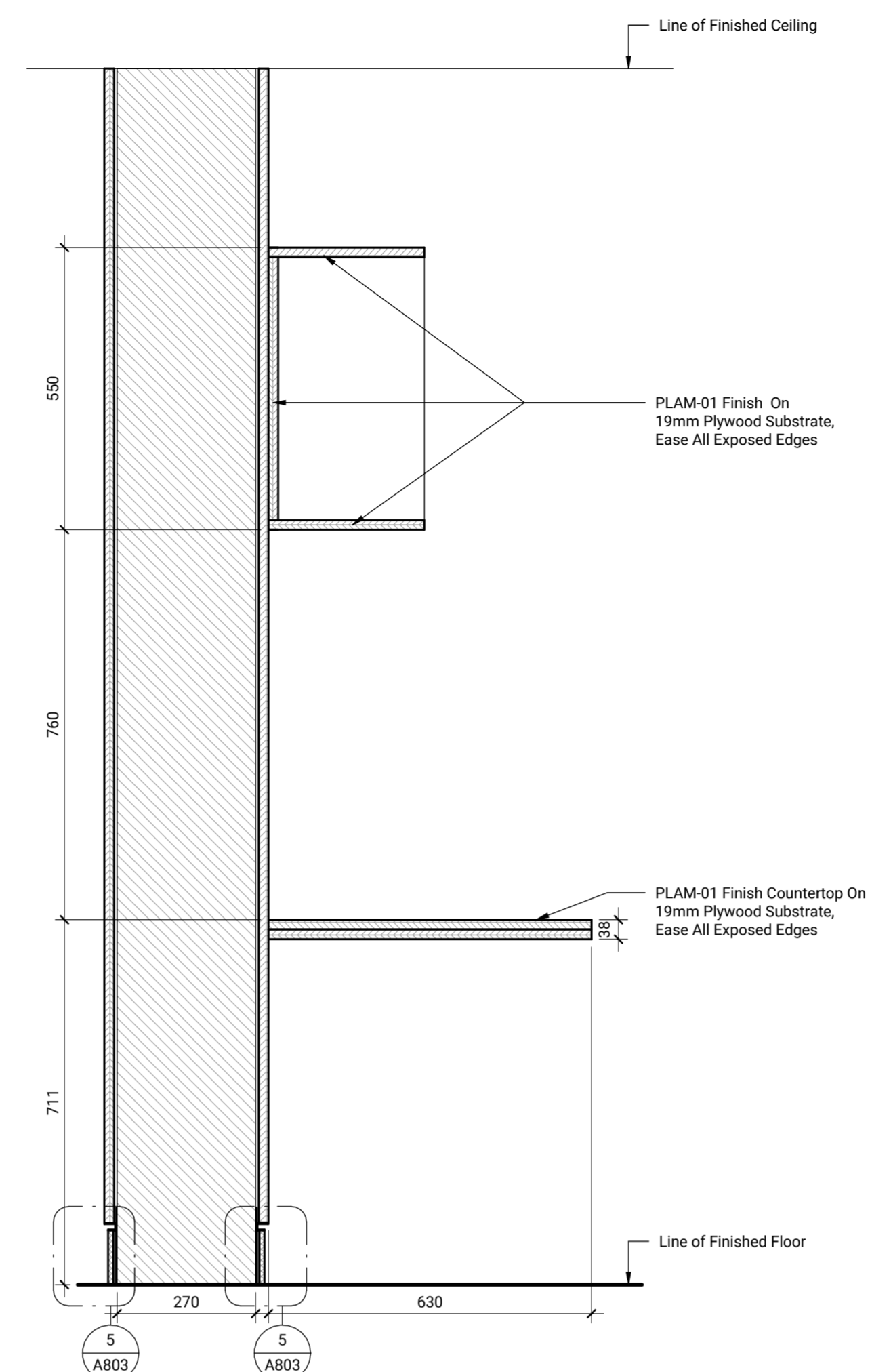
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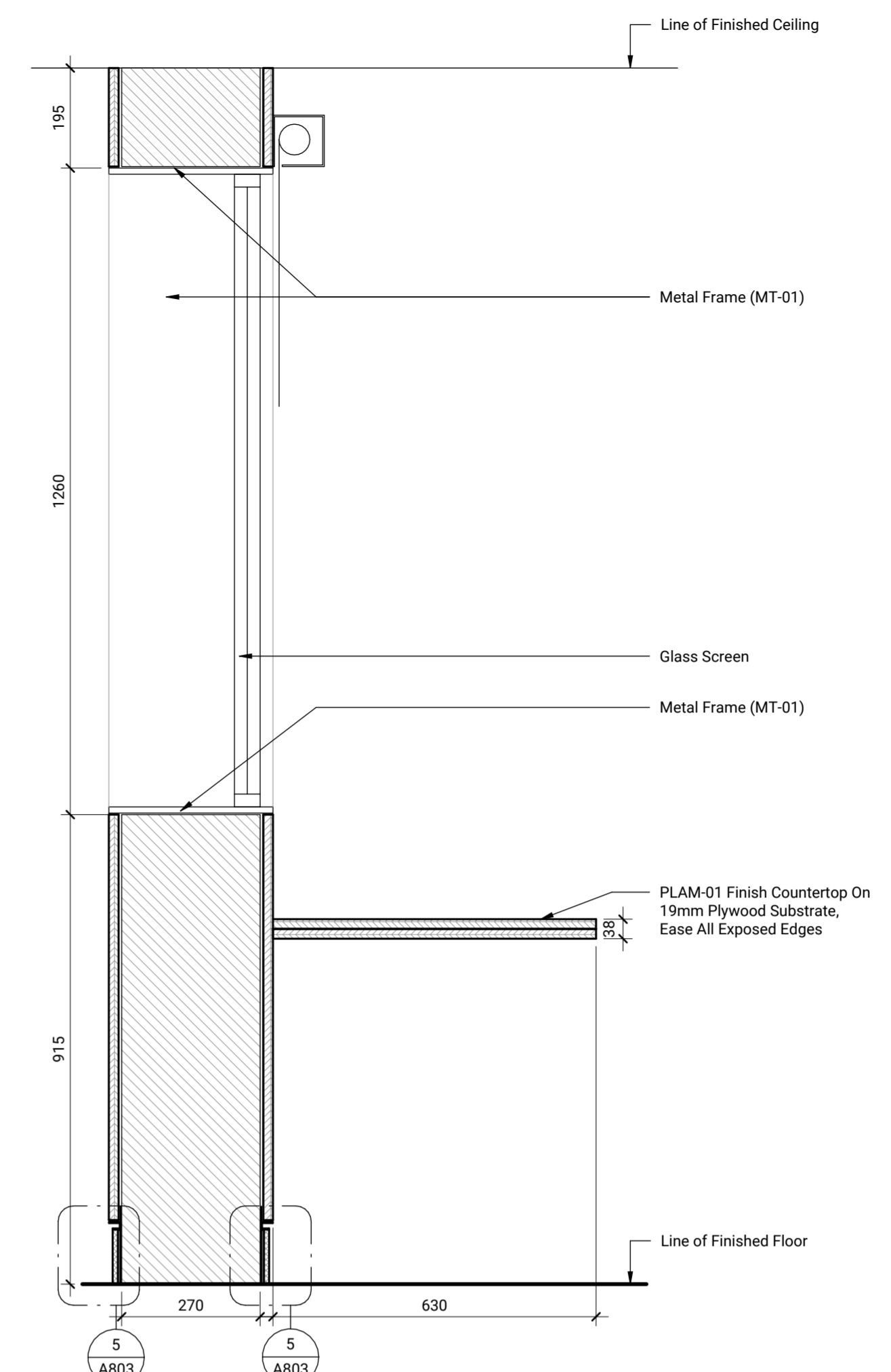
SECTION - DESK WITH STORAGE 1
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SECTION - DESK 2
1:10 A802



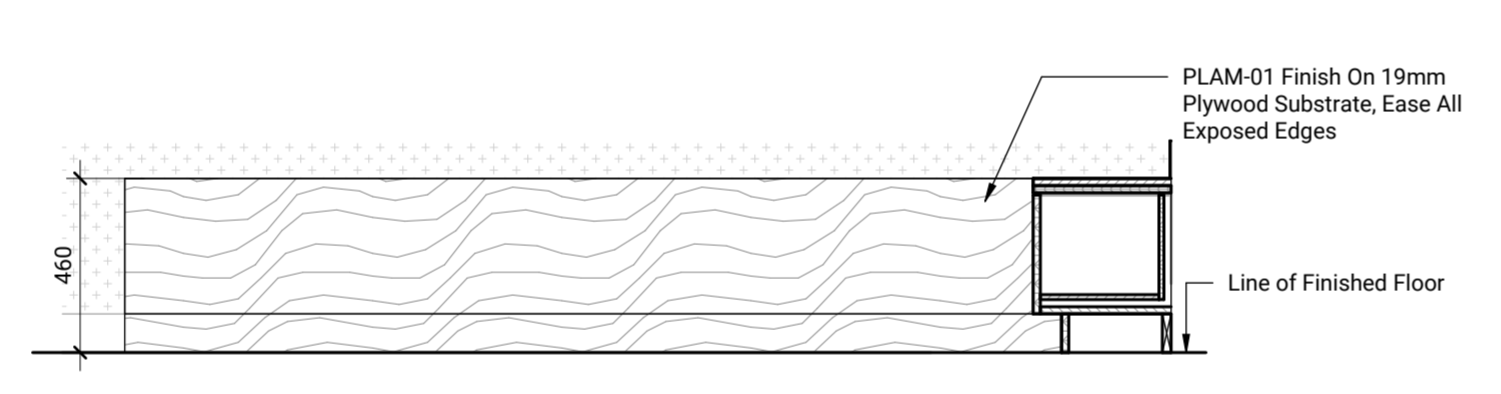
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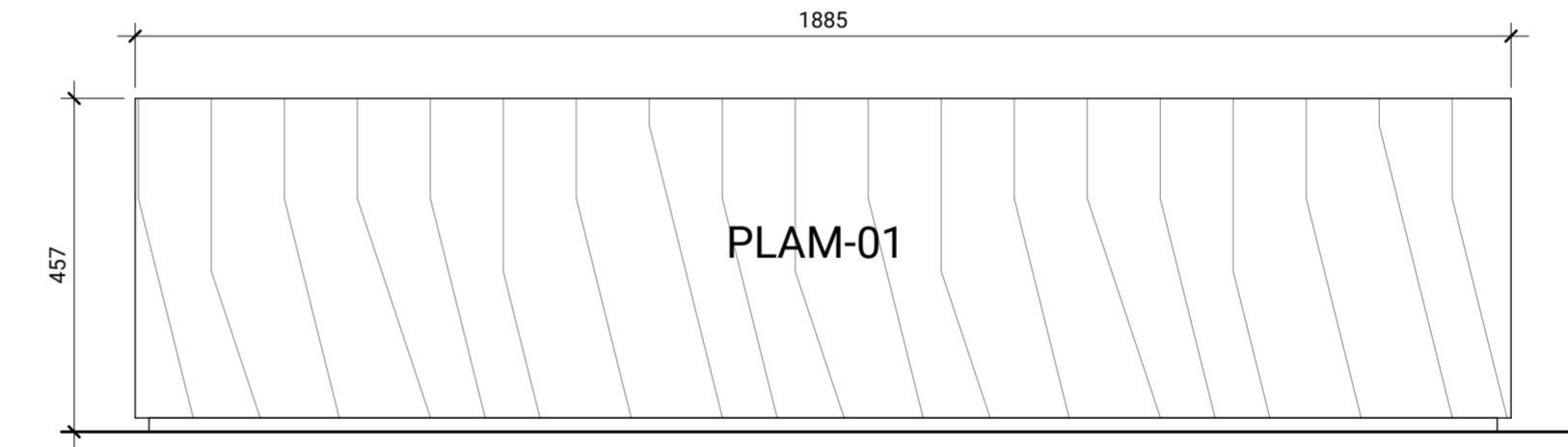
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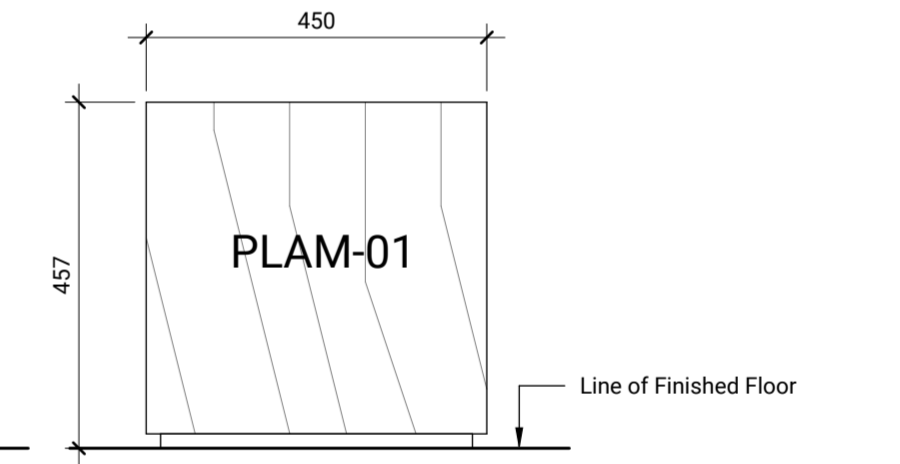
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2	24-04-25	ISSUED FOR TENDER



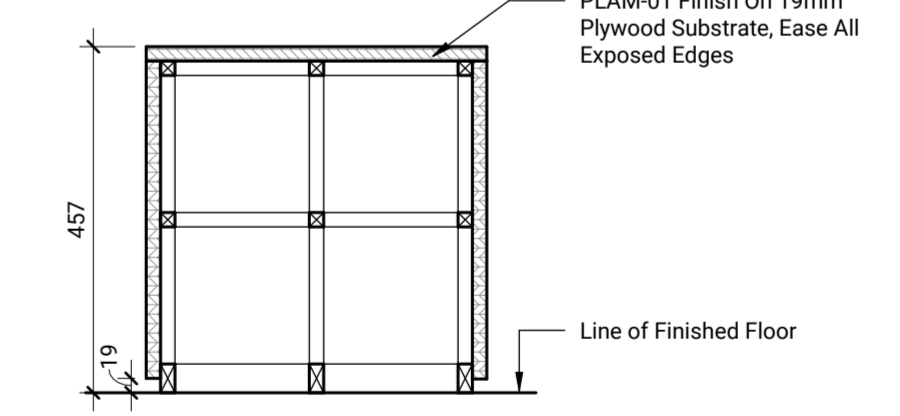
VESTIBULE BENCH ELEVATION 6
1:20 A802



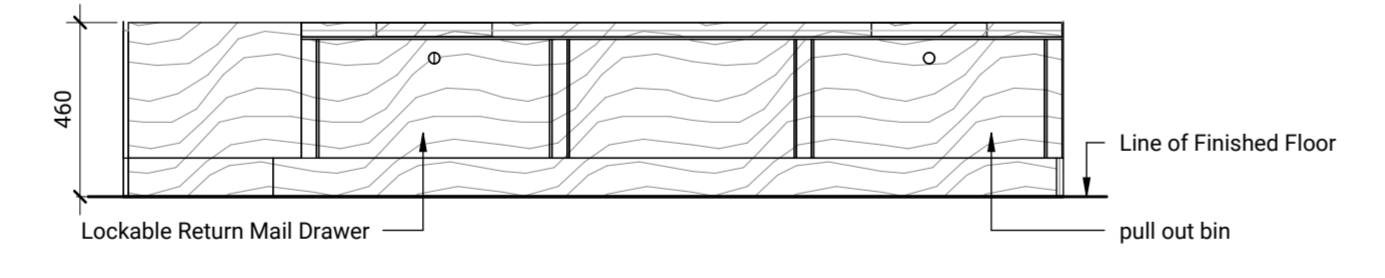
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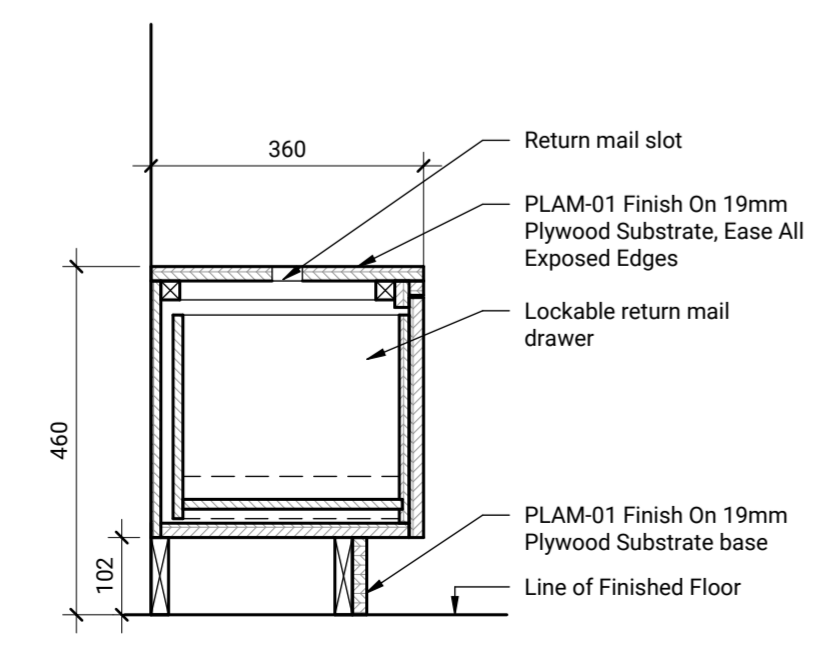
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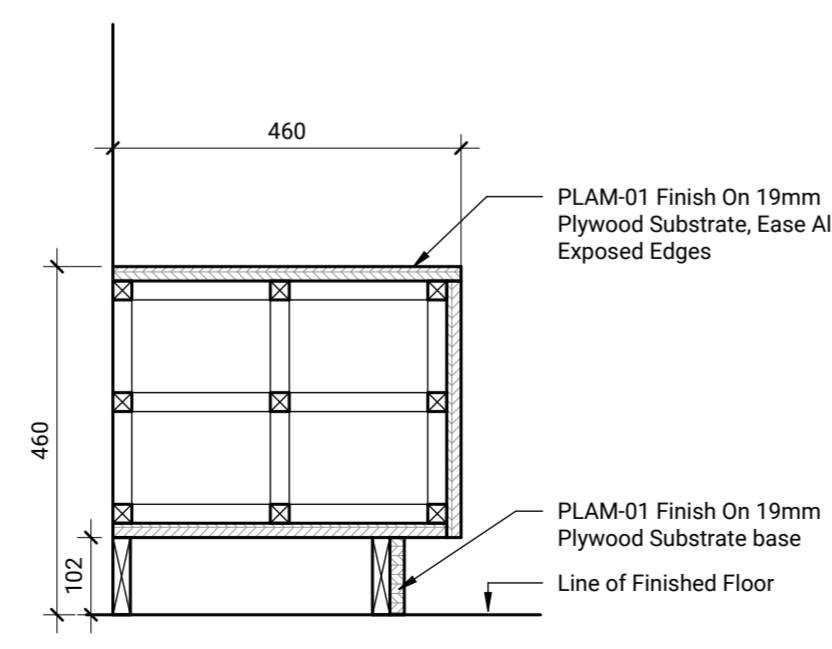
SECTION



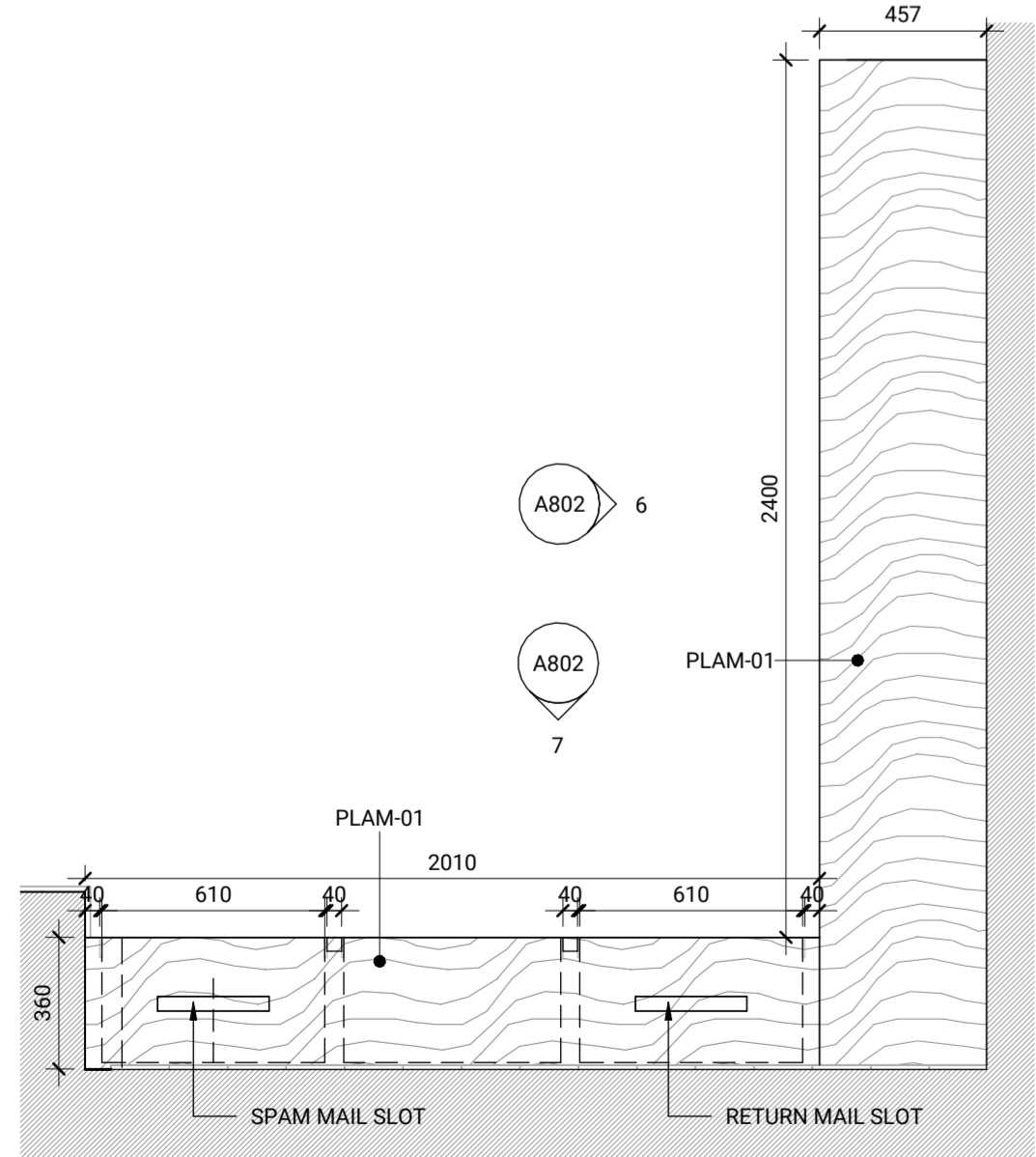
MAILBOX BINS 7
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MAILBOX SECTION 8
1:10 A802



MAILBOX SECTION 2 9
1:10 A802

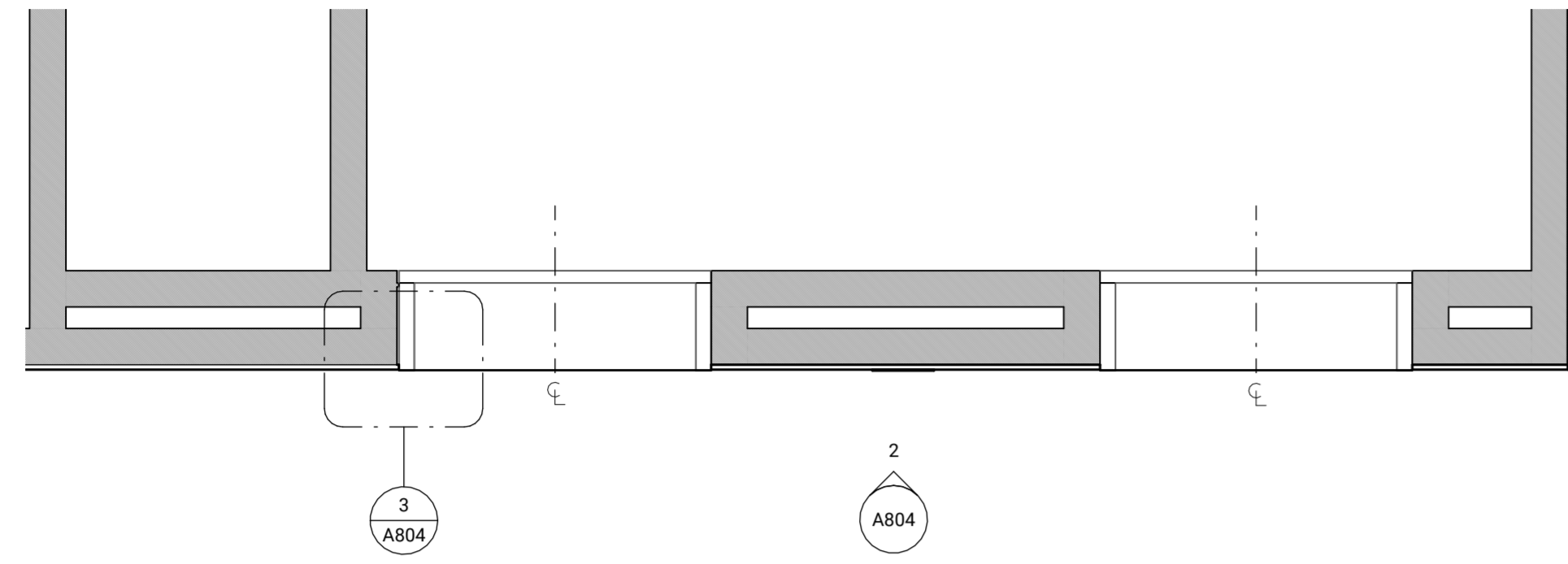
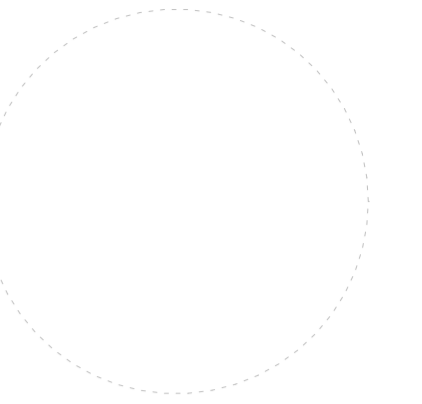


MAILROOM MILLWORK PLAN 5
1:20 A802

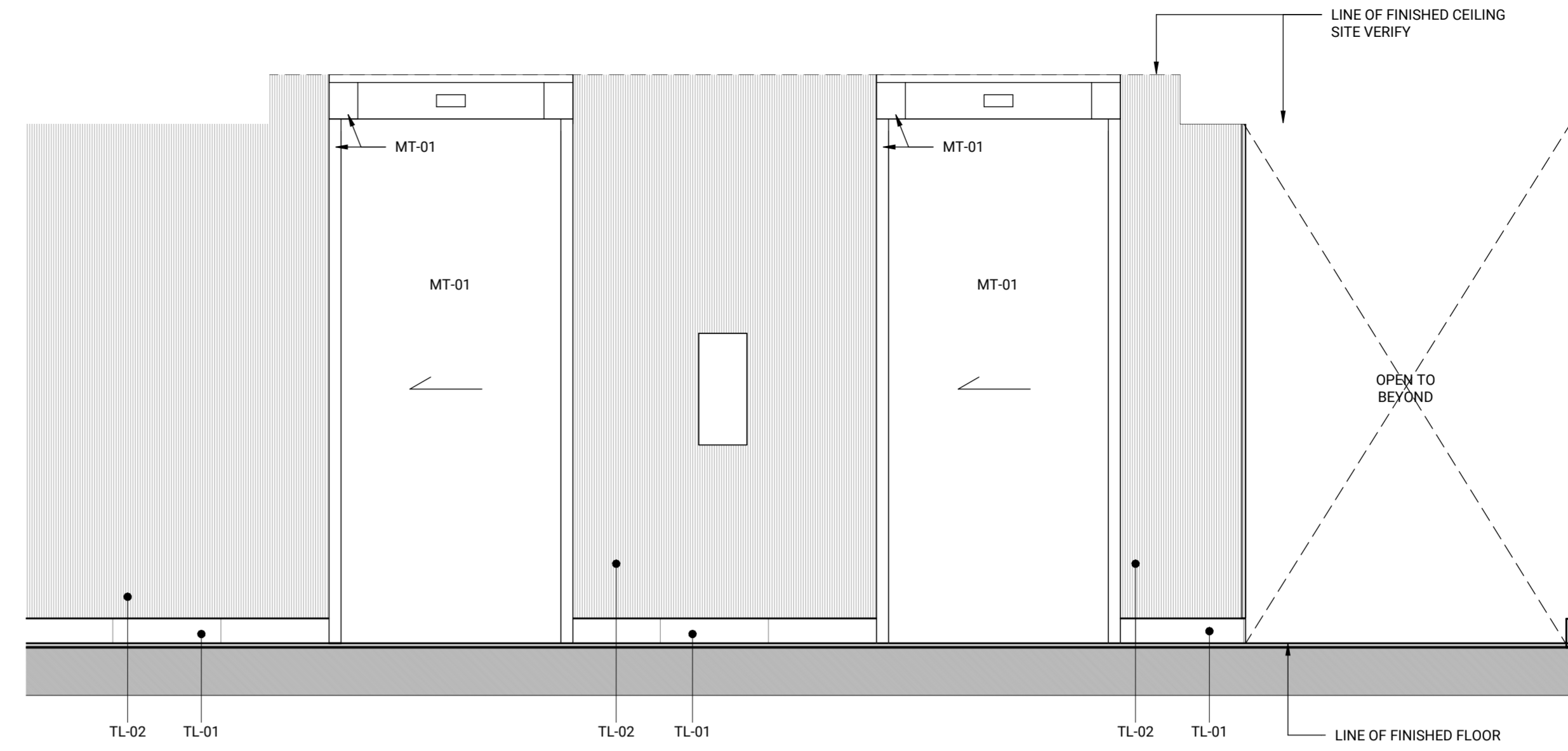
BENCH MILLWORK 10
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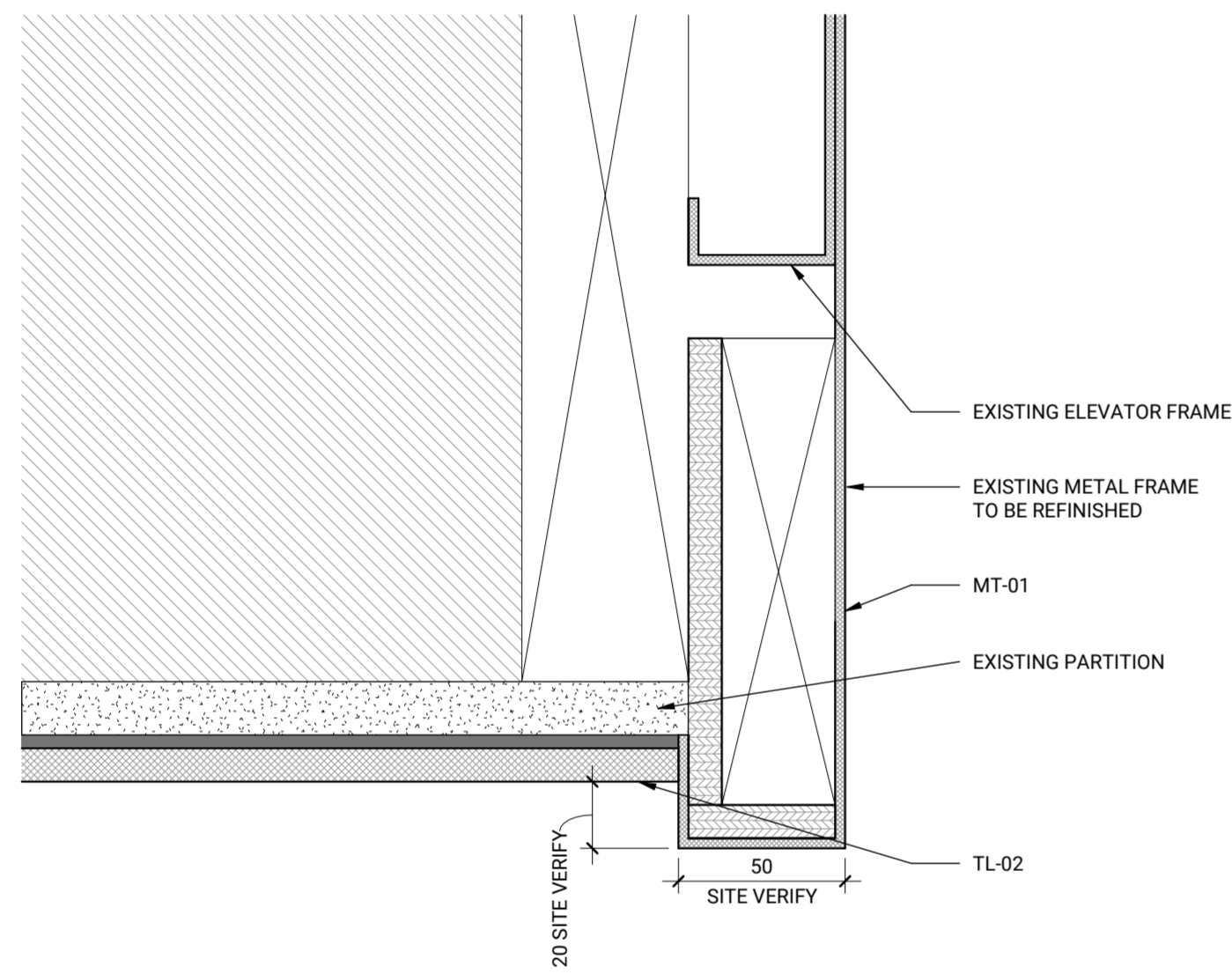


ELEVATOR SURROUND PLAN 1
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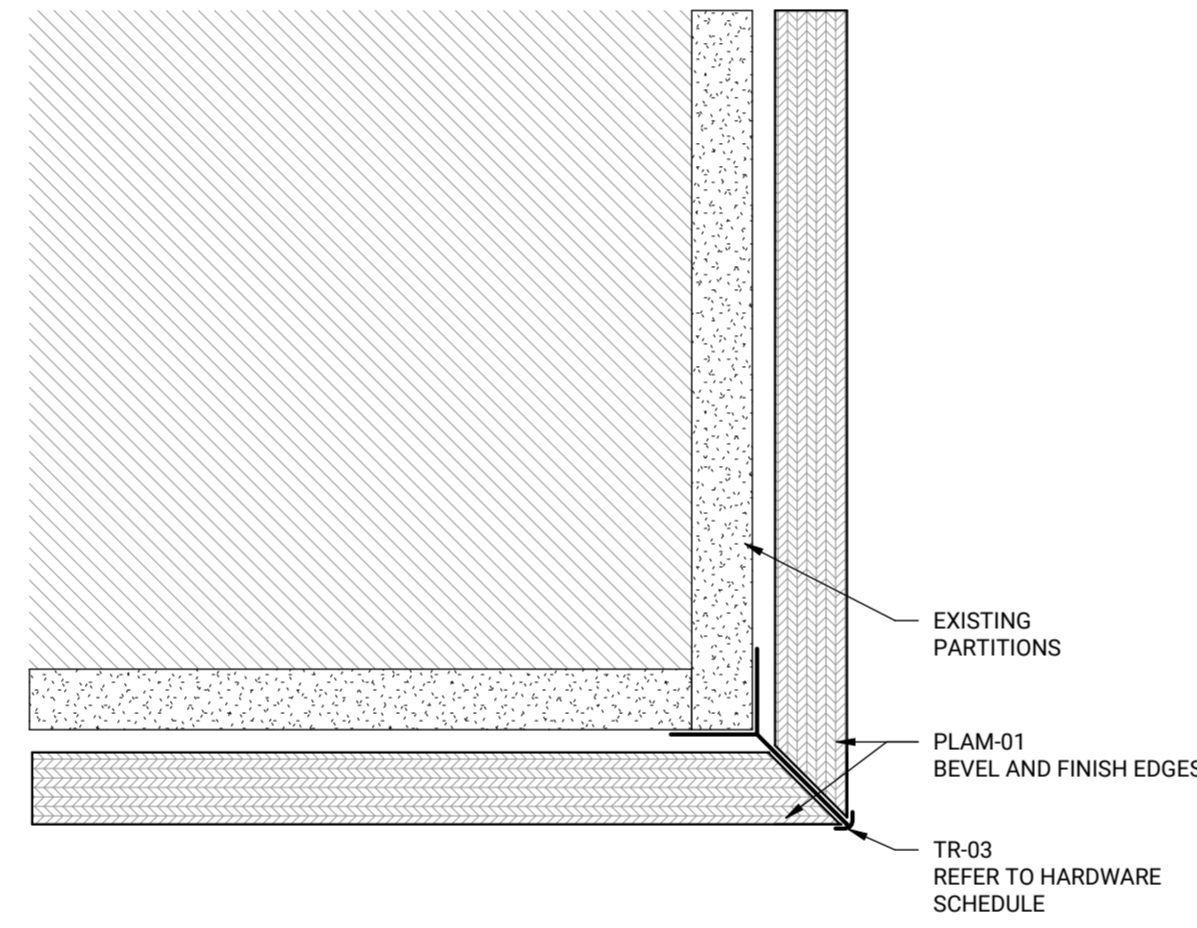


ELEVATOR SURROUND ELEVATION 2
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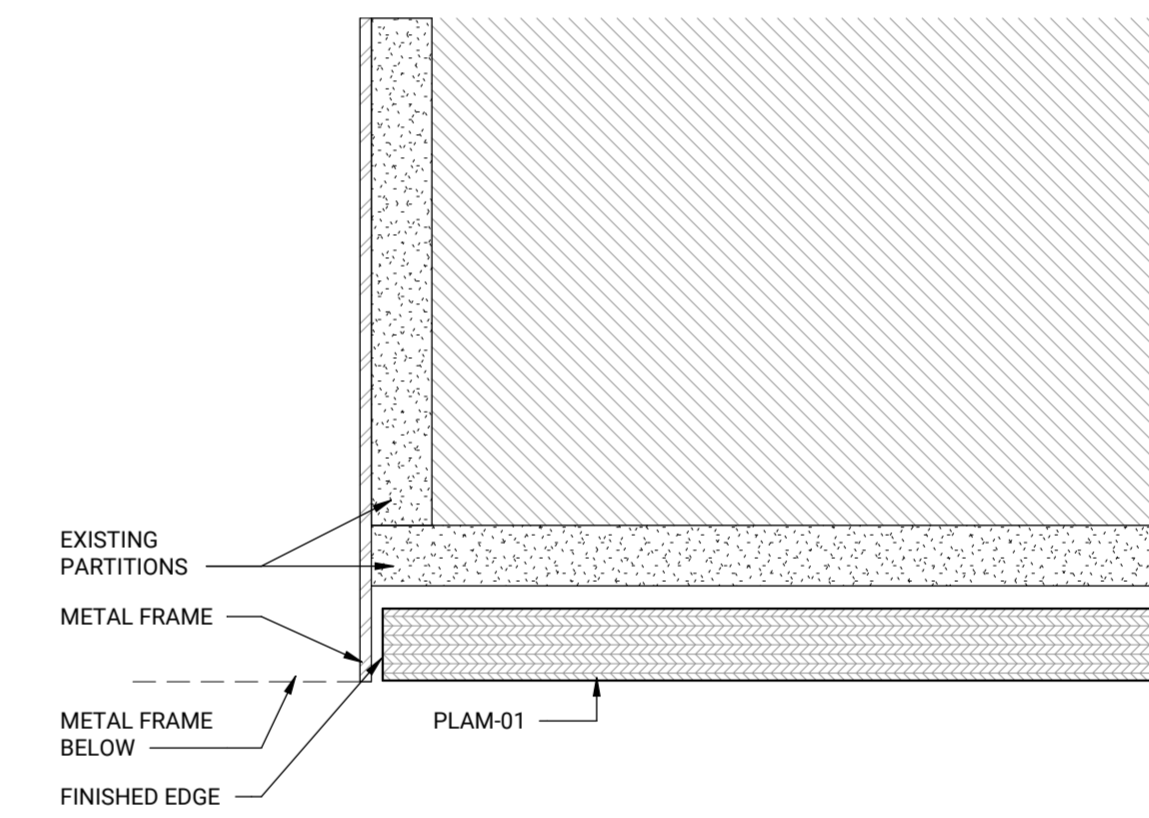
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ELEVATOR SURROUND DETAIL 1 3
1:2 A804



PLAM WALL PANEL EXTERIOR CORNER DETAIL 4
1:2 A804



OFFICE GLAZING FRAME DETAIL 5
1:2 A804

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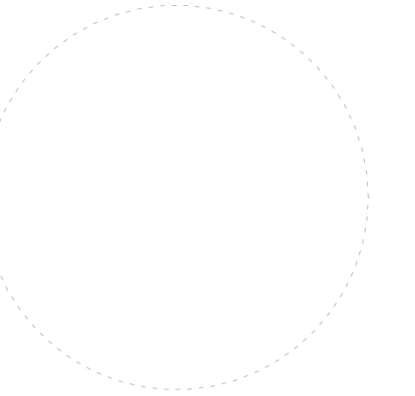
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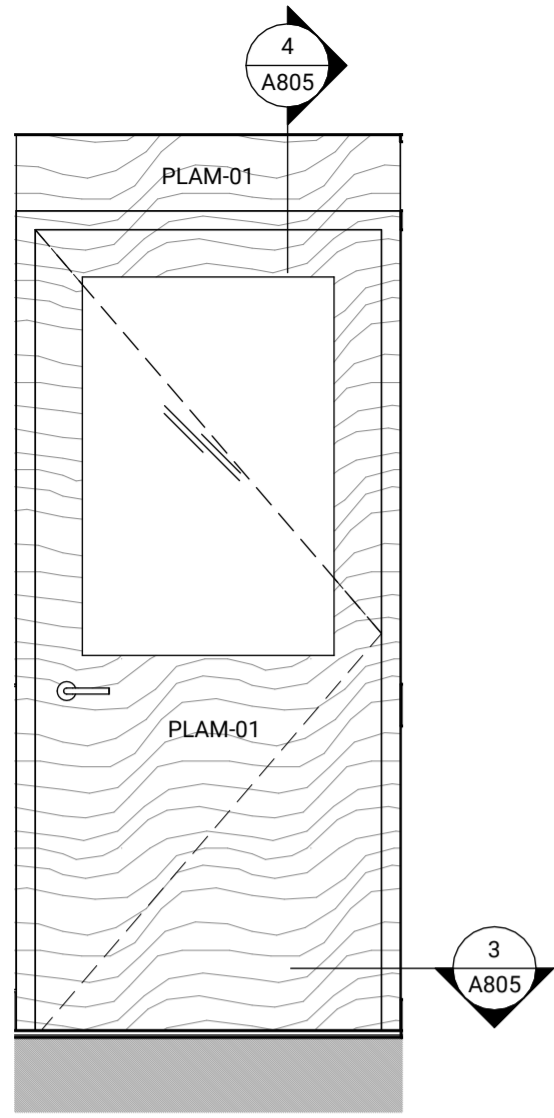
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WALL FINISH DETAILS
As indicated

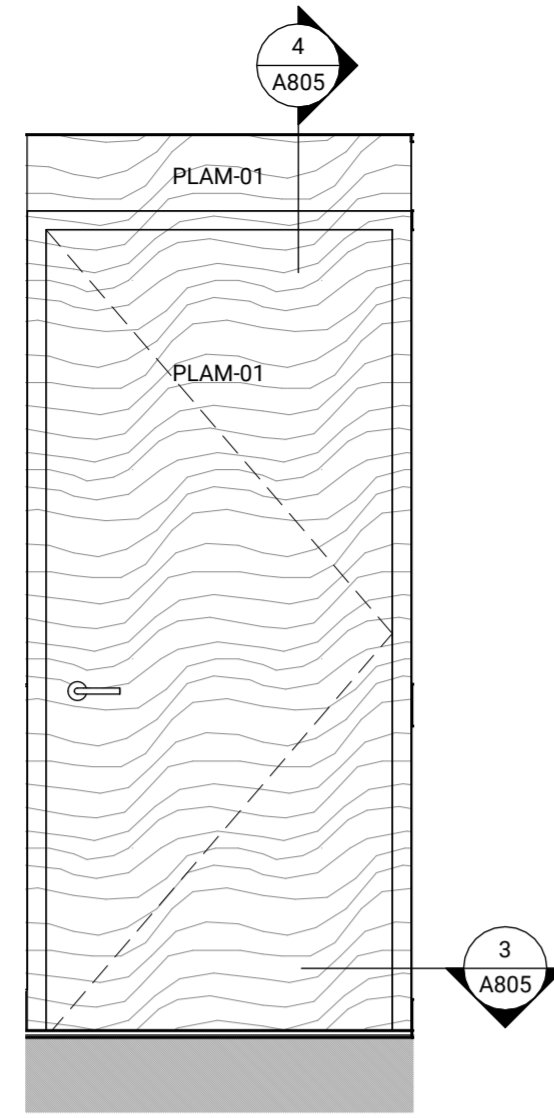
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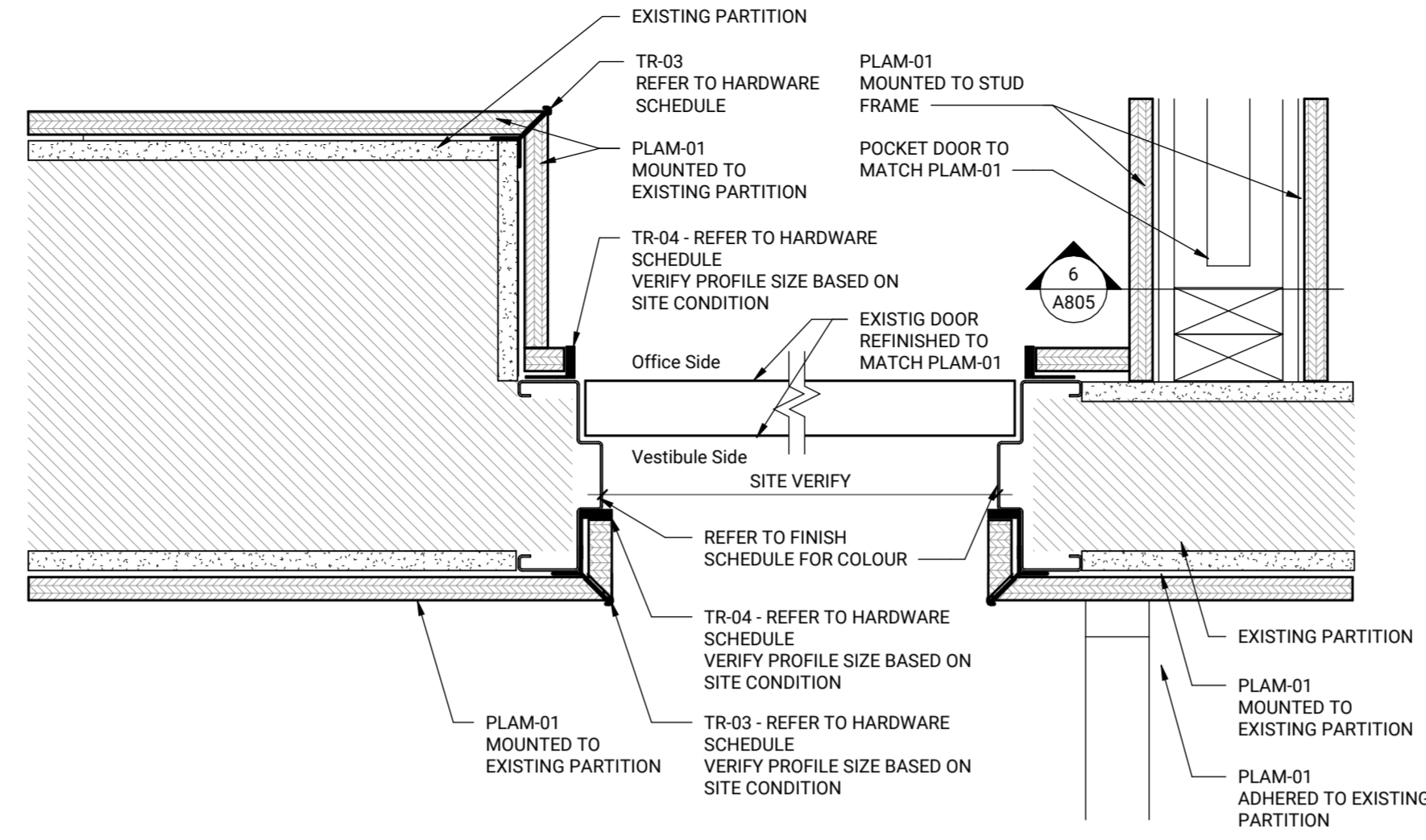
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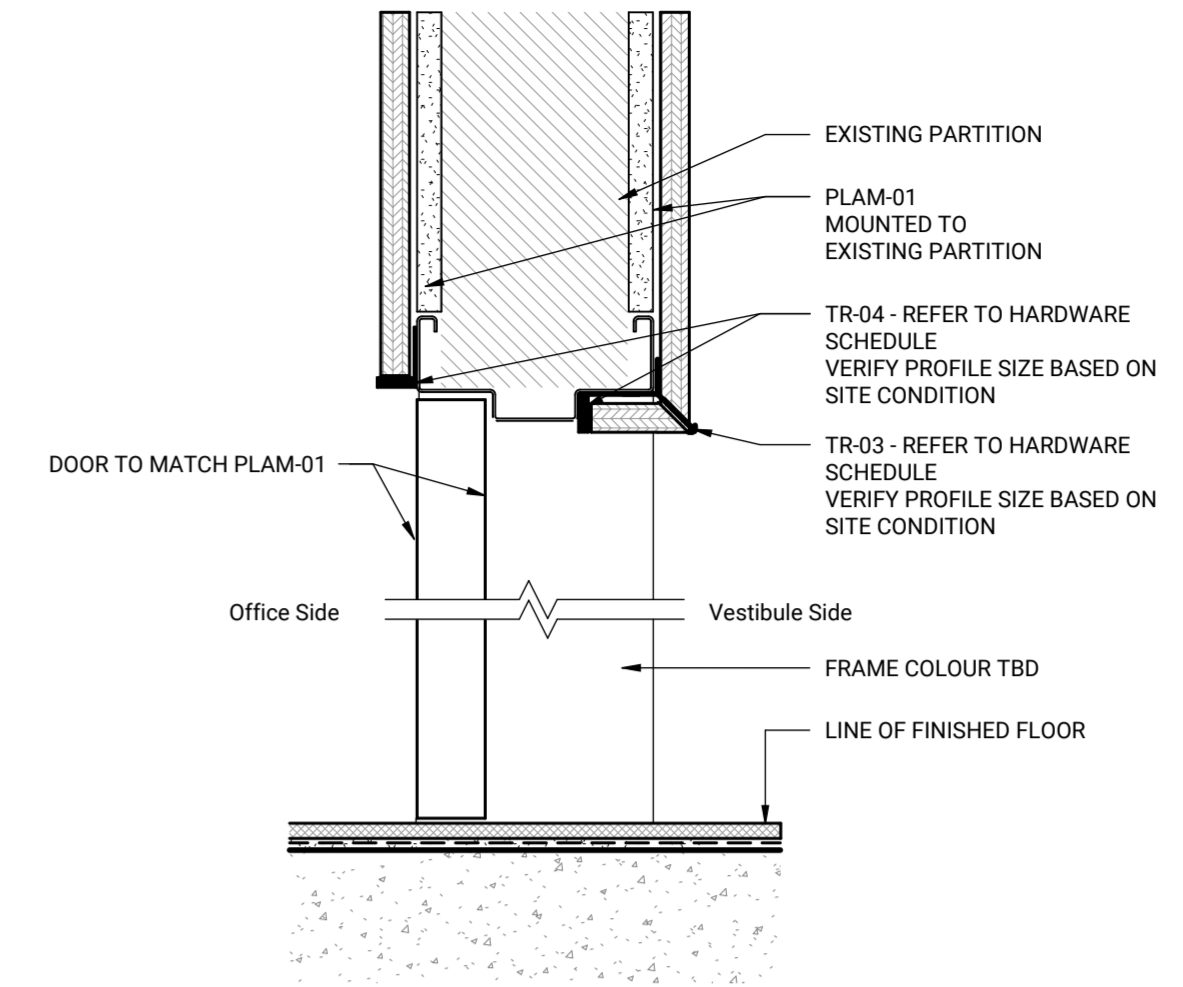
DR-01 - OFFICE DOOR 1 ELEVATION
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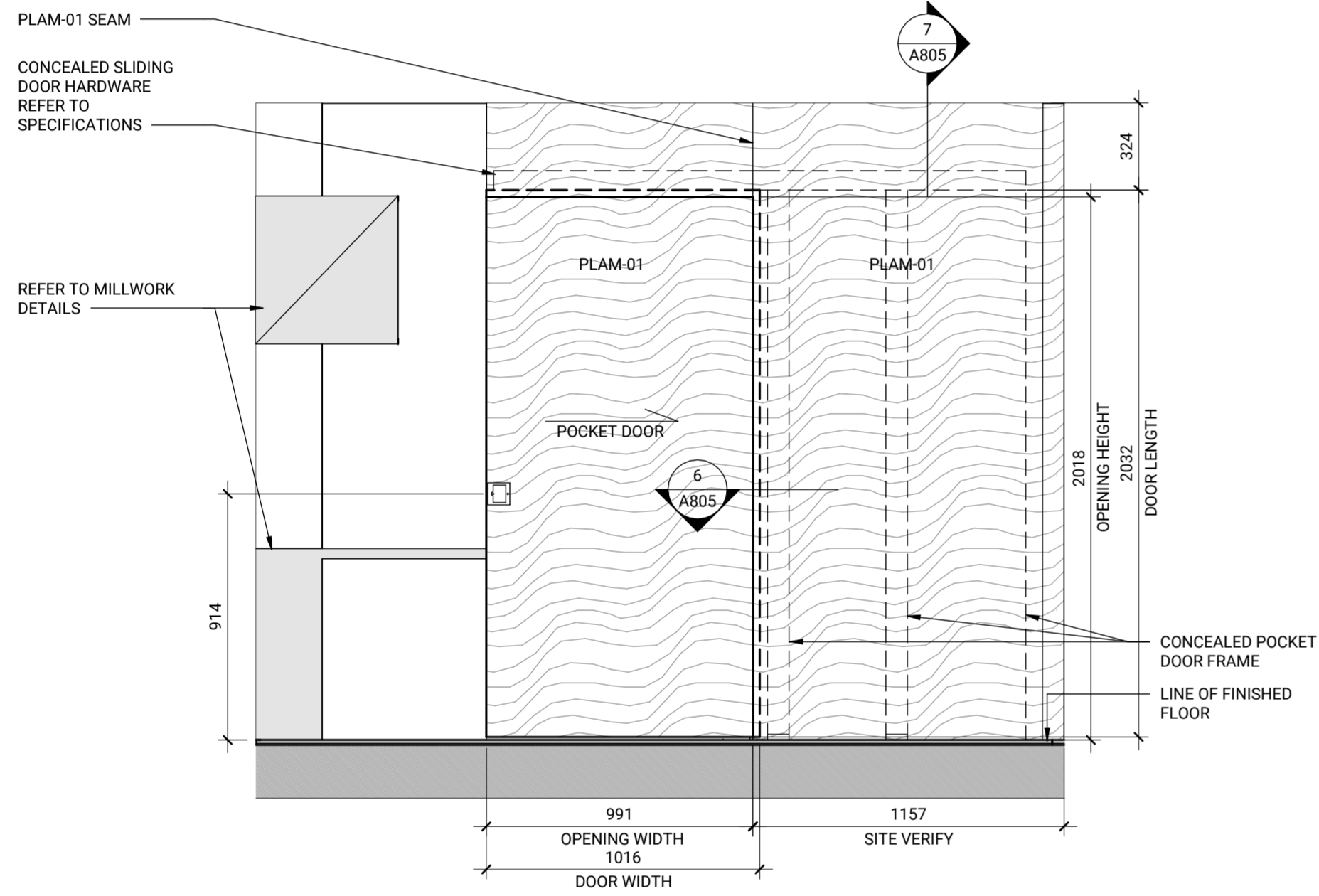
DR-02 - OFFICE DOOR 2 ELEVATION
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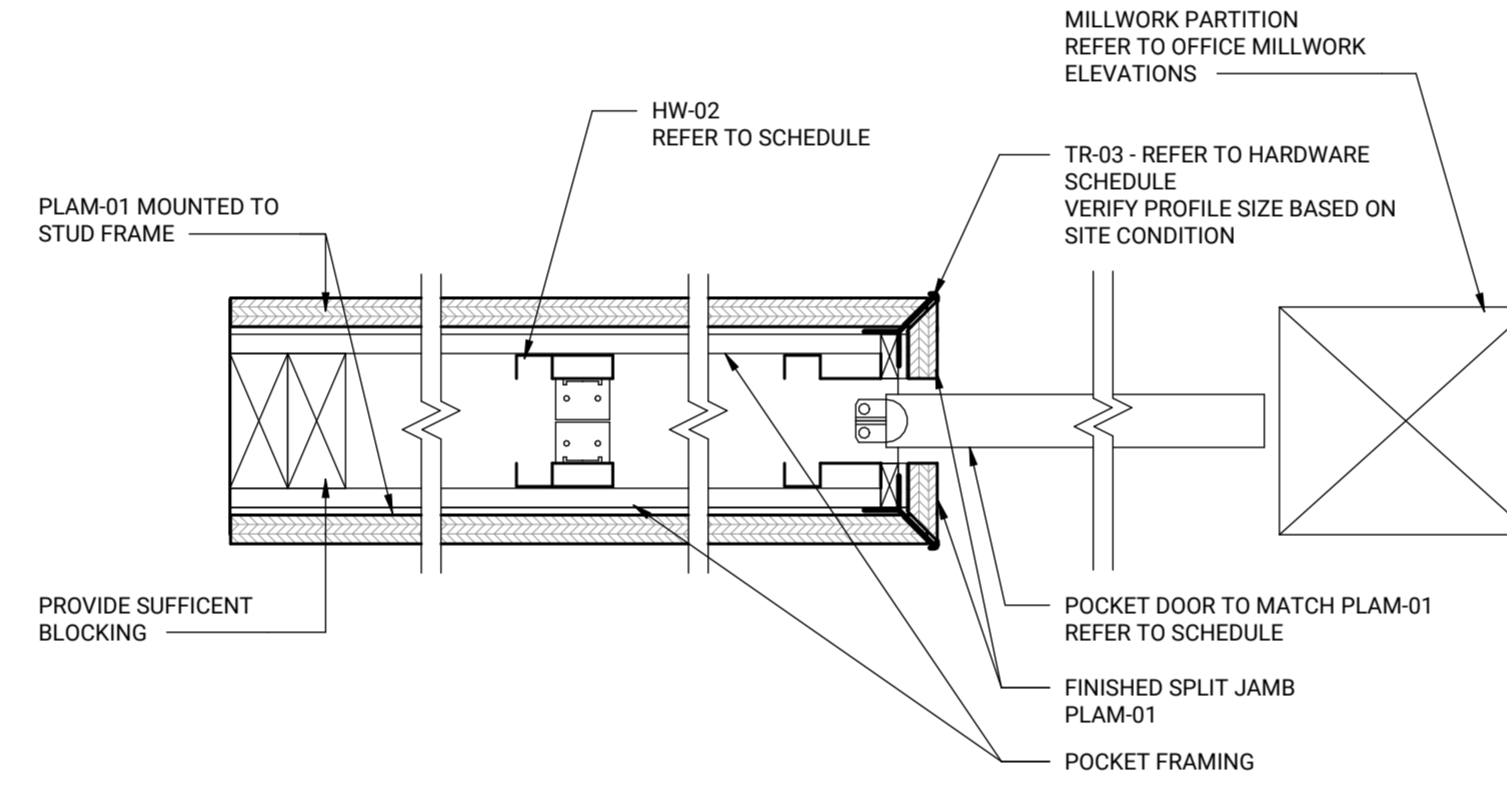
OFFICE DOOR PLAN
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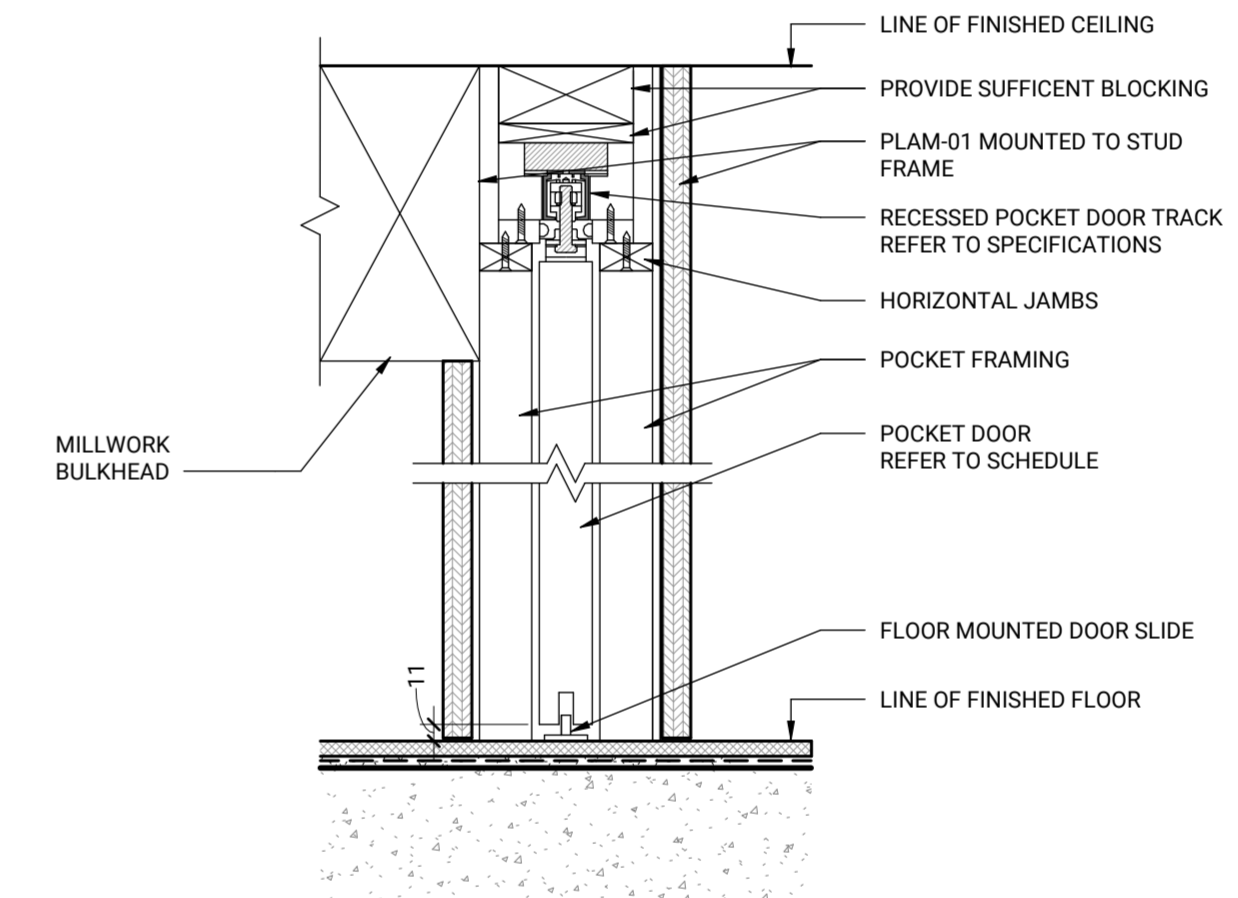
OFFICE DOOR SECTION
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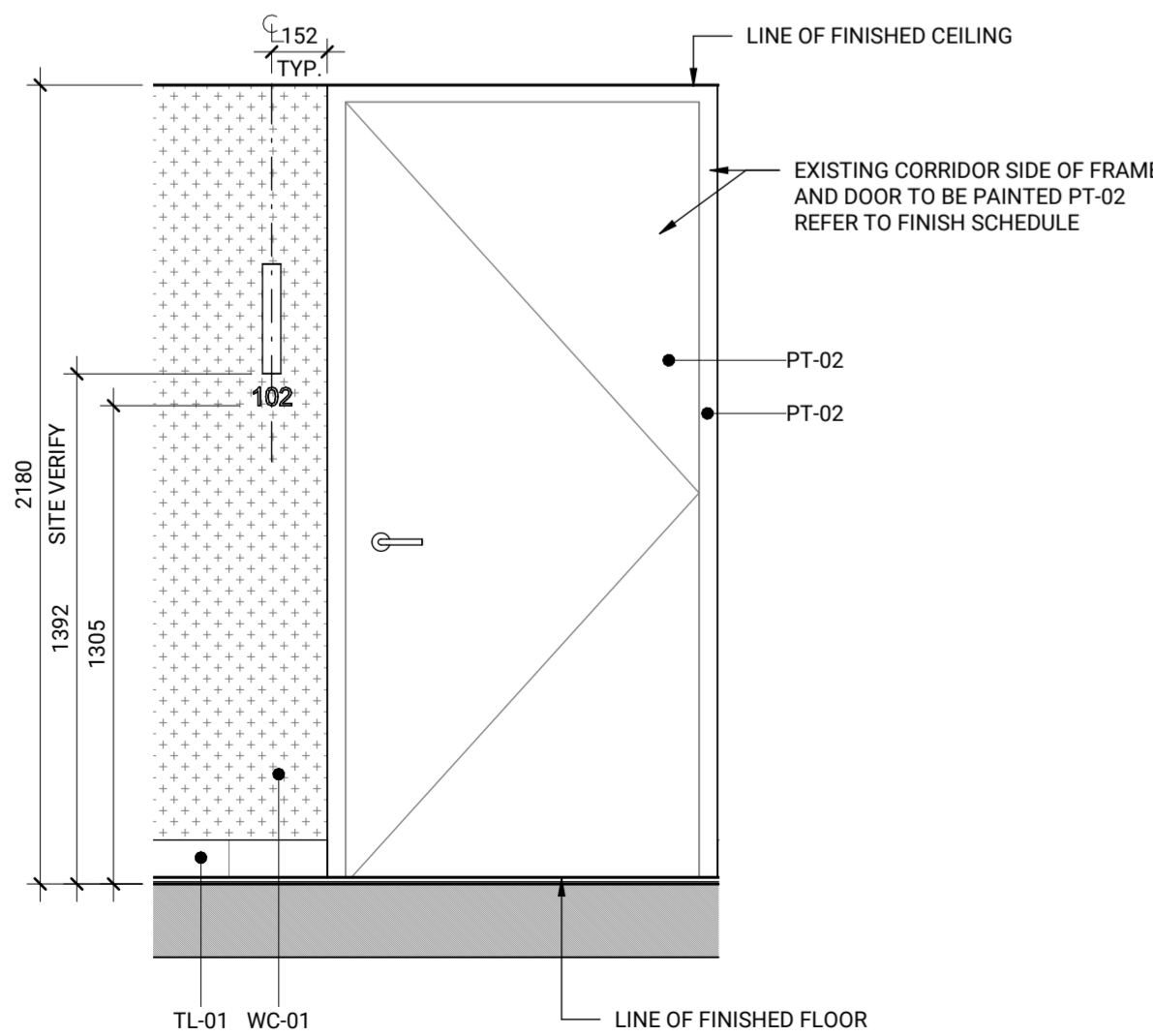
DR-03 - OFFICE POCKET DOOR ELEVATION
1:20 A805



OFFICE POCKET DOOR PLAN
1:5 A805



OFFICE POCKET DOOR SECTION
1:5 A805



DR-04 - TYP. SUITE ENTRY DOOR ELEVATION
1:20 A805

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DEMOLITION GENERAL NOTES:

- VISIT THE SITE, EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTION, AND REROUTING OF ELECTRICAL EQUIPMENT AND WIRING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.
- CONTRACTOR SHALL CONFIRM AND REVIEW ALL CONSULTANTS AND ARCHITECT DOCUMENTS FOR THE EXTENT OF WORK COORDINATE WITH CONSTRUCTION MANAGER REGARDING THE PHASING OF WORK AND EXITING ROUTE DURING CONSTRUCTION.
- NOT ALL ITEMS TO BE REMOVED ARE SHOWN ON THESE DRAWINGS.
- DO NOT REUSE EXISTING EMERGENCY EXIT SIGNS, DC HEADS, OR BATTERY UNITS REMOVED AS PART OF THIS SCOPE OF WORK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DEMOLITION DRAWINGS.
- EXISTING ELECTRICAL INSTALLATION THAT IS REQUIRED TO STAY SHALL BE RE-SUPPORTED FROM JOIST, INCLUDE TO REWORK CONDUITS PASSING THROUGH THE SPACE FOR ELECTRICAL, TELEPHONE, I.T. RE-SUPPORT ALL COMMUNICATION, POWER CONDUITS PASSING THROUGH ETC. SYSTEMS THAT ARE NOT SPECIFIC FOR THIS SPACE.
- ALL MATERIALS AND/OR EQUIPMENT DESIGNATED FOR SALVAGE SHALL BE TURNED OVER TO THE OWNER. ALL OTHER MATERIALS AND/OR EQUIPMENT FOR REMOVAL BECOMES THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND SHALL PROMPTLY BE REMOVED FROM THE SITE.
- FOR EXACT LOCATION AND QUANTITY OF EXISTING MECHANICAL EQUIPMENT WHICH SHALL BE REMOVED, COORDINATE WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR.
- ENSURE DEVICES THAT ARE LOCATED BEYOND THE AREA OF THE NOTED DEMOLITION SCOPE ARE NOT AFFECTED WITH THE REMOVAL OF THE POWER CONNECTIONS IN THE AREA OF DEMOLITION. REWIRE AS NEED POWER TO DEVICES BEYOND THE NOTED AREA OF DEMOLITION TO ENSURE POWER SUPPLY IS MAINTAINED THROUGHOUT THE FACILITY.
- ALL ELECTRICAL WIRING IS TO BE REMOVED BACK TO SOURCE, INCLUDING SERVICES AND SERVICE CONDUITS. INTERIOR WIRING INSIDE THE TENANT SPACE SHOULD BE MADE SAFE, DISCONNECTED AND REMOVED.
- PROVIDE BLANK COVER PLATE WHERE OUTLETS ARE REMOVED FROM EXISTING WALLS OR CEILING TO REMAIN.

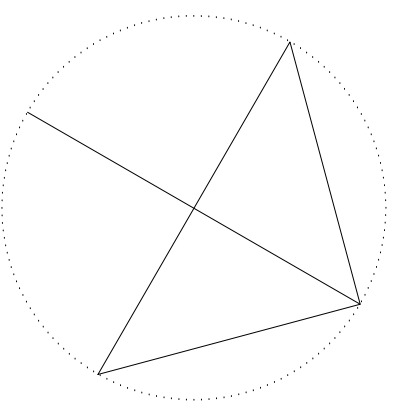
	ADDITIONAL NOMENCLATURE
AFF	ABOVE FINISHED FLOOR
WP	WEATHERPROOFED
GFI	GROUND FAULT INTERRUPTER
IG	ISOLATED GROUND
NL	NIGHT LIGHT
NIC	NOT IN CONTRACT
UON	UNLESS OTHERWISE NOTED
BOH	BACK OF HOUSE
EX	EXISTING DEVICE TO REMAIN
ER	DEVICE IN EXISTING LOCATION TO BE RELOCATED
RL	DEVICE IN NEW RELOCATED POSITION
E	EXISTING TO REMAIN
R	EXISTING TO BE REMOVED
R/R	REMOVE/RE-INSTALL
ER	EXISTING IN RELOCATED POSITION

LIGHTING FIXTURE SCHEDULE								
(LUMINAIRES SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR)								
TYPE	DESCRIPTION	SOURCE	LUMENS	COLOUR TEMP.	VOLTS	WATTS	MOUNTING/ HEIGHT	MANUFACTURER/ MODEL
○ A	4" DIA RECESSED DOWNLIGHT	LED	1015	3000K, 90CRI	120V	12W	RECESSED	LITELINE: RA4-12G-30K-90
○ B	5" DIA SURFACE MOUNT LIGHT	LED	650	3000K, 90CRI	120V	10.1W	SURFACE MOUNTED	SIGNIFY: SSR-9-30K-7
C	58" LONG SURFACE MOUNTED STRIP 1" WIDE LIGHT	LED	172LMFT	3000K, 90CRI	120V	1.9WFT	SURFACE MOUNTED	LUMINI: CLAREO S - 58" - HE48L0 - 30K
D	9" LONG RECESSED MOUNTED LED STRIP 2" WIDE LIGHT	LED	300LMFT	3000K, 90CRI	120V	4WFT	RECESSED	MARK: SL2L-L0P-8FT-90CRI-30K-300LMF
F	3" WIDE RECESSED MOUNTED LED COVE LIGHT	LED	400LMFT	3000K, 90CRI	120V	9.3WFT	RECESSED	AXIS: BMRLED-RECESSED-LED-300-90-30
○ G	2" DIA CYLINDER WALL SCONCE	LED	552	3000K, 90CRI	120V	7W	WALL MOUNTED 12FT AFF	LUMENWERX: AE2C1W-DI-12"-FTMB-90CRI-30K
○ H	8" DIA LED WALL SCONCE	LED	800	2700K, 90CRI	120V	6.3W	WALL MOUNTED 12FT AFF	LUMENS: RBW2169748
K	23" LED PICTURE LIGHT	LED	N/A	4000K, 90CRI	120V	10W	WALL MOUNTED	LUMENS: QRM2487553
M	MILLWORK LIGHTING	LED	240LMFT	3500K, 85CRI	120V	2.5W	MILLWORK MOUNTED	VISIONZ: PROXI
X	EXIT GREEN RUNNING MAN SIGN, EDGE-LIT	LED	N/A	N/A	120V	2W	UNIVERSAL	BEGHELLI: BRUNNO RM SERIES

DRAWING LIST		
DRAWING No.	DESCRIPTION	SCALE
E-001	ELECTRICAL LEGEND AND NOTES	N.T.S.
E-002	ELECTRICAL SPECIFICATION	AS SHOWN
E-100	DEMOLITION PLAN	AS SHOWN
E-101	POWER AND SYSTEMS PLAN	AS SHOWN
E102	LIGHTING PLAN	AS SHOWN

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LIGHTING LEGEND			
A	LUMINAIRE FIXTURE TYPE IDENTIFIER (REFER TO LUMINAIRE SCHEDULE)	⊕ S	"AV" & SECURITY LEGEND: ROUGH-IN OCTAGON BACKBOX C/W 3/4" C. PAINTED BLACK-WITH PULLWIRE BACK TO NEAREST CABLE TRAY FOR PA, MUSIC SPEAKER. "S" DENOTES SUSPENDED BACKBOX ON RIGID STEEL.
LED	LED OR FLUORESCENT LUMINAIRE	AV	FOR "AV PODIUM"- UNLESS NOTED OTHERWISE, PROVIDE WALL RECESSED DOUBLE-GANG BACKBOX C/W LOW VOLTAGE MUD RING, AND 1x 1/2" C WITH PULLWIRE, RUNNING BACK TO ACCESSIBLE CEILING, OR CLOSEST CABLE TRAY, PROVIDE ACCESS PANEL AS REQUIRED.
LED STRIP	LED OR FLUORESCENT STRIP LIGHT FIXTURE, LENGTH SHOWN TO SCALE.	BT	FOR "BT-AUX"- UNLESS NOTED OTHERWISE, PROVIDE WALL RECESSED DOUBLE-GANG BACKBOX C/W LOW VOLTAGE MUD RING, AND 1x 1/2" C WITH PULLWIRE, RUNNING BACK TO ACCESSIBLE CEILING, OR CLOSEST CABLE TRAY, PROVIDE ACCESS PANEL AS REQUIRED.
COMPACT	COMPACT FLUORESCENT, OR LED CEILING OR WALL MOUNTED LUMINAIRE RESPECTIVELY	DJ	FOR "DJ-AUX"- UNLESS NOTED OTHERWISE, PROVIDE WALL RECESSED DOUBLE-GANG BACKBOX C/W LOW VOLTAGE MUD RING, AND 1x 1/2" C WITH PULLWIRE, RUNNING BACK TO ACCESSIBLE CEILING, OR CLOSEST CABLE TRAY, PROVIDE ACCESS PANEL AS REQUIRED.
EMERGENCY	SAME AS ABOVE, BUT CONNECTED TO UN-SWITCHED EMERGENCY CIRCUIT.	AX	FOR "AX-ON"- UNLESS NOTED OTHERWISE, PROVIDE WALL RECESSED SINGLE GANG BACKBOX C/W LOW VOLTAGE MUD RING, AND 1x 3/4" C WITH PULLWIRE, RUNNING BACK TO ACCESSIBLE CEILING, OR CLOSEST CABLE TRAY, PROVIDE ACCESS PANEL AS REQUIRED.
EXIT SIGN	CEILING OR WALL MOUNTED EXIT SIGN	OS	FOR "OSYS" TOUCH PAD- UNLESS NOTED OTHERWISE, PROVIDE WALL RECESSED SINGLE GANG BACKBOX C/W LOW VOLTAGE MUD RING, AND 1x 3/4" C WITH PULLWIRE, RUNNING BACK TO ACCESSIBLE CEILING, OR CLOSEST CABLE TRAY, PROVIDE ACCESS PANEL AS REQUIRED.
EXIT SIGN/EMERGENCY HEADS	CEILING OR WALL MOUNTED COMBINATION EXIT SIGN/EMERGENCY HEADS	DC	DOOR CONTACT, PROVIDE 3/4" C W/PULLWIRE TO ACCESSIBLE CABLE TRAY, PROVIDE ACCESS PANEL AS REQUIRED.
EMERGENCY BATTERY UNIT	EMERGENCY BATTERY UNIT, WITH OR WITHOUT INTEGRAL HEADS	ML	ELECTRIC MAGNETIC DOOR LOCK, PROVIDE 3/4" C W/PULLWIRE TO NEAREST ACCESSIBLE CABLE TRAY, AND 120V POWER CONNECTION AS REQUIRED.
120V LINE VOLTAGE COMMERCIAL GRADE, WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH, "WATT STOPPER" CAT.#DW-100" OR APPROVE EQUAL.		ES	ELECTRIC DOOR STRIKE, PROVIDE 3/4" C W/PULLWIRE TO NEAREST ACCESSIBLE CABLE TRAY, AND 120V POWER CONNECTION AS REQUIRED.
120V LINE VOLTAGE WALL MOUNTED "DECORA" SWITCH - "3" DENOTES 3-WAY, "4" DENOTES 4-WAY		CR	CARD READER, PROVIDE 3/4" C W/PULLWIRE FROM 4"x4" RECESSED BACK BOX TO NEAREST ACCESSIBLE CABLE TRAY
COMMERCIAL GRADE, 120V DUAL RELAY DECORA WALL MOUNTED 2-BUTTONS OCCUPANCY SENSOR WALL SWITCH, FOR OFFICE BI-LEVEL LIGHTING CONTROL, LEGRAND #DSW-302 OR APPROVED EQUAL.		VI	VIDEO INTERCOM, PROVIDE 3/4" C W/PULLWIRE FROM 4"x4" RECESSED BACK BOX TO NEAREST ACCESSIBLE CABLE TRAY
COMMERCIAL GRADE, WALL MOUNTED WIRELESS SCENES CONTROL DIMMING SWITCH-"#F" DENOTES NUMBER OF ZONE CONTROL LUTRON "FITGO" OR APPROVED EQUAL.		AS	ALARM SIREN, PROVIDE 3/4" C W/PULLWIRE TO NEAREST ACCESSIBLE CABLE TRAY.
120V LINE VOLTAGE CEILING MOUNTED DUAL-TECH OCCUPANCY SENSOR, "WATT STOPPER" CAT.#DT-355" OR APPROVED EQUAL		(EXT) (C)	WALL/CEILING SURFACE MOUNTED SECURITY SURVEILLANCE CAMERA @10'-0" AFF, PROVIDE BACKBOX C/W 3/4" C WITH PULLWIRE, RUNNING BACK TO NEAREST CABLE TRAY "C" DENOTES CEILING SURFACE MOUNTING "EXT" DENOTES EXTERIOR
POWER LEGEND			
15A, 120V "DECORA" DUPLEX RECEPTACLE, U-GROUND TYPE - WALL MOUNTED AT 12" AFF, UNLESS OTHERWISE NOTED. "GFI" DENOTES GROUND FAULT INTERRUPTER.		(C)	CEILING SUSPENDED MOUNTED SECURITY CAMERA @ ±10'-0" AFF. PROVIDE OCTAGON BACK BOX ON 1" SUSPENDED RIGID STEEL CONDUIT FROM U/S OF STRUCTURE (PAINTED BLACK OR MATCHING CEILING FINISH) C/W 3/4" C WITH PULL WIRE, RUNNING BACK TO ACCESSIBLE CABLE TRAY, UNLESS OTHERWISE NOTED
15A, 120V "DECORA" QUAD RECEPTACLE, U-GROUND TYPE - WALL MOUNTED AT 12" AFF, UNLESS OTHERWISE NOTED.		TV	WALL MOUNTED TV DISPLAY POWER AND DATA CONNECTIONS. REFER TO "ID" ELEVATION, CONFIRM ON SITE FOR EXACT MOUNTING HEIGHT
20A, 120V "DECORA" DUPLEX RECEPTACLE, U-GROUND T-SLOT TYPE (5-20R) - WALL MOUNTED AT 12" AFF, UNLESS OTHERWISE NOTED. "GFI" DENOTES GROUND FAULT INTERRUPTER.		TV	CEILING MOUNTED TV DISPLAY VIDEO POWER AND DATA CONNECTION, PROVIDE SUSPENDED RIGID STEEL CONDUITS AS REQUIRED PROVIDE 15A, 120V DUPLEX RECEPTACLE, AND SINGLE DATA GANG BOX AT THE BACK OF TV MOUNTING BRACKET. POWER AND DATA CABLES SHALL BE ROUTED THROUGH SUSPENDED CONDUIT UP TO RESPECTIVE POWER J-BOX, DATA PULL BOX IN ACCESS CEILING SPACE, OR @ U/S OF UPPER SLAB OR O.W.S J C/W 1" C WITH PULLWIRE, RUNNING BACK TO ACCESSIBLE CEILING SPACE, OR CLOSEST CABLE TRAY
20A, 120V "DECORA" QUAD RECEPTACLE, U-GROUND T-SLOT TYPE (5-20R) - WALL MOUNTED AT 12" AFF, UNLESS OTHERWISE NOTED. "GFI" DENOTES GROUND FAULT INTERRUPTER.		TV	WIRELESS ACCESS POINT, PROVIDE 3/4" C TO NEAREST ACCESSIBLE CABLE TRAY.
15A, 120V ISOLATED DUPLEX U-GROUND RECEPTACLE OUTLET, ORANGE COLOR, PROVIDE SEPARATE DEDICATED GROUND WIRE AS REQUIRED.		TV	WALL MOUNTED "IP" CLOCK, PROVIDE 3/4" C CONCEALED IN WALL RUNNING BACK, TERMINATED ABOVE ACCESSIBLE CABLE TRAY.
20A, 120V COMBINATION OF 2 x USB PORTS (TYPE "A" & "C") & DUPLEX U-GROUND RECEPTACLE. "LEVITON CAT.# T5833" OR APPROVED EQUAL.		FIRE ALARM LEGEND	
DUPLEX RECEPTACLE, SAME AS ABOVE BUT MOUNTED ABOVE COUNTER AT 42" AFF, OR UNLESS OTHERWISE NOTED.		FIRE ALARM PANEL - SURFACE MOUNTED OR RECESSED/FLUSH MOUNTED	
SPECIALTY SINGLE POWER RECEPTACLE, WITH SPECIFIC VOLTAGE AS SHOWN ON DRAWING PLAN		SMOKE DETECTOR - CEILING MOUNTED	
IN SLAB FLUSH FLOOR MOUNTED POWER OUTLET C/W 1x20A T-SLOT "DECORA" DUPLEX RECEPTACLE/USB PORTS C/W TILE OR CARPET FLANGE WIREMOLD CAT. #890CS1-1, 828R-TCAL-XX		SMOKE DETECTOR - DUCT TYPE	
4"DIA, 2 HRS FIRE RATED, PRE-WIRED CONCRETE POKE-THRU FLUSH FLOOR MOUNTED POWER OUTLET C/W FLUSH TILE OR CARPET FLANGE, SUITABLE DEVICE PLATES, COVER ASSEMBLY, INCLUDING: - 1x20A T-SLOT "DECORA" DUPLEX RECEPTACLE - WIREMOLD CATH#ATP2RBK, 4REC, 4CTxx FINISHED COLOUR TO BE SELECTED BY ARCHITECTS, INTERIOR DESIGNER		HEAT DETECTOR - CEILING MOUNTED	
4"DIA, 2 HRS FIRE RATED, PRE-WIRED CONCRETE POKE-THRU FLUSH FLOOR MOUNTED POWER AND DATA OUTLETS C/W FLUSH TILE OR CARPET FLANGE, SUITABLE DEVICE PLATES, COVER ASSEMBLY, INCLUDING: - 1x20A T-SLOT "DECORA" DUPLEX RECEPTACLE - 2x CAT 6 RG45 JACKS WIREMOLD CATH#ATP2RBK, 4REC/42A, 4CTxx FINISHED COLOUR TO BE SELECTED BY ARCHITECTS, INTERIOR DESIGNER		FIRE ALARM PULL STATION "P" DENOTES WITH AUDIBLE PROTECTIVE GUARD	
OVER FLOOR SURFACE MOUNTED 4 CHANNELS POWER AND DATA RACEWAY SYSTEM, C/W ALL REQUIRED POWER AND DATA CONDUITS ENTRANCE END FITTING, SEAM CLIP, INCLUDING TWO-GANG DEVICE BOX, MOUNTING PLATE FOR POWER, OR POWER & DATA WHERE SHOWN ON DRAWING PLAN		CEILING (ROUND SHAPE) MOUNTED FIRE ALARM STROBE C/W ADJUSTABLE CANDELA UP TO 175cd - WHITE COLOUR. "WP" DENOTES WEATHER PROOF	
WIREMOLD CAT#OFRBC-8, OFR6, OFR10A, OFR48-2 FINISHED COLOUR TO BE SELECTED BY ARCHITECTS, INTERIOR DESIGNER		FIRE ALARM HORN - SINGLE TYPE	
THERMOSTAT C/W LOCKABLE COVER PROVIDED BY DIV.15. REFER TO EQUIPMENT SCHEDULE FOR PROPER MOUNTING HEIGHT.		FIRE ALARM SPEAKER - CEILING MOUNTED	
DIRECT CONNECTION, INCLUDING FINAL CONNECTION.		FIRE ALARM MUSIC SHUT DOWN RELAY	
AUTO DOOR CONNECTION, INCLUDING FINAL CONNECTION.		FIRE ALARM CONNECTION FOR KITCHEN SUPPRESSION SYSTEM	
HANDRYER CONNECTION, INCLUDING FINAL CONNECTION.		PRESSURE SWITCH	
ILLUMINATED SIGN CONNECTION, INCLUDING FINAL CONNECTION.		FLOW SWITCH	
DISCONNECT SWITCH - UNFUSED, SWITCH SIZE AS NOTED.		SUPERVISED VALVE	
DISCONNECT SWITCH - FUSED, SWITCH AND FUSE SIZE AS NOTED.		ELECTRIC DOOR HOLD/OPEN DEVICE, TIED INTO FIRE ALARM SYSTEM SUCH THAT WILL BE RELEASED (DE-ENERGIZED) UPON FIRE ALARM ACTUATION VIA SMOKE DETECTOR	
CIRCUIT BREAKER, SIZE AS NOTED.			
TRANSFORMER			
MOTOR CONNECTION			
MOTOR CONNECTION WITH DISCONNECT SWITCH, INCLUDING FINAL CONNECTION			
DIRECT CONNECTION WITH DISCONNECT SWITCH, INCLUDING FINAL CONNECTION			
ELECTRICAL PANEL BOARD - SURFACE OR FLUSH MOUNTED RESPECTIVELY			
JUNCTION BOX			
ELECTRIC BASEBOARD HEATER			
ELECTRIC FORCE FLOW HEATER			



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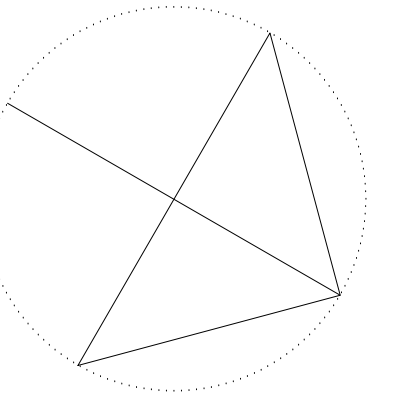
Issued

No.	Date	Description
1.	MARCH 12, 2024	ISSUED FOR REVISION
2.	APRIL 3, 2024	ISSUED FOR PERMIT
3.	APRIL 29, 2024	ISSUED FOR TENDER

BRISTOL COURT
LOBBY RENOVATION
223 BRISTOL COURT
MISSISSUAGA

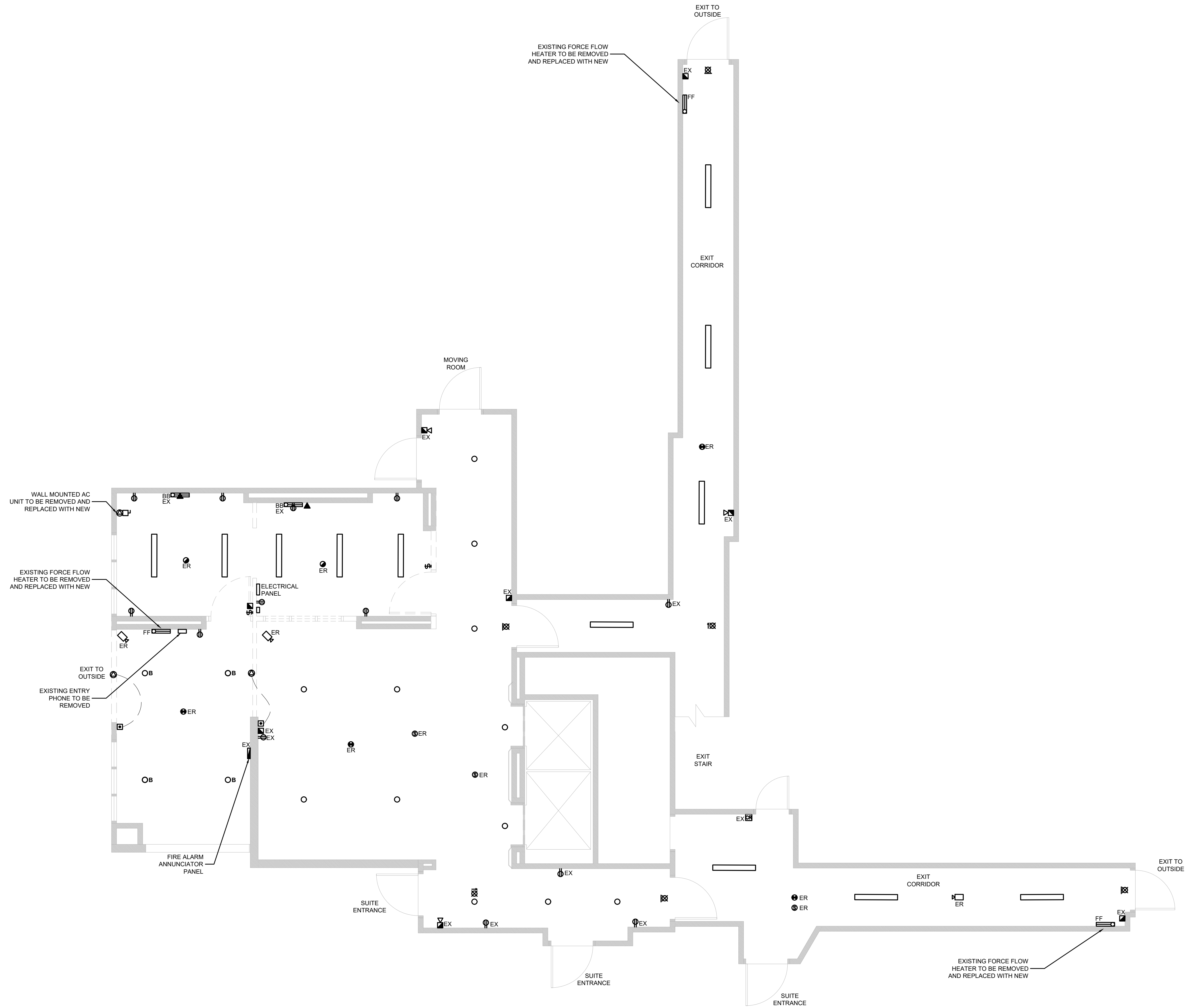
ELECTRICAL SPECIFICATIONS

1.1	COMPLY WITH ALL DIVISION 1 GENERAL CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL FOLLOW REQUIREMENTS AS IDENTIFIED BY ARCHITECT AND OTHER CONSULTANTS. COORDINATE WITH ALL TRADES TO ENSURE PROPER INSTALLATION METHODS APPLICABLE TO ALL CONSULTANT SPECIFICATIONS OF THE PROJECT.	4.3.4	PRIOR TO COMPLETING FIRE ALARM SYSTEM PROGRAMMING OBTAIN APPROVAL FOR SEQUENCE OF OPERATION BY LOCAL AGENCY. ALLOW FOR CONDUIT SYSTEMS PROGRAMMING ADJUSTMENTS AS REQUESTED BY AHJ AT A LATER DATE.	10.2	PAGE CRANKED INSTRUMENTS NOT ALLOWED. SUBMIT MEGGER TEST RESULT READINGS IN GIG (GIGA - OHM) PRIOR TO INSTALLATION.	17.1.3	METAL, STAINLESS STEEL, #18-8, TYPE 302 WHEN OUTLETS INSTALLED IN BACK OF ABOVE CORRIDORS, UTILITY, ELECTRICAL TO OTHER TRADES TO COMPLETE FIRE ALARM SYSTEM PROGRAMMING.	23.1	DRY TYPE INDOOR DISTRIBUTION TRANSFORMERS SHALL BE OF COPPER WINDINGS, INDOOR AIR-COOLED TYPE RATED THREE PHASE AND THREE WIRE. REFER TO THE DRAWINGS.	30.6	NOT USED
1.2	OBTAIN ALL APPROVALS FROM PUBLIC AUTHORITIES HAVING JURISDICTION BEFORE COMMENCING WORK AND PAY ALL INSPECTION FEES AND ALL PERMITS. COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE APPLICABLE C.S.A. STANDARDS, BUILDING CODE, LOCAL ELECTRICAL SAFETY CODE APPLICABLE TO AREA HAVING JURISDICTION, APPLICABLE U.L.C. STANDARDS, AND THE OWNER'S REQUIREMENTS. SUBMIT CERTIFICATE OF INSPECTION AND APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION.	4.3.5	ARRANGE FOR ELECTRICAL INSPECTION BY ELECTRICAL CONSULTANT FOR ONE WEEK PRIOR TO COMPLETION OF WORK.	11	GROUNDING AND BONDING:	17.1.4	NOTWITHSTANDING THE ABOVE, COVER PLATES IN PUBLIC AREAS SHALL BE BASED ON INTERIOR DESIGN OR ARCHITECTURAL DRAWINGS.	23.2	WEATHERPROOF COVER PLATES SHALL BE DIECAST CORROSION RESISTANT ALUMINUM TYPE WITH TWO SEPARATE LIDS FOR DUPLEX RECEPTACLES SUITABLE FOR MOUNTING ON F.S. TYPE WITH WEATHERPROOF COVER PLATES SHALL HAVE RUBBER OR NEOPRENE GASKETS.	30.7	NOT USED
1.3	DO NOT REUSE THE STANDARDS ESTABLISHED BY THE DRAWINGS AND SPECIFICATIONS BY APPLYING ANY OF THE CODES REFERRED TO HEREIN.	5	VALUATION OF CHANGES:	11.1	PROVIDE GROUND/BOND WIRES WITH ALL FEEDERS INCLUDING TENANT SERVICES. GROUND/BOND WIRE IN CONDUITS SHALL BE INSULATED - GREEN FOR ELECTRICAL INSULATION SYSTEM.	17.2	COVER PLATES FOR FLUSH MOUNTED EQUIPMENT SHALL BE SUPPLIED OF QUALITY SPECIFIED SHALL BE AS PER ABOVE.	23.3	TRANSFORMERS 12.5KVA OR LARGER SHALL BE PLACED ON A MINIMUM 4" HIGH CONCRETE HOUSEKEEPING PAD AND UPISIZED AS REQUIRED FOR SEISMIC CONSTRUCTION.	30.8	NOT USED
1.4	PROVIDE PROOF OF PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE COVERAGE AND AMOUNT. SUBMIT WITH TENDER, THE ELECTRICAL BID, THE ELECTRICAL QUOTATIONS FOR ADDITIONAL WORK, AND ALL SUBMISSIONS RELATED TO THE ELECTRICAL SCOPE SHALL BE BY THE ELECTRICAL CONTRACTOR, OR SUBCONTRACTOR ENGAGED ON THE PROJECT BASED ON THE ELECTRICAL DRAWINGS SPECIFICATION. THE SUBMISSIONS SHALL BE ON THE ELECTRICAL OR SUBCONTRACTOR COMPANY LETTERHEAD, SUPPLEMENTED BY A GENERAL CONTRACTOR LETTERHEAD DOCUMENT WHERE GENERAL CONTRACTOR IS ENGAGED. ALL DOCUMENTS SHALL BE SIGNED AND SEALED WHEN REQUIRED.	5.1	PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR, OVERHEAD, PROFIT, ETC., WHEN SUBMITTING QUOTATIONS FOR CHANGE NOTICES ON THIS PROJECT.	11.2	PROVIDE BONDING GREEN INSULATED WIRE IN EACH CONDUIT, SIZE TO ONTARIO ELECTRICAL CODE REQUIREMENTS.	17.3	EXTERIOR COVER PLATES SHALL BE METAL IN USE COVERS, INTERMATIC WP3100MKD, WP1250MKVD, WP3110MKD, OR APPROVED EQUIVALENT.	23.4	THE COMPLETED ASSEMBLY SHALL BE PAINTED WITH A PRIMER COAT AND A FINISH COAT OF ASA861 GRAY. THE TRANSFORMER SHALL CONFORM TO C.S.A. 8002.2, NEMA TRI AND CEMA 12 CURRENT STANDARDS EXCEPT WHERE NOTED AND SHALL BE APPROVED TO C.S.A. CODE PART 2 SPECIFICATION 022.2 NO.47 WHERE APPLICABLE.	30.9	NOT USED
1.5	ADDITIONAL WORK, AND ALL SUBMISSIONS RELATED TO THE ELECTRICAL SCOPE SHALL BE BY THE ELECTRICAL CONTRACTOR, OR SUBCONTRACTOR ENGAGED ON THE PROJECT BASED ON THE ELECTRICAL DRAWINGS SPECIFICATION. THE SUBMISSIONS SHALL BE ON THE ELECTRICAL OR SUBCONTRACTOR COMPANY LETTERHEAD, SUPPLEMENTED BY A GENERAL CONTRACTOR LETTERHEAD DOCUMENT WHERE GENERAL CONTRACTOR IS ENGAGED. ALL DOCUMENTS SHALL BE SIGNED AND SEALED WHEN REQUIRED.	5.2	THE HOURLY LABOUR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOUR FACTORS, HAND TOOLS, PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILD DRAWINGS, HOISTING, FREIGHT AND DELIVERY, AND EXCLUSIVE OF OVERHEAD AND PROFIT.	11.3	PROVIDE MAIN GROUND SYSTEM TO HYDRO UTILITY SUPPLY COMPANY APPROVAL.	17.4	COVER PLATES FOR FLUSH MOUNTED CAST BOXES SHALL BE GALVANIZED FORMED STEEL TYPE.	23.5	TRANSFORMERS SHALL BE SPRINKLERPROOF AS REQUIRED TO MEET LOCAL AND HYDRO CODES.	31	INSTALLATION IN EXIT CORRIDORS AND EXIT STAIRS: ANY CONDUIT USED FOR ELECTRICAL INSTALLATION, NOT RELATING SPECIFICALLY TO THE RESPECTIVE CORRIDOR, WHICH IS LOCATED IN OR CROSSES AN EXIT CORRIDOR OR STAIRS, SHALL BE ENCLOSED IN A 2 HOUR FIRE RATED ENCLOSURE. THE COST OF THIS ENCLOSURE SHALL BE BORNE BY DIVISION 26, 27 & 28.
1.6	ALL ITEMS STIPULATED AND DESIGNATED AS INSTRUCTIONS TO THE ELECTRICAL CONTRACTOR SCOPE OF WORK SHALL BE APPLICABLE TO ANY SUBCONTRACTOR ENGAGED ON THE PROJECT WHICH SCOPE IS BASED ON THE HAMMERSCHLAG AND JOFFE ISSUED DRAWINGS.	5.3	LABOUR HOURS SHALL BE BASED ON THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) LABOUR UNITS, COLUMN ONE NORMAL FOR THE DURATION OF THIS CONTRACT. LABOUR FOR SMALL ITEMS SUCH AS, HOWEVER NOT LIMITED TO, COUPLINGS, STRAPS, MARRIETTES, SCREWS, ETC., WILL NOT BE REIMBURSED.	11.4	MAIN ELECTRICAL ROOM GROUNDING SHALL CONSIST OF MINIMUM OF TWO (2) 3/4" DIAMETER, 10' LONG CU GROUNDING RODS INTERCONNECTED WITH 2/0 BARE COPPER CONDUCTOR. INTERCONNECT MAIN ELECTRICAL ROOM GROUNDING TO THE POWER TRANSFORMER, WHERE APPLICABLE, WITH BARE COPPER CONDUCTOR. GROUND INTERCONNECTION SHALL BE COMPLETED, VISIBLE AND ACCESSIBLE FOR INSPECTION IN APPROVED 10"x10" PVC JUNCTION BOX EMBEDDED IN FINISHED FLOOR. CONTRACTOR TO SUPPLY AND INSTALL CU GROUND BUS ON THE WALL IN MAIN ELECTRICAL, AND PROVIDE THE FOLLOWING GROUNDING CONNECTIONS:	17.5	COVER PLATES SHALL NOT CARRY MANUFACTURER'S NAME. COVER PLATES SHALL BE PASSED AND SEYMOUR, BRYANT, LEVITON, OR HUBBELL.	23.6	COMPLETE TRANSFORMER CONNECTION BY USE OF FLEXIBLE CONDUITS TO ALLOW FOR VIBRATION ISOLATION.	31.1	ELECTRICAL INSTALLATION IN THE EXIT RATED AREAS SHALL BE WITH NON-COMBUSTIBLES FIRE RATED ENCLOSURE.
2	DRAWINGS:	5.4	THE MATERIAL PRICES SHALL BE BASED ON THE CURRENT NATIONAL PRICE SYSTEM (NPS) CATALOGUE LESS APPLICABLE TRADE DISCOUNTS.	11.5	USE CAWDEWJ LUGS FOR FINAL CONNECTION AND TERMINATION OF GROUND/BOND WIRING.	17.6	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	23.7	METERING CABINETS SHALL BE OF SIZE SHOWN ON DRAWING OR AS REQUIRED WITH REMOVABLE STEEL METER MOUNTING, TWO DOORS AND SEALING HASPS TO UTILITY APPROVAL. PROVIDE A CAT-6 RATED TELEPHONE LINE FROM EACH METER CABINET TO THE MAIN TELEPHONE ENTRY POINT AS REQUIRED BY THE LOCAL DISTRIBUTION COMPANY METERING DEPARTMENT.	31.2	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
2.1	EXAMINE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS BEFORE PROCEEDING WITH THE WORK.	6	PROGRESS BILLING:	11.6	FINAL SUBMISSION COSTS SHALL BE FINE-TUNED PER VALUE PROJECT. SHALL INCLUDE A MINIMUM COST FOR THE BELOW PROJECT VALUES:	17.7	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	23.8	TRANSFORMERS SHALL BE SPRINKLERPROOF AS REQUIRED TO MEET LOCAL AND HYDRO CODES.	31.3	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
2.2	ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS MUST BE REFERRED TO THE CONSULTANT BEFORE ANY AFFECTED WORK IS COMMENCED.	6.1	PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR, AND GENERAL COSTS WHEN SUBMITTING PROGRESS DRAW REQUEST.	11.7	PROJECT VALUE = < \$100,000, CLOSE OUT COST = \$5,000	17.8	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	23.9	TRANSFORMERS SHALL BE SPRINKLERPROOF AS REQUIRED TO MEET LOCAL AND HYDRO CODES.	31.4	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
2.3	PREPARE INTERFERENCE DRAWINGS IN CONJUNCTION WITH ALL TRADES CONCERNED, SHOWING SLEEVES, CABLES AND CONDUIT, ROUTES, LIGHT FIXTURES AND OPENINGS FOR PASSAGE THROUGH STRUCTURE AND ALL INSERT SIZES AND LOCATIONS.	6.2	SEPARATE BILLING SECTION FOR EACH SYSTEM INSTALLED AS PART OF THE PROJECT. SEPARATE SECTION SHALL AT A MINIMUM INCLUDE, HOWEVER NOT BE LIMITED TO, THE FOLLOWING: LIGHTING, POWER DISTRIBUTION, FIRE ALARM, RACEWAYS, WIRING, GENERAL COSTS, FINAL SUBMISSION (AS-BUILT, MANUALS, WARRANTY, CERTIFICATES).	11.8	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	17.9	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	24	METERING:	31.5	METERING CABINETS SHALL BE OF SIZE SHOWN ON DRAWING OR AS REQUIRED WITH REMOVABLE STEEL METER MOUNTING, TWO DOORS AND SEALING HASPS TO UTILITY APPROVAL. PROVIDE A CAT-6 RATED TELEPHONE LINE FROM EACH METER CABINET TO THE MAIN TELEPHONE ENTRY POINT AS REQUIRED BY THE LOCAL DISTRIBUTION COMPANY METERING DEPARTMENT.
2.4	REFER TO ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING LOCATIONS OF ALL LIGHT FIXTURES AND DEVICES.	6.3	FINAL SUBMISSION COSTS SHALL BE FINE-TUNED PER VALUE PROJECT. SHALL INCLUDE A MINIMUM COST FOR THE BELOW PROJECT VALUES:	11.9	PROJECT VALUE = < \$1,000,000, CLOSE OUT COST = \$10,000	18	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	24.1	METERING CABINETS SHALL BE OF SIZE SHOWN ON DRAWING OR AS REQUIRED WITH REMOVABLE STEEL METER MOUNTING, TWO DOORS AND SEALING HASPS TO UTILITY APPROVAL. PROVIDE A CAT-6 RATED TELEPHONE LINE FROM EACH METER CABINET TO THE MAIN TELEPHONE ENTRY POINT AS REQUIRED BY THE LOCAL DISTRIBUTION COMPANY METERING DEPARTMENT.	31.6	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
2.5	ELECTRICAL DRAWINGS SHALL NOT BE USED FOR EQUIPMENT LAYOUT. DO NOT SCALE ELECTRICAL DRAWINGS, OBTAIN ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS.	7	BASIC METALS AND MATERIALS:	11.10	USE CAWDEWJ LUGS FOR FINAL CONNECTION AND TERMINATION OF GROUND/BOND WIRING.	18.1	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	24.2	THE COMPLETED ASSEMBLY SHALL BE PAINTED WITH A PRIMER COAT AND A FINISH COAT OF ASA861 GRAY. THE TRANSFORMER SHALL CONFORM TO C.S.A. 8002.2, NEMA TRI AND CEMA 12 CURRENT STANDARDS EXCEPT WHERE NOTED AND SHALL BE APPROVED TO C.S.A. CODE PART 2 SPECIFICATION 022.2 NO.47 WHERE APPLICABLE.	31.7	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
2.6	NOTE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE; CONTRACTOR IS RESPONSIBLE TO FAMILIARIZE WITH THE PROJECT INTENT BY REVIEWING ALL DRAWINGS RELATED TO THE PROJECT.	7.1	ALL MATERIALS USED SHALL BE SUITABLE FOR THEIR APPLICATION. ALL EXTERIOR FASTENERS AND SUPPORTING MATERIALS FORMING A COMPLETE ELECTRICAL SYSTEM SHALL BE WEATHERPROOF. NUTS, BOLTS, SCREWS ETC. MATERIAL SHALL BE STAINLESS STEEL OR APPROVED EQUIVALENT.	11.11	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	18.2	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	24.3	THE CABINET SHALL BE MOUNTED ON THE WALL AS SHOWN ON THE DRAWINGS AND TO THE SATISFACTION OF THE LOCAL UTILITY. METER SOCKETS SHALL BE TO APPROVAL OF UTILITY. ELEVATOR DISCONNECT SWITCHES SHALL BE AS PER ABOVE WITH LOCAL HYDRO METERING DEPARTMENT PRIOR TO WORK COMMENCEMENT AND METERING EQUIPMENT SUPPLY.	31.8	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
2.7	IN CASE OF CONFLICT BETWEEN THE SPECIFICATION AND THE DRAWINGS THE GREATER REQUIREMENT SHALL PREVAIL.	7.2	ALL MATERIALS USED THROUGHOUT SHALL BE NEW, HIGHEST QUALITY C.S.A. APPROVED AND OF ONE MANUFACTURER. WHEREVER TRADE NAMES ARE NOT USED TO DESCRIBE MATERIALS, THESE MATERIALS SHALL BE OF BEST AVAILABLE QUALITY AND MANUFACTURER. OBTAIN AND PAY FOR SPECIAL HYDRO INSPECTION OF SPECIFIED NON-C.S.A. ELECTRICAL EQUIPMENT.	11.12	PROJECT VALUE = < \$1,000,000, CLOSE OUT COST = 1%	18.3	SWITCHES SHALL BE, UNLESS OTHERWISE NOTED, BRYANT QUIET TYPE WITH WHITE SPECIFICATION GRADE FOR 120V AND HEAVY-DUTY GRADE FOR 347V.	24.4	THE CABINET SHALL BE MOUNTED ON THE WALL AS SHOWN ON THE DRAWINGS AND TO THE SATISFACTION OF THE LOCAL UTILITY. METER SOCKETS SHALL BE TO APPROVAL OF UTILITY. ELEVATOR DISCONNECT SWITCHES SHALL BE AS PER ABOVE WITH LOCAL HYDRO METERING DEPARTMENT PRIOR TO WORK COMMENCEMENT AND METERING EQUIPMENT SUPPLY.	31.9	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
3	COMMON WORK REQUIREMENTS:	7.3	MATERIALS AND EQUIPMENT PROVIDED SHALL BE LISTED FOR HEAVY DUTY APPLICATION AND SHALL BE SUITABLE FOR THE INTENDED USE. COMMERCIAL, INDUSTRIAL OR RESIDENTIAL PROVIDE ALL CONDUIT, WIRING, BOXES, SWITCHES, OUTLETS, DEVICES, ETC., AS REQUIRED. MAKE FINAL CONNECTIONS TO VIBRATING EQUIPMENT WITH FLEXIBLE CONDUIT.	11.13	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	18.4	DISCONNECT SWITCHES FOR MECHANICAL AND ALL OTHER EQUIPMENT SHALL BE HEAVY DUTY SINGLE OR DOUBLE THROW SAFETY SWITCHES AS INDICATED ON THE DRAWINGS, LOAD BREAK, WITH KA RATING EQUIVALENT TO THE UPSTREAM FUSE IN CASE OF CIRCUIT BREAKER PROTECTION, AND NOT WITHSTANDING LINE DIAGRAMS FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED IF NO CURRENT LIMITING DEVICE IS PROVIDED UPSTREAM IN THE ELECTRICAL SYSTEM. ELEVATOR DISCONNECT SWITCHES SHALL BE AS PER ABOVE WITH LOCAL HYDRO METERING DEPARTMENT PRIOR TO WORK COMMENCEMENT AND METERING EQUIPMENT SUPPLY.	24.5	THE CABINET SHALL BE MOUNTED ON THE WALL AS SHOWN ON THE DRAWINGS AND TO THE SATISFACTION OF THE LOCAL UTILITY. METER SOCKETS SHALL BE TO APPROVAL OF UTILITY. ELEVATOR DISCONNECT SWITCHES SHALL BE AS PER ABOVE WITH LOCAL HYDRO METERING DEPARTMENT PRIOR TO WORK COMMENCEMENT AND METERING EQUIPMENT SUPPLY.	32	HAZARDOUS LOCATIONS:
3.1	ENSURE THAT ALL ELECTRICAL EQUIPMENT SUPPLIED BY OTHER TRADES IS SUITABLE FOR THE RESPECTIVE VOLTAGE. CONFIRM POWER REQUIREMENTS OF ALL OWNER SUPPLIED EQUIPMENT. INTEND TO USE COMMERCIAL, INDUSTRIAL OR RESIDENTIAL PROVIDE ALL CONDUIT, WIRING, BOXES, SWITCHES, OUTLETS, DEVICES, ETC., AS REQUIRED. MAKE FINAL CONNECTIONS TO VIBRATING EQUIPMENT WITH FLEXIBLE CONDUIT.	7.4	PROVIDE ALL CONDUIT, WIRING, BOXES, SWITCHES, OUTLETS, DEVICES, ETC., AS REQUIRED. MAKE FINAL CONNECTIONS TO VIBRATING EQUIPMENT WITH FLEXIBLE CONDUIT.	11.14	PROJECT VALUE = < \$1,000,000, CLOSE OUT COST = 1%	18.5	DISCONNECT SWITCHES FOR MECHANICAL AND ALL OTHER EQUIPMENT SHALL BE HEAVY DUTY SINGLE OR DOUBLE THROW SAFETY SWITCHES AS INDICATED ON THE DRAWINGS, LOAD BREAK, WITH KA RATING EQUIVALENT TO THE UPSTREAM FUSE IN CASE OF CIRCUIT BREAKER PROTECTION, AND NOT WITHSTANDING LINE DIAGRAMS FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED IF NO CURRENT LIMITING DEVICE IS PROVIDED UPSTREAM IN THE ELECTRICAL SYSTEM. ELEVATOR DISCONNECT SWITCHES SHALL BE AS PER ABOVE WITH LOCAL HYDRO METERING DEPARTMENT PRIOR TO WORK COMMENCEMENT AND METERING EQUIPMENT SUPPLY.	24.6	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	32.1	ALL WIRING IN AREAS/ZONES CLASSIFIED AS HAZARDOUS SHALL BE COMPLETED WITH RIGID STEEL TUBING AND IN ACCORDANCE TO SECTION 18 OF OESC. TECK WIRING WILL NOT BE ACCEPTED.
3.2	ALLOW TO SCAN THE FLOOR PRIOR TO CUTTING IN LOCATION OF EXISTING SERVICES. PROVIDE DUST CONTROL MEASURES DURING CUTTING. DO NOT LEAVE ANY FLOOR TRENCHES OPEN DURING THE DAY. USE TRIP FREE COVERS WITH BEVELED EDGES.	7.5	ELECTRICAL WORK SUPPORT OF EXTERIOR OR WALL LIGHT FIXTURES SHALL BE RIGID TYPE, C/W POINT SUPPORT, RATED FOR A MINIMUM OF 22.5KG WEIGHT.	11.15	USE CAWDEWJ LUGS FOR FINAL CONNECTION AND TERMINATION OF GROUND/BOND WIRING.	18.6	FUSIBLE DISCONNECT SWITCHES SHALL MATCH SPECIFICATION AS ITEM 18.4 HOWEVER FUSIBLE WITH CLASS J OR CLASS R FUSES AS REQUIRED.	24.7	METERING EQUIPMENT SHALL BE PRE-APPROVED BY LOCAL HYDRO METERING DEPARTMENT. OBTAIN APPROVAL BY AHJ.	32.2	SWITCHBOARD AND ELECTRICAL PANELS: EATON, SQUARE D, GEC AND SIEMENS.
3.3	COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EQUIPMENT AND MATERIAL SUPPLIED. CONTRACTOR SHALL OBTAIN MANUFACTURER'S INSTALLATION INSTRUCTIONS, IF NOT PROVIDED WITH EQUIPMENT SUPPLY. TORQUE ALL FASTENERS USING TORQUE WRENCH. ENSURE ALL EQUIPMENT IS LEVELLED. MARK FASTENERS ONCE SET, TIGHTEN. EMPLOY USE OF TORQUE MEASURING TOOL.	7.6	ALL LIGHT FIXTURES SHALL BE INDEPENDENTLY SUPPORTED FROM FINISHED DRY WALL OR T-Bar CEILING. INCLUDE FOR ALL HANGERS AND NECESSARY MISCELLANEOUS SUPPORTS FROM JOIST, BEAM, OR DECK.	11.16	PROJECT VALUE = < \$100,000, CLOSE OUT COST = \$5,000	18.7	FUSIBLE DISCONNECT SWITCHES SHALL MATCH SPECIFICATION AS ITEM 18.4 HOWEVER FUSIBLE WITH CLASS J OR CLASS R FUSES AS REQUIRED.	24.8	METERING EQUIPMENT SHALL BE PRE-APPROVED BY LOCAL HYDRO METERING DEPARTMENT. OBTAIN APPROVAL BY AHJ.	32.3	METER CENTERS: EATON AND SQUARE D
3.4	BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BUILDING INCURRED BY WORK OF THIS DIVISION.	7.7	ANY LUMINAIRE INSTALLED IN SUSPENDING CEILING SHALL BE WIRED BY A FLEXIBLE CORD NOT EXCEEDING 3M IN LENGTH.	11.17	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	18.8	FUSIBLE DISCONNECT SWITCHES SHALL MATCH SPECIFICATION AS ITEM 18.4 HOWEVER FUSIBLE WITH CLASS J OR CLASS R FUSES AS REQUIRED.	24.9	METERING EQUIPMENT SHALL BE PRE-APPROVED BY LOCAL HYDRO METERING DEPARTMENT. OBTAIN APPROVAL BY AHJ.	32.4	LV TRANSFORMER: REK, MARCUS, HAMMOND, SIEMENS, RENAG, DE ANGE
3.5	SUBMIT THREE (3) - COPIES OF SHOP DRAWINGS FOR REVIEW AND RECORD. UNLESS ELECTRONIC SUBMISSION IS PROVIDED, CLEARLY MARK ALL EXPOSED CONDUIT, PULL BOXES, JUNCTION BOXES, ETC., TO INDICATE THE NATURE OF THE SERVICE.	7.8	PROVIDE ALL HANGERS, INSERTS, AND SUPPORTS OF APPROVED TYPES REQUIRED FOR THE WORK OF THIS DIVISION.	11.18	PROJECT VALUE = < \$1,000,000, CLOSE OUT COST = 1%	18.9	FUSIBLE DISCONNECT SWITCHES SHALL MATCH SPECIFICATION AS ITEM 18.4 HOWEVER FUSIBLE WITH CLASS J OR CLASS R FUSES AS REQUIRED.	25	MISCELLANEOUS ELECTRICAL WORK:	32.5	SPECIFICATION GUIDELINES:
3.6	PROVIDE LAMACOD NAMEPLATES FOR ALL DISTRIBUTION EQUIPMENT INDICATING SOURCE OF POWER AND EQUIPMENT BEING FED. PROVIDE TYPEWRITTEN DIRECTORIES FOR ALL PANELS.	7.9	PROVIDE ALL HANGERS, INSERTS, AND SUPPORTS OF APPROVED TYPES REQUIRED FOR THE WORK OF THIS DIVISION.	11.19	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19	RECEPTACLES:	25.1	PROVIDE ALL NECESSARY DUCT BANKS AS REQUIRED BY HYDRO IN ACCORDANCE WITH THEIR SPECIFICATIONS. SUBMIT ALL INTERFERE DRAWINGS PRIOR TO INSTALLATION.	32.6	ELECTRICAL SPECIFICATION IS APPLICABLE TO ALL ITEMS SHOWN ON THE ELECTRICAL DRAWINGS.
3.7	CONFIRM IN COMPLIANCE WITH THE PROJECT DOCUMENTS, SUBMITTED SHOP DRAWINGS SHALL BE STAMPED AND REVIEWED BY THE ELECTRICAL CONTRACTOR AT THE TIME OF SUBMISSION.	8	CONDUITS:	11.20	PROJECT VALUE = < \$1,000,000, CLOSE OUT COST = 1%	19.1	RECEPTACLES SHALL BE, UNLESS OTHERWISE NOTED, U-GROUND TYPE, WHITE SCREW TERMINAL TYPE.	25.2	PROVIDE ALL NECESSARY DUCT BANKS AS REQUIRED BY HYDRO IN ACCORDANCE WITH THEIR SPECIFICATIONS. SUBMIT ALL INTERFERE DRAWINGS PRIOR TO INSTALLATION.	32.7	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
3.8	FINAL SUBMISSIONS:	8.1	ALL CONDUIT SHALL BE C.S.A. APPROVED, RIGID-STEEL THICK WALLED OR EMT THINWALL WITH STEEL SET SCREW COUPLINGS AND CONNECTORS WITH INSULATED THROATS UNLESS OTHERWISE NOTED. CONDUITS AND ELECTRICAL BOXES IN FINISHED AREAS ACCESSIBLE BY PUBLIC SHALL BE CONCEALED UNLESS OTHERWISE NOTED. EXPOSED CONDUITS AND ELECTRICAL BOXES ARE ALLOWED ONLY IN UTILITY ROOMS AND BACK OF HOUSE CORRIDORS AND OTHER RECESSES WHERE APPROVED SHALL BE NEAT IN APPEARANCE, RUN PARALLEL TO BUILDING LINES AND CONCENTRIC RIGHT-ANGLE BENDS ONLY SHALL BE USED. CONDUIT WORK FOR ALL EXTERIOR DEVICES SHALL BE INSTALLED CONCEALED AND ON THE INTERIOR SIDE OF THE BUILDING ENVELOPE.	11.21	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.2	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.3	PROVIDE ALL NECESSARY DUCT BANKS AS REQUIRED BY HYDRO IN ACCORDANCE WITH THEIR SPECIFICATIONS. SUBMIT ALL INTERFERE DRAWINGS PRIOR TO INSTALLATION.	32.8	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
3.9	ALL EQUIPMENT SUPPLIED BY THIS ELECTRICAL CONTRACTOR SHALL CARRY CSA OR EQUIVALENT CANADIAN CERTIFICATION.	8.2	RIGID PVC CONDUIT TO CSA C22.2 NO. 111.1. RIGID TYPES E81 AND DB2/E82 PVC CONDUIT, FT-4 RATED, COMPLETE WITH SITE MADE HEAT GUN BENDS FOR CONDUIT TO AND INCLUDING 50 MM (2") DIAMETER. FACTORY MADE EXPANSION JOINTS WHERE REQUIRED, AND TERMINATIONS MADE WITH PROPER AND SUITABLE CONNECTORS AND ADAPTORS. PVC CONDUITS SHALL BE USED UNDERGROUND AND WHERE APPROVED BY CONSULTANT UPON CONTRACTOR REQUEST.	11.22	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.3	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.4	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	32.9	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
3.10	SHOP DRAWINGS AND EQUIPMENT SUPPLIED BY THE ELECTRICAL CONTRACTOR SHALL BE REVIEWED AND CONFIRMED IN COMPLIANCE WITH THE PROJECT DOCUMENTS. SUBMITTED SHOP DRAWINGS SHALL BE STAMPED AND REVIEWED BY THE ELECTRICAL CONTRACTOR AT THE TIME OF SUBMISSION.	8.3	CONNECTORS TO ELECTRICAL PANELS, FIRE ALARM PANEL, SWITCHBOARDS, ETC., HEAD-MAIN EQUIPMENT SHALL BE C/W RAIN TIGHT CONNECTORS TO ENSURE EQUIPMENT INTEGRITY IN CASE OF WATER SPILLAGE.	11.23	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.4	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.5	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	33	APPROVED MANUFACTURERS:
3.11	FINAL SUBMISSIONS:	8.4	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.24	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.5	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.6	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	33.1	SWITCHBOARD AND ELECTRICAL PANELS: EATON, SQUARE D, GEC AND SIEMENS.
4	AS-BUILT DRAWINGS:	8.5	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.25	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.6	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.7	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	33.2	METER CENTERS: EATON AND SQUARE D
4.1	AFTER COMPLETION OF THE WORK, PROVIDE THE LANDLORD AND TENANT WITH A SET OF REPRODUCIBLE "AS-BUILT" RECORD DRAWINGS. INCORPORATE ALL CHANGES WITH RECOGNIZED DRAFTING PROCEDURES, AUTOCAD 2007 OR LATER.	8.6	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.26	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.7	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.8	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	33.3	LV TRANSFORMER: REK, MARCUS, HAMMOND, SIEMENS, RENAG, DE ANGE
4.2	AFTER COMPLETION OF THE WORK, PROVIDE THE LANDLORD AND TENANT WITH A SET OF REPRODUCIBLE "AS-BUILT" RECORD DRAWINGS. INCORPORATE ALL CHANGES WITH RECOGNIZED DRAFTING PROCEDURES, AUTOCAD 2007 OR LATER.	8.7	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.27	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.8	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	25.9	COORDINATE AND PAY FOR ANY HYDRO SERVICE COSTS AS REQUIRED. INCLUDE FOR COORDINATION AND MEETING WITH UTILITY DISTRIBUTION DEPARTMENT.	33.4	SPECIFICATION GUIDELINES:
4.3	AFTER COMPLETION OF THE WORK, PROVIDE THE LANDLORD AND TENANT WITH A SET OF REPRODUCIBLE "AS-BUILT" RECORD DRAWINGS. INCORPORATE ALL CHANGES WITH RECOGNIZED DRAFTING PROCEDURES, AUTOCAD 2007 OR LATER.	8.8	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.28	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	19.9	RECEPTACLES SHALL BE SPECIFICATION GRADE, MADE BY HUBBELL, LEVITON, T&B OR EQUIVALENT, 15 AMP, 120 VOLT UNLESS OTHERWISE NOTED.	26	INTERRUPTION AND CONTINUATION OF SERVICES	34.1	ELECTRICAL SPECIFICATION IS APPLICABLE TO ALL ITEMS SHOWN ON THE ELECTRICAL DRAWINGS.
4.4	FINAL SUBMISSIONS:	8.9	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.29	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	20	DISTRIBUTION COORDINATION STUDY, SHORT CIRCUIT & ALL DATA OUTLETS SHALL BE WIRED WITH EMPTY PULL STRINGS.	26.1	INTERRUPTION AND CONTINUATION OF SERVICES	34.2	CONTRACTOR SHALL OVERLAY ELECTRICAL DRAWINGS TO PROVIDE PROPOSED CONDUIT LAYOUT TO DEMONSTRATE PASSING THROUGH EXIT PATHWAYS IS UNAVOIDABLE. WHERE PURPOSE OF CORRIDORS, EXITS OR AREAS ARE NOT CLEARLY IDENTIFIED ON ARCHITECTURAL SET OF DRAWINGS, CONTRACTOR SHALL OBTAIN LITERATURE AND SHALL CONFIRM INSTALLATION OF SYSTEMS PRIOR COMMENCEMENT OF WORK.
4.1.1	AS-BUILT DRAWINGS:	8.10	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.30	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	20.1	NOT USED	26.2	INTERRUPTION AND CONTINUATION OF SERVICES		
4.1.2	AFTER COMPLETION OF THE WORK, PROVIDE THE LANDLORD AND TENANT WITH A SET OF REPRODUCIBLE "AS-BUILT" RECORD DRAWINGS. INCORPORATE ALL CHANGES WITH RECOGNIZED DRAFTING PROCEDURES, AUTOCAD 2007 OR LATER.	8.11	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.31	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	20.2	NOT USED	26.3	INTERRUPTION AND CONTINUATION OF SERVICES		
4.1.3	AFTER COMPLETION OF THE WORK, PROVIDE THE LANDLORD AND TENANT WITH A SET OF REPRODUCIBLE "AS-BUILT" RECORD DRAWINGS. INCORPORATE ALL CHANGES WITH RECOGNIZED DRAFTING PROCEDURES, AUTOCAD 2007 OR LATER.	8.12	CONDUITS SHALL BE INSTALLED OVERHEAD AND SHALL NOT BE SUSPENDED FROM THE ROOF DECK. INSTALL ALL CONDUITS AT JOIST LEVEL FROM TOP PART OF THE JOIST OR FROM THE BEAM. PROVIDE ALL REQUIRED CONDUIT SUPPORT HARDWARE. LARGEST CONDUITS APPROVED TO BE USED OR CONNECTION OF BRANCH CIRCUITS IS 1-1/4". ANY DEVIATION WILL TRIGGER REWORK OF INSTALLED CONDUITS.	11.32	PROJECT VALUE = < \$500,000, CLOSE OUT COST = \$7,500	20.3	NOT USED	26.4			



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- NOTES:
1. CONTRACTOR TO VISIT SITE AND REVIEW ARCHITECTURAL DRAWINGS FOR FULL EXTENT OF DEMOLITION.
 2. REFER TO ARCHITECTURAL DRAWINGS FOR ACC DOORS TO BE REPLACED WITH NEW DISCONNECT AND RECONNECT DOOR OPERATORS TO SUIT.
 3. REFER TO MECHANICAL DRAWINGS FOR EXISTING MECHANICAL EQUIPMENTS TO BE REMOVED, RECONNECTED OR NEW.
 4. FOR EXISTING MECHANICAL EQUIPMENT TO BE REMOVED, REMOVE ALL ASSOCIATED EQUIPMENT, WIRING AND CONDUIT.
 5. EXISTING FIRE ALARM DEVICES TO BE REMOVED AND/OR RELOCATED TO SUIT RENOVATION AND NEW CEILING.
 6. EXISTING SECURITY CAMERAS TO BE REMOVED AND RECONNECTED TO SUIT NEW CEILING.
 7. ALL EQUIPMENTS SHOWN ARE EXISTING TO BE REMOVED UNLESS OTHERWISE NOTED.



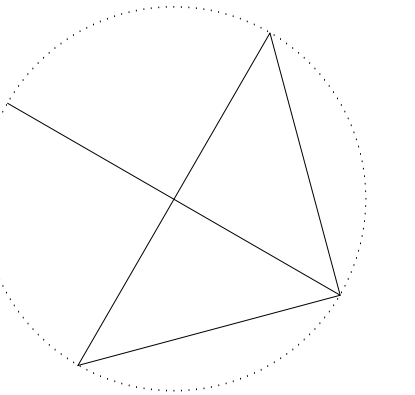
Issued

No.	Date	Description
1.	MARCH 12, 2024	ISSUED FOR REVISION
2.	APRIL 3, 2024	ISSUED FOR PERMIT
3.	APRIL 29, 2024	ISSUED FOR TENDER

BRISTOL COURT
 LOBBY RENOVATION
 223 BRISTOL COURT
 MISSISSUAGA

23-000-223

DEMO PLAN
 1 : 50
E-100

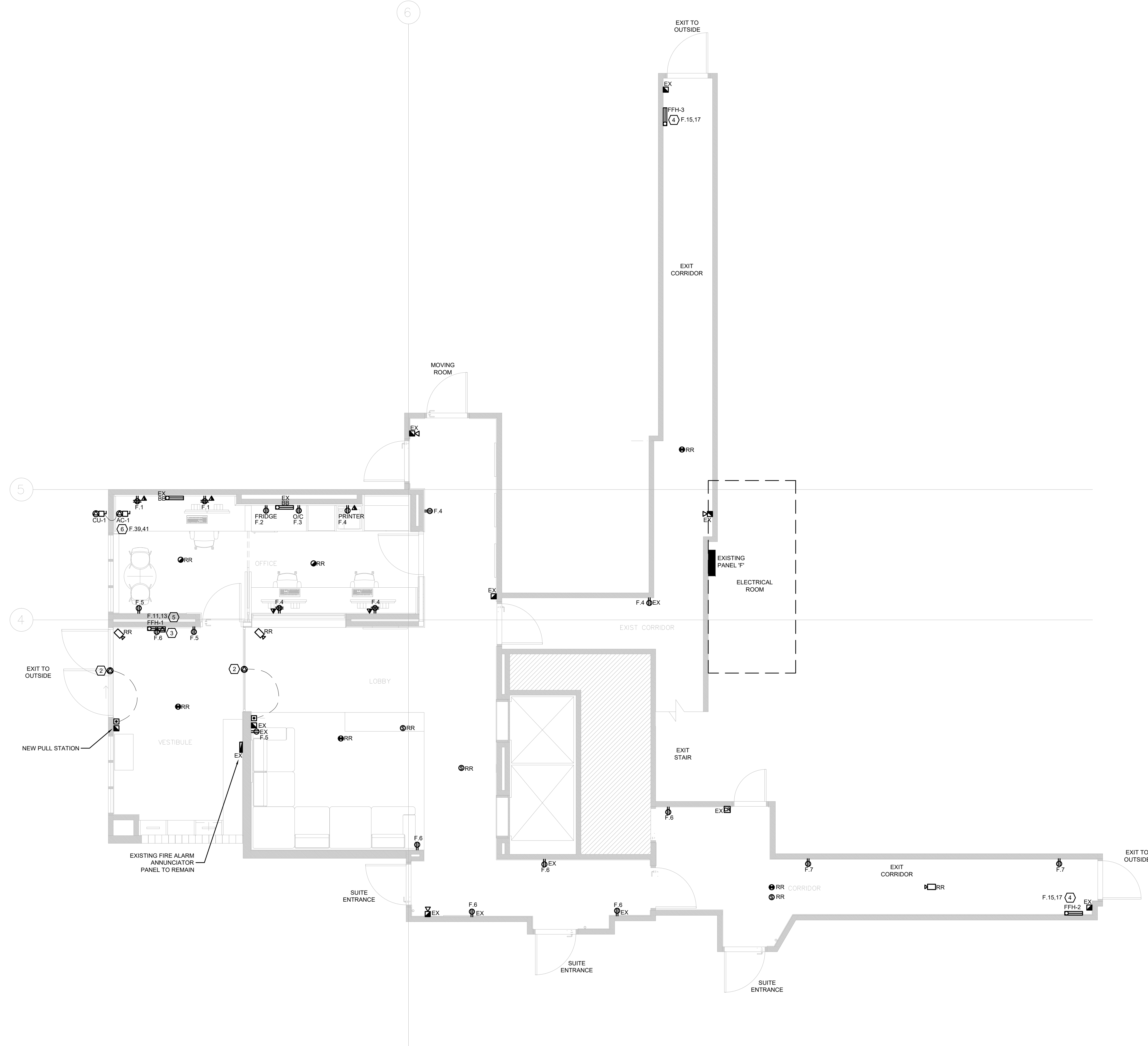


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- NOTES:
1. ALL RECEPTACLES SHOWN ARE TO BE CONNECTED TO EXISTING CIRCUITS FROM REMOVED RECEPTACLES. CONTRACTOR TO PROVIDE NEW CIRCUITS AS REQUIRED TO SUIT NEW LAYOUT.
 2. REUSE EXISTING CIRCUITS FOR NEW DOOR OPERATOR.
 3. PROVIDE DUPLEX RECEPTACLE AND DATA OUTLET (BOTH MOUNTED 1100mm AFF) FOR NEW ENTRY PHONE.
 4. RE-USE EXISTING 30A, 2-POLE CIRCUIT FROM EXISTING PANEL 'F' (IN ELECTRICAL ROOM) FOR FFH-2 AND FFH-3.
 5. PROVIDE NEW 50A, 2-POLE CIRCUIT FROM EXISTING PANEL 'F' FOR FFH-1.
 6. PROVIDE NEW 15A, 2-POLE CIRCUIT FROM EXISTING PANEL 'F' FOR CU-1/AC-1.
 7. CIRCUIT TAGS TO BE FOLLOWED FOR GROUPING PURPOSES ONLY. CONTRACTOR TO VERIFY WHICH CIRCUITS ON PANEL 'F' ARE AVAILABLE FOR USE. CONTRACTOR TO PROVIDE NEW BREAKERS IF REQUIRED.

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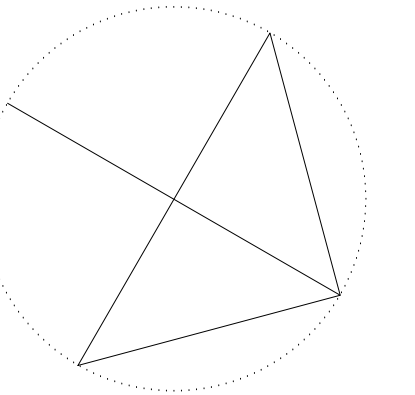


BRISTOL COURT
 LOBBY RENOVATION
 223 BRISTOL COURT
 MISSISSUAGA

23-000-223

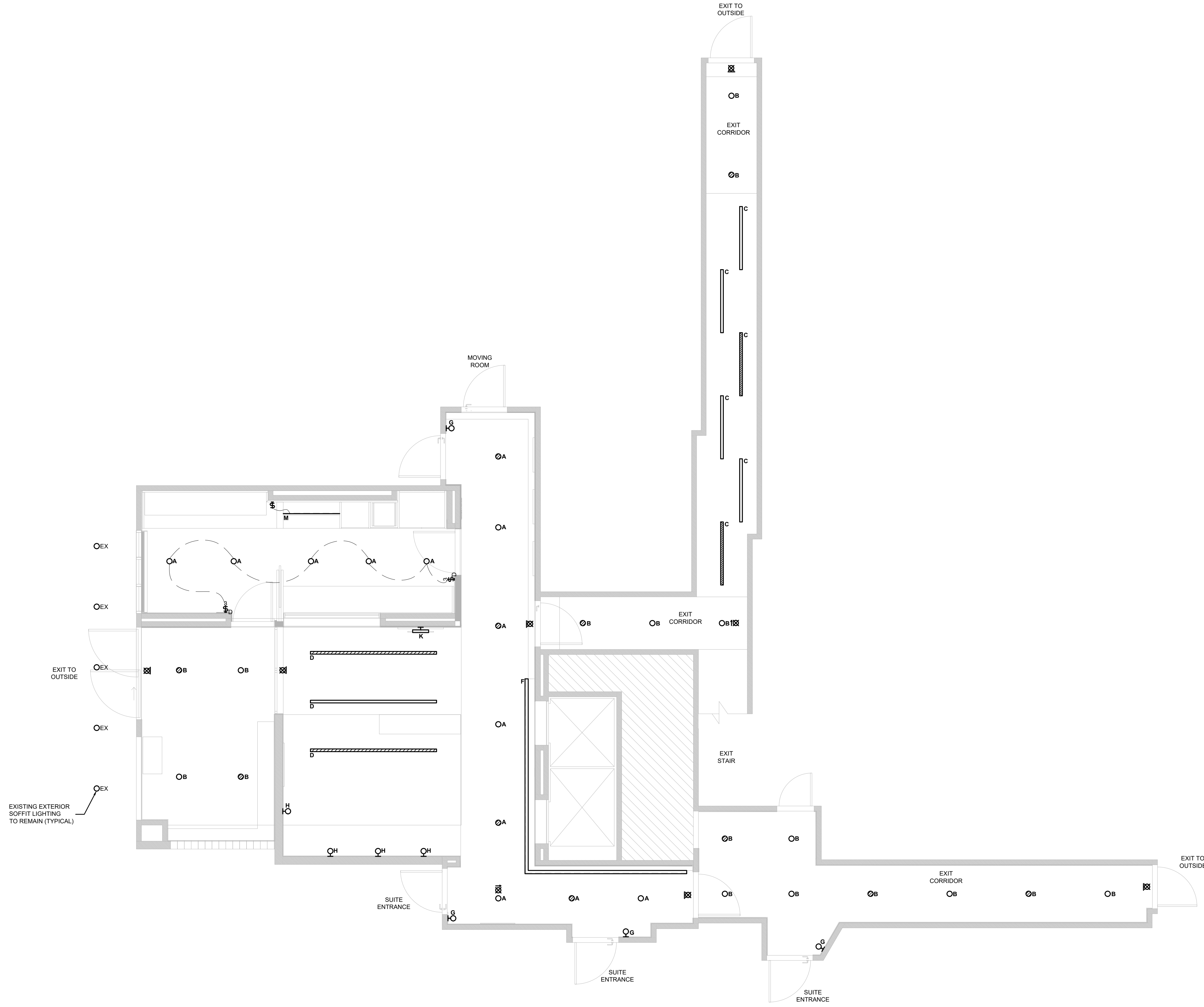
POWER AND SYSTEMS PLAN
 1 : 50

E-101



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- NOTES:
1. CONNECT NEW LIGHTING TO EXISTING NORMAL AND EMERGENCY LIGHTING CIRCUITS.
 2. ALL CORRIDOR LIGHTING TO BE "ON" AT ALL TIME.
 3. CONNECT NEW EXIT SIGNS TO EXISTING EMERGENCY EXIT SIGN CIRCUIT.

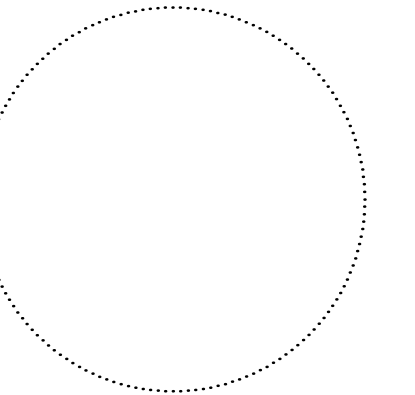


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23-000-223



MECHANICAL SPECIFICATION

1. GENERAL

1.1. COMPLY WITH ALL REQUIREMENTS OF DIVISION 1, OWNER, PROJECT MANAGER AND/OR CONSTRUCTION MANAGER.

1.2. PERFORM ALL MECHANICAL WORK DETAILED ON THESE DRAWINGS IN ACCORDANCE WITH THE MOST STRINGENT INDUSTRY STANDARDS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL SYSTEM TO THE SATISFACTION OF THE OWNER AND/OR MECHANICAL CONSULTANT.

1.3. WORK SPECIFIED ON THESE DRAWINGS IS INTENDED TO SHOW OVERALL MECHANICAL SCOPE. DIVISION OF RESPONSIBILITY BETWEEN MECHANICAL CONTRACTOR AND THEIR SUB-TRADES IS THE RESPONSIBILITY OF THE PRIME MECHANICAL CONTRACTOR.

1.4. NO SYSTEM SHALL BE CONCEALED/BURIED/COVERED PRIOR TO INSPECTION BY MECHANICAL CONSULTANT AND LOCAL AUTHORITIES HAVING JURISDICTIONS. THIS CONTRACTOR SHALL CONTACT HAMMERSCHLAG & JOFFE INC. (416-444-9263) A MINIMUM OF 5 BUSINESS PRIOR TO REQUIRED INSPECTION DATE. WHEN SYSTEMS HAVE BEEN CONCEALED/BURIED/COVERED PRIOR TO THIS INSPECTION WITHOUT WRITTEN CONSENT BY THE MECHANICAL CONSULTANT, THE MECHANICAL CONTRACTOR SHALL UNCOVER/EXPOSE ALL SUCH SYSTEMS AT NO ADDITIONAL COST.

1.5. THE MOST THOROUGH OF THIS SPECIFICATION AND BASE BUILDING STANDARDS SHALL FORM THE BASIS FOR THIS CONSTRUCTION. COMPLY WITH BUILDING OWNERS OR LANDLORDS REQUIREMENTS FOR MECHANICAL SYSTEM INSTALLATIONS AND EXISTING SYSTEM SHUTDOWN AND CONNECTION.

1.6. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND FEES TO PERFORM THE WORK WITHIN THESE DOCUMENTS. ADHERE TO ALL CODES, STANDARDS AND BYLAWS. ARRANGE AND PAY FOR ALL REQUIRED INSPECTIONS FROM LOCAL AUTHORITIES HAVING JURISDICTION. INCLUDE ALL COSTS ASSOCIATED TO THIS IN TENDER AMOUNT. ANY DEFICIENCIES NOTED BY AUTHORITY'S HAVING JURISDICTION SHALL BE IMMEDIATELY REPORTED TO THE MECHANICAL CONSULTANT INCLUDING REQUIRED CORRECTIVE MEASURES.

1.7. THIS CONTRACTOR SHALL VISIT THE SITE TO REVIEW EXISTING CONDITIONS PRIOR TO SUBMITTING TENDER PRICING. INCLUDE IN THE TENDER AMOUNT ALL REQUIRED LABOUR AND MATERIALS TO SUIT EXISTING CONDITIONS. NO EXTRAS WILL BE AWARDED TO SUIT EXISTING CONDITION.

1.8. CUTTING, PATCHING AND CORE DRILLING REQUIRED BY THIS TRADE SHALL BE PAID FOR BY THIS CONTRACTOR. ARRANGE AND PAY TO X-RAY AND SCAN EXISTING STRUCTURES IN ACCORDANCE WITH OWNER/LANDLORD STRUCTURAL ENGINEER'S REQUIREMENTS. PROVIDE DETAILS OF NEW OPENINGS THROUGH STRUCTURAL COMPONENTS FOR BASE BUILDING STRUCTURAL ENGINEER'S APPROVAL AT MECHANICAL CONTRACTORS COST.

1.9. PROVIDE ALL REQUIRED FIRE STOPPING FOR MECHANICAL SYSTEMS THROUGH RATED PARTITIONS (INCLUDING 0-HOUR RATED PARTITIONS.) FIRE STOP SHALL BE ULC LISTED FOR THE REQUIRED SEPARATION AND BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION. ALL FIRE STOPPING SHALL BE REVIEWED BY MANUFACTURER'S REP. ACCEPTABLE MANUFACTURERS: 3M, MLT.

1.10. ON COMPLETION OF THE FIRE STOPPING SCOPE OF WORK, SUBMIT A LETTER OF ASSURANCE BY THE MANUFACTURER OF THE FINEST STOPPING OF THE MECHANICAL CONTRACTOR, CERTIFYING THAT THE FIRE STOPPING OF ALL MECHANICAL SYSTEMS HAS BEEN INSTALLED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND THE ULC LISTINGS OF THE MANUFACTURER OF THE PRODUCT.

1.11. MEET CONSTRUCTION SPECIFICATION AS PREPARED BY ARCHITECT/GENERAL CONTRACTOR/OWNER INCLUDING ALL PHASING.

1.11.1. INCLUDE ALL PREMIUM LABOUR TO SUIT REQUIREMENTS AS LISTED WITHIN THESE DOCUMENTS, AND TO MEET PROJECT SCHEDULING. CONFIRM WITH OWNER/LANDLORD FOR SUITABLE AFTER-HOURS WORK SCHEDULE.

1.12. FLASHING AND COUNTER FLASHING FOR EXTERIOR PENETRATIONS OR WATER-PROOFED FLOORS SHALL BE PROVIDED BY MECHANICAL CONTRACTORS SUB-CONTRACTOR AND INCLUDED IN MECHANICAL TENDER PRICE. USE PREFABRICATED ALUMINUM OR PVC FLASHINGS FOR ROOF, AND MEMBRANE OR COPPER FOR WALLS AND FLOORS. ENSURE ALL OPENINGS THROUGH VERTICAL AND HORIZONTAL BUILDING SURFACES ARE WEATHER PROOF AND WATER PROOF, USING AN APPROVED FLEXIBLE SEALANT.

1.13. PROVIDE SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT. SHOP DRAWINGS SHALL BE COMPLETE WITH CONTRACTORS REVIEWED STAMP. SUBMIT SHOP DRAWINGS IN PDF FORMAT. ALLOW ONE (1) WEEK FOR ENGINEERS REVIEW.

1.14. ALL EQUIPMENT SHALL FROM A MANUFACTURER LISTED WITHIN THESE DOCUMENTS AS BEING BASIS OF DESIGN OR APPROVED. WHERE A LIST OF APPROVED MANUFACTURERS IS NOT PROVIDED, PROVIDE EQUIPMENT FROM MANUFACTURER LISTED ON THE DOCUMENTS. REQUESTS FOR EQUIPMENT SUBSTITUTION SHALL BE PROVIDED IN WRITING INCLUDING PROPOSED COST SAVINGS FOR SAID EQUIPMENT. THE QUALITY AND PERFORMANCE CHARACTERISTICS OF SUBSTITUTED PRODUCT SHALL BE EQUIVALENT TO THE SPECIFIED PRODUCT. ALL SUBSTITUTE PRODUCTS SHALL BE APPROVED BY CONSULTANTS. ANY ADDITIONAL COSTS INCURRED BY ANY TRADE (ARCHITECTURAL, STRUCTURAL, ELECTRICAL) FOR SUBSTITUTED EQUIPMENT INSTALLATION MUST BE INCURRED BY THE MECHANICAL CONTRACTOR.

1.15. ALL CONTROLS WORK SHALL BE PERFORMED BY OWNER'S/LANDLORD'S APPROVED CONTRACTOR AND INCLUDED IN MECHANICAL TENDER PRICE. ENSURE CONTROLS CONTRACTOR INCLUDES ALL LABOUR AND MATERIAL REQUIRED TO COMPLETE THE CONTROLS SCOPE OF WORK DETAILED ON THESE DRAWINGS. PROVIDE ALL CONTROLS WIRING AND CONDUIT TO PERFORM SAID WORK. INCLUDE ALL HIGH VOLTAGE POWER WIRING AND TRANSFORMERS AS REQUIRED TO COMPLETE THIS WORK, WHICH IS NOT EXPRESSLY CALLED FOR ON ELECTRICAL DRAWINGS.

1.16. ACCESS DOORS SHALL BE PROVIDED IN ALL HARD SURFACES TO ALLOW FOR INSPECTION/MAINTENANCE OF MECHANICAL EQUIPMENT. PROVIDE DESIGNER'S REQUIREMENTS FOR ACCESS DOORS. PROVIDE FIRE RATED ACCESS DOORS WITH SUITABLE RECESS TO ACCEPT WALL FINISHES (TILE, CARPET, ETC.). PROVIDE FIRE RATED ACCESS DOORS IN FIRE RATED PARTITIONS.

1.17. PROVIDE ONE YEAR LABOUR AND MATERIAL WARRANTY FOR THE COMPLETE MECHANICAL INSTALLATION FROM DATE OF SUBSTANTIAL COMPLETION.

1.18. SUBMIT OPERATING AND MAINTENANCE MANUALS IN PDF FORMAT FOR REVIEW. ONCE APPROVED SUBMIT FINAL PDF COPY AND THREE (3) HARD COPIES OF DOCUMENTS TO OWNER. INCLUDE ALL APPROVED SHOP DRAWINGS, WARRANTY LETTERS, AIR AND WATER BALANCING REPORTS, OPERATING INSTRUCTIONS, MAINTENANCE PROCEDURES, CONTRACTOR AND SUB-CONTRACTOR CONTACT INFORMATION, INSPECTION REPORTS FROM THIRD PARTY INSPECTION AGENCIES AND AUTHORITIES HAVING JURISDICTION AND ALL OTHER PERTINENT INFORMATION. FINAL HARD-COPY SHOP DRAWINGS SHALL BE SEPARATED WITH DIVIDERS IN A NEAT AND ORDERLY FASHION COMPLETE WITH TABLE OF CONTENTS. ALLOW A MINIMUM OF 5% OF CONTRACT VALUE TO BE HELD UNTIL SUCH TIME THAT OPERATING AND MAINTENANCE MANUALS ARE ACCEPTED AND RECEIVED BY OWNER IN HARD COPY.

1.19. AS-BUILT DRAWINGS SHALL BE COMPLETED USING AUTOCAD/REVIT. RECORD ACCURATELY INSTALLED WORK ON SITE AND TRANSFER INFORMATION TO AUTOCAD/REVIT. SUBMIT BOTH PDF AND AUTOCAD/REVIT COPIES OF AS-BUILTS. ALLOW A MINIMUM OF 5% OF CONTRACT VALUE TO BE HELD UNTIL SUCH TIME THAT AS-BUILT DRAWINGS ARE APPROVED.

1.20. CHANGE NOTICE QUOTATIONS SHALL BE SUBMITTED COMPLETE WITH DETAILED COST BREAKDOWN OF LABOUR AND MATERIALS. FAILURE TO PROVIDE DETAILED BREAKDOWNS WILL RESULT IN REJECTION. ALL MECHANICAL CHANGE NOTICES SHALL BE PRICED IN ACCORDANCE WITH 'MECHANICAL CONTRACTORS ASSOCIATION' (MCA) LABOUR UNITS AND MARK UPS (NOT TO EXCEED 20%). ALL MATERIAL SHALL BE IDENTIFIED INCLUDING ALL PRISER LIST PRICE, AND A MINIMUM OF 25% DISCOUNT.

1.21. TEMPORARY FILTERS 25MM (1 IN.) SHALL BE PROVIDED AT ALL BASE BUILDING RETURN AIR OPENINGS WHICH REMAIN OPERATIONAL DURING CONSTRUCTION. FILTERS TO BE REPLACED WHEN 50% USABLE LIFT REMAINS OR WEEKLY (WHICHEVER COMES FIRST), REMOVE UPON CONSTRUCTION COMPLETION.

1.22. RETURN ALL BASE BUILDING MECHANICAL COMPONENTS TO LANDLORD/OWNER AS DIRECTED. COORDINATE REQUIREMENTS WITH OWNER/LANDLORD PRIOR TO COMMENCEMENT OF DEMOLITION. RELOCATE ALL COMPONENTS ANYWHERE WITHIN THE PROPERTY AS PER LANDLORD/OWNER'S DIRECTION.

1.23. THE MECHANICAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO KEEP ALL AREAS PERTAINING TO HIS WORK, INCLUDING CONSTRUCTION AREA, STORAGE AND STAGING CLEAN AND TIDY. ALL AREAS SHALL BE FREE OF SURPLUS DEBRIS AND RUBBISH.

1.24. DO NOT ALLOW MATERIAL/EQUIPMENT TO BE STORED IN EXCESS OF BUILDING STRUCTURE LIMITATION.

1.25. MECHANICAL CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY AND ADJACENT PROPERTIES FROM DAMAGE. INCLUDING WORK COMPLETED BY OTHER TRADES WITHIN THE PROJECT SCOPE OF WORK. MECHANICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE TO PAY FOR CORRECTIVE MEASURES TO ALL DAMAGE CAUSED BY THEM, THEIR PERSONNEL OR THEIR SUB-TRADES.

1.26. DIVISION 15 CONTRACTORS ARE RESPONSIBLE TO ENSURE THAT THEIR EMPLOYEES AND SUB-TRADES OBSERVE ALL SAFETY REGULATIONS, SECURITY REGULATIONS AND FIRE SAFETY RULES, INCLUDING CONDUCT THEIR WORK WITHIN ACCORDANCE WITH LOCAL WORKPLACE HEALTH AND SAFETY REGULATIONS.

1.27. ALL MATERIALS SHALL BE NEW, (UNLESS SPECIFICALLY STATED AS BEING REUSED) AND FREE OF DEFECT. ALL MATERIALS AND EQUIPMENT SHALL BARE THE APPROVAL OF LOCAL AUTHORITIES (INCLUDING CSA, ULC ETC.) AND BE ACCEPTABLE FOR USE IN CANADA.

1.28. ALL EQUIPMENT SHALL MEET THE MINIMUM PERFORMANCE REQUIREMENTS SPECIFIED IN THESE DOCUMENTS INCLUDING SPATIAL PROPERTIES OF SUPPLY EQUIPMENT FROM THE BASIS OF DESIGN. OR APPROVED ALTERNATE MANUFACTURERS AS LISTED ON THESE DOCUMENTS. BASE BID PRICE SHALL INCLUDE EQUIPMENT AS SPECIFIED ON THESE DRAWINGS WITH OPTIONAL EQUIPMENT SUBSTITUTIONS LISTED AS COST SAVINGS.

1.29. REQUESTS FOR ALTERNATE EQUIPMENT MANUFACTURERS SHALL BE PROVIDED IN WRITING AND INCLUDE ALL RELEVANT PERFORMANCE AND CONSTRUCTION INFORMATION. INCLUDE IN REQUEST COST SAVINGS TO OWNER OFFERED TO USE ALTERNATE EQUIPMENT. DO NOT PROCEED WITH AN ALTERNATE MANUFACTURER WITHOUT WRITTEN APPROVAL FROM CONSULTANT/OWNER.

1.30. ADHERE TO ALL BASE BUILDING STANDARDS FOR NEW EQUIPMENT. OBTAIN OWNER/LANDLORD APPROVAL FOR ALL NEW EQUIPMENT.

1.31. PROVIDE ALL REQUIRED SUPPORTS, HANGERS, RODS, FRAMES, MISCELLANEOUS METALS AND OTHER MATERIAL REQUIRED TO ADEQUATELY SUPPORT AND INSTALL NEW EQUIPMENT. ALL SUPPORTS SHALL BE DESIGNED AND STAMPED BY A STRUCTURAL ENGINEER LICENSED IN THE PROVINCE OF THE PROJECT. SUBMIT ALL STAMPED SUPPORT SHOP DRAWINGS FOR REVIEW PRIOR TO ORDERING EQUIPMENT.

1.32. INSTALL SUPPORTS TO MEET REQUIREMENTS OF APPLICABLE CODES, AND TO SUITABLE SUPPORT THE EQUIPMENT WITHOUT UNDER STRESS/STRAIN TO THE EQUIPMENT AND ASSOCIATED SYSTEMS.

1.33. ALL EQUIPMENT SHALL BE SUPPORTING FROM BUILDING STRUCTURES. DO NOT SUPPORT EQUIPMENT FROM OTHER EQUIPMENT/PIPES/DUCTS OR THEIR SUPPORT SYSTEMS.

1.34. PROVIDE LAMACOID NAME PLATES ON ALL NEW AND EXISTING MECHANICAL EQUIPMENT SHOWING VOLTAGE, DESIGNATION, CRUIR AND USE. NUMBERS AND LETTERS TO BE 3/8" (10MM) HIGH. NAME PLATES SHALL BE PERMANENT AND NOT FADE OVER TIME.

1.35. IDENTIFY ALL VALVES WITH TAGS. PROVIDE A FRAMED LIST OF VALVES, INDICATING THEIR LOCATION AND USE, SUPPLY TO OWNER/TENANT. PROVIDE NEW (OR UPDATED) VALVE TAG LOCATION MAP ON FRAMES 11X17 PRINTS. PROVIDE PDF COPIES TO OWNER.

1.36. THIS MECHANICAL CONTRACTOR SHALL BARE THE RESPONSIBILITY TO COORDINATE ALL NEW MECHANICAL EQUIPMENT AND SYSTEMS WITH OTHER CONTRACTORS INCLUDING, BUT NOT LIMITED TO, ARCHITECTURAL, STRUCTURAL, LEED, ELECTRICAL, AND CIVIL DISCIPLINES.

1.37. MECHANICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE AND TAKE THE LEAD ROLE IN PROVIDING INTERFERENCE DRAWINGS FOR ALL TRADES. OBTAIN ALL INFORMATION FROM OTHER TRADES AND PREPARE ONE COMBINED SET OF INTERFERENCE DRAWINGS. SITE VERIFY ALL EXISTING INFORMATION INCLUDING ALL DIMENSIONS OF EXISTING STRUCTURE AND EQUIPMENT AND INCLUDE IN INTERFERENCE DRAWINGS.

1.38. MECHANICAL CONTRACTOR SHALL REVIEW AVAILABLE POWER ON SITE AND WITH ELECTRICAL CONTRACTOR/DRAWINGS PRIOR TO ORDERING ANY NEW MECHANICAL EQUIPMENT. ORDER AND SUPPLY EQUIPMENT TO SUIT AVAILABLE SITE POWER, AND IN COORDINATION WITH THE MECHANICAL DRAWINGS.

1.39. ALL MECHANICAL FINISHES AND LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECTURAL DIVISION AND/OR OWNER INCLUDING, BUT NOT LIMITED TO, AIR TERMINALS, THERMOSTATS/CONTROLS, EXPOSED INSULATION/DUCTWORK, WHERE A DISCREPANCY EXISTS BETWEEN MECHANICAL AND ARCHITECTURAL DRAWINGS AS TO THE LEVEL OF FINISHED REQUIRED, THE MOST STRINGENT/COSTLY REQUIREMENTS SHALL BE CARRIED IN THE TENDER AMOUNT. OBTAIN CLARIFICATION FOR FINAL FINISH PRIOR TO ORDERING.

1.40. ALL MECHANICAL EQUIPMENT WEIGHTS, SUPPORTS, AND OPENING SHALL BE REVIEWED AND APPROVED BY A STRUCTURAL ENGINEER. WHEN APPLICABLE, HIRE BASE BUILDING STRUCTURAL ENGINEER TO PERFORM ALL SUCH REVIEWS. MECHANICAL CONTRACTOR SHALL PAY FOR ALL SUCH REVIEWS AND INCLUDE COST IN TENDER AMOUNTS.

1. EQUIPMENT START-UP AND BALANCING

1.1. PROVIDE START UP REPORTS FOR ALL NEW MECHANICAL EQUIPMENT. START UP REPORT SHALL BE PREPARED BY A FACTORY TRAINED REPRESENTATIVE AND SHOW THAT THE EQUIPMENT IS IN GOOD CONDITION.

1.2. PROVIDE ALL TEMPORARY POWER, GAS, AND OTHER UTILITIES AS REQUIRED TO PERFORM START UP OF EQUIPMENT.

1.3. PERFORM BALANCING OF MECHANICAL SYSTEMS ONCE ALL COMPONENTS ARE INSTALLED AND PRESSURE TESTED.

1.4. PERFORM BALANCING TO SUIT PROJECT SCHEDULE. IF REQUIRED PAY AND PROVIDE ALL TEMPORARY POWER AND UTILITIES IF EQUIPMENT IS REQUIRED TO BE BALANCED PRIOR TO SAID SERVICES BEING IN PLACE TO SUIT PROJECT SCHEDULE.

1.5. WHERE START UP OF EQUIPMENT OCCURS WHILE THE BUILDING IS STILL IN CONSTRUCTION, REPLACE ALL FILTERS AND STRAINERS AFTER START UP.

1.6. GENERALLY SPEAKING ALL CEILINGS, WALLS, DOORS, WINDOWS, PLENUMS, SHEET METAL, AND OTHER BUILDING COMPONENTS AFFECTING THE PERFORMANCE OF A UNIT SHALL BE FULLY COMPLETE PRIOR TO THE BALANCING.

1.7. ALL BALANCING SHALL BE COMPLETED BY A SINGLE FIRM INCLUDING BOTH AIR AND WATER SYSTEMS. THE FOLLOWING SYSTEMS SHALL BE BALANCED:

1.7.1. AIR SYSTEM BALANCING

1.7.1.1. AIR SYSTEMS SHALL BE TESTED ONCE THE DUCTWORK SYSTEMS ARE COMPLETE AND SEALED. FILTERS ARE CLEAN, FAN ROTATION HAS BEEN VERIFIED TO BE IN THE CORRECT DIRECTION, ALL CONTROL ELEMENTS INCLUDING THERMOSTATS, SMOKE DETECTORS, AND DUCT MOUNTED SENSORS ARE INSTALLED. COILS ARE CLEAN, DUCT ACCESS DOORS ARE CLOSED, ALL FIRE/SMOKE CONTROL DAMPERS ARE INSTALLED AND FUNCTIONAL.

1.7.1.2. TEST ALL AIR SYSTEMS TO BE +/- 5% OF THE DESIGN VALUES.

1.7.1.3. PERFORM RE-BALANCING OF SYSTEMS AS MANY TIMES AS REQUIRED TO OBTAIN SUITABLE READINGS.

1.7.1.4. BALANCING DAMPERS WHICH EXHIBIT VIBRATION AND OR NOISE SHALL BE REPLACED AND THE SYSTEM SHALL BE RE-BALANCED.

1.7.1.5. ONCE AIR SYSTEMS ARE BALANCED, ALLOW SYSTEMS TO CONTINUE TO RUN FOR FIVE DAYS. AFTER RUNNING, REPLACE ALL FILTERS, INSPECT ALL MOVING COMPONENTS AND CONFIRM SYSTEM OPERATION. PRODUCE ALL ADDITIONAL NOISE/VIBRATION CONTROL ELEMENTS TO ELIMINATE EXCESS NOISE/VIBRATION. LUBRICATE ALL MOVING PART AND REPAIR ANY NOTICEABLE DEFECTS IN THE SYSTEM.

1.8. SUBMIT PDF COPIES OF BALANCING REPORTS ONCE SYSTEMS MEET THRESHOLDS NOTED ABOVE. INCLUDE APPROVED BALANCING REPORTS IN CLOSEOUT DOCUMENTS.

1.9. TEST ALL CONTROL SYSTEMS INCLUDING FUNCTION OF THERMOSTATS AND READINGS OF CONTROLS POINTS.

2. COMPLETION OF CONTRACT

2.1. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL LABOUR AND MATERIAL TO INSTALL ALL SYSTEMS SHOWN AND/OR IMPLIES IN GOOD WORKING ORDER. THESE SYSTEMS SHALL BE FULLY OPERATIONAL, TESTED, BALANCED, VERIFIED, CLEAN AND FREE OF DEBRIS AT COMPLETION OF CONTRACT.

2.2. PROGRESS BILLING

3.2.1. PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOUR AND GENERAL COSTS WHEN SUBMITTING PROGRESS DRAW REQUESTS.

3.2.2. PROVIDE SEPARATE BILLING SECTION FOR EACH SYSTEM INSTALLED AS PART OF THE PROJECT. SEPARATE SECTIONS SHALL INCLUDE, HOWEVER NOT BE LIMITED TO THE FOLLOWING: HVAC, GAS, PLUMBING, DRAWINGS, FIRE PROTECTION, COMPRESSED AIR, PROJECT CLOSEOUT.

3.2.3. INCLUDE A LINE ITEM AS PART OF BILLING STRUCTURE FOR 'PROJECT CLOSEOUT' TO BE BILLED ONLY ONCE ALL PROJECT CLOSE OUT DOCUMENTS ARE PROVIDED AND ACCEPTED (INCLUDING AS BUILT DRAWINGS) AS PER THE FOLLOWING PRICING STRUCTURE:
UP TO \$100,000 -> \$5,000
UP TO \$500,000 -> \$7,500
UP TO \$1,000,000 -> \$10,000
GREATER THAN \$1,000,000 -> 1%

2.3. AT THE COMPLETION OF THE PROJECT PROVIDE THE FOLLOWING INFORMATION TO THE CONSULTANT FOR REVIEW:

2.3.1. WARRANTY LETTERS

2.3.2. AS BUILT DRAWINGS IN AUTOCAD AND PDF FORMAT

2.3.3. CLOSE OUT DOCUMENTS INCLUDING A BINDER OF APPROVED SHOP DRAWINGS, TAB REPORTS, AND O&M MANUALS.

2.3.4. NFPA 1 SIGN OFF LETTER IF APPLICABLE

2.4. SCHEDULE WORK TO MEET PROJECT SCHEDULE. ARRANGE TO PROVIDE CLOSE OUT DOCUMENTS PRIOR TO SCHEDULE COMPLETION TO ENSURE NO DELAY IN PROJECT CLOSE.

2.5. ALL SYSTEMS SHALL BE COMPLETED AND FULLY FUNCTIONAL AT PROJECT COMPLETION. REPLACE ALL FILTERS AND STRAINERS AT PROJECT COMPLETION. PROVIDE ALL INFORMATION TO THE CONSULTANT FOR REVIEW. REMOVE ALL DEBRIS FROM THE PROJECT SITE. WHERE WORKING IN EXISTING BUILDING, ALL EXISTING FINISHES TO REMAIN SHALL BE IN AS NEW CONDITION.

1. DEMOLITION

1.1. COMPLY WITH THE REQUIREMENTS OF DIVISION 01, THE OWNER/LANDLORD, PROJECT MANAGER AND CONSTRUCTION MANAGER WITH ALL REGARDS TO DEMOLITIONS.

1.2. INCLUDE FOR ALL PERMITS AND FEES TO PERFORM THE EXTENT OF THE DEMOLITION WORK IN THESE DOCUMENTS, INCLUDING FEES AND TAXES ASSOCIATED WITH THE DISPOSAL OF HAZARDOUS SUBSTANCES. ARRANGE AND PAY FOR A WASTE GENERATION NUMBER FOR THE PROPERTY TO ALLOW FOR THE REMOVAL OF SAID ITEMS.

1.3. PROVIDE ALL DEMOLITION OF MECHANICAL SYSTEMS AS SHOWN ON THESE DRAWINGS AND REFERRED TO ON ARCHITECTURAL DRAWINGS.

1.4. PERFORM ALL DEMOLITION WORK IN ACCORDANCE WITH THE REQUIREMENTS OF CAN/CSA-S350 - CODE OF PRACTICE FOR SAFETY IN DEMOLITION OF STRUCTURES, ONTARIO BUILDING CODE, ONTARIO FIRE CODE, OCCUPATION HEALTH AND SAFETY ACT, AND ALL LOCAL CODES, BY-LAWS AND REGULATION IN THE JURISDICTION OF THE WORK FOR THE REMOVAL OF SYSTEMS AND WASTE.

1.5. PROVIDE ALL NECESSARY SUPPORTS, LIFTS, PLATFORMS, HOISTS, AND/OR INFRASTRUCTURE REQUIRED TO DEMOLISH SYSTEMS AS NOTED.

1.6. NOTE TO REMOVE OR DEMOLISH A PIECE OF EQUIPMENT, SYSTEMS, OR MECHANICAL INFRASTRUCTURE SHALL BE READ TO IMPLY REMOVAL OF THE SYSTEM IN ITS ENTIRETY INCLUDING ALL SUPPORTS, ACCESSORIES AND OTHER ITEMS THAT ARE NO LONGER REQUIRED. WHERE DOUBT EXISTS TO THE EXTENT OF THE REMOVAL OBTAIN WRITTEN CLARIFICATION FROM CONSULTANT.

1.7. WHERE REMOVAL OF MATERIAL WILL BE CARRIED OUT BY OTHER TRADES, CUT, CAP AND MAKE SAFE ALL MECHANICAL SYSTEMS TO ALLOW FOR THIS REMOVAL INCLUDING DRAINING AND DISPOSING OF ANY SYSTEM CONTENTS.

1.8. PROVIDE DEMOLITION WORK SCHEDULE TO THE OWNER AND CONSULTANT IMMEDIATELY UPON CONTRACT AWARD. DEMOLITION SCHEDULE SHOW INCLUDE AREAS OF WORK, TIME OF WORK, SYSTEM DOWN TIMES, SYSTEM TIE-OVER TIMES AND GENERAL LOCATION OF WORK.

1.8.1. ALL EQUIPMENT SHUT DOWNS SHALL ONLY BE STARTED AFTER RECEIVING WRITTEN APPROVAL FROM OWNER. PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE FOR SHUT-DOWN OF EXISTING SYSTEMS.

1.8.2. ALL DOWNTIME TO SYSTEMS SERVING OCCUPIED AREAS OF THE BUILDING SHALL BE LIMITED TO AFTER HOURS TIME. INCLUDE ALL ASSOCIATE AFTER HOURS LABOUR AS REQUIRED IN THE BID PRICE.

1.9. THIS CONTRACTOR SHALL PROTECT ALL BUILDING SYSTEMS IN THE AREA OF THE MECHANICAL DEMOLITION WORK FOR THE FULL DURATION OF THIS PROJECT. ANY BUILDING SYSTEMS DAMAGED BY MECHANICAL DEMOLITION CREWS SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER BY THE RELEVANT BASE BUILDING TRADE ASSOCIATED WITH THE DAMAGED SYSTEM. ALL DAMAGE SHALL BE NOTIFIED TO THE OWNER AND CONSULTANT IMMEDIATELY UPON OCCURRING. CONTRACTOR SHALL NOTE THAT THIS IS A RENOVATION TO AN EXISTING BUILDING AND SHALL THOROUGHLY INVESTIGATE THE EXISTING MECHANICAL INSTALLATION AND CONDITIONS PRIOR TO SUBMITTING BID.

1.10.1. CONTRACTORS ARE REQUIRED TO VISIT THE SITE AND ENSURE THAT ALL WORK ASSOCIATED WITH THE ELECTRICAL INSTALLATION REQUIRED TO BE REMOVED OR RELOCATED IS ALLOWED FOR IN THE TENDER PRICE. ALSO CONTRACTORS SHALL ENSURE THAT THE WORK CAN BE CARRIED OUT AS INDICATED ON THE DRAWINGS OR SHALL ADVISE THE ENGINEER IMMEDIATELY OF ANY ANTICIPATED PROBLEMS

1.10.2. NO EXTRA WILL BE SUBSEQUENTLY PERMITTED TO COVER ANY SUCH ERROR, OMISSION AND/OR OVERSIGHT FOR NOT HAVING MADE A THOROUGH INSPECTION OF THE GROUNDS, EXISTING CONDITIONS, DRAWINGS, SPECIFICATIONS AND DESIGN INTENT, OR THE INFORMATION FOUND ON OTHER DISCIPLINES DRAWINGS INCLUDING ARCHITECTURAL, STRUCTURAL AND ELECTRICAL.

1.10.3. THE MECHANICAL CONTRACTOR SHALL NOTE THAT THE EXISTING BUILDING WILL REMAIN IN OPERATION THROUGHOUT THIS SCOPE OF WORK. THE CONTRACTOR SHALL ACCORDINGLY ALLOW FOR ANY WORK REQUIRED IN EXISTING TENANTS SPACES OR WHICH IS DISRUPTIVE DUE TO NOISE, VIBRATION, DUST/ODOUR, OR FUMES TO BE COMPLETED AFTER HOURS OR AT A TIME AS INDICATED BY THE OWNER'S BUILDING MANAGEMENT. PROVIDE TEMPORARY SERVICES AS REQUIRED TO ENSURE CONTINUED OPERATION OF THE BUILDING AT ALL TIMES.

1.11. SITE VERIFY EXACT SIZE AND QUANTITY OF MECHANICAL SYSTEMS BEING REMOVED.

1.12. REFER TO DRAWINGS OF OTHER DISCIPLINES INCLUDING ARCHITECTURAL, STRUCTURAL AND ELECTRICAL, TO DETERMINE THE FULL EXTENT OF THE PROJECT DEMOLITION AS WELL AS NEW SYSTEMS BEING INSTALLED TO ENSURE THAT MECHANICAL DEMOLITION SCOPE IS FULLY COORDINATED WITH OTHER DISCIPLINES.

1.13. WHERE REMOVAL OF MECHANICAL SYSTEMS REQUIRED ELECTRICAL, ARCHITECTURAL OR STRUCTURAL WORK TO PERFORM A FULL AND COMPLETE REMOVAL, HIRE SAID TRADES TO PERFORM SAID WORK.

1.14. WHERE DEMOLITION OCCURS IN EXISTING BUILDING TO REMAIN, PERFORM ALL WORK TO MINIMIZE DISRUPTION TO OPERATING AREAS OF THE BUILDING. ONLY USE CORRIDORS, BUILDING ENTRANCES, ELEVATORS, ESCALATORS, STAIRWELLS, AND LOADING AREAS AS APPROVED BY THE OWNER. WHERE PASSAGE IS REQUIRED THROUGH OPERATING SECTIONS OF THE BUILDING, PERFORM SAID WORK AFTER HOURS AND ARRANGE AND PAY FOR FULL CLEAN UP OF AREAS BE BASE BUILDING CLEANING STAFF PRIOR TO THE START OF THE NEXT BUSINESS DAY.

1.15. WHERE DEMOLITION WORK IS REQUIRED IN ACTIVE AREAS OF THE BUILDING, ARRANGE AND PAY FOR SECURITY TO PRESENT FOR FULL DURATION OF THE DEMOLITION. INCLUDE ALL TEMPORARY PROTECTION OF BUILDING SURFACES AND TENANT MERCHANDISE AS REQUIRED TO ALLOW FOR THE WORK TO CONTINUE. ALL SAID SPACES SHALL BE CLEANED AND REINSTATED A MINIMUM OF 1 HOUR BEFORE THE NEXT BUSINESS DAY.

1.16. ALL MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH LOCAL JURISDICTIONS. RECYCLE ALL CONTENT SUITABLE FOR RECYCLING. DO NOT STORE DEMOLISHED EQUIPMENT/MATERIAL ON SITE.

1.17. ALL EQUIPMENT/MATERIAL SCHEDULED TO BE RETURNED TO THE OWNER SHALL BE RELOCATED ANYWHERE WITHIN THE PROPERTY FOR SUITABLE STORAGE. PROTECT EQUIPMENT/MATERIAL FOR THE FULL DURATION OF THE PROJECT.

1.18. OBTAIN THE BUILDING HAZARDOUS SUBSTANCE REPORT FROM THE OWNER PRIOR TO COMMENCEMENT OF WORK. ADHERE TO ALL REQUIREMENTS OF THE HAZARDOUS SUBSTANCE GUIDELINES FOR THE BUILDING. WHERE HAZARDOUS SUBSTANCES ARE FOUND ON SITE, INCLUDING BUT NOT LIMITED TO ASBESTOS AND/OR MOLD, IMMEDIATELY STOP WORK AND NOTIFY OWNER AND CONSULTANT. DO NOT RETURN TO AREA OF WORK UNTIL SUCH TIME AS SAID SUBSTANCE HAS BEEN ABATED AND REMOVED FROM SITE BY SPECIALIZED ABATEMENT FIRM.

1.19. RECLAIM AND DISPOSE OF ALL REFRIGERANT IN ACCORDANCE WITH LOCAL BY-LAWS, STANDARDS AND REGULATIONS.

1.20. WHERE MECHANICAL SYSTEMS BEING REMOVED RUN THROUGH WALLS/FLOOR/ROOFS/EXTERIOR SURFACES, MAKE GOOD ALL SURFACES.

1.20.1. HIRE BASE BUILDING ROOFING AND WATERPROOFING CONTRACTORS TO MAKE GOOD ALL PENETRATIONS THROUGH BUILDING EXTERIORS.

1.20.2. WHERE REMOVING ROOF TOP EQUIPMENT ON CURBS, REMOVE ASSOCIATED CURB AND MAKE GOOD ROOF.

HVAC

1. GENERAL

1.1. COMPLY WITH ALL REQUIREMENTS OF DIVISION 1, OWNER, PROJECT MANAGER AND/OR CONSTRUCTION MANAGER.

1.2. COORDINATE THE WORK OF THIS TRADE WITH ALL OTHER TRADES. INCLUDE FOR ALL MATERIAL AND LABOUR TO INSTALL THESE SYSTEMS TO SUIT THE EXISTING AND NEW SYSTEMS OF OTHER TRADES.

2. DUCTWORK

2.1. UNLESS OTHERWISE SPECIFIED, CONSTRUCT AND INSTALL ALL DUCTWORK IN ACCORDANCE WITH ANS/MACNA/HVAC DUCT CONSTRUCTION STANDARDS USING A MINIMUM PRESSURE CLASSIFICATION OF POSITIVE OR NEGATIVE 500 PA (2" W.C.) AND A MINIMUM VELOCITY OF 10 MIS (2000 FPM) SUCH THAT THE DUCTWORK DOES NOT DRUM.

2.2. FOR DUCTWORK SUBJECTED TO MORE THAN 500 PA (2" W.C.) POSITIVE/NEGATIVE PRESSURE, CONSTRUCT DUCTWORK TO MEET ANS/MACNA DUCT STANDARD TO SUIT APPLICABLE PRESSURE CLASSIFICATION PLUS 10% FACTOR OF SAFETY.

2.3. STANDARD DUCTWORK SHALL BE CONSTRUCTED FROM GALVANIZED STEEL SHEETS, HOT DIPPED IN GALVANIZING WITH ASTM A653. GALVANIZING FOR BARE UNCOVERED DUCTS TO BE FINISH PAINTED TO BE G90. ALL OTHER GALVANIZING TO BE G90.

2.4. PROVIDE ALUMINUM DUCTWORK AS SHOWN ON DRAWINGS AND FOR ALL SYSTEMS IN HIGH HUMIDITY AREAS OR FOR ALL SYSTEMS SERVING SYSTEMS WITH HIGH WATER CONTENT OR HUMIDITY.

2.4.1. ALUMINUM DUCTWORK SHALL BE CONSTRUCTED FROM ALLOY 3003 TEMPER H14 ALUMINUM. ASTM B209, AND BE FABRICATED TO BE WATER TIGHT WITH METAL GAUGES AND FABRICATION IN ACCORDANCE WITH ANS/MACNA HVAC DUCT CONSTRUCTION STANDARDS.

2.4.2. SLOPE DUCTWORK TO ENSURE THAT ALL MOISTURE DRAINS TO SYSTEM LOW POINTS. PROVIDE VALVED AND CAPPED DRAIN CONNECTIONS AT SYSTEM LOW POINTS.

2.5. FABRICATE AND INSTALL DUCTWORK TO ENSURE INTERIOR SURFACE IS SMOOTH AND FREE OF OBSTRUCTIONS, AND THAT DUCTWORK DOES NOT VIBRATE OR CREATE NOISE ONCE SYSTEMS ARE IN OPERATION.

2.6. DUCTWORK HANGERS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS AS A MINIMUM. INCLUDE ALL ADDITIONAL SUPPORTS AS REQUIRED TO SUIT SYSTEMS SPECIFICS AND ENSURE A FULLY OPERATIONAL AND VIBRATION FREE DUCTWORK SYSTEM.

2.7. FLEXIBLE DUCTWORK SHALL BE SPIRALLY WOUND, SEMI-RIGID, SELF SUPPORTING CORRUGATED ALUMINUM DUCT WITH CONTINUOUS TRIPLE LOCK SEAMS. UL-910 LISTED AND LABELED AS A CLASS 1 AIR DUCT, CONSTRUCTED OF DEAD SOFT ALUMINUM STRIP FACTORY COVERED WITH 40 MM (1-1/2"), 12 KG/M³ (0.75 LB/FT³) DENSITY FIBERGLASS INSULATION WITH VINYL JACKET MEETING FLAME AND SMOKE DEVELOPMENT REQUIREMENTS OF CANULC S-102. BASIS OF DESIGN SHALL BE NOVAFLEX GROUND TL-A TRIPLE LOCK ACOUSTIC DUCT.

2.8. FLEXIBLE DUCTS SERVING DIFFUSERS/GRILLES SHALL HAVE A MAX LENGTH OF 2400 MM (8'-0"), FLEXIBLE DUCTS SERVING TERMINAL CONTROL UNITS (VAV/FAN POWERED VAV) SHALL HAVE A MAXIMUM LENGTH 12000 MM (4'-0") AND A MINIMUM OF 3 DUCT DIAMETERS OF STRAIGHT LENGTH.

2.9. ALL FLEXIBLE DUCTWORK SHALL BE INSTALLED WITHOUT EXCESS LENGTH AND SUPPORTED IN ACCORDANCE WITH ANS/MACNA HVAC DUCT CONSTRUCTION STANDARDS.

2.10. FIRE DAMPERS SHALL BE INSTALLED IN ALL DUCTWORK PASSING FIRE RATED PARTITIONS. DAMPERS SHALL BE CURTAIN BLADE TYPE DYNAMIC GALVANIZED STEEL FLEXIBLE DAMPERS, ULC CLASSIFIED TO STANDARD CANULC-S112 AND IN ACCORDANCE WITH NFPA 90A.

2.11. DAMPERS SHALL BE OUT OF STREAM TYPE UNLESS SIZE OR LOCATIONS DICTATES THE USE OF IN STREAM DAMPERS.

2.12. FIRE DAMPERS SHALL BE SELECTED IN ACCORDANCE WITH THE RATING OF THE PARTITION AND LOCAL CODES (OBC). MINIMUM DAMPER RATING SHALL 1.5 HOURS WITH 74C (165F) FUSIBLE LINK (UNLESS APPLICATION REQUIRED HIGHER TEMPERATURE RATINGS.

2.13. PROVIDE ACCESS DOORS IN DUCTS AND HARD SURFACES AS REQUIRED TO ACCESS AND MAINTAIN FIRE DAMPERS.

2.14. PROVIDE CURTAIN OR PARALLEL BLADE TYPE DAMPERS TO MAINTAIN FIRE RATING INTEGRITY OF MEMBRANE BEING PIERCED. MINIMUM RATING TO BE 1-1/2 HOURS WITH (1000C) [2120F] FUSIBLE LINK. PROVIDE MULTIPLE DAMPERS WHERE SIZES EXCEED CODE LIMITATION.

2.15. FIRE DAMPERS SHALL BE MANUFACTURED BY NAILOR INDUSTRIES INC, GREENHECK FAN CORP, NCA MANUFACTURING OR RUSKIN CO. SELECT DAMPERS TO SUIT ORIENTATION, SIZE, REQUIRED RATING, AND ALL OTHER FACTORS REQUIRED.

2.16. PROVIDE FLEXIBLE DUCT CONNECTIONS BETWEEN ALL AIR HANDLING EQUIPMENT AND SYSTEM DUCTWORK. FLEXIBLE DUCT CONNECTIONS SHALL BE 0.68 mm (0.027") THICK WOVEN FIBERGLASS WITH POLYCHLOROPRENE COATING MEETING NFPA 90A/90B, NFPA-701 AND CANULC S109-03. DURODYNE NEOPRENE FLEXIBLE CONNECTOR (OR APPROVED EQUIV.)

2.17. PROVIDE ALL MANUAL BALANCING DAMPERS AS SHOWN ON DRAWINGS AND AS REQUIRED TO PROVIDE FULLY BALANCED HVAC SYSTEMS. PROVIDE BALANCING DAMPERS IN EXISTING DUCTWORK AS REQUIRED TO BALANCED SYSTEM TO PERFORMANCE LEVELS SHOWN ON THE DRAWINGS. BALANCING CONTRACTOR SHALL BE A MEMBER IN GOOD STANDING OF AABC OR NEBC. SUBMIT BALANCING REPORT IN PDF FORMAT TO THE CONSULTANT FOR REVIEW. BALANCING REPORT SHALL INCLUDE LEGIBLE DRAWINGS INDICATED TERMINAL LOCATION. ALL BALANCING SHALL BE COMPLETED WITHIN +/- 3% OF VALUES LISTED WITHIN DOCUMENTS. REPLACE/ADJUST FAN SHAFTS, BELTS AND PULLEYS AS REQUIRED TO OBTAIN DESIGN AIR QUANTITIES. INDICATE DESIGN ANCHOR AND ACTUAL PERFORMANCE OF EACH EQUIPMENT AND TERMINAL. PROVIDE TEN (10) ADDITIONAL HOURS OF BALANCING WORK AFTER INITIAL APPROVED BALANCING. THIS WORK SHALL BE PERFORMED AFTER THE TENANT HAS MOVED IN, AS MAY BE REQUIRED FOR COMFORT BALANCING. WHERE REQUIRED HIRE BASE BUILDING TESTING/BALANCING CONTRACTOR AND INCLUDE COST WITHIN MECHANICAL TENDER.

2.18. BALANCING DAMPERS SHALL BE BY NAILOR INDUSTRIES, TAMCO, GREENHECK, NCA OR GREENHECK.

2.19. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHERE ACOUSTIC INSULATION IS ADDED, INCREASE DUCT FABRICATION DIMENSIONS AS REQUIRED TO SUIT.

3. REFRIGERANT PIPING

3.1. PROVIDE ALL LABOUR AND MATERIAL AS REQUIRED TO FULLY INSTALL ALL REFRIGERANT PIPING SYSTEMS AS SHOWN ON THE DRAWINGS INCLUDING ALL ACCESSORIES, TESTING, DESIGN, INSULATION, SUPPORTS, AND REFRIGERANT TO PROVIDE FULLY FUNCTIONAL SYSTEM.

3.2. THE MECHANICAL CONTRACTOR SHALL INCLUDE FOR THE DESIGN AND SIZING OF ALL REFRIGERANT SYSTEMS TO CONFORM WITH CSA B52, OBC, ASHRAE AND THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

3.3. REFRIGERANT PIPING SHALL BE TYPE ACR HARD DRAWN SEAMLESS COPPER REFRIGERANT TUBING TO ASTM B280 FACTORY DEGREASED, DEBURRED, DEHYDRATED AND PRESSURIZED WITH NITROGEN AND CAPPED, COMPLETE WITH FACTORY WASHED AND BAGGED WROUGHT COPPER SOLDERING FITTING TO ASME B16.22 AND BRAZED JOINTS MADE WITH HIGH MELTING POINT SILVER BRAZING ALLOY CONFORMING TO AWS CLASSIFICATION.

3.4. ALL INSTALLATIONS ON SITE SHALL BE DEGREASED, DEBURRED, DEHYDRATED AND PRESSURIZED WITH NITROGEN TO TEST FOR LEAKS.

3.5. ANY COMPONENT OF REFRIGERANT SYSTEM WHICH DOES NOT PASS A PRESSURE/LEAK TEST SHALL BE REPLACED IN ITS ENTIRETY.

3.6. SIZE REFRIGERANT PIPING AS PER MANUFACTURER RECOMMENDATION AND AS PER GOOD PRACTICE TO ACHIEVE COOLING/HEATING CAPACITIES AS SPECIFIED WITHIN THESE DRAWINGS.

3.7. BALL VALVES SHALL BE 1/4 TURN, CSA CERTIFIED FORGED BRASS BALL VALVES SUITABLE FOR A MAXIMUM WORKING PRESSURE OF 3445 KPA (500 PSI) AND COMPLETE WITH CARBON FILLED TEFLON BALL SEALS. TWO O-RING SEAM SEALS. A GASKETED SEAL CAP. A FLOW DIRECTION ARROW CAST INTO THE BODY. A BALL POSITION INDICATOR ON THE STEM AND EXTENDED COPPER TUB CONNECTIONS TO PERMIT REPRODUCTION OF THE VALVES IN TO THE LINE WITHOUT DISASSEMBLING THE VALVE.

3.8. DIAPHRAGM VALVES SHALL BE CSA CERTIFIED PACKLESS DIAPHRAGM VALVES SUITABLE FOR A 3445 KPA (500 PSI) WORKING PRESSURE AND COMPLETE WITH AN O-RING TO PREVENT MOISTURE FROM ENTERING THE DIAPHRAGM CHAMBER. ONE PHOSPHOR BRONZE AND TWO STAINLESS STEEL DIAPHRAGMS AND EXTENDED COPPER TUBE BRAZING CONNECTIONS.

3.9. CHECK VALVES SHALL BE STRAIGHT THROUGH TYPE FOR VALVE & 16MM (1/4" TO 5/8") WITH A MACHINE BRASS GASKETED BODY, PHOSPHOR BRONZE SPRING AND NEOPRENE SEAT AND GLOBE VALVE TYPE FOR 22MM (7/8") AND LARGER COMPLETE WITH CAST BRONZE BODY, FORGED BRASS CAP, PHOSPHOR BRONZE SPRING, TEFLON SEAT DISC AND NEOPRENE O-RING SEAL. EACH VALVE COMPLETE WITH EXTENDED COPPER TUBE BRAZING CONNECTION.

3.10. PROVIDE ALL TRAPS WITHIN REFRIGERANT PIPING SYSTEMS AS REQUIRED.

3.11. SUPPLY ALL REFRIGERANT AS REQUIRED TO FULL CHARGE THE SYSTEM. REFER TO EQUIPMENT SCHEDULE FOR REFRIGERANTS REQUIRED.

3.12. PROVIDE REFRIGERANT LIQUID MOISTURE INDICATORS IN SYSTEMS SUITABLE FOR A MAXIMUM WORKING PRESSURE OF 3445 KPA (500PSI) AND COMPLETE WITH LIQUID INDICATOR WHICH SHOWS 'FULL' WHEN SYSTEM IS FULLY CHARGED.

3.13. INSTALL ALL SYSTEMS IN A NEAT AND ORGANIZED MANNER WITH PIPING INSTALLED PARALLEL TO BUILDING PLANES AND FULLY COORDINATED WITH OTHER SYSTEMS WITHIN THE BUILDING. HORIZONTAL RUNS SHALL BE SLOPED TOWARDS THE COMPRESSOR AS PER MANUFACTURERS RECOMMENDATION.

3.14. PROVIDE ALL SUPPORTS FOR REFRIGERANT PIPING SPACED NO MORE THAN 2.4M (8FEET). PROVIDE RUBBER INSERTS BETWEEN SUPPORTS AND PIPING.

3.15. MINIMIZE REFRIGERANT PIPING LENGTHS AND NUMBER OF ELBOWS. USE LONG RADII ELBOWS.

3.16. PROVIDE METAL HOSE CONNECTIONS TO FINAL EQUIPMENT AND DESIGN SYSTEM TO ACCOMMODATE EXPANSION/CONTRACTION OF PIPING, AND TO PREVENT VIBRATION.

3.17. INSULATE ALL REFRIGERANT PIPING WITH CLOSED CELL SLEEVE TYPE LONGITUDINALLY SPLIT SELF-SEAL FOAMED PLASTIC PIPE INSULATION IN ACCORDANCE WITH ASTM C534. ACCEPTABLE MANUFACTURERS ARE ARMACELL OR AEROFLEX. INSTALL INSULATION WITH VAPOUR TIGHT JOINTS AND SEAMS.

3.18. PROVIDE PIPING TAGS ON ALL REFRIGERANT PIPING AT EVERY CHANGE OF DIRECTION, ON EITHER SIDE OF WALLS/FLOORS AND A MINIMUM OF EVERY 20 FEET.

3.19. INSULATE OVER ALL ACCESSORIES AND VALVES.

3.20. PROVIDE ISOLATION VALVE AT ALL EQUIPMENT TO ISOLATE EQUIPMENT FROM PIPING SYSTEMS TO ALLOW FOR MAINTENANCE. PROVIDE SUITABLE UNIONS TO CONDENSING UNITS AND EVAPORATORS.

1. INSULATION

1.1. PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO INSULATE ALL MECHANICAL SYSTEMS AS SPECIFIED WITHIN THIS SECTION AND AS NOTED ON DRAWINGS.

1.2. UNLESS OTHERWISE SPECIFIED, INSULATION THERMAL PERFORMANCE IS TO MEET OR EXCEED THE MORE STRINGENT REQUIREMENTS OF THE LATEST EDITIONS OF THE NATIONAL ENERGY CODE OF CANADA FOR BUILDINGS AND ASHRAE 90.1.

1.3. ALL SYSTEM SUBJECT TO CONDENSATION (INCLUDING COLD AND DUAL TEMPERATURE) SHALL BE INSULATED COMPLETE WITH VAPOUR BARRIER. VAPOUR BARRIER SHALL BE INSTALLED OVER ALL SYSTEM COMPONENTS INCLUDING VALVES. VAPOUR BARRIER SHALL BE COMPLETE AND CONTINUOUS IN ITS ENTIRETY. ANY DAMAGE TO VAPOUR BARRIER SHALL REQUIRE FULL REMOVAL AND REPLACEMENT. DO NOT PATCH NEW VAPOUR BARRIERS INSTALLED AS PART OF THIS CONTRACT.

1.4. INSULATION SHALL ONLY BE APPLIED ONCE SYSTEMS HAVE BEEN TESTED AND REVIEWED BY ENGINEER AND AUTHORITY HAVING JURISDICTION.

1.5. INSTALL INSULATION ON PIPES AND DUCTS WHICH ARE CLEAN AND DRY, AND WITH ENVIRONMENTAL CONDITIONS AS REQUIRED BY THE INSULATION MANUFACTURER.

1.6. STORE ALL INSULATION MATERIAL ON SITE IN A DRY STORAGE AREA AND ENVIRONMENTAL CONDITIONS AS REQUIRED BY THE INSULATION MANUFACTURER.

1.7. ALL INSULATION OF MECHANICAL SYSTEMS SHALL BE INSTALLED BY A SINGLE INSULATION CONTRACTOR.

1.8. ALL INSULATION SHALL HAVE FLAME AND SMOKE SPREAD RATINGS OF 25/50 AND AS REQUIRED BY THE LOCAL BUILDING CODE AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND AS PER CANULC-S114 AND CANULC-S101.

1.9. ACCEPTABLE INSULATION MANUFACTURERS ARE JOHNS MANVILLE, OWENS CORNING, MANSON INSULATION, AND KNAUF OR AS LISTED BELOW.

1.10. ALL PIPE/DUCT LABELS SHALL BE APPLIED TO OUTSIDE OF INSULATION USING STENCILS OR WITH PIPE WRAP LABELS INSTALLED IN SUCH A WAY AS TO BE VISIBLE FROM THE FLOOR.

1.11. ALL INSULATION BUTT JOINTS SHALL BE FIRMLY CONNECTED JOINED AND INSTALLED IN SUCH A WAY AS TO NOT SEPARATE OVER TIME.

2. PIPING INSULATION

2.1. FOR SYSTEMS UP TO 250 F (121 C) PROVIDE BELFORM INSULATION LTD KOOLPHEN K-BLOCK INSULATED PIPE SUPPORT INSERTS, A MINIMUM OF 6" (150MM) LONG. PRE-MOLDED, RIGID, SECTIONAL, PHENOLIC FOAM INSULATION (MATCHING THICKNESS OF ADJACENT INSULATION) WITH REINFORCED FOIL AND KRAFT PAPER VAPOUR JACKET AND A 180 DEGREE CAPTIVE GALVANIZED STEEL SADDLE.

2.2. FOR ABOVE GROUND PIPE PROVIDE PREFORMED MINERAL FIBRE RIGID, SECTIONAL, SLEEVE TYPE INSULATION TO ASTM STANDARD C 547. STANDARD SPECIFICATION FOR MINERAL FIBRE PIPE INSULATION, WITH A FACTORY APPLIED VAPOUR BARRIER JACKET EQUAL TO JOHN MANVILLE INC MICRO-LOK AP-7 PLUS, KNAUF FIBER GLASS PIPE INSULATION WITH ASI-SSL JACKET, MANSON INSULATION INC ALLEY K APT OR OWENS CORNING FIBERGLASS PIPE INSULATION.

2.3. FOR ALL VALVES AND ACCESSORIES IN PIPING SYSTEMS PROVIDE BLANKET MINERAL FIBRE TYPE ROF INSULATION TO ASTM C553. STANDARD SPECIFICATION FOR MINERAL FIBRE BLANKET THERMAL INSULATION FOR COMMERCIAL AND INDUSTRIAL APPLICATIONS. 24 KG/M³ (1-1/2 LB/FT³) DENSITY WITH A FACTORY APPLIED VAPOUR BARRIER FACING.

2.4. WRAP ALL EXPOSED INSULATION WITH WHITE SHEET PVC AND FITTING COVERS JACKET. INSTALL JACKET WITH OVERLAPPING LONGITUDINAL AND CIRCUMFERENTIAL JOINTS AND PROVIDE WATER TIGHT INSULATION. PROVIDE SLIP-TYPE JACKET EXPANSION JOINTS WHERE REQUIRED.

2.5. INSULATION SHALL BE APPLIED DIRECTLY TO THE PIPE AND NOT AROUND HANGERS AND SUPPORTS.

2.6. INSTALL ALL INSULATION IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.

2.7. PROVIDE PREFORMED INSULATION ON ALL BARRIER FREE LAVATORIES INCLUDING P-TRAP, ANGLE STOPS AND PIPING INSULATION.

2.8. ALL INSULATION SHALL BE CONTINUOUS AND BE EXTENDED THROUGH WALL AND FLOOR OPENINGS. SUPPLY SOUND PROOF AND FIRE PROOF PENETRATIONS TO SUIT.

2.9. INSULATION APPLIED IN TWO LAYERS SHALL HAVE JOINTS STAGGERED.

2.10. INSULATE OVER FLANGES AND MECHANICAL COUPLINGS WITH INSULATION TO MATCH PIPE INSULATION THICKNESS AND OUTSIDE DIAMETER OF FLANGE/COUPLING. FILL THE VOID BETWEEN THE FLANGE/COUPLING INSULATION AND THE PIPE INSULATION WITH THE SAME MATERIAL. ENSURE A CONTINUOUS VAPOUR SEAL AROUND FULL INSTALLATION.

2.11. DO NOT INSULATE TERMINAL UNIT CONTROL VALVES SO LONG AS THEY ARE SITUATION ABOVE CONDENSATE PAN.

2.12. WHERE INSULATING INLINE COMPONENTS WITH FLEXIBLE INSULATION, DO NOT COMPRESS PRODUCT MORE THAN 50% OF ORIGINAL FACTORY THICKNESS. APPLY LAYERS AS REQUIRED TO ACHIEVE MINIMUM THICKNESS VALUES.

1. CONTROLS

1.1. ALL CONTROLS WORK SHALL BE PROVIDED BY BASE BUILDING CONTROLS CONTRACTOR AND INCLUDED IN MECHANICAL SCOPE OF WORK AND TENDER.

1.2. ALL CONTROLS WIRING SHALL BE PLENUM RATED.

1.3. MECHANICAL CONTRACTOR SHALL PROVIDE ALL 120V AND LOW VOLTAGE WIRING AS REQUIRED TO COMPLETE CONTROLS SCOPE OF WORK. PROVIDE ALL TRANSFORMERS AS REQUIRED TO PROVIDE LOW VOLTAGE CONTROL WIRING. WHERE CONTROLS WORK REQUIRED 120V WIRING, HIRE ELECTRICAL CONTRACTOR TO PERFORM ALL SAID WORK.

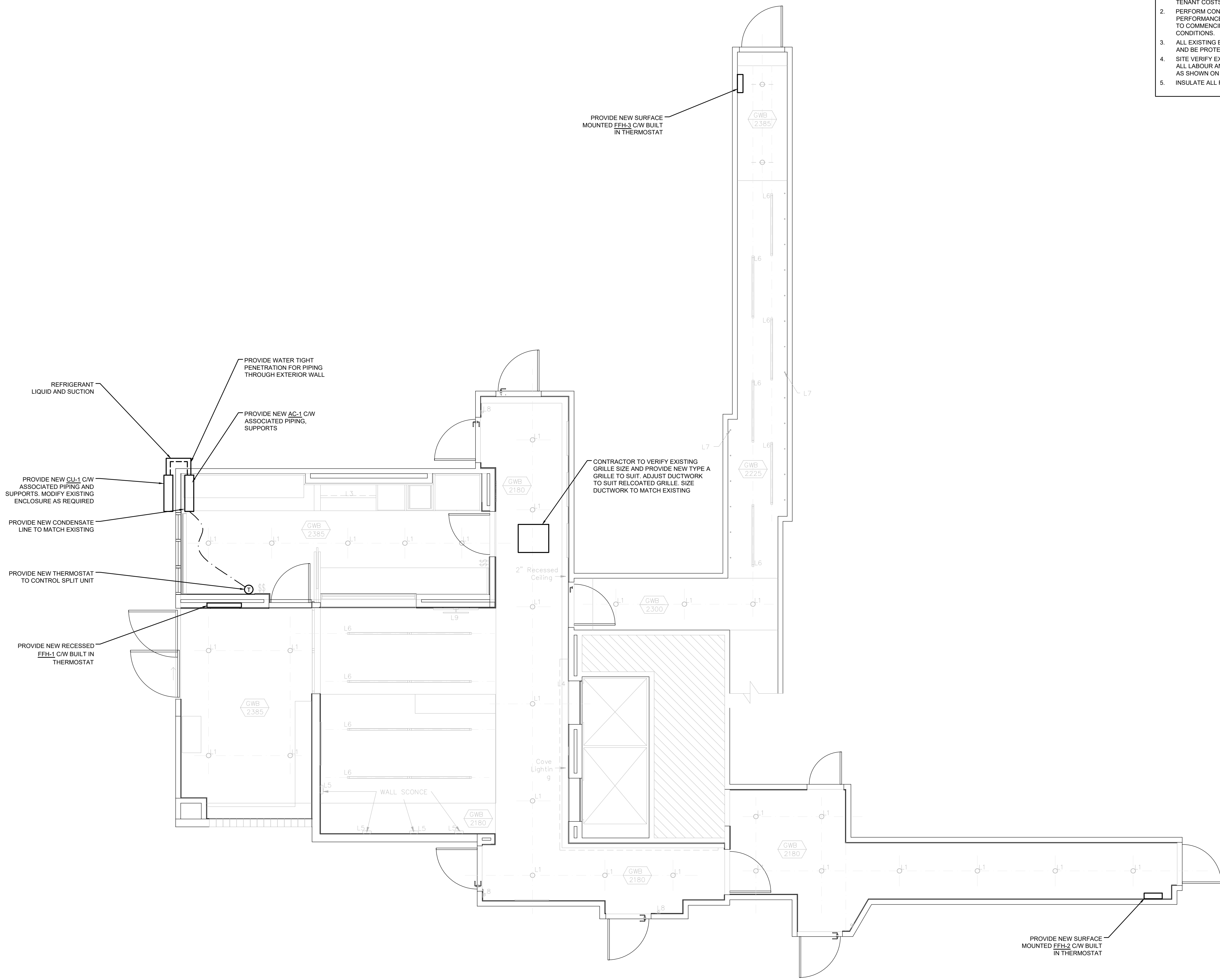
1.4. PROVIDE ALL NEW THERMOSTATS TO SUIT BASE BUILDING STANDARDS WHERE APPLICABLE.

1.5. WHERE THERMOSTATS HAVE OCCUPANT INTERACTION, THEY SHALL BE INSTALLED 4'-0" ABOVE FINISHED FLOOR, WITH LOCKING PLEXI-GLASS COVER.

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- GENERAL HVAC NOTES:**
1. ALL PENETRATION TO BASE BUILDING SURFACES INCLUDING ROOFS, WALLS, AND FLOOR SLABS TO BE PERFORMED BY A LANDLORD APPROVED CONTRACTOR AT THE TENANT COSTS. INCLUDE ALL COSTS IN MECHANICAL TENDER.
 2. PERFORM CONDITION AUDIT OF EXISTING EQUIPMENT AND VERIFY EXISTING PERFORMANCE AND VOLTAGE REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO COMMENCING WORK. ALL DUCTWORK TO BE FABRICATED TO SUIT EXISTING CONDITIONS.
 3. ALL EXISTING BASE BUILDING SYSTEMS WITHIN THE SPACE SHALL REMAIN AS IS AND BE PROTECTED FROM DAMAGE FOR THE DURATION OF THE CONSTRUCTION.
 4. SITE VERIFY EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID. INCLUDE FOR ALL LABOUR AND MATERIAL REQUIRED TO PROVIDE A FULLY FUNCTIONAL SYSTEM AS SHOWN ON THESE DOCUMENTS WITHIN THE EXISTING CONDITIONS.
 5. INSULATE ALL REFRIGERANT PIPING DUCTWORK.



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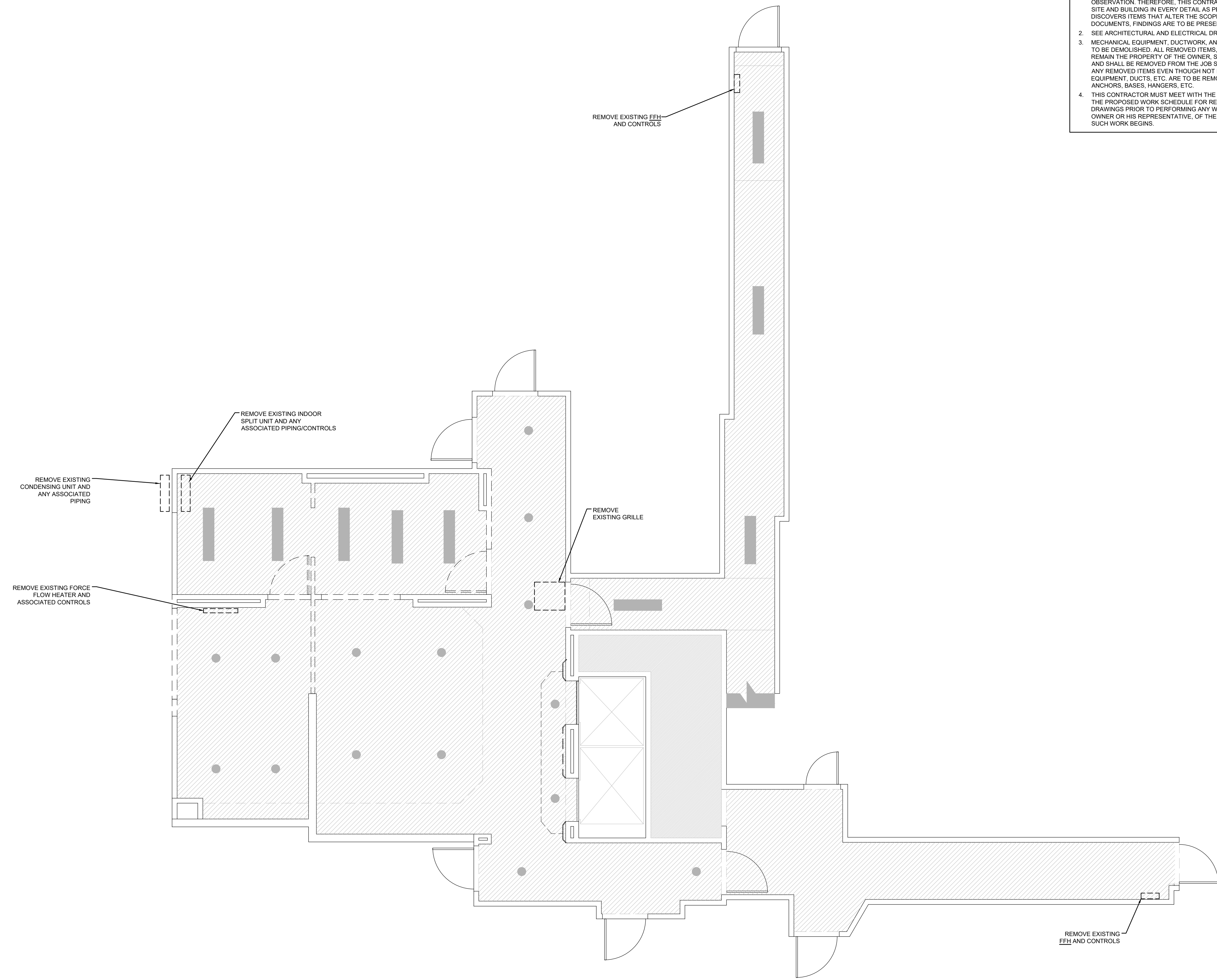
No.	Date	Description
1.	04.29.24	ISSUED FOR TENDER
1.	04.03.24	ISSUED FOR PERMIT

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GENERAL DEMOLITION NOTES:

1. THIS CONTRACTOR SHALL BE AWARE THAT THIS IS A REMODELING PROJECT AND AS SUCH, CERTAIN ITEMS AND SIZES CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE, THIS CONTRACTOR IS ADVISED TO VISIT AND EXAMINE THE JOB SITE AND BUILDING IN EVERY DETAIL, AS PERTAINS TO THIS PROJECT. IF CONTRACTOR DISCOVERS ITEMS THAT ALTER THE SCOPE OF WORK SHOWN IN THE CONSTRUCTION DOCUMENTS, FINDINGS ARE TO BE PRESENTED TO ENGINEER OF RECORD FOR REVIEW.
2. SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL REMOVAL ITEMS.
3. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHOWN IN DARK BOLD DASHED LINES IS TO BE DEMOLISHED. ALL REMOVED ITEMS, EXCEPT THOSE NOTED TO BE REUSED OR TO REMAIN THE PROPERTY OF THE OWNER, SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE JOB SITE. THE OWNER RESERVES THE RIGHT TO KEEP ANY REMOVED ITEMS EVEN THOUGH NOT NOTED ON DRAWINGS. WHERE EXISTING EQUIPMENT, DUCTS, ETC. ARE TO BE REMOVED, SUCH REMOVAL SHALL INCLUDE ALL ANCHORS, BASES, HANGERS, ETC.
4. THIS CONTRACTOR MUST MEET WITH THE OWNER OR HIS REPRESENTATIVE AND DISCUSS THE PROPOSED WORK SCHEDULE FOR REMOVAL, AND REMODELED WORK WITHIN CONTRACT DRAWINGS PRIOR TO PERFORMING ANY WORK. THE CONTRACTOR SHALL INFORM THE OWNER OR HIS REPRESENTATIVE, OF THE INTENT TO DO SO AT LEAST 48 HOURS BEFORE SUCH WORK BEGINS.



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