FIRM NAME:
WORKSHOP Architecture
6 Sousa Mendes St
Toronto, ON M6P 0A8
tel. 416-901-8055

LOCATION:
126 Pape Avenue
Toronto, ON M4M2V8

NAME OF PROJECT:
TSSS HVAC Phase IV 126 Pape

Project Area: 112.74 m²

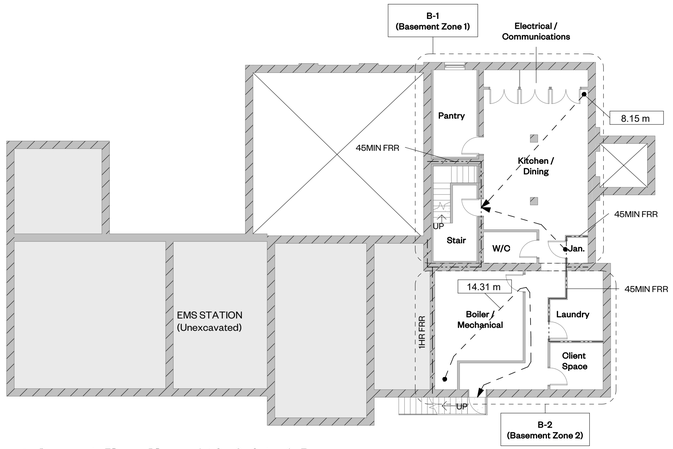
OBC REFERENCE

References are to Division B unless noted [A] for Division A or [C] for Division C.

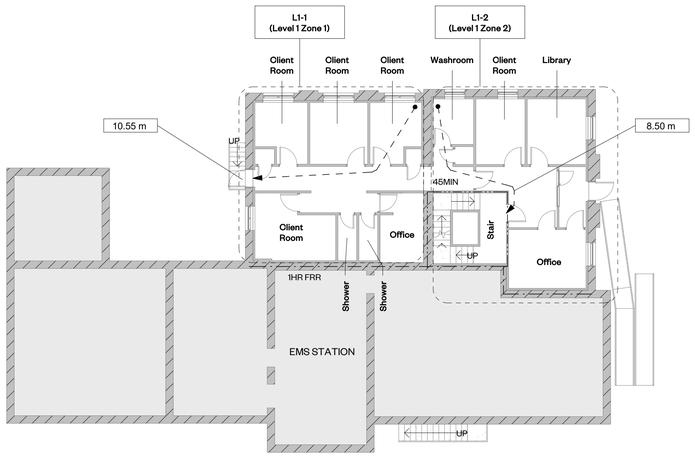
ONTARIO'S 2012 BUILDING CODE DATA MATRIX - PART 3

3.00	Building Code Version:	O. Reg. 332/12	
3.01	Project Type:	☐ New Construction ☐ Addition ☑ PART 11 ☐ Change of use ☐ Addition and renovation 11.1 TO 11.4 ☑ Renovation	1.1.1.2. [A]
3.02	Major Occupancy Classification:	Major Occupancy: D Use: Paramedic Station Secondary Occupancy: C Use: Shelter	3.1.2
3.03	Superimposed Major Classification:	☑ No ☐ Yes Description:	3.2.2.7
3.04	Building Area (m²)	Existing: 484 m² New: 0 m² Total: **NO CHANGE**	1.4.1.2. [A]
3.05	Gross Area (m²)	Existing: 735 m² New: 0 m² Total: **NO CHANGE**	1.4.1.2. [A]
3.06	Mezzanine Area (m²)	Existing: N/A New: N/A Total: **NO CHANGE**	3.2.1.1
3.07	Building Height	Storeys above grade: (m) Above grade Storeys below grade: **NO CHANGE**	1.4.1.2 [A] & 3.2.1.1.
3.08	High Building	☑ No ☐ Yes **NO CHANGE**	3.2.6
3.09	Number of Streets	1 streets (s) **NO CHANGE**	3.2.2.10. & 3.2.5.
3.10	Building Classification:	3.2.2.62 Secondary: 3.2.2.54 Group/Div: D Secondary: C	3.2.2.20 - 83.
3.11	Sprinkler System:	☐ Required ☑ Not Required **NO CHANGE** Provided: ☐ entire building ☐ selected compartments ☐ selected floor areas ☐ basement ☐ in lieu of roof rating ☑ none	3.2.1.5. & 3.2.2.17., 3.2.2.18., 3.2.4.8. to 3.2.4.10. & 3.2.5.13
3.12	Standpipe System:	☐ Required ☑ Not Required **NO CHANGE**	3.2.9.
3.13	Fire Alarm System:	☑ Required ☐ Not Required **NO CHANGE** Type Provided: ☑ Single stage ☐ Two stage ☐ None	3.2.4.
3.14	Water Supply	Adequate: ☐ No ☑ Yes **NO CHANGE**	3.2.5.7.
3.15	Construction Type:	Restriction: ☑ Combustible permitted ☐ Non-combustible required ☐ Encapsulated mass timber Actual: ☐ Combustible ☐ Non-combustible ☑ Combination of combustible and non-combustible Heavy Timber Construction: ☑ No ☐ Yes **NO CHANGE**	3.2.2.20 - 83. 3.2.1.4.
3.18	Occupant Load:	**NO CHANGE**	3.1.17. & 3.1.17.1.(2)
3.19	Barrier-free Design:	☐ No ☑ Yes Explanation: **NO CHANGE** Barrier-free Entrances: Number: 1 Explanation	3.8 3.1.8.2
3.20	Hazardous Substances:	☑ No ☐ Yes **NO CHANGE**	3.3.1.2. & 3.3.1.19.
3.20	Required Fire Resistance Ratings	Horizontal Assembly / Rating (H) / Supporting Assembly (H) / Noncombustible in lieu of rating? Storeys below grade 45min 45min* ☑ No ☐ Yes ☑ N/A Floors over basement 45min 45min* ☑ No ☐ Yes ☑ N/A Floors 45min 45min* ☑ No ☐ Yes ☑ N/A Mezzanine 45min 45min* ☑ No ☐ Yes ☑ N/A Roof 45min 45min* ☑ No ☐ Yes ☑ N/A *Noncombustible in lieu of rating for supporting assembly **NO CHANGE**	3.2.2.20 - 83., 3.2.1.2., 3.2.1.4., 3.2.2.15.
3.23	Plumbing Fixture Requirements	**NO CHANGE**	3.7.4., 3.8.2.3 Tables 3.8.2.3.A & 3.8.2.3.B
3.24	Energy Efficiency:	Compliance Path: Climate Zone: **NO CHANGE** Degree Days below 18C:	12.2.1.2. SB-1 Table 2
3.26	Notes:		

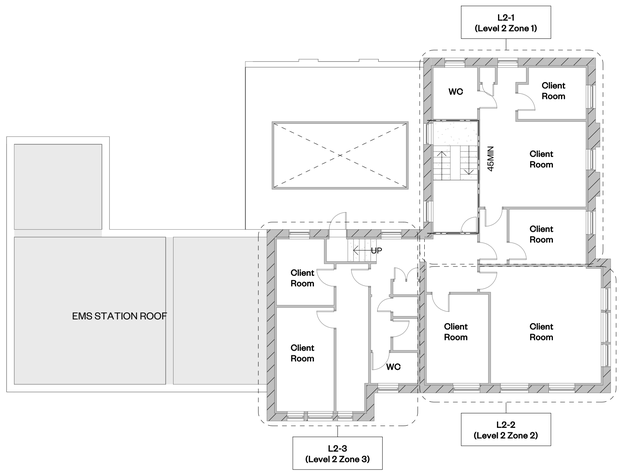
3.17	Seismic Hazard Index: **NO CHANGE**	(I_E Fa Sa (0.2)) = Seismic design required for Table 4.1.8.18 items 6 to 21: (I_E Fa Sa (0.2)) = ≥ 0.35 or Post-disaster) ☐ No ☐ Yes	4.1.2.1.(3) 4.1.8.18.(2)
3.22a	Spatial Separation **NO CHANGE**	Exposing Building Face: / EBF Area (m²) / L/D (m) / L/H or H/L / Req'd FRR (H) / % Unprotected Openings Permitted / Provided	3.2.3.
3.22a	Spatial Separation Continued **NO CHANGE**	EBF (repeated) Construction Type Cladding Type	
3.25	Sound Transmission Design: **NO CHANGE**	Is there more than 1 dwelling unit per building? Option Implemented: Notes:	SB-3, 5.8.1.2.(2), 5.8.1.4., & 5.8.1.5.



2 Basement Floor Plan - Life Safety & Zones
1 : 150



3 Ground Floor Plan - Life Safety & Zones
1 : 150



4 Second Floor Plan - Life Safety & Zones
1 : 150

General Notes:

1. Drawings are to be read in conjunction with project specifications.

2. Make good all surfaces/areas/finishes damaged during demolition. Prepare existing surfaces to accept new finishes as scheduled/specified.

3. All dimensions are to face of partition unless noted otherwise.

4. Angles are 90 degrees unless noted otherwise.

5. Contractor to measure and verify all site dimensions and verify existing conditions affecting new work. Notify consultant of any discrepancies before proceeding with new work.

6. General Contractor to provide adequate blocking for all millwork, signage, grab bars, equipment, etc mounted to walls/ceilings.

7. General Contractor shall be responsible for all mechanical, electrical and plumbing work. The General Contractor shall be responsible for all chases, cutting, openings (including scanning/x-ray where required) and patching as required by mechanical, electrical, plumbing and IT cabling trades. Review requirements with these trades.

8. Site access, including working hours, for material delivery, work forces and for refuse removal is to be coordinated with the Owner, as per terms outline in **Work Restrictions 01 14 00.**

9. General Contractor is to co-ordinate and co-operate with trades retained directly by Owner as applicable (eg: security contractor, IT sub trades, etc).

10. General Contractor shall be responsible for scheduling the trades identified in item 9, where such work affects the progress of the job.

11. Any temporary shoring required, including excavation support systems, shall be coordinated and provided by General Contractor within bid price. Refer also to Structural drawings, details and specification for additional requirements.

12. Building Permit shall be obtained by Owner. All other permits/fees (including but not limited to ESA, Municipal road closure permits, service connection fees, sign permits, etc) to be obtained by the Contractor as necessary to complete the Work. All costs for these permits (Municipal Inspections, traffic direction costs, etc) shall be included in bid price and provided at no additional cost to the Owner.

13. Seal around all mechanical openings through exterior building envelope to ensure air and water tightness.

14. Confirm locations of cores through exterior wall with Consultants prior to commencing work.

15. Provide paint to match existing at all new/reinstated walls and ceilings.

Phasing Notes:

Detailed sequencing and scheduling of work is the responsibility of the Contractor, and is to be coordinated with the Owner's requirements for occupancy and operations as outlined below. Refer to **Work Restrictions 01 14 00, Temporary Barriers and Enclosures 01 56 00, Temporary Controls 01 57 00,** and **Cleaning and Waste Management 01 74 00.**

1. OCCUPIED BUILDING: The building will be occupied throughout all stages of construction. Cooperate with the Owner in scheduling work to minimize impact on the Owner's ongoing usage. Contractor shall schedule the Work to minimize disruption to normal building operations. Site mobilization shall not commence until all materials/products/systems necessary for the completion of Work within a given Zone are in the Contractor's possession.

2. ZONES: Building has been divided into Zones - refer to Architectural and Mechanical drawings. No more than 1 Zone shall be taken offline at a single time. Minimum 14 business days notice is required prior to being granted access to a Zone. General Contractor shall present a complete work plan outlining the duration of Work within the Zone prior to being granted access to a Zone. Zones shall be secured to prevent access with Temporary Barriers and Enclosures.

3. WORKING HOURS: Working hours are from 9am-5pm, Monday to Friday. Any work proposed outside of these hours must be approved in advance by the Owner with a minimum of 7-days prior written notice. All areas of the building outside of the current "Zone" of work must be returned to a "fully operational" condition, including but not limited to all functioning building services (life safety, power, water, heating, cooling). General Contractor shall take reasonable measures for the control of noise during working hours.

4. SAFE ACCESS: Maintain safe access throughout the intended Project access route and fire/emergency routes throughout construction, complete with temporary signage to the satisfaction of the Fire Inspector. Provide hoarding, covered walkways, dust protection, temporary enclosures, etc. necessary for this purpose. Maintain operational life safety systems including fire and smoke sensors, and be responsible for costs incurred by Owner on account of false alarms activated.

5. DOORS: General Contractor shall ensure all doors including exit doors and fire doors be kept closed at all times for security purposes.

6. ADVANCE NOTIFICATION: Minimum 14 business days advance notification is required for any work affecting the building occupants, including commencement of painting, building system shutdowns (power, water, utilities, etc.), loss of use of any areas (resident rooms, washrooms, kitchens, etc), and allocation of a Zone.

7. UTILITIES SHUT DOWN: Provide minimum 14 business day advance notice if there is any planned utilities shut down. Contractor to ensure that Owner's power requirements are not affected by the service of the construction.

8. CONTINUITY OF MECHANICAL & ELECTRICAL SERVICES: Provide minimum 14 business days advance notice prior to necessary interruption of mechanical or electrical service throughout course of Work. Interruption to work not to exceed 4 hours. Interruptions lasting longer than 4 hours will require approval from the Owner.

9. CORING: Prior to coring, General Contractor must ensure that it is safe to start drilling, including ensuring the area is secured, dust controls are in place, and that the intended path of the coring unit is free of all embedded power/communication wires, conduits, rebar, pipes, and/or structures that could be damaged or disabled.

10. DUST AND PARTICULATE CONTROL: Provide temporary enclosures to prevent dust from construction operations to spread to adjacent zones. Exact location of temporary partition/enclosure to be agreed with the Owner priot to being erected. Existing building finishes to be protected.

11. FINAL CLEANING: All zones must be cleaned and ready for occupancy before being returned to the Owner, including removing waste material and debris, removing stains, cleaning/wiping down all exposed walls, floors, ceiling surfaces, sills, blinds, fixtures/fittings, and behind grilles/louvres.

Materials Legend

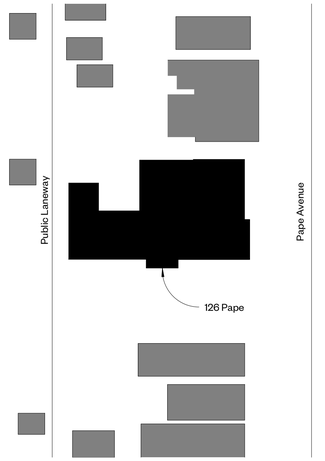
ACT	Acoustic Ceiling Tile
EXIST	Existing
EXP	Exposed
FGL	Fire Rated Glass
GWB	Gypsum Wallboard
PLY	Fire Rated Plywood
PLAM	Plastic Laminate
RES	Resilient Sheet Flooring
SO	Solid Polymer Fabrications
SS	Stainless Steel
TGL	Tempered Glass
WD	Solid Wood

Access Panel Schedule



AP-01

Refer to Specification 09 27 13 for Glass Fibre Reinforced Gypsum Access Panels



1 Key Plan
N.T.S.

Sheet List

Sheet Number	Sheet Name
ARCHITECTURAL	
A0.0	OBC Matrix, Key Plan
A2.0	Demolition RCPs
A2.1	Proposed RCPs & Lower Roof Plan
E-3.0	Second Floor Plan - Power & Systems
STRUCTURAL	
S001	General Notes
S100	Ground Floor Plan
S101	Roof Plan
MECHANICAL	
M-0.1	Mechanical Details
M-0.2	Equipment Dimensions
M-0.3	Wiring and Piping Diagrams
M-0.4	UV Sterilization
M-1.0	Ground Floor Plan HVAC
M-2.0	Second Floor Plan HVAC
M-B.0	Basement Plan HVAC
M.E-0.1	Mechanical Electrical Schedules
ELECTRICAL	
E-0.1	Electrical Legend and Details
E-1.0	Basement Plan - Power & Systems
E-2.0	Ground Floor Plan - Power & Systems
M.E-0.1(2)	Mechanical Electrical Schedules

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Rev	Description	Date
1	Issued for Class A Costing	9 May 2025
2	Issued for Permit Tender	30 May 2025

Life Safety Plan Legend

- Travel Distance Max Allowable = 30m
- Shaded area not in scope of work
- 0HR FRR
- 45MIN FRR
- 1HR FRR

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TSSS HVAC Phase IV - 126 Pape

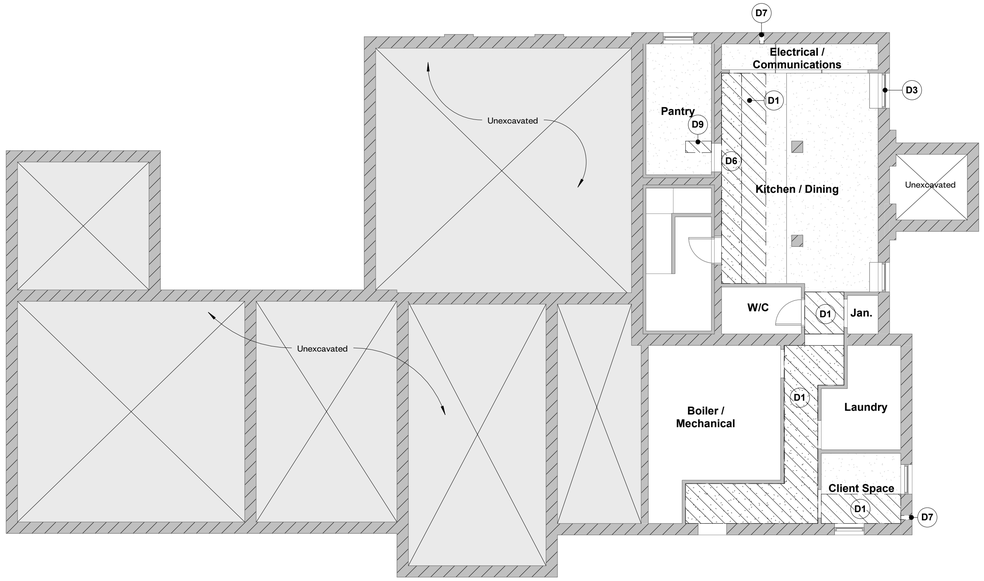
126 Pape Ave
Toronto, ON M4M 2V8

PROJECT CODE:	SCALE:
2425	As indicated
DATE:	STATUS:
May 2025	**Permit/Tender**

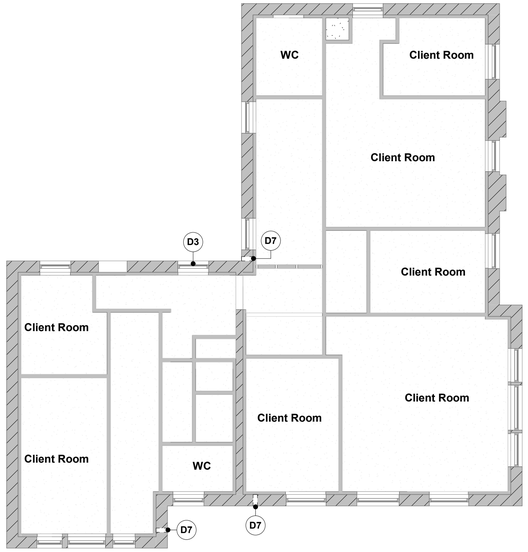
OBC Matrix, Key Plan

Project North

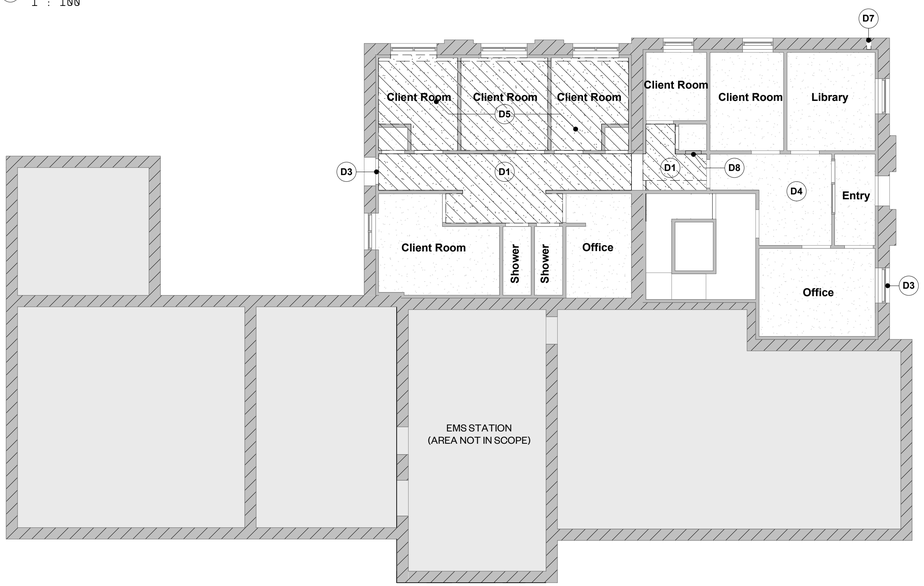
drawing number
A0.0



1 Basement Floor RCP Demolition
1 : 100



3 Second Floor RCP Demolition
1 : 100



2 Ground Floor RCP Demolition
1 : 100

Demolition Notes	
Note	**Description**
D1	Existing GWB ceiling to be demolished and reconstructed at a lower ceiling height to accomodate new HVAC runs.
D3	Remove existing window air conditioning unit - see Mechanical.
D4	Relocate existing ceiling mounted devices where concealed/obstructed by new HVAC equipment and ductwork - see Electrical.
D5	Existing GWB ceiling demolished to facilitate structural reinforcement of roof above.
D6	Existing GWB bulkhead to be demolished to run new ductwork.
D7	New opening through exterior masonry wall for new ductwork - see Mechanical, Structural and details. Exact location to be coordinated on site and reviewed by Consultants prior to coring.
D8	Run refrigerant lines from below in existing wall. Patch and make good.
D9	Remove and reinstate existing GWB ceiling for refrigerant line/duct routing - see Mechanical.

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Rev	Description	Date
1	Issued for Class A Costing	9 May 2025
2	Issued for Permit Tender	30 May 2025

RCP Legend

- Suspended light fixture - see Electrical
- Potlight - see Electrical
- Lay-in panel light fixture - see Electrical
- Return air diffuser - see Mechanical
- Supply air diffuser - see Mechanical
- (E) Existing
- Access Panel

Demolition Legend

- Existing wall partition system to be demolished
- Existing element to be demolished
- Approximate extent of flooring to be removed
- Approximate extent of ceiling to be removed

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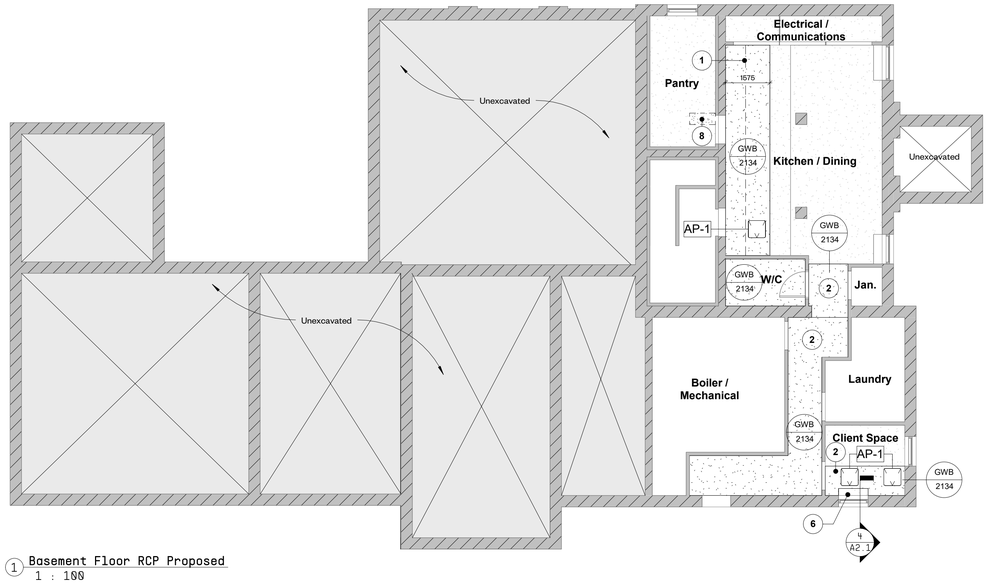
126 Pape Ave
Toronto, ON M4M 2V8

PROJECT CODE:	SCALE:
2425	1:100
DATE:	STATUS:
May 2025	**Permit/Tender**

Demolition RCPs

Project North

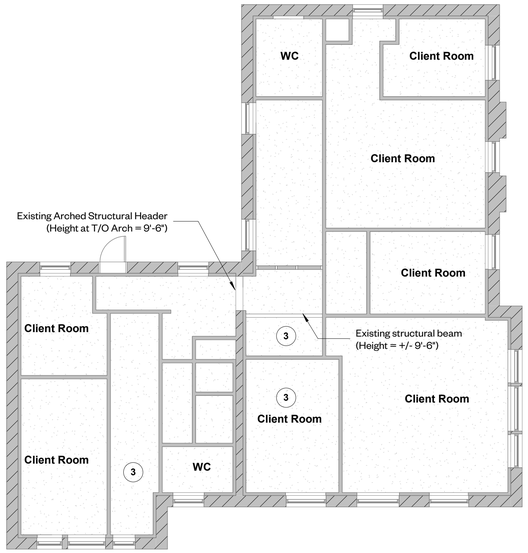
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A2.0



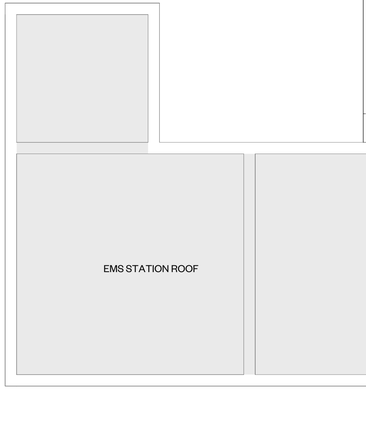
1 Basement Floor RCP Proposed
1 : 100



2 Ground Floor RCP Proposed
1 : 100



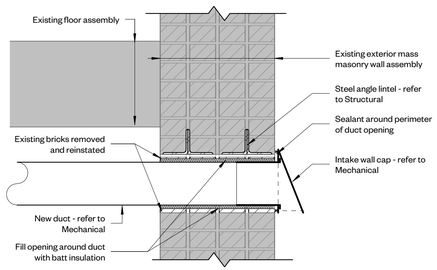
3 Second Floor RCP Poposed
1 : 100

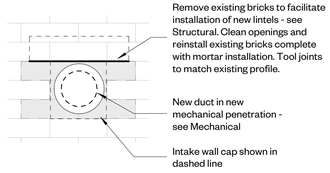




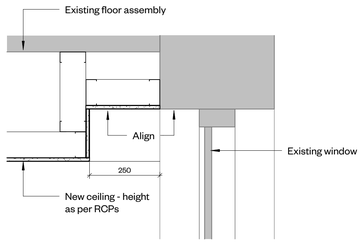
5 Lower Roof Plan - Proposed
1 : 100

General Notes	
Note	**Description**
1	Approximate extent of existing GWB bulkhead to be removed and reinstated around new ductwork. Site verify to confirm adequate space within existing GWB bulkhead to house new ductwork. Enlarge bulkhead as required while maintaining minimum 2100mm headroom.
2	New dropped ceiling to conceal mechanical units - see Mechanical.
3	New mechanical equipment to be exposed and run below existing ceiling at these locations - see Mechanical. Relocate existing electrical devices as needed to clear new mechanical equipment - see Electrical.
4	Patch and repair drywall where refrigerant lines are being run through existing wall.
5	New rooftop heatpumps; see Mechanical.
6	Ceiling cove at existing window - see details.
7	Rooftop doghouse for new pipe/conduit penetrations - see details.
8	Reinstate exist. GWB ceiling. Patch and make good adjacent finishes.
9	Infill existing opening with masonry to match existing prior to coring for new duct penetration. Clean openings and reinstall existing bricks complete with mortar installation. Tool joints to match existing profile.

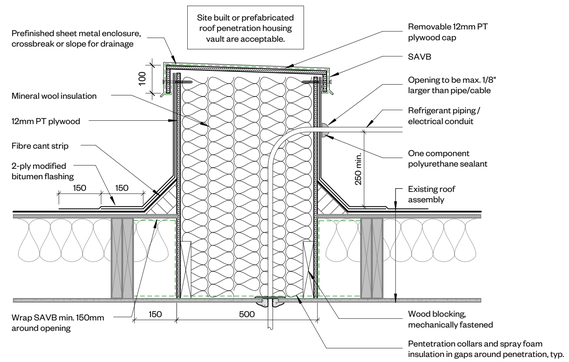




6 Section Detail - Mech. Penetration at Ext. Masonry Wall
1 : 10



4 Detail Section - Ceiling Cove at Window Head
1 : 10



8 Section Detail - Pipe/Wiring Doghouse
1 : 10

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Rev	Description	Date
1	Issued for Class A Costing	9 May 2025
2	Issued for Permit Tender	30 May 2025

RCP Legend

- Suspended light fixture - see Electrical
- Potlight - see Electrical
- Lay-in panel light fixture - see Electrical
- Return air diffuser - see Mechanical
- Supply air diffuser - see Mechanical
- (E) Existing
- Access Panel

Legend

- Existing partition to remain
- New partition as scheduled

Symbols Legend

- MAT / HEIGHT — Ceiling Material / Height above Finished Floor
- (E) Existing
- N.I.C. Not in Contract

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PROJECT CODE:	SCALE:
2425	As indicated
DATE:	STATUS:
May 2025	**Permit/Tender**

Proposed RCPs & Lower Roof Plan

Project North

drawing number
A2.1

MSE-001-1 General - Project documents

1. Structural drawings shall be read in conjunction with project specifications and all other relevant contract documents and specifications. In the event of discrepancy between these structural drawings and the project specifications, the more stringent of the two shall govern.
2. Contractor shall verify all existing conditions and dimensions at the site. Contractor shall use structural drawings in conjunction with all relevant consultant drawings and shall report any discrepancies or ambiguities requiring clarification or revision, and any perceived deficiency or omission before commencing with the work.
3. Refer to other relevant consultant drawings for locations of non-structural items, openings and equipment. Where shown on structural drawings and unless specifically noted, these items are only indicated approximately as to size and location.
4. Contractor shall verify all dimensions with the architectural, mechanical and electrical drawings prior to construction and report discrepancies to the architect for review and comment before proceeding with work. Scales noted on the drawings are provided for general information only. Do not obtain dimensional information by scaling from the drawings.
5. No modification to the structural elements and no openings, perforations or cuts are allowed unless specifically shown on these drawings and modified only with written consent from the Structural Engineer.
6. If details in these drawings differ from the applicable detail in the typical details section (not necessarily referenced on the plans), the more stringent of the two shall govern.
7. Structural drawings indicate general and typical details of construction. Where conditions are not specifically indicated, but are similar in character to details shown, similar details of construction shall be used. This is subject to review and approval by the Structural Engineer throughout the shop drawings process.
8. These drawings show requirements for the completed structure only. No provisions or allowances have been made for the construction sequence or methods unless specifically noted on these drawings.
9. The use of these drawings is limited to that identified in the revision column. Do not use these drawings unless marked "Issued for Construction" in the revision column.
10. All drawings, specifications and related documents are the property of Moses Structural Engineers Inc. and may not be used or reprinted without written consent.
11. This work applies to the design of new structure and modifications to existing structures. The remainder of the existing structures have not been checked by Moses Structural Engineers Inc. and remain responsibility of others.

MSE-001-2 General - Codes and standards

1. All materials, workmanship, design and construction shall conform to the project documents, the 2024 Ontario Building Code, any applicable acts of authority having jurisdiction and federal and municipal regulations and by-laws.
2. In addition, the following standards shall apply, where more stringent, and as modified by the building code:
   a. CAN/CSA A23.1, A23.2, and A23.3 for concrete construction requirements.
   b. CSA S304, CSA A165, CSA A179, CSA A370, and CSA A371 for masonry construction requirements.
   c. CAN/CSA S16 for steel construction requirements.
   d. CAN/CSA O86 for wood construction requirements.
   e. CSA S157 for aluminium construction requirements.
3. Where project documents reference documents and standards, they shall be the latest editions, unless otherwise noted.

MSE-001-3 General - List of submissions and review process

1. Where submissions listed below are required to be sealed by an engineer, the Professional Engineer shall be registered in the jurisdiction noted in MSE-001-2 and provide proof of a valid Certificate of Authorization in that jurisdiction, as required.
2. The following submissions are required for this project:
   a. Wood I-joist and structural composite lumber (SCL) shop drawings, sealed by a Professional Engineer.
   b. Calculations, upon request, sealed by a Professional Engineer for any of the above-noted submittals.
3. Submit electronic copy or four (4) hardcopies of shop drawings for review by the Structural Engineer. Shop drawings to show complete information for the fabrication and erection of the structural components.
4. Only shop drawings marked "No exceptions", "Note comments" or "Revise as noted" may be used by the contractor in the work. Shop drawings marked "Rejected" or "Resubmit" shall be corrected and completed as required and resubmitted to the Structural Engineer for approval before they may be used in the work.
5. Dimensions and quantities on shop drawings are not reviewed by the Structural Engineer. The Engineer's review is only to assess that the submitted shop drawings reflect the intent of the structural design.
6. Contractor to review and stamp the shop drawings prior to the review by the Engineer. Contractor to review drawings for conformance with the means, methods, techniques, sequences and operations of construction, as well as for all applicable safety precautions.
7. In case of deviations, discrepancies or conflicts between shop drawing submittals and contract documents, the design drawings and specifications shall control and shall be followed regardless of whether the discrepancy is discovered before or after the review by the Structural Engineer. The Engineer's review does not relieve the contractor of the responsibility of verifying that work is complete, accurate and in conformity with project documents.
8. Shop drawing submittals processed by the consultants are not change orders.
9. Contractor-initiated changes shall be explicitly submitted in writing to the consultants for approval, prior to fabrication or construction. Changes shown on shop drawings only will not satisfy this requirement.

MSE-001-4 General - Miscellaneous

1. Provide temporary bracing and shoring for construction loading conditions and stability of the structure during construction. Construction loads shall not exceed horizontal and vertical design loads as noted in these drawings. It shall also be the contractor's responsibility to provide all necessary bracing, shoring, sheet piling or other temporary supports to safeguard all existing or adjacent construction affected by this work.
2. Contractor to retain a Professional Engineer registered in the jurisdiction noted in MSE-001-3 to design and take responsibility for any temporary shoring, bracing, scaffolding or other designs required to complete construction.
3. Contractor shall be responsible for all safety precautions and for all methods, techniques, sequences or procedures required to perform the work pursuant to the Occupational Health and Safety Act (OHSA).
4. Where the scope of the structural work is delineated into phases on the drawings and details, the scope of the initial phase(s) shall include the supply and installation of all work shown cast or set into this initial work, as well as all dowels and the like that project out of this work, unless noted otherwise on the drawings and details.
5. Unless specifically shown on these drawings, do not cut or drill any openings or cope structural elements without written permission from the Structural Engineer.
6. All dimensions are in metric units unless noted otherwise.
7. Structural plans show bearing walls and columns above the storey plan being shown.
8. Attachment of non-structural elements for seismic loads is the responsibility of others.

MSE-002 Design criteria

1. All design has been completed in accordance with the 2024 Ontario Building Code (OBC), for Toronto, Ontario.

MSE-002-1 Design criteria - Loading

1. Specified roof live/snow load schedule.

TABLE 002-1.1

Item	Value	Reference (OBC)
Roof live load	1.00 kPa	Table 4.1.5.3
ULS importance factor (Normal)	(I_s)	1.00	Table 4.1.6.2.A
SLS importance factor (Normal)	(I_s)	0.90	Table 4.1.6.2.A
Ground snow load	(S_s)	0.90 kPa	Table 2, SB-1
Basic roof snow factor	(C_b)	0.8	Clause 4.1.6.2 (2)
Wind exposure factor	(C_w)	1.0	Clause 4.1.6.2 (3) and (4)
Slope factor	(C_s)	1.0	Clause 4.1.6.2 (5), (6) and (7)
Accumulation factor	(C_a)	1.0	Clause 4.1.6.2 (8)
Associated rain load	(S_r)	0.40 kPa	Table 2, SB-1
Flat roof snow load	(S_l)	1.0 kPa	Clause 4.1.6.2 (1)
Snow drift and sliding		See plan	Article 4.1.6.5 - 4.1.6.8, 4.1.6.11
Rainwater ponding load		Min 1.0 kPa or see plan	Table 2, SB-1 for 1-day rain

2. Specified gravity load schedule.

TABLE 002.1.2

Area/Component	Total dead load	Specified live load
Floors (b)	N/A	N/A
Roof	1.0	Min 1.0 kPa (a)

All loads shown are in kPa

a. Snow and wind loads per tables 002-1.1 & 002-1.3.
b. Includes partition load allowance of 1.0 kPa.

MSE-002-2 Design criteria - Serviceability

1. Typical horizontal elements have been designed so that the theoretical deflections do not exceed the following values.

TABLE 002.2.1

Type of member	Deflection to be considered	Deflection limit
Flat roofs not supporting non-structural elements and finishes likely to be damaged by large deflections	Immediate deflection due to specified live load	L/180
Floors not supporting non-structural elements likely to be damaged by large deflections	Immediate deflection due to specified live/snow load	L/360
Roofs or floors supporting non-structural elements likely to be damaged by large deflections	Portion of deflection occuring after attachment of non-structural elements	L/360
Roofs or floors supporting non-structural elements not likely to be damaged by large deflections	Sum of long-term deflections due to permanent loads and immediate deflection due to specified live load	L/300
Members of all floors and roofs	Total load	L/360
Green roof	Total load	L/360

2. Perimeter or spandrel members (supporting cladding, pre-cast or masonry walls) have been designed for an allowable deflection of one half the values on Table 002-2.1 or 20 mm, whichever is less.
3. The inter-storey drift due to wind has been limited to h/500 (where h is the floor to floor height between adjacent floors). Under seismic loads, the inter-storey drift has been limited to 0.02 h.

MSE-002-3 Design criteria - Provision for future extensions and existing structures

1. This structure has not been designed for any future extensions or changes in occupancy.

MSE-002-4 Design criteria - Fire resistance rating requirements

1. Unless otherwise noted, fire proofing methods and materials for structural members are not shown on structural drawings.
2. Refer to architectural drawings and specifications for fire rating requirements, fireproofing methods and materials. Each structural element shall be fireproofed as required to meet these requirements.
3. Refer to Table 010-2.1 for reinforcement cover to achieve required fire ratings.

MSE-020-1 Masonry - Materials

1. Masonry designed in accordance with CSA S304. Construction to conform to CSA A371. Masonry units and connectors to conform to CSA A165, CSA A370 respectively.
2. Provide masonry submittals:
   a. Masonry reinforcement and placement shop drawings, noting all reinforcement specified on structural drawings and general notes (including joint reinforcement, location of bond beams, horizontal reinforcement, locations of vertical reinforcement under point loads, and locations of movement joints).
   b. Written confirmation of masonry unit properties, mortar and grout mix designs and associated strengths and testing certificates (may be included on shop drawings noted in item a).
   c. Temporary bracing plans, sealed by a Professional Engineer, in conformance with CSA A371. Temporary bracing shall not aesthetically affect any exposed faces of masonry.
3. Provide masonry construction to the following material standards:

TABLE 020-1.1

Material	Standard	Strength
Concrete block H/15/A/M	CSA A165 Series	15 MPa
Wire reinforcing (3.8 mm (9ga.) ladder type)	CSA G30.14	
Mortar "Type S" *	CSA A179	8.5 MPa**
Grout - Coarse grout*	CSA A179	12.5 MPa
Connectors	CSA A370	Design by supplier
Reinforcing Steel	CSA G30.18	400 MPa

* Using type 10 Portland cement in Portland cement-lime mix formulation. No calcium chloride is permitted in the grout or mortar mixes.

** For site prepared or manufactured in batching plant mixed to workable consistency.
For lab-prepared specimen, provide 12.5 MPa.

4. Grout as noted in table MSE 020-1.1. Grout consistency and viscosity to allow flow into all intended cells without segregation.
5. Slump to be between 200 mm and 275 mm. Do not use concrete in lieu of grout.
6. Testing of mortar and grout mix designs shall be in accordance with CSA A179 and test requirements of MSE-061.
7. Grout all cells containing reinforcement, inserts, and cast in place or post-installed anchors with grout per table MSE-020-1.1. Refer to sections and notes on plan for locations of inserts and post installed anchors. Coordinate exact locations of inserts and anchors with associated trades and their shop drawings. Refer to wall schedules for fully grouted walls.
8. Provide U-lintel blocks at bottom course of beams over openings only. Provide reduced web units fully grouted at all other courses. Reduced web units shall have a minimum knock out depth of 45 mm. Do not use splitter units in masonry beams or bond beams.

MSE-020-2 Masonry - Reinforcement

1. All cells to be reinforced shall be kept clean of mortar.
2. All structural masonry walls shall be reinforced as follows, unless noted otherwise in masonry wall schedules:
   a. Vertical: 1-15M @ 800 mm on-centre. Provide dowels from foundation walls of same size and spacing as verticals with vertical steel to run full height of wall and be located in centreline of wall, unless noted otherwise.
   b. Horizontal: Bonds beams, in addition to other beam locations indicated on the drawings, shall be 2-15M in bond beam at maximum 2400 mm on-centre and at underside of each floor and roof. All openings C/W 2-15M continuous in 2 course high bond beam. Install mesh grout stop below bond beam courses. 3.8 mm (9 ga.) ladder reinforcement every second course (400 mm), unless noted otherwise.
3. Provide one vertical full height bar in grouted cell to match wall vertical reinforcement (min 1-15M) at:
   a. Each side of movement joints.
   b. Unsupported ends of walls, corners and intersections.
   c. Each side of doors and other openings less than 1200 mm wide. For openings larger than 1200 mm, wall ends, corners and intersections, provide two vertical full height bars in two grouted cells to match wall vertical reinforcement (min 2-15M), unless noted otherwise.
   d. Underside of floor or roof joists where joists are spaced at more than 900 mm on-centre. Provide two vertical full height bars in two grouted cells to match wall vertical reinforcement (min 2-15M), at locations where more than 50 mm of bearing extends over an otherwise ungrouted cell.
4. Provide two vertical full height bars in grouted cells to match wall vertical reinforcement (min 2-15M) at beam or girder bearing locations. Provide additional bars at locations where more than 50 mm of bearing extends over an otherwise ungrouted cell.
5. Hooked dowels from foundations to match vertical reinforcement in wall.
6. Vertical bars to be held in position at top and bottom and at intervals not exceeding:
   a. 10M 1900 mm
   b. 15M 2600 mm
   c. 20M or 25M 3800 mm
7. Vertical bars shall have a minimum clearance of 19 mm from masonry and 25 mm from adjacent bars and not less than 1 bar diameter between bars not spliced. Unless specifically noted, all vertical bars are to be placed in the cetre of grouted cells.
8. Provide the following laps for reinforcement using wires (bend and lap at wall intersections and corners):
   a. Wire ladder or mesh 200 mm
   b. 10M 450 mm
   c. 15M 650 mm
   d. 20M 850 mm
   e. 25M 1350 mm
9. At movement joints, all horizontal joint reinforcing shall terminate 50% of all horizontal reinforcement (wire and bars) on each side of the joint. Bond beam reinforcing at tops of walls shall continue through joint.
10. Reinforce lintels over all openings or recesses (including those for mechanical and electrical equipment) with minimum 2-15M for openings less than 1500 mm wide. Lintels over 1500 mm and less than 2500 mm shall be 400 mm deep with 4-15M reinforcement. Extend lintels 600 mm past edges of openings.
11. Non-load bearing walls are to be laterally supported top and bottom of wall. For non-load bearing interior masonry provide minimum vertical reinforcement:

TABLE 020-2.1

Unit size (mm)	Reinforcement (spacing in mm)	Maximum height (m)
140	15M @ 1200 OC	4.20
190	15M @ 1200 OC	6.60
240	15M @ 800 OC	8.40
290	20M @ 800 OC	9.80

Provide 15M @ 1200 OC horizontal. Provide 2-15M continuous in bond beam at top of partition.
See MSE-020-3 item 25.

12. Vertical reinforcement above steel elements to have matching weldable reinforcement dowels welded to capacity to the supporting steel member and minimum length equal to the bar lap length as noted above. Where preferred per construction sequencing, the full length of vertical reinforcement may be welded instead of separate dowels using weldable reinforcement.
13. For walls noted as shear walls, do not lap horizontal bars within 600 mm of shear wall ends and provide 90° standard hooks at each end of shear wall.
14. Reinforcement placement tolerances to be per CSA A371.

MSE-020-3 Masonry - Installation

1. Masonry contractor to arrange a kick-off meeting or conference call with the structural engineer to discuss masonry requirements prior to commencing work.
2. Provide adequate temporary bracing to masonry walls until floor and/or roof diaphragms are installed and can develop adequate diaphragm action. Refer to MSE-020-1 2(c) for requirements and submittals.
3. Intentionally roughen concrete surface under masonry walls with a roughness of at least 3 mm @ 25 mm on-centre.
4. Provide cleanouts at the base of the wall to verify proper placement of grout. Place grout in maximum 2000 mm lifts or between bond beams, whichever is less. If no cleanout provided, pour height shall be limited to 1500 mm.
5. When grouting is stopped for a period of one hour or longer except at the top of the wall, form construction joint by stopping the grout pour minimum 25 mm below the uppermost unit height.
6. Vibrate and consolidate grout to completely fill all grouted cells.
7. Coring openings in grouted masonry is not permitted. No pipes or electrical conduits shall pass through masonry lintels and/or reinforced, grouted cells. Provide fully grouted lintel beam for conduits and pipes running horizontally within wall.
8. Weather protection requirements to conform to CSA A371, clause 6.7, including but not limited to:
   a. Protection of materials against contamination and moisture.
   b. Minimum temperature of 4°C for mortar and 20°C for grout when ambient temperature is expected to be below freezing.
   c. Employ wind breaks for winds exceeding 25 km/h and enclosures with supplementary heat for temperatures below -7°C.
   d. Cover masonry with insulating blankets for 48 hours after placement and grouting in temperatures between 0° and -7°C. Provide supplementary heading to maintain temperature above 0°C when temperature is expected to be below -7°C.
   e. Maximum temperature at placement of 50°C for mortar and grout when placing in freezing temperatures.
   f. Limit spread of mortar to 1.2 m maximum and place the units within 1 minute of spreading the mortar when temperature is above 38°C or 32°C with wind speeds greater than 13 km/h.
   g. Protect freshly laid masonry from direct exposure to rain for the first 24 hours after placement.
9. Where dowels, anchor bolts etc. are shown projecting into masonry, build these tightly into masonry voids with masonry grout. Fully grout all cells with anchors or dowels.
10. Provide grouted cells at all locations where structural ledgers, metal fabrications, other equipment, utilities, etc., are to be fastened to block walls with post-installed anchors.
11. Where a change in thickness of masonry occurs, grout solid, or use solid units for the thicker portion for a height of 200 mm at the change.
12. Provide bond beams at the top and bottom of openings less than 1800 mm wide using minimum 2-15M horizontal and extend 600 mm beyond edges of opening. Install bond beams at each 12th course and top of parapet, unless noted otherwise.
13. All joints shall be flush, full bed joints, unless noted otherwise. Use running bond, unless noted otherwise.
14. Build masonry tightly into webs of all wall bearing steel beams at their points of bearing.
15. Build masonry into webs of all steel columns (except for partition walls).
16. Build masonry tightly around joist shoes. Grout openings solid around joist shoes after installation.
17. Fully grout block cells at parapets.
18. Provide vertical movement joints at maximum 7500 mm on-centre or as shown on the drawings. Horizontal reinforcing steel shall continue through the movement joint. Caulk movement joints against an appropriate joint filler, refer to architectural drawings. Install expansion joints as shown on architectural drawings.
19. Maintain support of masonry lintels for a minimum of seven days or until sufficient strength is gained to safely support imposed loads.
20. Reinforcing steel shall be secured in place and inspected before grouting begins.
21. Grout shall be stopped 38 mm below the top of a course and 12 mm below the top of a bond beam to form a key at the pour joint. Stop grout flush with top of course if at top of wall, with no additional masonry or concrete above or where solid bearing on masonry is required.
22. Grout all masonry beams over openings in one continuous operation.
23. Coordinate with architectural drawings for locations where masonry is architecturally exposed, where bull-nose or other type of architectural block is required and for locations where tighter tolerances are required.
24. All masonry installation tolerances per CSA A371, unless otherwise noted in specifications, architectural drawings or these drawings.
25. Provide permanent lateral support at the top of non-load bearing masonry walls at 1400 mm on-centre maximum (provide 1.3 kN capacity per restraint location) and dowels into concrete base at bottom of wall, according to typical details. Provide weldable dowels to match wall reinforcement welded to steel supports per MSE-020-2 item 12. Extend such walls to within 50 mm of all concrete, columns and up to 40 mm of structure above and fill gap with compressible acoustic or fire-stop material as required to maintain fire rating.

MSE-020-4 Masonry - Lintels

1. Unless noted otherwise, provide steel lintels over all openings in masonry walls as follows:
   a. For openings up to 1200 mm clear provide one angle 90x90x6 for each 100 mm of wall thickness or portion thereof or 200 mm deep masonry lintel block reinforced with 1-10M bottom for each 100 mm of wall thickness or portion thereof.
   b. For openings from 1200 mm clear to 1800 mm clear provide one angle 125x90x8 long leg vertical for each 100 mm of wall thickness or portion thereof or 200 mm deep masonry lintel block reinforced with 1-15M bottom for each 100 mm of wall thickness or portion thereof.
2. All lintels to bear 150 mm minimum at each end on solid masonry unless noted otherwise.
3. Pairs of lintel angles are to be bolted or welded together, prior to shipment, at maximum 450 mm centres.
4. Steel lintels are to be supplied by steel contractor but placed by general contractor or masonry sub-contractor.
5. Steel contractor to supply all necessary directions for placing steel lintels.
6. Masonry lintel blocks may on be used in load-bearing walls with permission and must be filled with 25 MPa concrete. Mortar is not acceptable and will be rejected.
7. It is the general contractor's responsibility to coordinate and supply all lintels required through all walls (including over doors, mechanical and electrical services, recesses, pockets, non-load bearing walls, etc.) throughout the project.

MSE-030-1 Structural steel - Materials

1. All structural steel shall be detailed, fabricated and erected in accordance with CAN/CSA S16.
2. Provide structural steel to CSA G40.20/CSA G40.21 with the following grades:

TABLE 030-1.1

Type of member	Grade
Rolled shapes W, WWF, S, T	350W
Rolled shapes C, MC, HP	300W
Rolled shapes L (angles)	300W
Rolled plates	350W
HSS (Class C)	350W
Pipe (ASTM A53 grade B)	240W
Bolts	ASTM A325
Anchor rods	300W

3. All structural steel shall receive one shop coat of primer to CISC/CPMA 1-73A or 2-75, unless otherwise noted, except parts of members to be embedded in concrete. Primer for exterior exposure shall conform to CGSB 1-GP-40d and shall be zinc-chromate Type 1.
4. Hot-dipped galvanizing shall conform to CAN/CSA G164-M92, where required, with a minimum zinc coating of 600g/sq.m. Field touch-up all abrasions, scratches, welds or bolts.
5. Provide camber to beams, girders and trusses as shown on the plans. Cambers shown are for erected in-place condition of members before installation of deck.

MSE-030-2 Structural steel - Submittals

1. Structural steel shop drawings are required as noted on MSE-001-3(2). These shop drawings are to be sealed by a Professional Engineer and include all connection designs, material specifications and design loads.

MSE-030-3 Structural steel - Connections - General

1. Provide a minimum bearing of 200 mm for all steel beams bearing on concrete or masonry and a minimum of 100 mm on structural steel, unless noted otherwise.
2. Unless noted otherwise, at beams terminating on concrete or masonry walls, provide 200 mm deep pocket (or full depth for thinner walls) and provide 200x500x19 thick bearing plate and 2-19dx200 embed anchors with HY-200 epoxy system by Hilti. Fully grout pocket after beam installation.
3. Centre bearing plates under beams, or as noted.
4. Provide full height web stiffeners on both sides of beams at point of concentrated loads, including beams running over tops of columns or girders, beams supporting columns and cranked beams. Web stiffeners shall be of the same size and thickness as the column flanges and shall align with the flanges of the supporting column.
5. Provide seat welded clause plates, minimum 6 mm thick, at all open ends of HSS members, unless noted otherwise.
6. Architecturally Exposed Structural Steel (AESS) members and connections shall be to AISC standards. All welds to be ground smooth. Any splices introduced by the contractor for reasons of constructability must be site welded and ground smooth. Bolted splices in AESS members are not permitted except as shown on the drawings.
7. Where moment connections are indicated, the connection shall develop the full flexural capacity of the smaller connected member.
8. Member splices, where approved, shall develop the full flexural and shear capacity of the member. Members shall not be spliced at points of maximum stress and shall be made only with the approval of the Structural Engineer.
9. Beam connections shall be designed for a minimum of 50% of the beam shear capacity unless noted otherwise and in no case shall be less than the loads shown on or implied by the drawings.
10. Connect all columns to base plates for the forces shown in addition to the larger of:
    a. The factored horizontal components from bracing at bracing locations.
    b. 3% of factored vertical column load applied horizontally.

MSE-030-4 Structural steel - Bolted connections

1. Bolted connections shall have a minimum of 2-19 mm diameter bolts with 10 mm connector plate.
2. Slip critical connections of A325 or A490 bolts shall be used for all bolted connections of bracing members, moment connections, cantilevers and as shown on drawings. Oversized and slotted holes are allowed for slip critical connections. All other bolted connections shall be bearing type where oversized and slotted holes are not allowed unless shown on the drawings.
3. Protruded bolt heads, shafts or nuts shall not extend into or prohibit the application of architectural finishes and shall not extend into or prohibit placement of steel decking.

MSE-030-5 Structural steel - Welded connections

1. Welding shall conform to CSA W59 and performed by welders under CSA W47.1. Fabricators to be "Fully approved" by the Canadian Welding Bureau under CSA W55.3.
2. A copy of the fabricator's Canadian Welding Bureau certificates shall be included with the shop drawing submission.
3. Welds shall be E49XX (E-70xx).
4. Minimum welds for connections shall be 5 mm fillet welds.
5. At partial penetration welds, the size given is the minimum effective throat. Fabricator shall provide proper joint preparation to achieve the minimum effective throat as required by CSA W59.
6. All welds exposed to view shall be ground smooth.
7. All stud anchors (Nelson studs) and deformed bar anchors shall be fusion welded to plates as per manufacturer's specifications and recommendations. Any field fillet welded studs or deformed bars will be rejected.
8. Beams noted as composite on the drawings require shear stud connections.

MSE-030-6 Structural steel - Installation

1. The contractor shall provide temporary bracing during construction necessary to erect the structure, maintain correct alignment and safely resist all possible combinations of dead, construction, erection, wind and other lateral loads. The bracing shall be designed, installed and maintained by the contractor. The bracing shall be removed only after permanent roof and floor diaphragms, shear walls and permanent bracing are complete.
2. No structural steel shall be cut in the field or spliced unless approved by the Structural Engineer. No field burning of holes shall be allowed in structural steel anywhere. No field cutting or alteration of structural members is to occur without the prior written approval of the Structural Engineer. No change in size or position of the structural elements shall be made and holes, slots, cuts, etc., are not permitted through any member unless they are detailed on the approved shop drawings.
3. Verify placement, height, and embedment of anchors prior to steel erection. Notify Structural Engineer of any misplacement (vertically or in plan) of anchor bolts or any bolt hole misalignment prior to erection starting and prior to any corrective measures being taken.
4. Where columns are stabilized by walls, provide column anchors in abutting walls. Provide erection bracing until walls are built tightly to columns.
5. Place grout under plates only after columns have been confirmed plumb and all connections are complete. Placing the grout ahead of steel erection is not acceptable. Grout to be minimum 25 mm thick non-shrink grout capable of attaining a compressive strength of 48 MPa after 28 days of curing.
6. Where concrete is poured on steel deck, screed slab to suit beam cambers.
7. No final bolting or welding shall be made until as much of the structure as will be stiffened thereby has been properly aligned.
8. Where, in the sole opinion of the Structural Engineer, visual inspection of the welds or the steel members in place in the field is inadequate or inconclusive, such welds shall be examined by a non-destructive testing method. The cost of such testing and reporting shall be paid by the contractor. This is in addition to the requirements of MSE-061.

MSE-040-1 Wood frame - Materials

1. All structural wood frame construction shall conform to CAN/CSA O86 and the requirements of the building code noted in MSE-001-2.
2. All structural lumber to be kiln-dried (KD) spruce-pine-fir (SPF) #2 or better, unless noted otherwise, conforming to CSA O141 with a maximum moisture content of 19% at the time of installation. Solid wood posts to be SPF #1 or better, unless noted otherwise. Lumber shall bear the grade stamp of a grading agency approved by the Canadian Lumber Standards Accreditation Board.
3. Finger jointed studs are not permitted in load bearing walls.
4. Nails and spikes shall be manufactured to CSA B111.
5. Screws and lag screws shall be manufactured to ANSI/ASME B18.2.1, complete with standard cut washers when bearing against wood. Lag screws shall have minimum half the bolt length threaded with sharp threads. Dull threads or insufficient thread length will be rejected.
6. Bolts shall be ASTM A307 or better, unless noted otherwise, complete with standard cut washers when bearing against wood.
7. Steel plates shall be ASTM A36 or better, unless noted otherwise.
8. All steel hardware including, but not limited to, bolts, screws, nuts and washers are to be hot-dipped galvanized.
9. Framing anchors, joist hangers, beam hangers, post caps, anchors, and straps as manufactured by Simpson Strong Tie (or approved equivalent) to have all nail holes filled with the nail types specified by the manufacturer. Minimum joist hanger 6.3 kN resistance or fully nailed pressure block for all flush framing, unless noted otherwise.
10. Plywood for roofs and floors shall be exterior grade Douglas fir plywood to CSA O121 or Canadian Softwood plywood to CSA O151. Plywood to be legibly identified as exterior type.
11. Preservative treatment, where required, to conform to CAN/CSA O80 Series-08 for pressure treatment. Field apply compatible preservative to all field cuts and drilled holes. Provide preservative treatment and finishes to consultants' approval for all exposed wood elements. Provide flashing to architect's approval for all exposed end grain.

MSE-040-2 Wood frame - Installation

1. Store all wood products off the ground with spacer blocks between members, keeping wrapping in place until installed. Cut holes in wrapping to provide ventilation and prevent moisture accumulation. Provide protection of installed elements from weather until permanent protection is in place.
2. All framing, bridging, blocking and nailing shall be in accordance with Part 9 of the building code noted in MSE-001-2. Provide minimum 38x38 bridging at 2000 mm on-centre for all spans greater than 3000 mm with a 13 mm gap between bridging.
3. Built-up beams and posts shall consist of a minimum of 2 members. Minimum lintels shall be 1-89x241 TimberStrand LSL or 2-38x235, unless noted otherwise.
4. Sill plates for stud walls to be full width and anchored using cast-in-place 1related 90 mm anchor bolts x 250 mm long with 75 mm hooks at 1200 mm on-centre maximum and at 200 mm from ends of walls and corners, and at edges of window and door openings. Epoxied anchor bolts may be used 190 mm with 200 mm embedment using Hilti HIT 150 epoxy system or equivalent.
5. Studs to be continuous full storey height with no splice.
6. Provide minimum 2 top plates for load bearing walls, unless noted otherwise. Lap plates at corners and intersections.
7. Provide minimum 2 studs at corners, intersections and each side of openings, installing double cripples under lintels, unless noted otherwise.
8. Provide blocking at mid-height of stud walls where no plywood sheathing is applied.
9. Laminate studs solid beneath all beam ends and carry through to concrete foundation below. Built-up stud columns shall match the number of laminations in built-up members being supported. Fully block at joist spaces below point loads. Take care to ensure beams bear fully on supporting members.
10. Unless noted otherwise, minimum studs to be:
    a. First floor
       i. 38x89 @ 300 on-centre
       ii. 38x140 @ 400 on-centre
    b. Second floor
       i. 38x89 @ 400 on-centre
       ii. 38x140 @ 400 on-centre
11. Unless noted otherwise, minimum joists to be 38x235 @ 400 mm on-centre. Joists shall be continuous in any one span with no splice. Install double joists under parallel non-load bearing partitions above.
12. Notching and drilling of members to be in conformance with limitations set by the building code noted in MSE-001-2.
13. Re-tighten all accessible bolt lists in construction where shrinkage of timbers may have occurred.

MSE-043-1 Structural composite lumber (SCL) - Materials

1. The following manufacturers are acceptable with substitution permitted only with Structural Engineer's written approval:
   a. Parallam (PSL) 2.0E by Microllam
   b. Laminated Veneer Lumber (LVL) 1.9E Microllam by Ilevel
      2.0E LVL by Nordic
   c. Laminated Strand Lumber (LSL) 1.5E TimberStrand by Ilevel
   d. Oriented Strand Lumber (OSL) 0.8E Durastrand by Ainsworth
2. Wood substrate and adhesives to be in accordance with approved manufacturer's standards and applicable CSA standards.
3. All members shall bear manufacturer's name and plant number, grade, NER or CCMC report number and name of quality control agency.
4. Substitution of the above structural composite lumber is permitted only with the Structural Engineer's written approval.
5. All PSL exposed to view to be architectural quality finished, unless noted otherwise.

MSE-043-2 Structural composite lumber (SCL) - Installation

1. Manufacturer is responsible for the supply of all steel hangers and brackets required to support the members.
2. Follow the manufacturer's recommendations for handling, storage, installation and detailing of structural composite lumber, including fastening multiple laminations.
3. Minimum end bearing shall be 75 mm unless noted otherwise.
4. For single spans, members shall be continuous between supports and not spliced.
5. Where individual members are butted together, joints shall occur over supports, except that where beams are continuous over more than one support, joints may be located within 150 mm of the quarter points of the clear spans. Such joints shall be staggered end for end.
6. Nailing and/or bolting of multiply members shall be in accordance with the manufacturer's instructions and in no case less than 2 rows of 1-6d 75 mm long nails at 300 mm on-centre, each row.
7. Members bearing onto masonry or concrete at or below grade level shall be pressure treated to prevent decay or protected at the bearing with a minimum of 0.05 polyethylene film or type 5 roll roofing.
8. Unless noted otherwise, at beams terminating on concrete or masonry walls, provide 200 mm deep pocket (or full depth for thinner walls) and provide 200x400x16 thick bearing plate and 2-19dx200 embed anchors with HY-200 epoxy system by Hilti and 6 mm side plates with 2-16d0 through bolts. Provide a dampproof course around beam per note 7 and shim beam tight in pocket.
9. Notching and drilling shall only be allowed with written permission of the Structural Engineer and shall be within the limitations of the manufacturer and the building code.

MSE-059 Non-structural elements

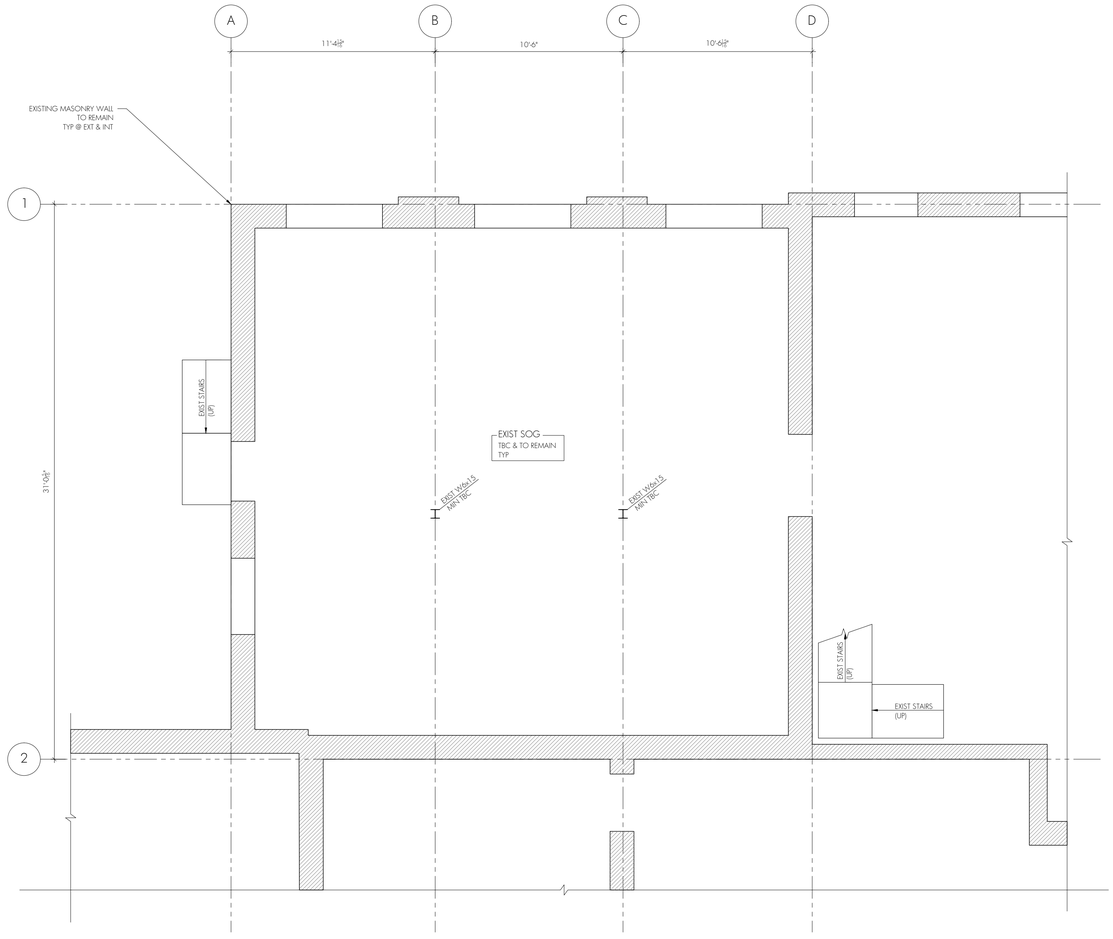
1. Non-structural (secondary) elements includes but are not limited to the following:
   a. Architectural components such as guard and hand rails, flag posts, canopies, ceilings, etc.
   b. Cladding, window mullions, glazing, interior and exterior partition or infill walls.
   c. Operable partitions and overhead doors, including any secondary framing required for their installation.
   d. Skylights.
   e. Architectural pre-cast and pre-cast cladding.
   f. Attachments and bracing for electrical and mechanical components.
   g. Window washing equipment and its attachments.
   h. Escalators, elevators and conveying systems.
   i. Brick or block veneers and their attachments.
   j. Interior and exterior light gauge steel stud walls.
   k. Non-load bearing masonry walls, including lateral restraint at top of wall.
   l. Non-structural concrete topping.
   m. Landscape elements such as benches, light posts, planters, etc.
   n. Roofing assemblies and material, including any girts or framing required for the installation of snow guards.
2. Design and detailing of the above items and their attachments are not the responsibility of the Structural Engineer. They shall be designed by Specialty Structural Engineers retained by the contractor, who will seal all related shop drawings, review the components in the field and provide all required sealed letters to the authorities having jurisdiction.
3. Secondary or non-structural components and their attachments shall be designed in accordance with Part 4 of the building code.
4. Sealed shop drawings of the secondary or non-structural components which may affect the primary structural system shall be submitted to the Structural Engineer only for the review of their effect on the primary structural system. The subcontractor of these components is responsible for protection of aluminium-steel connections against galvanic corrosion.
5. Installation of non-structural elements to commence at least one month after the reinforced concrete slab supporting the non-structural elements has been poured and the re-shores removed.
6. Non-structural elements must be designed and detailed to accommodate the anticipated deformations as noted above.
7. In addition to construction tolerance, non-structural components shall be detailed for the following
   building movement and deflection:
   a. Vertical deflections of beams, slabs and decking: ± 20 mm
   b. Differential vertical deflections of edge beams and edges of slabs: ± 16 mm
   c. Horizontal drift during wind and earthquake between floors:
      i. Drift without damage to non-structural components: ± 13 mm
      ii. Drift without collapse of non-structural components: ± 50 mm
   d. Movement at expansion joints:
      i. Perpendicular ± 50 mm
      ii. Parallel ± 50 m
      iii. Vertical ± 25 mm

MSE-060 Field Review

1. The contractor on projects shall provide the Structural Engineer with a minimum of 72 hours (3 business days) advance notice prior to pouring or concealment for field reviews. Field reviews shall be scheduled to be carried out during normal business hours unless special arrangements are made with the Structural Engineer.
2. Field review is only for the work shown on these structural drawings. This review is not a "full time" review but is a periodic review at the sole discretion of the Structural Engineer in order to ascertain that the work is in general conformance with the plans and supporting documents prepared by the Structural Engineer. Field review is not carried out for the contractor's benefit nor does it make the Structural Engineer guarantor of the contractor's work. It remains the contractor's responsibility to build and review the contractor's (and sub-trades) work in conformance with the contract documents. The Structural Engineer shall not be responsible for the acts or omissions of the contractor, sub-contractor, or any other persons performing any of the work or for the failure of any of them to carry out the work in accordance with the contract documents.
3. The following field reviews are considered to be the minimum number of structural field reviews requiring written review by the Structural Engineer for the project:
   a. Concrete: reinforcing steel shall be reviewed prior to placing concrete. Reinforcing in concrete walls shall be reviewed prior to "buttoning up" wall forms.
   b. Masonry (including non-load bearing partitions): reinforcing steel shall be reviewed prior to pouring all bond beams. Bond beam and vertical reinforcing shall be in place at the time of field review.
   c. Timber: framing shall be reviewed prior to covering any framing and before additional loads such as concrete topping and mechanical equipment are applied.
   d. Steel: structural steel shall be reviewed after the members have been fabricated and are in their final position with all connections complete and all bolts installed and torqued.

MSE-061 Testing and inspection

1. A Geotechnical consultant and an independent inspection and testing company are to be engaged to carry out the following services:
   a. Soil bearing - refer to MSE-003 and soils report.
   b. Fill under slabs-on-grade - confirm that fill material used is satisfactory and that the required degree of compaction has been attained.
   c. Cast-in-place and pre-cast concrete - routine inspection of materials, including slump, cylinder and air entrainment tests and reinforcing rod tests when required or directed in accordance with CSA A23.2. Unless permitted by the Structural Engineer, a minimum of 3 test cylinders shall be cast for each 50 cubic metres or each day's pour, whichever is less. Test one at 7 days and two at 28 days and submit written report for review by



1 / S100 GROUND FLOOR PLAN
1/4 "=1'-0"

NOTE:
1. NOTIFY ENGINEER OF ANY DISCREPANCY ON SITE WITH FRAMING SHOWN PRIOR TO CONSTRUCTION. EXIST STRUCTURE NOT REVIEWED FOR COMPLIANCE W/ OBC 2024 EXCEPT WHERE AFFECTED BY NEW RENOVATIONS.
2. PROVIDE L3½x3½x5/16" GALV LINTELS W/ MIN 4" SOLID BEARING FOR EACH WYTHE OF BRICK OR 3½" THK OF MASONRY FOR ANY NEW OPENINGS BETWEEN 5' & 12'. DO NOT PLACE OPENINGS AT LOCATIONS WHERE THEY INTERFERE W/ EXIST LINTELS OR MASONRY ARCHES, WITHIN 1'-4" OF THE ENDS OF LINTELS AND MASONRY ARCHES.

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LICENCED PROFESSIONAL ENGINEER
A.J. FRANCO LOPEZ
100139727
2025/05/27
PROVINCE OF ONTARIO

TRUE NORTH

Project:
TSSS HVAC PHASE IV - 126 PAPE
126 PAPE AVENUE,
TORONTO, ON

Project No:
24.143

Scale: AS NOTED
Drawn By: MG
Checked By: AF/ZB

MSE START DATE: 03-OCT-2024
REVISIONS AND DISTRIBUTION LOG

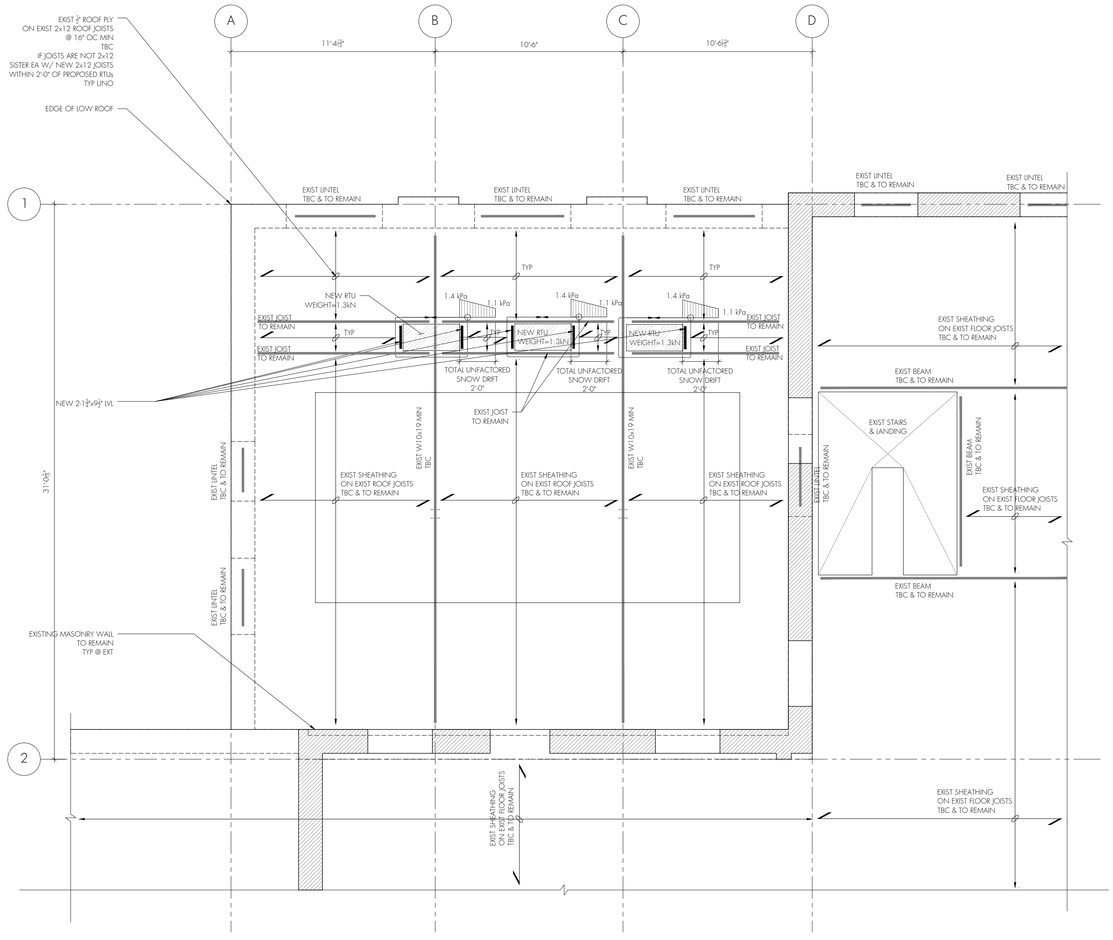
Rev	Date	Note
	11-APR-2025	Issued for 95% DD
	9-MAY-2025	Issued for Costing
	30-MAY-2025	Issued for Bldg Permit

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Drawing Title:
GROUND FLOOR PLAN

Drawing No:
S100

cm in



1 / S101 LOW ROOF PLAN
1/4 "=1'-0"

NOTE:
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2. PROVIDE L3½"x3½"x¼" GALV LINTELS W/ MIN 4" SOLID BEARING FOR EACH WYTHE OF BRICK OR 3½" THK OF MASONRY FOR ANY NEW OPENINGS BETWEEN 5' & 12'. DO NOT PLACE OPENINGS AT LOCATIONS WHERE THEY INTERFERE W/ EXIST LINTELS OR MASONRY ARCHES, WITHIN 1'-4" OF THE ENDS OF LINTELS AND MASONRY ARCHES.

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LICENCED PROFESSIONAL ENGINEER
A. J. FRANCO LOPEZ
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PROVINCE OF ONTARIO

TRUE NORTH

Project:
TSSS HVAC PHASE IV - 126 PAPE
126 PAPE AVENUE, TORONTO, ON

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Drawing Title:
ROOF PLAN

Drawing No:
S101

cm in

FAN COIL UNIT SCHEDULE

REF NO.	DESCRIPTION	AREA SERVED	EQUIPMENT LOCATION	MANUFACTURER	MODEL NUMBER	OPERATING WEIGHT LBS	COOLING		HEATING	SUPPLY FAN		EXTERNAL SP in WC	MINIMUM FRESH AIR CFM	ELECTRICAL							STARTER			CONTROLS				DISCONNECT AT MOTOR			MOUNTING	REMARKS
							BTU/HR	TONS	BTU/HR	S/A CFM	MOTOR WATTS			VOLTS	ø	FLA	MCA	MOP	PANEL NUMBER	CCT#	SUPPLIED BY	INSTALLED BY	TYPE	AUTO	INTERLOCK BY	FIRE ALARM SHUTDOWN	SUPPLIED BY	INSTALLED BY	CSA TYPE		
FC-1	VRF DUCTED FAN COIL	NORTH BASEMENT	BASEMENT JANITOR	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		75	208	1				-												SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-2	VRF VERTICAL FAN COIL	SOUTH BASEMENT	BASEMENT CLIENT	HITACHI	TIA H012 B22M	98	12,000	1	12,800	300	157		50	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 43'' DEPTH: 21'' WIDTH: 21-1/2''
FC-3	VRF DUCTED SPLIT FAN COIL	WEST GROUND	1ST WEST CORRIDOR	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		75	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-4	VRF DUCTED SPLIT FAN COIL	EAST GROUND	1ST MAIN ENTRY	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		75	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-5	VRF DUCTED SPLIT FAN COIL	2ND SOUTH WEST	2ND WEST CORRIDOR	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		125	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-6	VRF DUCTED SPLIT FAN COIL	2ND SOUTH EAST	CENTRAL PASSAGE	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		100	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-7	VRF DUCTED SPLIT FAN COIL	2ND NORTH WING	CENTRAL PASSAGE	HITACHI	HID M030 B22S	97	30,000	2.5	34,000	812	259		100	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 55-1/8'' WIDTH: 31-1/2''

STARTER TYPES:
- FVNR-FULL VOLTAGE NON REVERSING
- RVNR-REDUCE VOLTAGE NON REVERSING
- SWE-SUPPLIED WITH EQUIPMENT
- 2SSW - TWO SPEED SINGLE WINDING
- VFD - VARIABLE FREQUENCY DRIVE
- INT - INTEGRAL SUPPLIED WITH UNIT

CSA DISCONNECT TYPES:
- TYPE 1 FOR USE INDOORS IN ORDINARY LOCATIONS
- TYPE 2 FOR USE INDOORS WHERE THE ENCLOSURE MAY BE SUBJECT TO DROPS OF FALLING LIQUID DUE TO CONDENSATION OR OTHER CAUSES
- TYPE 3R OR 'WP' FOR USE OUTDOORS
- TYPE 4 FOR USE WHERE THE ENCLOSURE MAY BE SUBJECT TO DIRECT STREAMS OF WATER
- TYPE 5 FOR USE INDOORS WHERE THE ATMOSPHERE MAY CONTAIN SETTLING NON-HAZARDOUS DUST, LINT, FIBRES,OR FLYINGS

NOTES:
- INDOOR UNITS, MIXING BOX FOR FREE COOLING, DIGITAL CONTROLS BY BUILDING AUTOMATION SYSTEM, STARTER WITH HAND OFF AUTO SWITCH.
- BAS CONTRACT TO INCLUDE FLOOR PLAN SHOWING ALL EQUIPMENT AND THERMOSTAT LOCATIONS.
- UNITS MUST BE MODULAR CONSTRUCTION, WITH SECTIONS ABLE TO FIT THROUGH A STANDARD 30 INCH WIDE DOOR.
- ALL UNITS TO BE COMPLETE WITH VARIABLE FREQUENCY DRIVES.
- ALL UNITS TO BE COMPLETE WITH MERV 13 FILTERS.
- ALL UNITS TO BE COMPLETE FLEXIBLE CONNECTIONS TO DUCTWORK.
- FOR ALL AC UNITS, PROVIDE AS PART OF THIS CONTRACT ALL REQUIRED RELAYS, TRANSFORMERS, THERMOSTATS, ETC., AS REQUIRED AND AS SHOWN ON THE CONTROL SCHEMATIC DIAGRAM OR SCHEDULE.

ABBREVIATIONS:
- BAS - BUILDING AUTOMATION CONTRACTOR
- EC - ELECTRICAL CONTRACTOR
- MC - MECHANICAL CONTRACTOR
- MAN - MANUFACTURER
- SS - SOLID STATE CONTROL
- APS - AIR PROVING SWITCH
- MRTC - MANUAL RESET THERMAL CUTOUT
- RT - ROOM THERMOSTAT

MOUNTING:
- WM - UNIT WALL MOUNTED PROVIDE WALL MOUNTING BRACKETS TO SUPPORT WEIGHT OF UNIT.
- CP - UNIT MOUNTED ON NEOPRENE PADS ON CONCRETE PAD
- SM - SUSPENDED FROM STRUCTURE PROVIDE ISOLATION/MOUNTING SPRINGS

OUTDOOR HEAT PUMP SCHEDULE

EQUIPMENT NUMBER	DESCRIPTION	UNITS SERVED	EQUIPMENT LOCATION	MANUFACTURER	MODEL NUMBER	NOMINAL CAPCITY	WEIGHT LBS	COOLING CAPACITY	HEATING CAPACITY	OPERATING RANGE, °F		ELECTRICAL REQUIREMENTS					STARTER			CONTROLS				DISCONNECT AT MOTOR			MOUNTING	REMARKS
										COOLING	HEATING																	
						TONS	INCLUDES ISOLATERS	BTU/HR	BTU/HR	DRY BULB	DRY BULB	VOLTS	ø	MCA	MOP	PANEL NUMBER	CCT#	SUPPLIED BY	INSTALLED BY	TYPE	MANUAL	AUTO	INTERLOCK BY	SUPPLIED BY	SUPPLIED BY	INSTALLED BY	CSA TYPE		
HP-1	COLD TEMPERATURE HEAT PUMP	FC-1, FC-2, FC-4		HITACHI	HVAHP-060-B21S	5	275	60,000	64,000	118°F	-4°F	208	1	31	40														CP	
HP-2	COLD TEMPERATURE HEAT PUMP	FC-3, FC-5,		HITACHI	HVAHP-048-B21S	4	275	48,000	54,000	118°F	-4°F	208	1	31	40														CP	
HP-3	COLD TEMPERATURE HEAT PUMP	FC-6, FC-7,		HITACHI	HVAHP-048-B21S	4	275	48,000	54,000	118°F	-4°F	208	1	31	40														CP	

STARTER TYPES:
- WMT - WALL MOUNTED THERMOSTAT
- PT - PROGRAMMABLE THERMOSTAT

CSA DISCONNECT TYPES:
- TYPE 1 FOR USE INDOORS IN ORDINARY LOCATIONS
- TYPE 2 FOR USE INDOORS WHERE THE ENCLOSURE MAY BE SUBJECT TO DROPS OF FALLING LIQUID DUE TO CONDENSATION OR OTHER CAUSES
- TYPE 3R OR 'WP' FOR USE OUTDOORS
- TYPE 4 FOR USE WHERE THE ENCLOSURE MAY BE SUBJECT TO DIRECT STREAMS OF WATER
- TYPE 5 FOR USE INDOORS WHERE THE ATMOSPHERE MAY CONTAIN SETTLING NON-HAZARDOUS DUST, LINT, FIBRES,OR FLYINGS

NOTES:
- R410A REFRIGERANT
- PROVIDE AS PART OF THIS CONTRACT ALL REQUIRED RELAYS, TRANSFORMERS, PROGRAMMABLE THERMOSTATS, ETC., AS REQUIRED AND AS SHOWN ON THE CONTROL SCHEMATIC DIAGRAM OR SCHEDULE.
- 20 AMP GFI WEATHER SERVICE RECEPTACLE
- PROVIDE TYPE 3 DISCONNECT.
- MOUNTED ON 24'' CONDENSER SUPPORT

ABBREVIATIONS:
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- APS - AIR PROVING SWITCH
- MRTC - MANUAL RESET THERMAL CUTOUT
- RT - ROOM THERMOSTAT

MOUNTING:
- WM - UNIT WALL MOUNTED PROVIDE WALL MOUNTING BRACKETS TO SUPPORT WEIGHT OF UNIT.
- CP - UNIT MOUNTED ON NEOPRENE PADS ON CONCRETE PAD
- SM - SUSPENDED FROM STRUCTURE PROVIDE ISOLATION/MOUNTING SPRINGS
- RC - MOUNT ON ROOF CURB

FAN SCHEDULE

REF NO.	DESCRIPTION	AREA SERVED	EQUIPMENT LOCATION	MANUFACTURER	MODEL NUMBER	OPERATING WEIGHT LBS	CAPACITY	ESP	MOTOR		ELECTRICAL							STARTER			CONTROLS				DISCONNECT AT MOTOR			MOUNTING	REMARKS
							CFM	inH20	AMPS		VOLTS	ø	FLA	MCA	MOP	PANEL NUMBER	CCT#	SUPPLIED BY	INSTALLED BY	TYPE	MANUAL	AUTO	INTERLOCK BY	FIRE ALARM SHUTDOWN	SUPPLIED BY	INSTALLED BY	CSA TYPE		
EF-B1	CEILING FAN	BASEMENT WASHROOM	BASEMENT WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-B2	CEILING FAN	BASEMENT JANITOR	BASEMENT JANITOR	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-11	CEILING FAN	WEST SIDE SHOWER 1	WEST SIDE SHOWER 1	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-12	CEILING FAN	WEST SIDE SHOWER 2	WEST SIDE SHOWER 2	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-13	CEILING FAN	EAST WASHROOM	EAST WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-21	CEILING FAN	NORTH EAST WASHROOM	NORTH EAST WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-22	CEILING FAN	WEST INTERIOR WASHROOM	WEST INTERIOR WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-23	CEILING FAN	WEST INTERIOR WASHROOM	WEST INTERIOR WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-24	CEILING FAN	WEST PERIMETER WASHROOM	WEST PERIMETER WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH

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- 2SSW - TWO SPEED SINGLE WINDING
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NOTES:
- PROVIDE 24'' ROOF CURB, ECONOMIZER SECTION WITH ALL CONTROLS AND GRAVITY EXHAUST, PROGRAMMABLE HEATING COOLING THERMOSTAT WITH SUBBASE ECONOMIZER (ENTHALPY), 20 AMP NON-POWERED FIELD-WIRED GFI SERVICE OUTLET AND INTEGRAL TYPE 3 DISCONNECT.
- PROVIDE A LAMINATED FLOOR PLAN UNDER EACH THERMOSTAT SHOWING THE FLOOR PLAN AND THE AREA THAT THE THERMOSTAT CONTROLS. AREA TO MATCH APPROXIMATELY DIFFUSER LOCATIONS. SIZE GRAPHIC TO MATCH DIMENSIONS OF STAT. THIS APPLIES TO NEW AND EXISTING UNITS.
- FOR ALL AC UNITS, PROVIDE AS PART OF THIS CONTRACT ALL REQUIRED RELAYS, TRANSFORMERS, THERMOSTATS, ETC., AS REQUIRED AND AS SHOWN ON THE CONTROL SCHEMATIC DIAGRAM OR SCHEDULE.

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- SM - SUSPENDED FROM STRUCTURE PROVIDE ISOLATION/MOUNTING SPRINGS
- RC - MOUNT ON ROOF CURB

LICENSED PROFESSIONAL ENGINEER
4880-150
JUNE 2, 2025
P.A. [illegible]BERG
PEM LICENSE
90122227
PROVINCE OF ONTARIO

0/5	JUNE 2/25	ISSUED FOR 90% REVIEW
0/4	MAY 30/25	ISSUED FOR PERMIT AND TENDER
000	MAY 7/25	ISSUED FOR 50% REVIEW
00	MAR 26/25	EXHAUST FANS
0	DEC 5/24	ISSUED FOR 50% REVIEW

DeCARIA ENGINEERING
1661 DENISON ST., UNIT D12
MARKHAM ONTARIO
L3R 6E4
TEL. 647-498-4397

DRAWING MUST NOT BE SCALED, USE ARCHITECTURAL DIMENSIONED DRAWING. CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS, DRAWINGS AND SPECIFICATIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH ANY PART OF THE WORK.

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DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED BY THE ENGINEER.

Workshop Architecture Inc.
6 Sousa Mendes Street
Toronto Ontario M6P 0A8

416.901.8055
info@workshopto.ca
workshopto.ca

TSSS HVAC Phase IV - 126 Pape

126 Pape AveToronto, ON M4M 2V8

PROJECT CODE:	SCALE:
4880-150	AS NOTED
DATE:	STATUS:
Issue Date JUNE 2, 2025	**90% REVIEW**

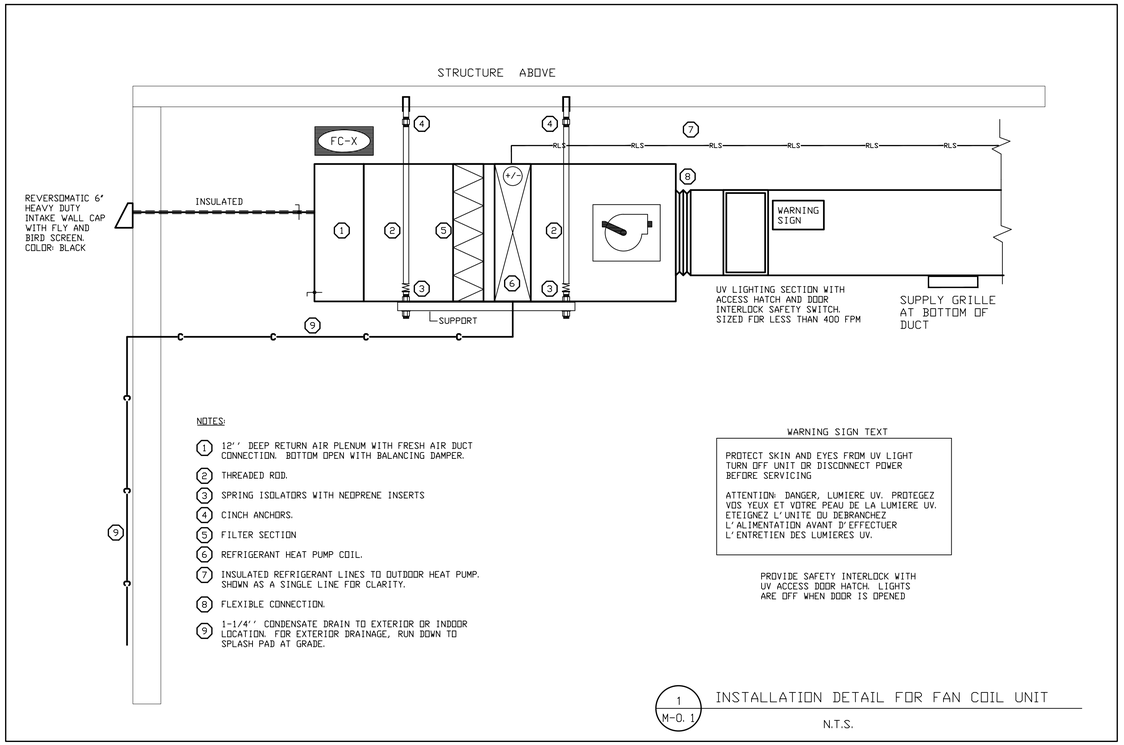
MECHANICAL ELECTRICAL SCHEDULES

Project North

drawing number

ME-0.1

OF 1



NOTES:

1. 12'' DEEP RETURN AIR PLENUM WITH FRESH AIR DUCT CONNECTION. BOTTOM OPEN WITH BALANCING DAMPER.
2. THREADED ROD.
3. SPRING ISOLATORS WITH NEOPRENE INSERTS
4. CINCH ANCHORS.
5. FILTER SECTION
6. REFRIGERANT HEAT PUMP COIL.
7. INSULATED REFRIGERANT LINES TO OUTDOOR HEAT PUMP. SHOWN AS A SINGLE LINE FOR CLARITY.
8. FLEXIBLE CONNECTION.
9. 1-1/4'' CONDENSATE DRAIN TO EXTERIOR OR INDOOR LOCATION. FOR EXTERIOR DRAINAGE, RUN DOWN TO SPLASH PAD AT GRADE.

WARNING SIGN TEXT

PROTECT SKIN AND EYES FROM UV LIGHT
TURN OFF UNIT OR DISCONNECT POWER BEFORE SERVICING

ATTENTION: DANGER. LUMIERE UV. PROTEGEZ VOS YEUX ET VOTRE PEAU DE LA LUMIERE UV. ETEIGNEZ L'UNITE OU DEBRANCHEZ L'ALIMENTATION AVANT D'EFFECTUER L'ENTRETIEN DES LUMIERES UV.

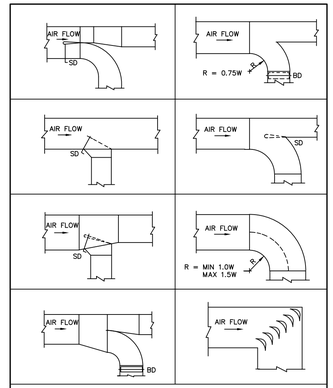
PROVIDE SAFETY INTERLOCK WITH UV ACCESS DOOR HATCH. LIGHTS ARE OFF WHEN DOOR IS OPENED

1 / M-0. 1 INSTALLATION DETAIL FOR FAN COIL UNIT

N.T.S.

SHEET METAL STANDARDS

DUCT GUAGE AND ENFORCING FOR 2" W. G. (+/-)						
	GAUGE OF METAL					
DUCT DIMENSIONS	5' JOINT	4' JOINT	2.5' JOINT	2' JOINT	JOINT CONSTRUCTION	REINFORCING
0-12	26	26	26	26	HEMMED "S" & DRIVE	NONE
13-24"	26	26	26	26	TDF	NONE
25-30"	24	24	26	26	TDF	NONE
31-36"	22	24	26	26	TDF	NONE
37-42"	20	24	24	24	TDF	NONE
43-48"	20	22	24	24	TDF	NONE
49-54	22	22	24 no Cnt. ref	24 no Cnt. ref	TDF CNT-JNT	1 ½ WIDE X 1 ½ HIGH 18GA V-TYPE STIFFENER
55-60"	22	22	22 no Cnt. ref	22 no Cnt. ref	TDF CNT-JNT	1 ½ WIDE X 1 ½ HIGH 18GA V-TYPE STIFFENER
61-84"	22	22	22 no Cnt. ref	22 no Cnt. ref	TDF CNT-JNT	1 ½ WIDE X 1 ½ HIGH 18GA V-TYPE STIFFENER
85-96"	20	20	20 no Cnt. ref	20 no Cnt. ref	TDF CNT-JNT	1 ½ WIDE X 1 ½ HIGH 18GA V-TYPE STIFFENER
97-up	18	18	18 no Cnt. ref	18 no Cnt. ref	TDF CNT-JNT	1 ½ WIDE X 1 ½ HIGH 16GA V-TYPE STIFFENER



STD. FITTINGS FOR SUPPLY AIR

N.T.S.

LEGEND

SYMBOL DESCRIPTION

DIFFUSERS AND GRILLES

- REGISTER
- TRANSFER DUCT
- RETURN/EXHAUST AIR GRILLE.
- SUPPLY AIR DIFFUSER/GRILLE.
- LINEAR BAR GRILLE/DIFFUSER
- 2xSD1|235 / 300ø — QUANTITY x DIFFUSER/GRILLE TYPE; CAPACITY (LPS) EACH; DIFFUSER NECK/GRILLE SIZE (MM)

OTHER EQUIPMENT

- CABINET FAN
- EF-142 — EXISTING EQUIPMENT
- EF-142 — NEW EQUIPMENT
- BALANCING DAMPER
- ELECTRIC DUCT HEATER
- MOTORIZED DAMPER
- MD BD SD FD or VD — MOTORIZED, BACKDRAFT, SPLITTER, FIRE DAMPER or VOLUME DAMPER
- T — THERMOSTAT WITH GUARD
- S — REMOTE SENSOR C/W 3 HR OVERIDE FOR EITHER HEATING OR COOLING DURUNG OFF HOURS
- DOOR GRILLE
- FD — FIRE DAMPER AND ACCESS DOOR
- BB — BURGLAR BARS

BURGLAR BARS SHALL BE INSTALLED AT AIR INTAKE AND/OR OTHER OPENINGS THROUGH ROOF OR EXTERIOR WALL IF ANY DIMENSION OF THE OPENINGS EXCEED 10' OR 250MM. 5/8' OR 15M (MINIMUM) STEEL BARS @ 6' OR 150MM OC WELDED TO STEEL ANGLE FRAMES ANCHORED TO STRUCTURE WITH TAMPER-PROOF BOLTS.

RLS RLS RLS

PAIR OF REFRIGERANT LINES. LIQUID AND SUCTION LINES ARE SHOWN AS A SINGLE HEAVY LINE FOR CLARITY

NEW DUCTWORK

- RIGID DUCT - DOUBLE LINE
- RIGID DUCT - SINGLE LINE
- 1'' EXTERNAL THERMALLY INSULATED DUCT
- 1'' EXTERNAL THERMALLY INSULATED DUCT
- 1'' INTERNAL ACOUSTICALLY LINED DUCT (INCREASE DUCT SIZE SHOWN TO SUIT)
- FLEXIBLE DUCT C/W 1'' EXTERNAL THERMAL INSULATION
- FLEXIBLE DUCT

SUFFIX GUIDE

'X' - REMOVE EXISTING ITEM INDICATED AND MAKE GOOD
'E' - EXISTING ITEM TO REMAIN
'N' - NEW ITEM AS INDICATED OR SPECIFIED
'ER' - ITEM TO BE RELOCATED
'R' - RELOCATED ITEM SHOW IN NEW LOCATION; RECONNECT.

GRILLES AND DIFFUSERS

620 - SUPPLY GRILLES
FURNISH AND INSTALL PRICE MODEL 620 ALUMINUM SUPPLY GRILLES OF THE SIZES AND MOUNTING TYPES INDICATED ON THE PLANS AND OUTLET SCHEDULE. GRILLES SHALL BE DOUBLE DEFLECTION TYPE WITH TWO SETS OF FULLY ADJUSTABLE DEFLECTION BLADES SPACED 19 MM ON CENTER. THE FRONT SET OF BLADES SHALL RUN PARALLEL TO THE LONG DIMENSION OF THE GRILLE, AS INDICATED IN THE OUTLET SCHEDULE. THE GRILLE SHALL BE FINISHED
IN B12 WHITE POWDER COAT. PAINT FINISH SHALL PASS 500 HOURS OF SALT SPRAY EXPOSURE WITH NO MEASURABLE CREEP IN ACCORDANCE WITH ASTM D1654 AND 1000 HOURS WITH NO RUSTING OR BLISTERING AS PER ASTM D610 AND ASTM D714

635 - RETURN GRILLE
FURNISH AND INSTALL PRICE MODEL 635 ALUMINUM EXHAUST GRILLES OF THE SIZES AND MOUNTING TYPES INDICATED ON THE PLANS AND OUTLET SCHEDULE. GRILLES SHALL BE 45 DEGREE DEFLECTION FIXED LOUVER TYPE WITH BLADES SPACED 13 ON CENTER. THE BLADES SHALL RUN PARALLEL TO THE LONG DIMENSION OF THE GRILLE. THE GRILLE SHALL BE FINISHED IN B12 WHITE POWDER COAT. PAINT FINISH SHALL PASS 500 HOURS OF SALT SPRAY EXPOSURE WITH NO MEASURABLE CREEP IN ACCORDANCE WITH ASTM D1654 AND 1000 HOURS WITH NO RUSTING OR BLISTERING AS PER ASTM D610 AND ASTM D714.

LIST OF DRAWINGS

ME-0. 1 - MECHANICAL/ELECTRICAL SCHEDULES

M-0. 1 - MECHANICAL DETAILS
M-0. 2 - EQUIPMENT DIMENSIONS
M-0. 3 - WIRING AND PIPING DIAGRAMS
M-0. 4 - UV STERILIZATION

M-B. 0 - BASEMENT PLAN - HVAC
M-1. 0 - FIRST FLOOR PLAN - HVAC
M-2. 0 - SECOND FLOOR PLAN - HVAC

LICENSED PROFESSIONAL ENGINEER
4880-150
JUNE 2, 2025
P.A. DeCARIA
PEO LICENSE
90122221
PROVINCE OF ONTARIO

0/5	JUNE 2/25	ISSUED FOR 90% REVIEW
0/4	MAY 30/25	ISSUED FOR PERMIT AND TENDER
000	MAY 7/25	ISSUED FOR 50% REVIEW
00	MAR 26/25	EXHAUST FANS
0	DEC 5/24	ISSUED FOR 50% REVIEW

DeCARIA ENGINEERING
1661 DENISON ST., UNIT D12
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TSSS HVAC Phase IV - 126 Pape

126 Pape AveToronto, ON M4M 2V8

PROJECT CODE:	SCALE:
4880-150	AS NOTED
DATE:	STATUS:
Issue Date JUNE 2, 2025	**90% REVIEW**

MECHANICAL DETAILS

Project North

drawing number

M-0. 1

NOTES:
*1. Rating conditions are based on the AHRI testing standard. See www.ahrinet.org for more information:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB
Outdoor Air Inlet Temperature: 95°F (35.0°C)DB

Heating

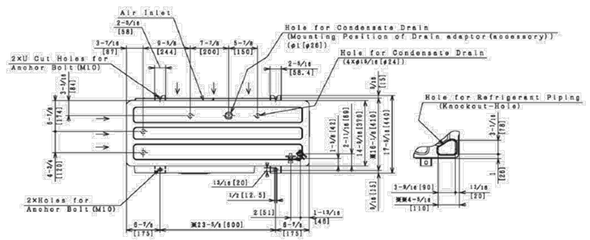
Indoor Air Inlet Temperature: 70°F (21.1°C)DB
Outdoor Air Inlet Temperature: 47°F (8.3°C)DB
43°F (6.1°C)WB
Piping Length: 24ft. 7-3/16in. (7.5m)
Piping Lift: 0ft. (0m)

*2 For more details, please refer to Engineering manual "Operation range" section.
*3 Measurement Point: 3.3ft. (1m) from the air outlet side, 4.9ft. (1.5m) from floor level.
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation.
The sound of the air inlet side is 3dB higher than that of the air outlet side.

System Dimensions

48,000 BTU/H Mini VRF Outdoor Unit

Model (H,Y) VAHP048B21S Model:



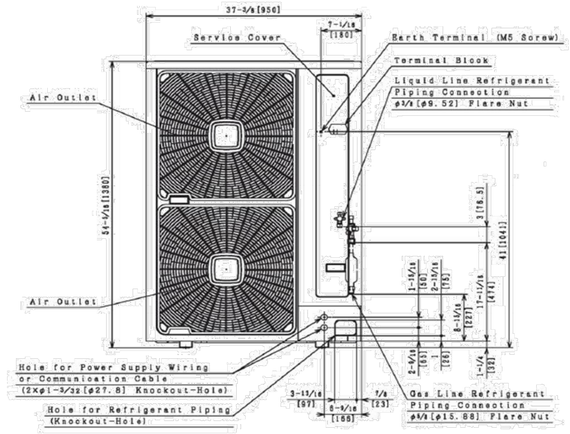
- A side view

Drain Water

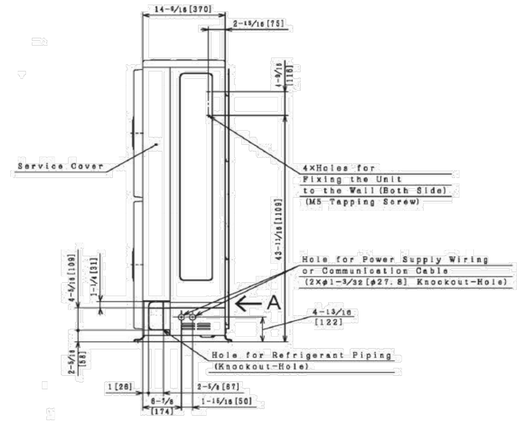
Drain water is caused during heating operation or defrost operation.

①Choose a place where well drainage is available, or provide a groove for drain.
②Do not provide an upward slope from the unit to avoid reverse flow of the drain.
③When dropping drain water is not permissible, provide a second drainpan under the outdoor unit, to collect drain water securely.

version 202011



version 202011



NOTES:
1. There are stop valves in the cabinet.
2. When connecting field refrigerant piping from the bottom side of the unit, provide the space(marked with ⌘⌘) for understructures such as foundation to avoid interference.
3. The dimension marked with ⌘ indicates the mounting pitch dimension for anchor bolts.

AHRI CERTIFIED™ www.ahridirectory.org Unitary Small HP AHRI Standard 210/240 Certification applies only when the complete system is listed with AHRI

Intertek

version 202011

1 M-0. 2

2 M-0. 2

3 M-0. 2

LICENSED PROFESSIONAL ENGINEER
4880-150
JUNE 2, 2025
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TSSS HVAC Phase IV - 126 Pape

126 Pape AveToronto, ON M4M 2V8

PROJECT CODE:	SCALE:
4880-150	AS NOTED
DATE:	STATUS:
Issue Date JUNE 2, 2025	**90% REVIEW**

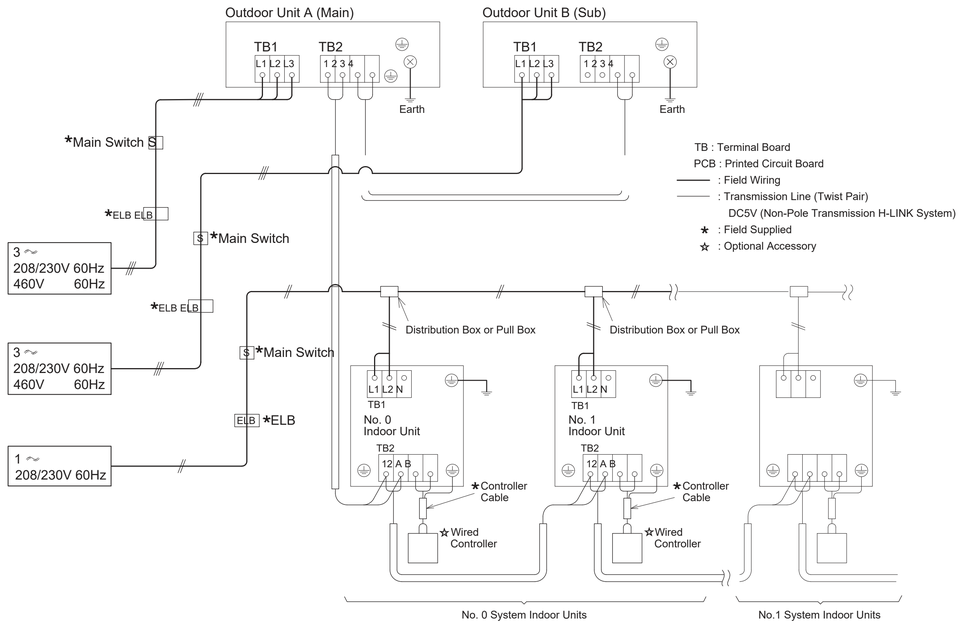
EQUIPMENT DIMENSIONS

Project North

drawing number

M-0. 2

Instruction for Electrical Wiring Connection (Heat Pump System)



1 / M-0. 3 WIRING DIAGRAM
NOT TO SCALE

HITACHI

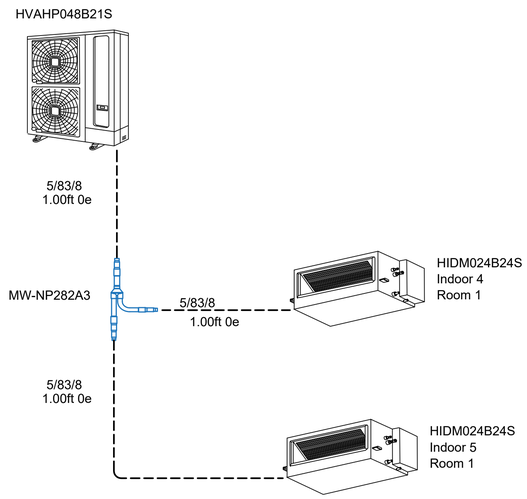
Project Name: Decaria Engineering
Project Number:
Submitter Name: Jaspreet Singh
Revision: 1

12/3/2024

Total length (liquid): 3.0ft
Max. equivalent length: 2.0ft
Estimated max. equivalent length: 24.6ft
Additional refrigerant charge: 0.1lb
Total refrigerant charge: 8.0lb
Maximum indoor unit height difference: 0.0ft
Outdoor unit height compared to indoor units: 0.0ft Same level

Outdoor unit 2

Legend
2 Pipe
3 Pipe
Invalid



2 / M-0. 3

HITACHI

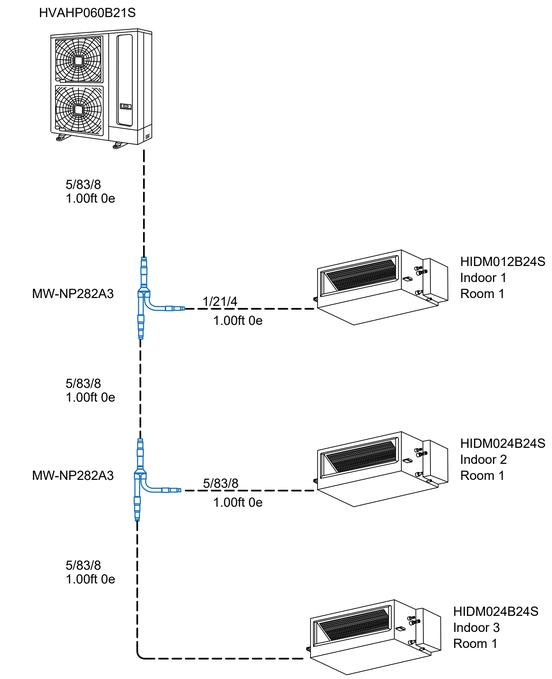
Project Name: Decaria Engineering
Project Number:
Submitter Name: Jaspreet Singh
Revision: 1

12/3/2024

Total length (liquid): 5.0ft
Max. equivalent length: 3.0ft
Estimated max. equivalent length: 24.6ft
Additional refrigerant charge: 0.1lb
Total refrigerant charge: 8.0lb
Maximum indoor unit height difference: 0.0ft
Outdoor unit height compared to indoor units: 0.0ft Same level

Outdoor unit 1

Legend
2 Pipe
3 Pipe
Invalid



2 / M-0. 3 THREE FAN COIL SYSTEM PIPING DIAGRAM
NOT TO SCALE

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JUNE 2, 2025
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00	MAR 26/25	EXHAUST FANS
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TSSS HVAC Phase IV - 126 Pape

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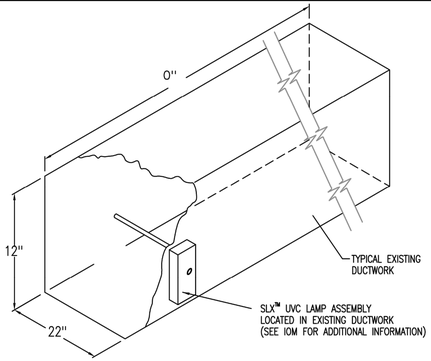
WIRING AND PIPING DIAGRAMS

Project North

drawing number

M-0. 3

DF 7



1 Row
Fixtures per row: 1

PARTS LIST PER UNIT

MODEL#	PART#	DESCRIPTION	QTY	WEIGHT	PRICE($)
SLX-HO-120-240	57506550	SLX Single Ended High Output Fixture – 120-240V (indoor locations)	1	4.00	–
SEL-20RL-1508-HO-1-EL	82685209	SEL 20" SE 08 Base High Output EncapsuLamp	1	1.50	–
UVR-120-240V ISS	90001500	Access Interlock Safety Switch-120-240Vac	1	1.00	–
UVR-WP-TS	90001530	Water Proof UV Lamp Toggle Switch	1	1.00	–
WS-12X8	90007509	Warning Sign – Plastic 12" x 8" – 4 Holes for Mounting	1	3.00	–
UVR-24V-HR-MTR	90001203	UV-C Hour Meter	1	0.25	–

TOTAL PRICE: –

NOTES:
1. UL/CUL LISTED ABQK.
2. FOR INDOOR USE ONLY.
3. 20 AWG GALVANIZED ASTM-A653/A924
4. (4) 1/2" ELECTRICAL KNOCKOUTS.
5. (4) MOUNTING HOLES.
6. 3 YEAR WARRANTY

GENERAL:
1. REFER TO PRODUCT IOM FOR INSTALLATION DETAILS.
2. USE INTERLOCK SWITCHES ON ALL ACCESSES TO LAMPS.
3. CAUTION: NEVER LOOK AT LAMPS WHEN LIT – EYE AND SKIN DAMAGE MAY RESULT FROM EXPOSURE.

Software Rev: 1.0.0 (WebApp)

UV RESOURCES
PO BOX 800370
SANTA CLARITA, CA 91380 USA
Ph.: 877.884.4822 FAX: 877.794.1294

PROJECT NAME: Master Group CA		DATE: 12/11/2024	LAMP WATTS PER SQUARE FOOT: 26.18
AHU TAG: FC1			
CONTACT: –	LOCATION: Vaughan Ontario	ENGINEER: –	APPLICATION PRESSURE DROP: 0.010
REP FIRM: –	QUOTE NO: –	CONTRACTOR: –	TOTAL ELECTRICAL WATTS: 38 (0.32 @ 120V)

1 M-0. 4 UV LIGHTING SCHEMATIC - FOR ALL FAN COILS
NOT TO SCALE

DATE:	12/11/2024
PROJECT NAME:	Master Group CA
LOCATION:	Vaughan Ontario
CONTACT:	–
ENGINEER:	–
CONTRACTOR:	–
UVR REP:.	–
QUOTE #:	–

TOTAL EQUIPMENT:	–
SHIPPING ESTIMATE:	–
TOTAL:	–

UV RESOURCES
PO BOX 800370
SANTA CLARITA, CA 91380 USA
Ph.: 877.UV4.HVAC FAX: 877.794.1294
SOFTWARE REVISION: 1.0.0 (WebApp)

AHU UV-C Summary Sheet

Item	Tag	Product	Qty	Weight	Cost $
001	FC1	SLX Side Mount	1	10.75	–
002	FC-3	SLX Side Mount	1	10.75	–
003	FC-4	SLX Side Mount	1	10.75	–
004	FC-5	SLX Side Mount	1	10.75	–
005	FC-6	SLX Side Mount	1	10.75	–
006	FC-2	SLX Side Mount	1	10.75	–
007	FC-7	DLX Side Mount	1	13.25	–

TERMS: FOB Factory, Freight Prepaid & Add, NET 30 upon approved credit, Min. Order $100 NET 1 of 1

2 M-0. 4 UV LIGHTING SUMMARY SHEET
NOT TO SCALE

DATE:	12/11/2024
PROJECT NAME:	Master Group CA
LOCATION:	Vaughan Ontario
CONTACT:	–
ENGINEER:	–
CONTRACTOR:	–
UVR REP:	–
QUOTE #:	–

TOTAL EQUIPMENT:	–
SHIPPING ESTIMATE:	–
TOTAL:	–

UV RESOURCES
PO BOX 800370
SANTA CLARITA, CA 91380 USA
Ph.: 877.UV4.HVAC FAX: 877.794.1294
SOFTWARE REVISION: 1.0.0 (WebApp)

UV-C Parts Summary Sheet

Part#	Description	Total Qty	Cost EA	Extended Cost
57506550	SLX Single Ended High Output Fixture – 120-240V (indoor locations)	6	–	–
82685209	SEL 20" SE 08 Base High Output EncapsuLamp	8	–	–
90001500	Access Interlock Safety Switch-120-240Vac	7	–	–
90001530	Water Proof UV Lamp Toggle Switch	7	–	–
90007509	Warning Sign – Plastic 12" x 8" – 4 Holes for Mounting	7	–	–
90001203	UV-C Hour Meter	7	–	–
57806550	DLX-N Dual Lamp HighOutput Fixture – 120-277V	1	–	–

TERMS: FOB Factory, Freight Prepaid & Add, NET 30 upon approved credit, Min. Order $100 NET 1 of 1

3 M-0. 4 UV LIGHTING PARTS LIST
NOT TO SCALE

UV-C LIGHT SCHEDULE

Mark	FC1	FC-3	FC-4	FC-5	FC-6	FC-2	FC-7
Service	–	–	–	–	–	–	–
Plenum Dimensions (in) H x W	12 x 22	12 x 22	12 x 22	12 x 22	12 x 22	12 x 22	12 x 22
Coil Dimensions (in) H x W	12 x 22	12 x 22	12 x 22	12 x 22	12 x 22	12 x 22	12 x 22
Lamps Per Row	1	1	1	1	1	1	2
Number of Rows	1	1	1	1	1	1	1
Lamp Length (in)	20"	20"	20"	20"	20"	20"	20"
Watts Per Lamp	48	48	48	48	48	48	48
Total Electrical Watts	38	38	38	38	38	38	55
Lamp Watts/ft² of Coil Area	26.18	26.18	26.18	26.18	26.18	26.18	52.36
Service (Voltage)	120-240V	120-240V	120-240V	120-240V	120-240V	120-240V	120-277V
Manufacturer	UVResources™	UVResources™	UVResources™	UVResources™	UVResources™	UVResources™	UVResources™
Model Number	SLX Side Mount	SLX Side Mount	SLX Side Mount	SLX Side Mount	SLX Side Mount	SLX Side Mount	DLX Side Mount
Remarks							

Software Rev: 1.0.0 (WebApp)

UV RESOURCES
PO BOX 800370
SANTA CLARITA, CA 91380 USA
Ph.: 877.UV4.HVAC FAX: 877.794.1294

PROJECT NAME: Master Group CA		DATE: 12/11/2024	
CONTACT: –	LOCATION: Vaughan Ontario	ENGINEER: –	
REP FIRM: –	QUOTE NO: –	CONTRACTOR: –	

4 M-0. 4 UV LIGHTING SCHEDULE
NOT TO SCALE

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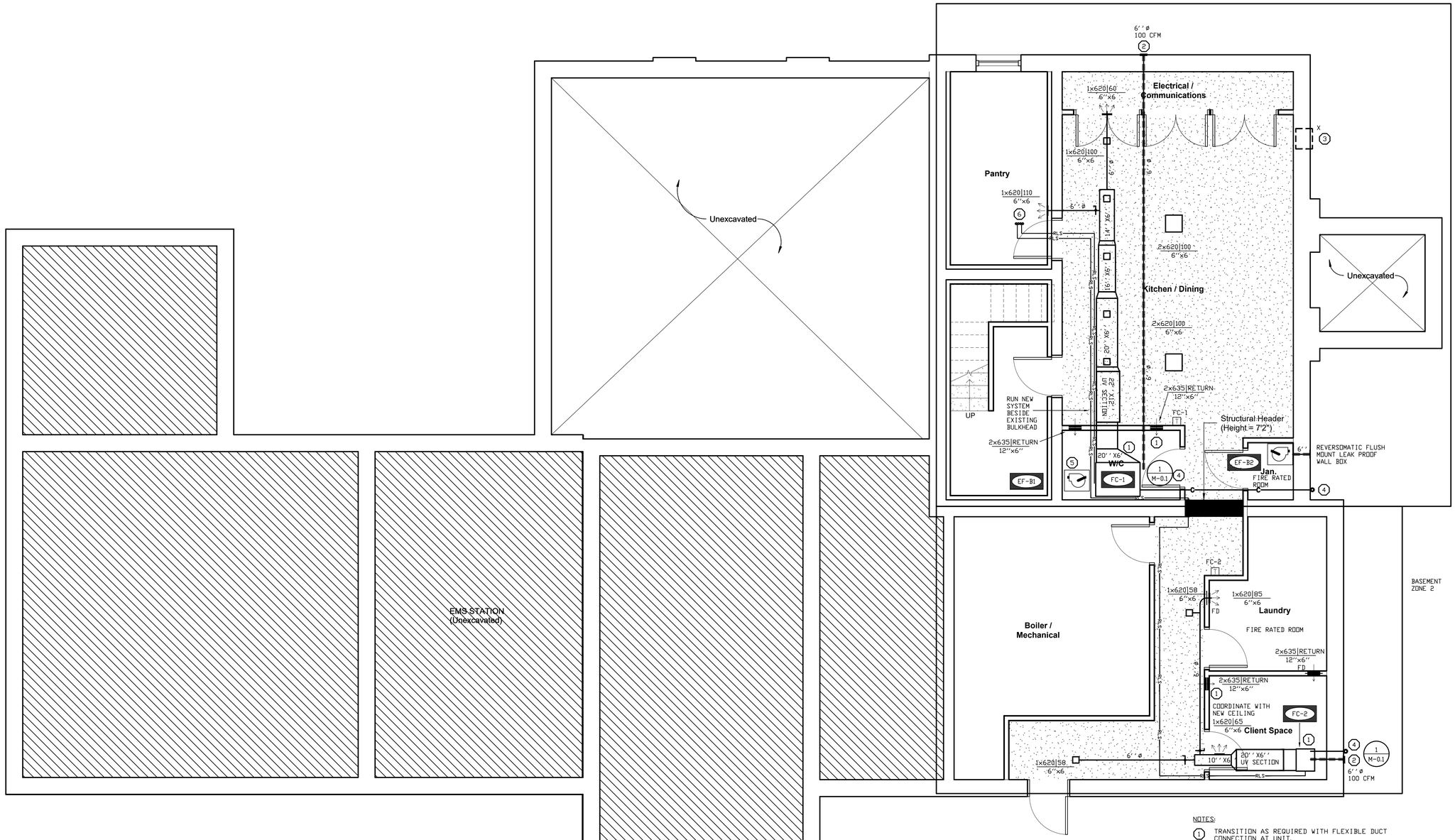
126 Pape AveToronto, ON M4M 2V8

PROJECT CODE: 4880-150	SCALE: AS NOTED
DATE: Issue Date JUNE 2, 2025	STATUS: **90% REVIEW**

UV STERILIZATION

Project North

drawing number
M-0. 4



SCALE: 1/4'' = 1'

NOTES:

1. TRANSITION AS REQUIRED WITH FLEXIBLE DUCT CONNECTION AT UNIT.
2. REVERSOMATIC 6" HEAVY DUTY INTAKE WALL CAP WITH FLY AND BIRD SCREEN FRESH AIR INTAKE GRILLE. 50 CFM. 6"ø INSULATED DUCT TO FAN COIL.
3. REMOVE AND DISPOSE OF EXISTING WINDOW AIR CONDITIONER AND RELATED CONDENSATE PIPING. ELECTRICAL TO MAKE SAFE.
4. 1"ø PUMPED CONDENSATE LINE, DISCHARGE AT GRADE OUTDOORS.
5. REMOVE EXISTING EXHAUST FAN AND VACCUUM OUT EXISTING DUCTWORK. ELECTRICAL TO DISCONNECT AND MAKE SAFE. INSTALL NEW REPLACEMENT FAN.
6. PROPOSED PATH FOR REFRIGERANT LINES UP TO GROUND FLOOR.

LICENSED PROFESSIONAL ENGINEER
4880-150
JUNE 2, 2025
P.A. [illegible]ERG
PEO LICENSE
90122221
PROVINCE OF ONTARIO

0/5	JUNE 2/25	ISSUED FOR 90% REVIEW
0/4	MAY 30/25	ISSUED FOR PERMIT AND TENDER
000	MAY 7/25	ISSUED FOR 50% REVIEW
00	MAR 26/25	EXHAUST FANS
0	DEC 5/24	ISSUED FOR 50% REVIEW

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TSSS HVAC Phase IV - 126 Pape

126 Pape AveToronto, ON M4M 2V8

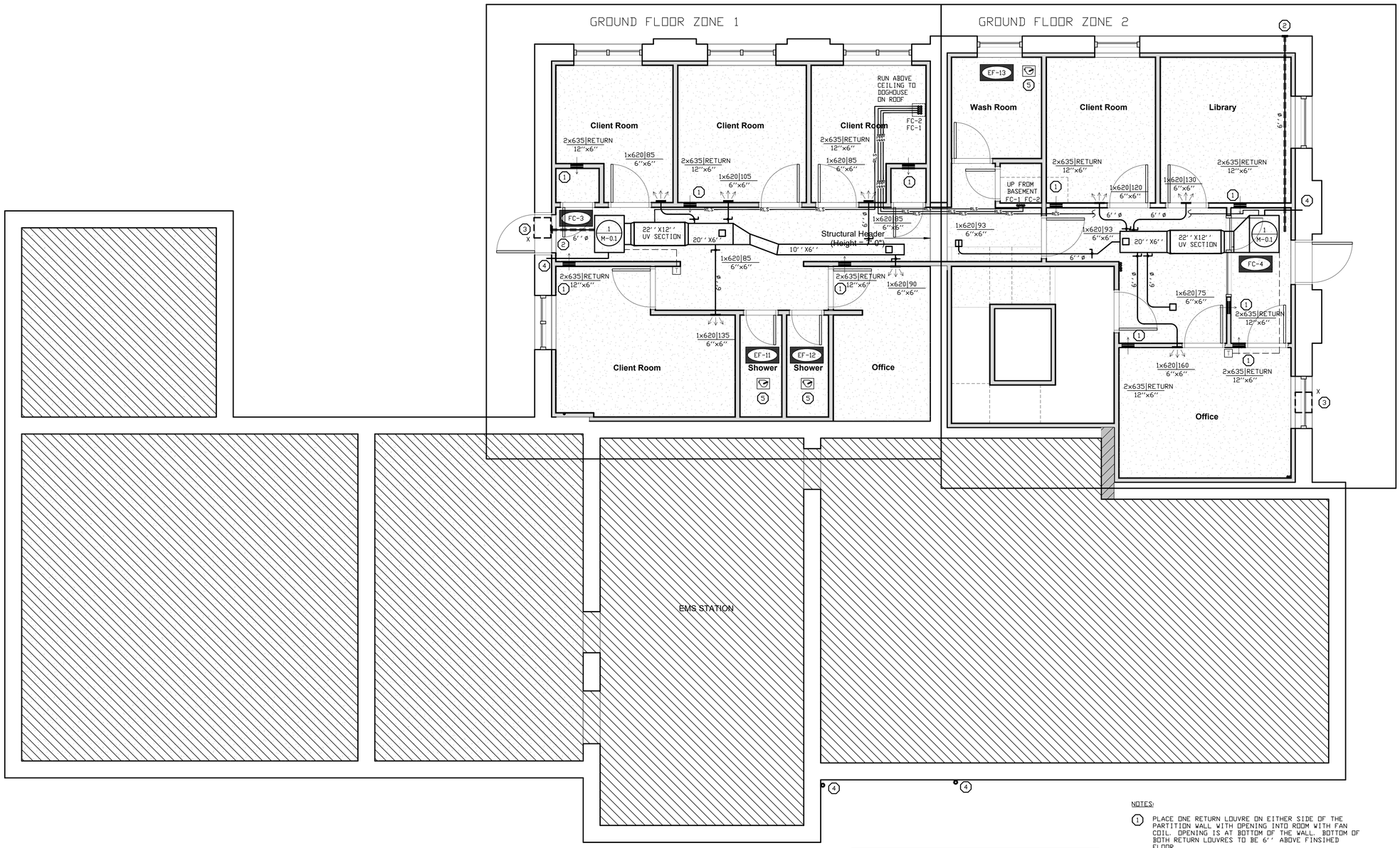
PROJECT CODE:	SCALE:
4880-150	AS NOTED
DATE:	STATUS:
Issue Date JUNE 2, 2025	**90% REVIEW**

BASEMENT PLAN
HVAC

Project North

drawing number

M-B. 0



SCALE: 1/4'' = 1'

UV-RESISTANT STANDARD-WALL BLACK PVC PIPE FOR WATER

FOR USE WITH: WATER
MAXIMUM TEMPERATURE: 140° F
SPECIFICATIONS MET: ASTM D1784
FITTINGS: USE SCHEDULE 40 PVC PLASTIC
MADE WITH AN ADDITIVE THAT PROTECTS AGAINST THE DAMAGING EFFECTS OF ULTRAVIOLET LIGHT, THIS PIPE WONT DEGRADE IN OUTDOOR ENVIRONMENTS. ALSO KNOWN AS SCHEDULE 40 PIPE, ITS TYPICALLY USED IN LOW-PRESSURE RESIDENTIAL AND COMMERCIAL PLUMBING AND WATER SUPPLY APPLICATIONS. PIPE IS PVC, WHICH HAS GOOD CORROSION RESISTANCE. CONNECT TO UNTHREADED FEMALE SOCKET-CONNECT FITTINGS USING A PVC PRIMER AND CEMENT (ALSO KNOWN AS SOLVENT WELD). PIPE MEETS ASTM D1784 SPECIFICATIONS AND TESTING REQUIREMENTS FOR MATERIAL QUALITY.

NOTES:

1. PLACE ONE RETURN LOUVRE ON EITHER SIDE OF THE PARTITION WALL WITH OPENING INTO ROOM WITH FAN COIL. OPENING IS AT BOTTOM OF THE WALL. BOTTOM OF BOTH RETURN LOUVRES TO BE 6'' ABOVE FINSIHED FLOOR.
2. REVERSOMATIC 6" HEAVY DUTY INTAKE WALL CAP WITH FLY AND BIRD SCREEN <NO DAMPER>FRESH AIR INTAKE GRILLE. 50 CFM. 6"ø INSULATED DUCT TO FAN COIL.
3. REMOVE AND DISPOSE OF EXISTING WINDOW AIR CONDITIONER AND RELATED CONDENSATE PIPING. ELECTRICAL TO MAKE SAFE. HOLE TO BE FILLED IN BY GENERAL TRADES.
4. RUN 1" PUMPED CONDENSATE LINE TO OUTDOORS AND DISCHARGE 6" ABOVE GRADE.
5. REMOVE EXISTING EXHAUST FAN AND VACCUUM OUT EXISTING DUCTWORK. ELECTRICAL TO DISCONNECT AND MAKE SAFE. INSTALL NEW REPLACEMENT FAN.

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000	MAY 7/25	ISSUED FOR 50% REVIEW
00	MAR 26/25	EXHAUST FANS
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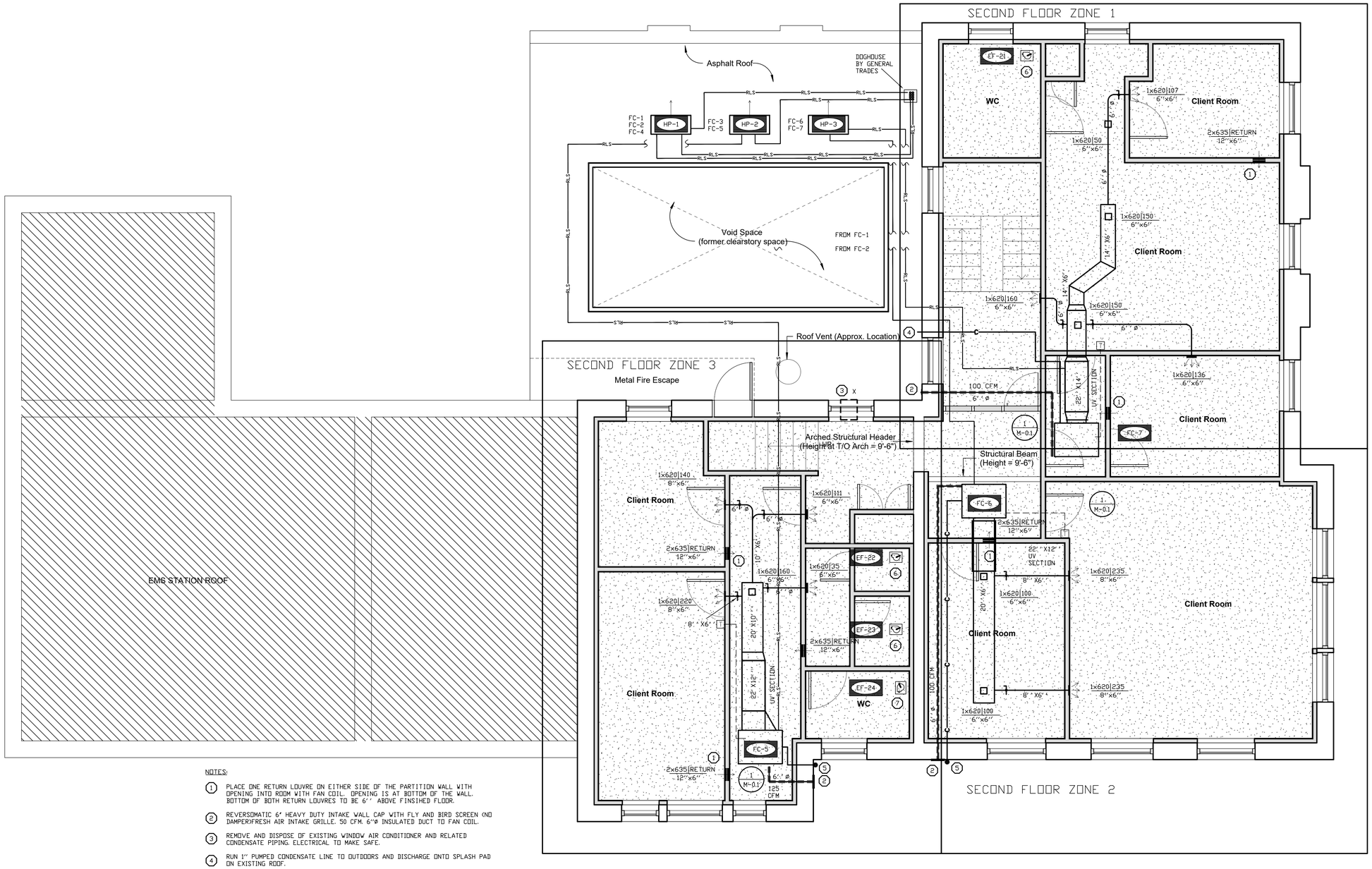
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DATE:	STATUS:
Issue Date JUNE 2, 2025	**90% REVIEW**

GROUND FLOOR PLAN HVAC

Project North

drawing number

M-1.0



NOTES:

1. PLACE ONE RETURN LOUVRE ON EITHER SIDE OF THE PARTITION WALL WITH OPENING INTO ROOM WITH FAN COIL. OPENING IS AT BOTTOM OF THE WALL. BOTTOM OF BOTH RETURN LOUVRES TO BE 6'' ABOVE FINSIHED FLOOR.
2. REVERSOMATIC 6" HEAVY DUTY INTAKE WALL CAP WITH FLY AND BIRD SCREEN (NO DAMPER)FRESH AIR INTAKE GRILLE. 50 CFM. 6"ø INSULATED DUCT TO FAN COIL.
3. REMOVE AND DISPOSE OF EXISTING WINDOW AIR CONDITIONER AND RELATED CONDENSATE PIPING. ELECTRICAL TO MAKE SAFE.
4. RUN 1" PUMPED CONDENSATE LINE TO OUTDOORS AND DISCHARGE ONTO SPLASH PAD ON EXISTING ROOF.
5. RUN 1" PUMPED CONDENSATE LINE TO OUTDOORS AND DISCHARGE 6" ABOVE GRADE.
6. REMOVE EXISTING EXHAUST FAN AND VACCUUM OUT EXISTING DUCTWORK. ELECTRICAL TO DISCONNECT AND MAKE SAFE. INSTALL NEW REPLACEMENT FAN AND CONNECT TO EXISTING DUCTWORK.
7. REMOVE EXISTING EXHAUST FAN. AND VACCUUM OUT EXISTING DUCTWORK. INSTALL NEW SIDEWALL FAN AND CONNECT TO EXISTING DUCTWORK.

SCALE: 1/4'' = 1'

LICENSED PROFESSIONAL ENGINEER
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JUNE 2, 2025
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PROVINCE OF ONTARIO

0/5	JUNE 2/25	ISSUED FOR 90% REVIEW
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000	MAY 7/25	ISSUED FOR 50% REVIEW
00	MAR 26/25	EXHAUST FANS
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4880-150	AS NOTED
DATE:	STATUS:
Issue Date JUNE 2, 2025	**90% REVIEW**

SECOND FLOOR PLAN HVAC

Project North

drawing number

M-2.0

FAN COIL UNIT SCHEDULE

REF NO.	DESCRIPTION	AREA SERVED	EQUIPMENT LOCATION	MANUFACTURER	MODEL NUMBER	OPERATING WEIGHT LBS	COOLING		HEATING	SUPPLY FAN		EXTERNAL SP in WC	MINIMUM FRESH AIR CFM	ELECTRICAL							STARTER			CONTROLS			DISCONNECT AT MOTOR			MOUNTING	REMARKS
							BTU/HR	TONS	BTU/HR	S/A CFM	MOTOR WATTS			VOLTS	ø	FLA	MCA	MOP	PANEL NUMBER	CCT#	SUPPLIED BY	INSTALLED BY	TYPE	AUTO	INTERLOCK BY	FIRE ALARM SHUTDOWN	SUPPLIED BY	INSTALLED BY	CSA TYPE		
FC-1	VRF DUCTED FAN COIL	NORTH BASEMENT	BASEMENT JANITOR	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		75	208	1				-												SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-2	VRF VERTICAL FAN COIL	SOUTH BASEMENT	BASEMENT CLIENT	HITACHI	TIA H012 B22M	98	12,000	1	12,800	300	157		50	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 43'' DEPTH: 21'' WIDTH: 21-1/2''
FC-3	VRF DUCTED SPLIT FAN COIL	WEST GROUND	1ST WEST CORRIDOR	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		75	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-4	VRF DUCTED SPLIT FAN COIL	EAST GROUND	1ST MAIN ENTRY	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		75	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-5	VRF DUCTED SPLIT FAN COIL	2ND SOUTH WEST	2ND WEST CORRIDOR	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		125	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-6	VRF DUCTED SPLIT FAN COIL	2ND SOUTH EAST	CENTRAL PASSAGE	HITACHI	HID M024 B24S	79	24,000	2	25,600	671	190		100	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 41-5/16'' WIDTH: 31-1/2''
FC-7	VRF DUCTED SPLIT FAN COIL	2ND NORTH WING	CENTRAL PASSAGE	HITACHI	HID M030 B22S	97	30,000	2.5	34,000	812	259		100	208	1																SM	INCLUDE DRAIN PUMP. POWER FROM OUTDOORS. HEIGHT: 10'' LENGTH: 55-1/8'' WIDTH: 31-1/2''

STARTER TYPES:
- FVNR-FULL VOLTAGE NON REVERSING
- RVNR-REDUCE VOLTAGE NON REVERSING
- SWE-SUPPLIED WITH EQUIPMENT
- 2SSW - TWO SPEED SINGLE WINDING
- VFD - VARIABLE FREQUENCY DRIVE
- INT - INTEGRAL SUPPLIED WITH UNIT

CSA DISCONNECT TYPES:
- TYPE 1 FOR USE INDOORS IN ORDINARY LOCATIONS
- TYPE 2 FOR USE INDOORS WHERE THE ENCLOSURE MAY BE SUBJECT TO DROPS OF FALLING LIQUID DUE TO CONDENSATION OR OTHER CAUSES
- TYPE 3R OR 'WP' FOR USE OUTDOORS
- TYPE 4 FOR USE WHERE THE ENCLOSURE MAY BE SUBJECT TO DIRECT STREAMS OF WATER
- TYPE 5 FOR USE INDOORS WHERE THE ATMOSPHERE MAY CONTAIN SETTLING NON-HAZARDOUS DUST, LINT, FIBRES,OR FLYINGS

NOTES:
- INDOOR UNITS, MIXING BOX FOR FREE COOLING, DIGITAL CONTROLS BY BUILDING AUTOMATION SYSTEM, STARTER WITH HAND OFF AUTO SWITCH.
- BAS CONTRACT TO INCLUDE FLOOR PLAN SHOWING ALL EQUIPMENT AND THERMOSTAT LOCATIONS.
- UNITS MUST BE MODULAR CONSTRUCTION, WITH SECTIONS ABLE TO FIT THROUGH A STANDARD 30 INCH WIDE DOOR.
- ALL UNITS TO BE COMPLETE WITH VARIABLE FREQUENCY DRIVES.
- ALL UNITS TO BE COMPLETE WITH MERV 13 FILTERS.
- ALL UNITS TO BE COMPLETE FLEXIBLE CONNECTIONS TO DUCTWORK.
- FOR ALL AC UNITS, PROVIDE AS PART OF THIS CONTRACT ALL REQUIRED RELAYS, TRANSFORMERS, THERMOSTATS, ETC., AS REQUIRED AND AS SHOWN ON THE CONTROL SCHEMATIC DIAGRAM OR SCHEDULE.

ABBREVIATIONS:
- BAS - BUILDING AUTOMATION CONTRACTOR
- EC - ELECTRICAL CONTRACTOR
- MC - MECHANICAL CONTRACTOR
- MAN - MANUFACTURER
- SS - SOLID STATE CONTROL
- APS - AIR PROVING SWITCH
- MRTC - MANUAL RESET THERMAL CUTOUT
- RT - ROOM THERMOSTAT

MOUNTING:
- WM - UNIT WALL MOUNTED PROVIDE WALL MOUNTING BRACKETS TO SUPPORT WEIGHT OF UNIT.
- CP - UNIT MOUNTED ON NEOPRENE PADS ON CONCRETE PAD
- SM - SUSPENDED FROM STRUCTURE PROVIDE ISOLATION/MOUNTING SPRINGS

OUTDOOR HEAT PUMP SCHEDULE

EQUIPMENT NUMBER	DESCRIPTION	UNITS SERVED	EQUIPMENT LOCATION	MANUFACTURER	MODEL NUMBER	NOMINAL CAPCITY	WEIGHT LBS	COOLING CAPACITY	HEATING CAPACITY	OPERATING RANGE, °F		ELECTRICAL REQUIREMENTS						STARTER			CONTROLS				DISCONNECT AT MOTOR			MOUNTING	REMARKS
										COOLING	HEATING																		
						TONS	INCLUDES ISOLATERS	BTU/HR	BTU/HR	DRY BULB	DRY BULB	VOLTS	ø	MCA	MOP	PANEL NUMBER	CCT#	SUPPLIED BY	INSTALLED BY	TYPE	MANUAL	AUTO	INTERLOCK BY	SUPPLIED BY	SUPPLIED BY	INSTALLED BY	CSA TYPE		
HP-1	COLD TEMPERATURE HEAT PUMP	FC-1, FC-2, FC-4		HITACHI	HVAHP-060-B21S	5	275	60,000	64,000	118°F	-4°F	208	1	31	40													CP	
HP-2	COLD TEMPERATURE HEAT PUMP	FC-3, FC-5,		HITACHI	HVAHP-048-B21S	4	275	48,000	54,000	118°F	-4°F	208	1	31	40													CP	
HP-3	COLD TEMPERATURE HEAT PUMP	FC-6, FC-7,		HITACHI	HVAHP-048-B21S	4	275	48,000	54,000	118°F	-4°F	208	1	31	40													CP	

STARTER TYPES:
- WMT - WALL MOUNTED THERMOSTAT
- PT - PROGRAMMABLE THERMOSTAT

CSA DISCONNECT TYPES:
- TYPE 1 FOR USE INDOORS IN ORDINARY LOCATIONS
- TYPE 2 FOR USE INDOORS WHERE THE ENCLOSURE MAY BE SUBJECT TO DROPS OF FALLING LIQUID DUE TO CONDENSATION OR OTHER CAUSES
- TYPE 3R OR 'WP' FOR USE OUTDOORS
- TYPE 4 FOR USE WHERE THE ENCLOSURE MAY BE SUBJECT TO DIRECT STREAMS OF WATER
- TYPE 5 FOR USE INDOORS WHERE THE ATMOSPHERE MAY CONTAIN SETTLING NON-HAZARDOUS DUST, LINT, FIBRES,OR FLYINGS

NOTES:
- R410A REFRIGERANT
- PROVIDE AS PART OF THIS CONTRACT ALL REQUIRED RELAYS, TRANSFORMERS, PROGRAMMABLE THERMOSTATS, ETC., AS REQUIRED AND AS SHOWN ON THE CONTROL SCHEMATIC DIAGRAM OR SCHEDULE.
- 20 AMP GFI WEATHER SERVICE RECEPTACLE
- PROVIDE TYPE 3 DISCONNECT.
- MOUNTED ON 24'' CONDENSER SUPPORT

ABBREVIATIONS:
- BAS - BUILDING AUTOMATION CONTRACTOR
- EC - ELECTRICAL CONTRACTOR
- MC - MECHANICAL CONTRACTOR
- MAN - MANUFACTURER
- SS - SOLID STATE CONTROL
- APS - AIR PROVING SWITCH
- MRTC - MANUAL RESET THERMAL CUTOUT
- RT - ROOM THERMOSTAT

MOUNTING:
- WM - UNIT WALL MOUNTED PROVIDE WALL MOUNTING BRACKETS TO SUPPORT WEIGHT OF UNIT.
- CP - UNIT MOUNTED ON NEOPRENE PADS ON CONCRETE PAD
- SM - SUSPENDED FROM STRUCTURE PROVIDE ISOLATION/MOUNTING SPRINGS
- RC - MOUNT ON ROOF CURB

FAN SCHEDULE

REF NO.	DESCRIPTION	AREA SERVED	EQUIPMENT LOCATION	MANUFACTURER	MODEL NUMBER	OPERATING WEIGHT LBS	CAPACITY	ESP	MOTOR		ELECTRICAL							STARTER			CONTROLS				DISCONNECT AT MOTOR			MOUNTING	REMARKS
							CFM	inH20	AMPS		VOLTS	ø	FLA	MCA	MOP	PANEL NUMBER	CCT#	SUPPLIED BY	INSTALLED BY	TYPE	MANUAL	AUTO	INTERLOCK BY	FIRE ALARM SHUTDOWN	SUPPLIED BY	INSTALLED BY	CSA TYPE		
EF-B1	CEILING FAN	BASEMENT WASHROOM	BASEMENT WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-B2	CEILING FAN	BASEMENT JANITOR	BASEMENT JANITOR	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-11	CEILING FAN	WEST SIDE SHOWER 1	WEST SIDE SHOWER 1	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-12	CEILING FAN	WEST SIDE SHOWER 2	WEST SIDE SHOWER 2	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-13	CEILING FAN	EAST WASHROOM	EAST WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-21	CEILING FAN	NORTH EAST WASHROOM	NORTH EAST WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-22	CEILING FAN	WEST INTERIOR WASHROOM	WEST INTERIOR WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-23	CEILING FAN	WEST INTERIOR WASHROOM	WEST INTERIOR WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH
EF-24	CEILING FAN	WEST PERIMETER WASHROOM	WEST PERIMETER WASHROOM	GREENHECK	SP-A200	24	100	0.5	0.46		120	1		0.6	15													SM	LOCAL SWITCH

STARTER TYPES:
- FVNR-FULL VOLTAGE NON REVERSING
- RVNR-REDUCE VOLTAGE NON REVERSING
- SWE-SUPPLIED WITH EQUIPMENT
- 2SSW - TWO SPEED SINGLE WINDING
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- INT - INTEGRAL SUPPLIED WITH UNIT

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- TYPE 1 FOR USE INDOORS IN ORDINARY LOCATIONS
- TYPE 2 FOR USE INDOORS WHERE THE ENCLOSURE MAY BE SUBJECT TO DROPS OF FALLING LIQUID DUE TO CONDENSATION OR OTHER CAUSES
- TYPE 3R OR 'WP' FOR USE OUTDOORS
- TYPE 4 FOR USE WHERE THE ENCLOSURE MAY BE SUBJECT TO DIRECT STREAMS OF WATER
- TYPE 5 FOR USE INDOORS WHERE THE ATMOSPHERE MAY CONTAIN SETTLING NON-HAZARDOUS DUST, LINT, FIBRES,OR FLYINGS

NOTES:
- PROVIDE 24'' ROOF CURB, ECONOMIZER SECTION WITH ALL CONTROLS AND GRAVITY EXHAUST. PROGRAMMABLE HEATING COOLING THERMOSTAT WITH SUBBASE ECONOMIZER (ENTHALPY), 20 AMP NON-POWERED FIELD-WIRED GFI SERVICE OUTLET AND INTEGRAL TYPE 3 DISCONNECT.
- PROVIDE A LAMINATED FLOOR PLAN UNDER EACH THERMOSTAT SHOWING THE FLOOR PLAN AND THE AREA THAT THE THERMOSTAT CONTROLS. AREA TO MATCH APPROXIMATELY DIFFUSER LOCATIONS. SIZE GRAPHIC TO MATCH DIMENSIONS OF STAT. THIS APPLIES TO NEW AND EXISTING UNITS.
- FOR ALL AC UNITS: PROVIDE AS PART OF THIS CONTRACT ALL REQUIRED RELAYS, TRANSFORMERS, THERMOSTATS, ETC., AS REQUIRED AND AS SHOWN ON THE CONTROL SCHEMATIC DIAGRAM OR SCHEDULE.

ABBREVIATIONS:
- BAS - BUILDING AUTOMATION CONTRACTOR
- EC - ELECTRICAL CONTRACTOR
- MC - MECHANICAL CONTRACTOR
- MAN - MANUFACTURER

MOUNTING:
- WM - UNIT WALL MOUNTED PROVIDE WALL MOUNTING BRACKETS TO SUPPORT WEIGHT OF UNIT.
- CP - UNIT MOUNTED ON NEOPRENE PADS ON CONCRETE PAD
- SM - SUSPENDED FROM STRUCTURE PROVIDE ISOLATION/MOUNTING SPRINGS
- RC - MOUNT ON ROOF CURB

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PROVINCE OF ONTARIO
MAY 30/25

2	MAY 30/25	ISSUED FOR PERMIT/TENDER
1	MAY 09/25	ISSUED FOR CLASS A COSTING
0	DEC 5/24	ISSUED FOR 50% REVIEW

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PROJECT CODE:	SCALE:
4880-150	AS NOTED
DRAWN:	CHECKED:
L.Y.	F.D.

MECHANICAL ELECTRICAL SCHEDULES

Project North

drawing number

ME-0.1

ELECTRICAL LEGEND

A-6-1 / E	CEILING MOUNTED LED LUMINAIRE. LETTER DENOTES TYPE (CONNECTED TO PANEL 'A' CIRCUIT #6, CONTROLLED BY SWITCH #1 NOTE: IF SWITCH LOCATIONS NOT SHOWN ON DRAWINGS SWITCHES TO BE INSTALLED AS DIRECTED ON SITE.)
	RECESSED DOWNLIGHT
S	20 AMP, SINGLE POLE, TOGGLE SWITCH
	120V SINGLE PHASE OUTLET
	240 SINGLE PHASE OUTLET
	UN-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	ELECTRICAL PANEL
	15 AMP, 120 VOLT, SINGLE PHASE, 'U' GROUND DUPLEX RECEPTACLE
5-20R	20 AMP, 120 VOLT, SINGLE PHASE, 'T-SLOT', 'U' GROUND DUPLEX RECEPTACLE CSA CONFIGURATION 5-20R
GFI/WP	20 AMP, 120 VOLT, SINGLE PHASE, 'U' GROUND DOUBLE DUPLEX RECEPTACLE, GROUND FAULT CURRENT INTERRUPT TYPE. 'WP' INDICATES WEATHER PROOF
WP	WEATHER PROOF
FAP	FIRE ALARM PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
	FIRE ALARM MANUAL PULL STATION
	CEILING MOUNTED SMOKE DETECTOR
	CEILING MOUNTED THERMAL DETECTOR
S	WALL OR CEILING MOUNTED FIRE ALARM SPEAKER (AUDIBLE DEVICE). SOUND LEVEL TO BE A MINIMUM 10DBA ABOVE AMBIENT AND MAXIMUM 100DBA. CONNET ALL FIRE ALARM DEVICES USING "CLASS A" WIRING SYSTEM.
CO	CEILING MOUNT CO DETECTOR
	CEILING OR WALL MOUNT FIRE ALARM HORN
EXIT	COMBINATION EXIT SIGN, C/W TWO HEADS

SUFFIX 'E' EXISTING ITEM INDICATED TO REMAIN.

SUFFIX 'EC' EXISTING ITEM INDICATED TO REMAIN. RE-WIRE TO ACCOMMODATE CIRCUITS/SWITCHING SHOWN. DISCONNECT EXISTING ITEM INDICATED & MAKE SAFE.

SUFFIX 'ER' RELOCATE/REUSE ITEM AS INDICATED.

SUFFIX 'RC' RELOCATED ITEM INDICATED. PROVIDE NEW WIRING/SWITCHING AS SHOWN.

SUFFIX 'X' DISCONNECT & DISPOSE OF ITEM. REMOVE ALL ASSOCIATED WIRING & CONDUIT BACK TO SOURCE AND MAKE SAFE.

SUFFIX 'R' DISCONNECT & REINSTALL EXISTING ITEM TO ACCOMMODATE NEW CONSTRUCTION

SUFFIX 'N' NEW ITEM TO EXISTING BUILDING STANDARD

LIST OF DRAWINGS

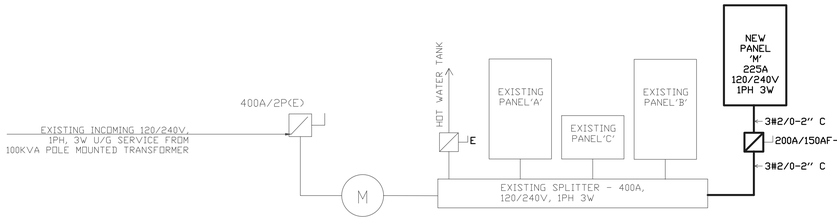
ME-1 - MECHANICAL & ELECTRICAL EQUIPMENT SCHEDULES

E-0.1 - ELECTRICAL LEGEND AND DETAILS

E-1.0 - BAEMENT ELECTRICAL

E-2.0 - GROUND FLOOR ELECTRICAL

E-3.0 - 2ND FLOOR ELECTRICAL



LEGEND

EXISTING EQUIPMENT AND WIRING/CNDUITS

NEW EQUIPMENT AND WIRING/CNDUITS

1 / E-0.1 SINGLE LINE DIAGRAM
SCALE: N.T.S.

NOTES:

1. ALL EQUIPMENT SHALL BE SPRINKLER PROOF INCLUDING BUT NOT LIMITED TO MAIN SWITCHBOARDS, ELECTRICAL PANELS, TRANSFORMERS, FIRE ALARM AND CONTROL PANELS.
2. ALL EQUIPMENT SHALL BE ARC FLASH COMPLIANT INCLUDING BUT NOT LIMITED TO MAIN SWITCHBOARD AND PANELS. PROVIDE ARC FAULT (FLASH) STUDY.
3. PROVIDE SHORT CIRCUIT PROTECTIVE DEVICE SELECTIVE COORDINATION STUDY AND ON SITE VERIFICATION AND ADJUSTMENT.
4. NO CONDUITS SHALL BE RUN IN THE SLAB OR UNDER THE SLAB.
5. ALL BREAKERS SHALL BE SUITABLE FOR 35KAIC.
6. THE SPACING FOR THE SINGLE CONDUCTOR CABLES SHALL NOT BE LESS THAN 100% OF THE CABLE DIAMETER.
7. ALL SINGLE CONDUCTOR CABLES IN PARALLEL SHALL BE INSTALLED AS DETAILS IN RULE 12-180AND BULLETIN 12-7-14
8. ALL BREAKERS FEEDING MOTORS SHALL BE 'MOTOR CIRCUIT BREAKER' TYPES.

ELECTRICAL GENERAL NOTES:

1. DEMOLITION/EXISTING DRAWINGS ARE INTENDED TO ASSIST IN CONVEYING SCOPE OF WORK. VISIT THE SITE TO REVIEW ALL CONDITIONS AFFECTING THE SCOPE OF WORK.
2. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF LUMINARIES, DEVICES, OUTLETS, EQUIPMENT ETC., WHERE SHOWN. NOTIFY CONSULTANTS OF ANY DISCREPANCIES PRIOR TO ROUGH-IN.
3. ALL DRAWINGS SHALL BE READ AND REVIEWED IN CONJUNCTION WITH ARCHITECTURAL, AND MECHANICAL DRAWINGS.
4. RELOCATE EXISTING LUMINAIRES, DEVICES, ETC. AS SHOWN TO ACCOMMODATE NEW DUCTWORK AND MECHANICAL EQUIPMENT.EXTEND CONDUIT/WIRING AS REQUIRED. UNLESS NOTED OTHERWISE, ALLOW RELOCATION BY 10FT.
5. COORDINATE WITH GENERAL TRADES AND RUN ALL EXTENDED CONDUITS IN EXISTING CEILING SPACE & WALL CAVITY TO ACCOMMODATE RELOCATED DEVICES AND LUMINAIRES.
6. CUT AND MAKE GOOD EXISTING GYPSUM BOARD WALL/CEILING TO ACCOMMODATE ASSOCIATED ELECTRICAL DEMOLITION AND NEW WORK. NOTE THAT ALL SPACES ARE HAVING GYPSUM BOARD CEILING.
7. INVESTIGATE AND TRACE ALL EXISTING RECEPTACLES, COMMUNICATION OUTLETS AND LUMINAIRES BACK TO SOURCE PANEL ON SITE TO ACCOMMODATE RELOCATION EXISTING DEVICES/LIGHTS.
8. COORDINATE WITH MECHANICAL CONTRACTOR AND RELOCATE EXIT SIGNS TO ENSURE NEW DUCTWORK WILL NOT BLOCK EXIT SIGNS.
9. SUBMIT FIRE ALARM VERIFICATION REPORT FOR ALL RELOCATED FIRE ALARM DEVICES AND SHALL INCLUDE AUDIBILITY TESTING AS OUTLINED IN ONTARIO BUILDING CODE 3.2.4.19.
10. CIRCUITING SHOWN IS DIAGRAMMATIC ONLY TO INDICATE GROUPING OR DEDICATED CIRCUITS. MAKE USE OF EXISTING CIRCUITS MADE AVAILABLE BY THE RENOVATIONS WHERE POSSIBLE.
11. LABEL ALL RECEPTACLES WITH PANEL AND CIRCUIT NUMBER.

PANEL SCHEDULE

PROJECT: | NO: | DATE: | MAINS: 225 AMPS | 120/240 VOLTS 1PH 3W

LOAD DESCRIPTION	NO	MISC	MOTOR	ELECT HEAT	RECEPT	LIGHTS	BKR SIZE	CIRCUIT NUMBER		BKR SIZE	LIGHTS	RECEPT	ELECT HEAT	MOTOR	MISC	NO	LOAD DESCRIPTION
FC-1&2 UV LIGHTS						0.1	15	1	2	40				6.0			OUTDOOR UNIT HP-1
FC-1/FC-2			0.7				15	3	4	2P		–					"
"							2P	5	6	40				6.0			OUTDOOR UNIT HP-2
FC-3/FC-4			0.7				15	7	8	2P		–					"
"							2P	9	10	40				6.0			OUTDOOR UNIT HP-3
FC-3&4 UV LIGHTS						0.1	15	11	12	2P		–					"
SPARE							15	13	14	15							SPARE
FC-5,6&7 UV LIGHTS						0.5	15	15	16	15							SPARE
FC-5/FC-6/FC-7			1.0				15	17	18	15							SPARE
"							2P	19	20	15							SPARE
SPARE							15	21	22	15							SPARE
SPARE							15	23	24	–							SPACE
ROOF SERVICE RECEPT.				0.6			20	25	26	–							SPACE
SPACE							–	27	28	–							SPACE
SPACE							–	29	30	–							SPACE
SPACE							–	31	32	–							SPACE
SPACE							–	33	34	–							SPACE
SPACE							–	35	36	–							SPACE
SPACE							–	37	38	–							SPACE
SPACE							–	39	40	–							SPACE
SPACE							–	41	42	–							SPACE
SPACE							–	43	44	–							SPACE
SPACE							–	45	46	–							SPACE
SPACE							–	47	48	–							SPACE
SPACE							–	49	50	–							SPACE
SPACE							–	51	52	–							SPACE
SPACE							–	53	54	–							SPACE
SPACE							–	55	56	–							SPACE
SPACE							–	57	58	–							SPACE
SPACE							–	59	60	–							SPACE
SUB-TOTAL KW				–	–	–											SUB-TOTAL KW

SPECIAL FEATURES:	
INTERRUPT CAP:	FED FROM:
MAIN BREAKER:	LOCATION:
☐FLUSH MTD. ☒SURFACE MTD. ☒SPRINKLER PROOF	

LOAD SUMMARY

LOAD	CONNECT	D.F.	DEMAND
LIGHTS	–	1.0	
RECEPT	–	0.75	
ELEC HTG		0.75	
MOTORS	–	0.8	
MISC		0.5	
TOTAL	–		

BREAKER SUMMARY

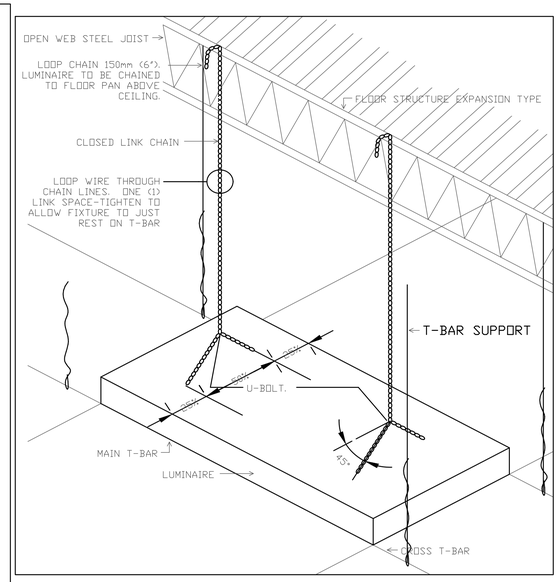
	15A	20A	30A	40A	50A	60A	70A
1P							
2P							
3P							

✱ DENOTES HANDLE LOCKING DEVICE

PANEL DESIGNATION 'M' (NEW)

REVISIONS

NO.	DATE	BY



1 / E-0.1 TYPICAL LUMINAIRE SUSPENSION DETAIL
N.T.S.

LICENSED PROFESSIONAL ENGINEER
MAY 30/25
F.A.DeCARIA
100155660
PROVINCE OF ONTARIO

2	MAY 30/25	ISSUED FOR PERMIT/TENDER
1	MAY 09/25	ISSUED FOR CLASS A COSTING
0	DEC 5/24	ISSUED FOR 50% REVIEW

DeCARIA ENGINEERING
1661 DENISON ST., UNIT D12
MARKHAM ONTARIO
L3R 6E4
TEL. 647-498-4397

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TSSS HVAC Phase IV - 126 Pape

126 Pape AveToronto, ON M4M 2V8

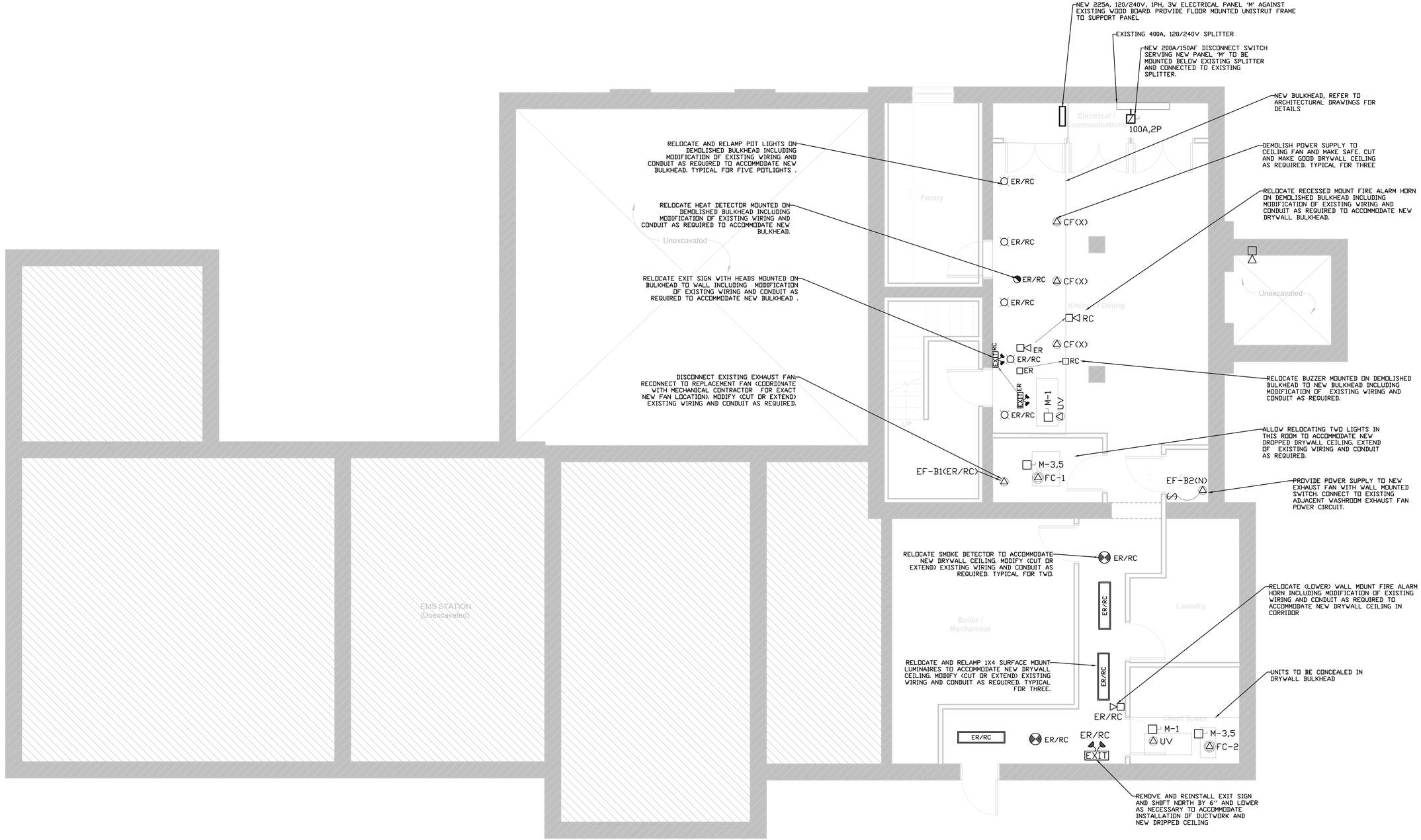
PROJECT CODE:	SCALE:
4880-150	AS NOTED
DRAWN:	CHECKED:
L.Y.	F.D.

ELECTRICAL LEGEND AND DETAILS

Project North

drawing number

E-0.1



SCALE: 1/4'' = 1'

2	MAY 30/25	ISSUED FOR PERMIT/TENDER
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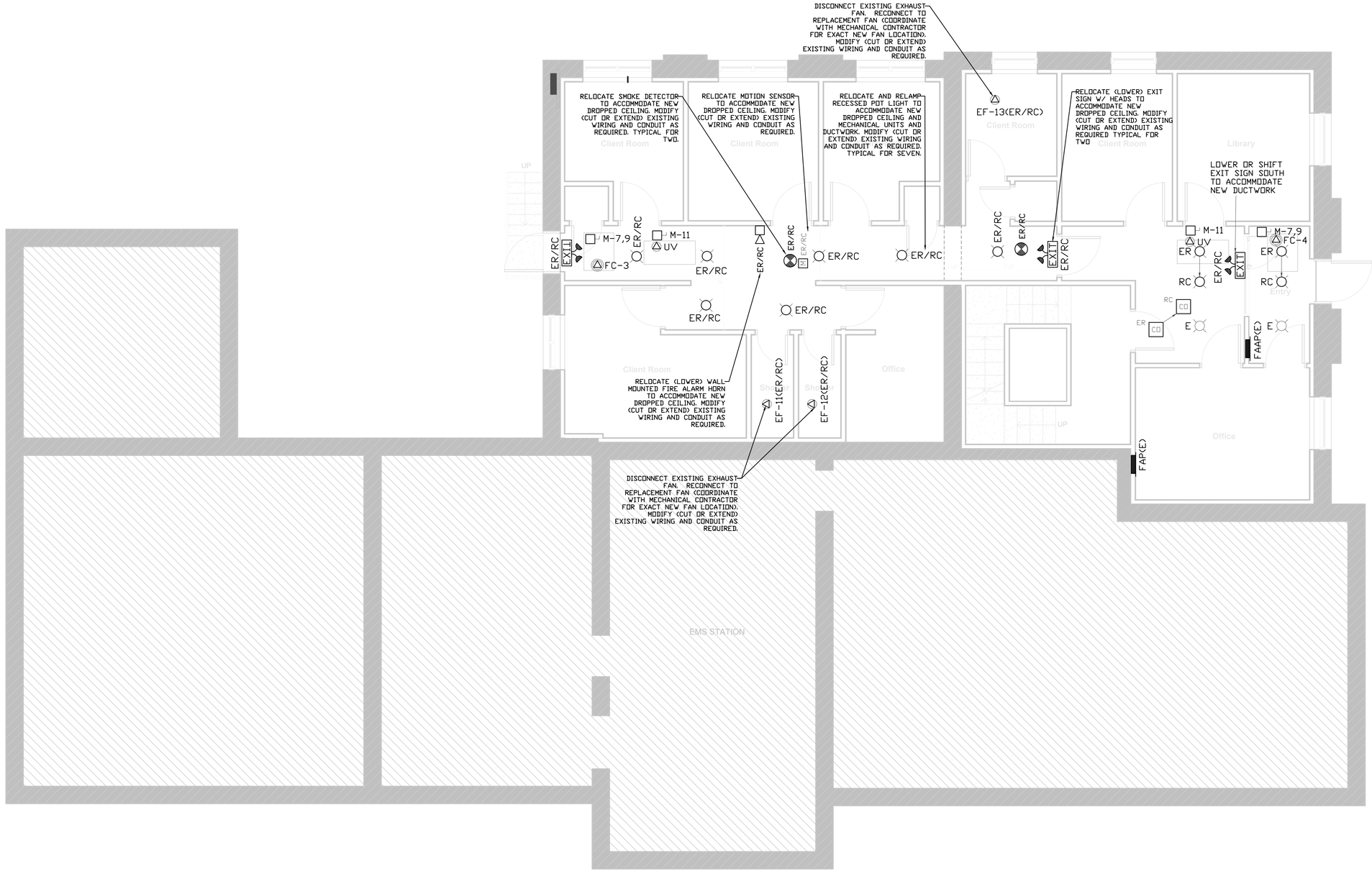
126 Pape AveToronto, ON M4M 2V8

PROJECT CODE:	SCALE:
4880-150	AS NOTED
DRAWN:	CHECKED:
L.Y.	F.D.

BASEMENT PLAN - POWER & SYSTEMS

drawing number

E-1.0



SCALE: 1/4'' = 1'

2	MAY 30/25	ISSUED FOR PERMIT/TENDER
1	MAY 09/25	ISSUED FOR CLASS A COSTING
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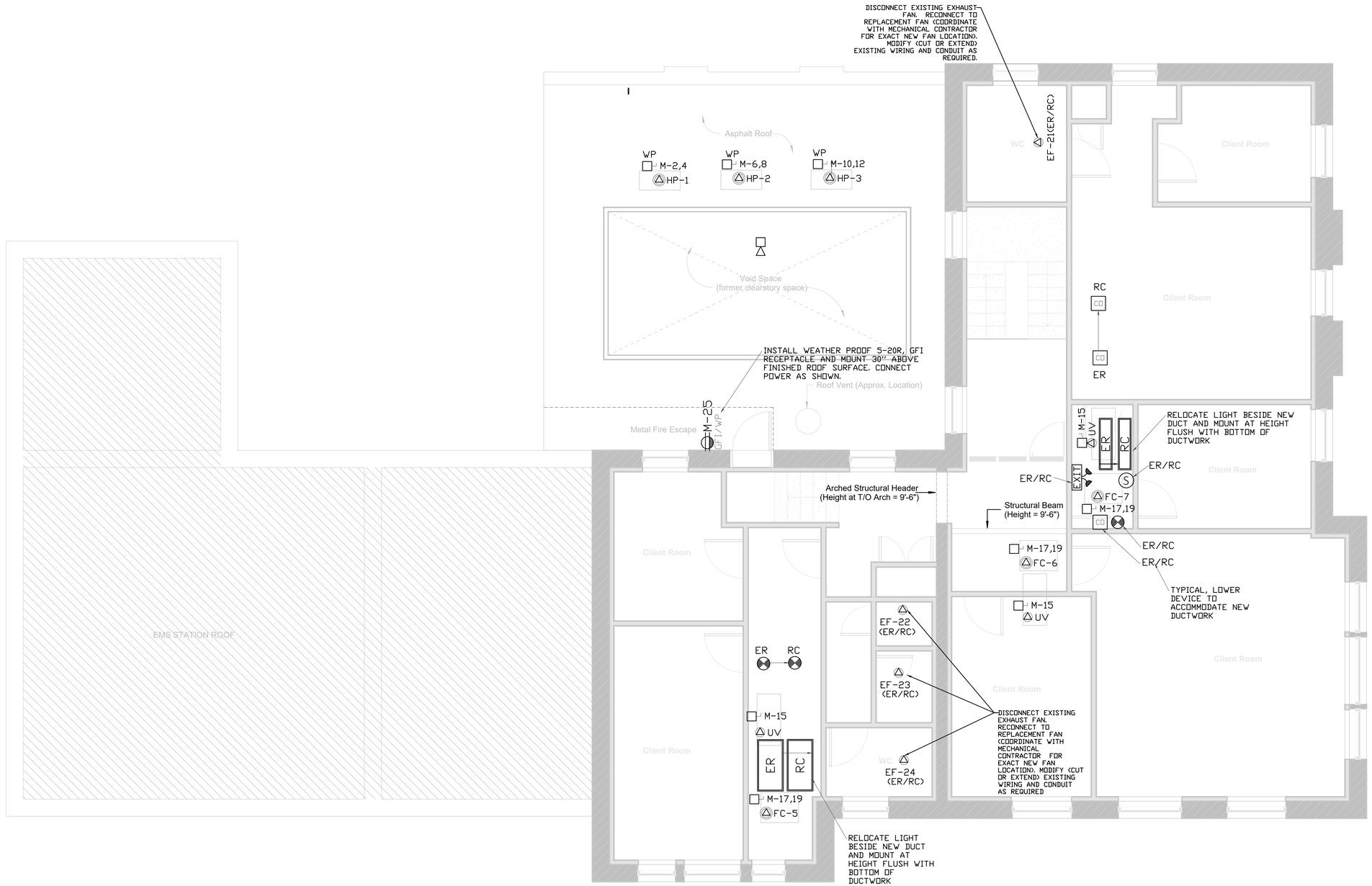
126 Pape AveToronto, ON M4M 2V8

PROJECT CODE:	SCALE:
4880-150	AS NOTED
DRAWN:	CHECKED:
L.Y.	F.D.

GROUND FLOOR PLAN - POWER & SYSTEMS

drawing number

E-2.0



SCALE: 1/4'' = 1'

LICENSED PROFESSIONAL ENGINEER
MAY 30/25
F.A.DeCARIA
100060
PROVINCE OF ONTARIO

2	MAY 30/25	ISSUED FOR PERMIT/TENDER
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TSSS HVAC Phase IV - 126 Pape

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PROJECT CODE:	SCALE:
4880-150	AS NOTED
DRAWN:	CHECKED:
L.Y.	F.D.

SECOND FLOOR PLAN
POWER & SYSTEMS

Project North

drawing number

E-3.0