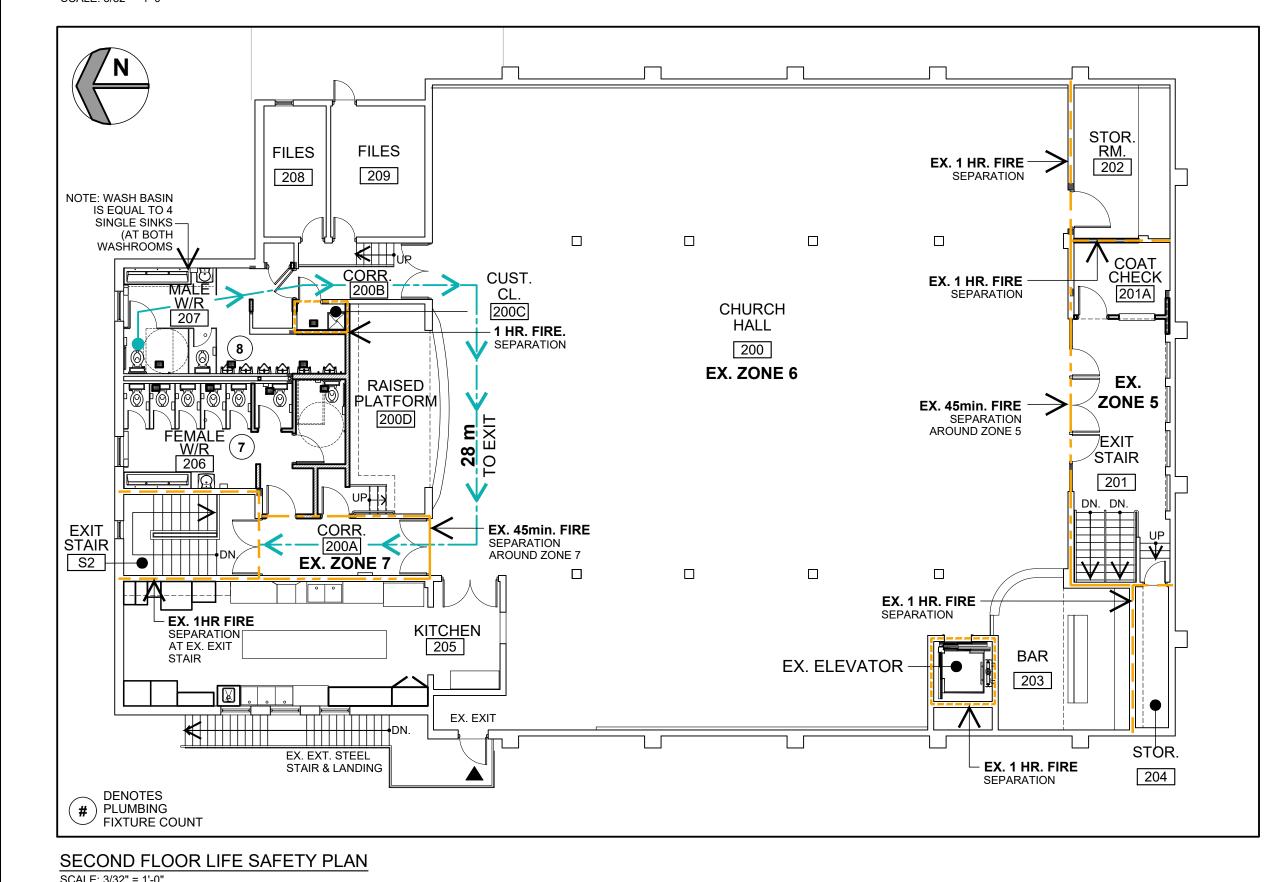


-EX. ELEVATOR

**GROUND FLOOR LIFE SAFETY PLAN** 



# HOLY CROSS CROATIAN PARISH HALL RENOVATIONS

1883 KING STREET EAST, HAMILTON, ON L8K 1V9

NAME OF PRACTICE: GRGURIC ARCHITECTS INCORPORATED CERTIFICATE OF PRACTICE NUMBER: 4760 CONTACT: JOHN GRGURIC 28 KING STREET EAST, UNIT B, STONEY CREEK, ON L8G 1J8

NAME OF PROJECT: HOLY CROSS CROATIAN PARISH HALL RENOVATIONS

(EXISTING)

Mezzanine N/A Hours

FRR of Supporting

N/A

Hours

OBC Part 11:

Existing assemblies

existing performance levels & ratings

are not being

Ontario's 2012 Building Code Data Matrix Parts 3 or 9		References are to Di	OBC Reference  References are to Division B unless noted	
			[A] for Division A of	or [C] for Division C
Project Description: OFFICE, KITCHEN & WASHROOM RENOVATIONS	☐ New	Part 11	Part 3	☐ Part 9
TO PARISH HALL SPACE	☐ Addition	11.1 to 11.4	1.1.2. [A]	1.1.2 [A] &
☐ Change of Use	Alteration			9.10.1.3
Major Occupancy(s) A2 - ASSEMBLY OCCUPANCY	(		3.1.2.1.(1)	9.10.2
Building Area Existing ± 767 sq.m New N/A			1.4.1.2.[A]	1.4.1.2.[A]
Gross Area Existing ± 1475 sq.m Renovation	Area ±260 sm		1.4.1.2.[A]	1.4.1.2.[A]
Number of storeys 2 Above grade 2	Below grade Partial	Basement	1.4.1.2.[A] & 3.2.1.1	1.4.1.2.[A] & 9.10.4
Number of Streets/ Fire Fighter Access 1 STREET			3.2.2.10 & 3.2.5	9.10.20.
Building Classification GROUP A, DIV. 2, UP TO 2 STOR	EYS (3.2.2.25)		3.2.2.24	9.10.2.
Sprinkler System Proposed	tire building		3.2.2.24	9.10.8.2
□ se	elected compartments		3.2.1.5.	
□ se	elected floor areas		3.2.2.17.	
□ ba	sement  in lieu of	roof rating	INDEX	INDEX
■ no	t required			
Standpipe required Ye	es No		3.2.9	N/A
Fire Alarm required Ye	es 🗌 No		3.2.4	9.10.18
Water Service/Supply is Adequate	es 🗌 No		3.2.5.7.	N/A
High Building Ye	es No		3.2.6	N/A
Permitted Construction Combustible permitted	Non-combustible required	Both	3.2.2.2083	9.10.6
Actual Construction	Non-combustible	☐ Both		
 Mezzanine(s) Area m <sup>2</sup> N/A			3.2.1.1.(3)-(8)	9.10.4.1
Occupant load based on	design of buil	ding	3.1.17	9.9.1.3
1 <sup>st</sup> Floor Occupancy	Load 100	persons		
2 <sup>nd</sup> Floor Occupancy	Load <u>350</u>	persons		
Barrier-free Design ■ Yes □	No (Explain)		3.8	9.5.2
Hazardous Substances ☐ Yes ■	No		3.3.1.2. & 3.3.1.19	9.10.1.3(4)
Required Horizontal Assemblies	Listed D	esign No.	3.2.2.24 & 3.2.1.4	9.10.8.
Fire FRR (Hours)		tion (SB-2)		9.10.9.
Rating	Existing Nor	-Combustible	_	5.10.0.
(FRR) Floors Hours		ast Concrete Slab)	$\dashv$	

Spatial Separation - Construction of Exterior Walls N/A EXISTING 9.10.14 Listed Comb. Constr. % of EBF Max. % of (Hours) Openings Cladding Male / Female Count @ \_\_50\_\_% / \_50\_\_%, BC Table / Fixtures Fixtures
REF. Number Required Provided 9 3.7.4.2. - 3.7.4.3

Listed Design No.

or Description (SB-2)

Existing Non-Combustible

Existing Non-Combustible

10 3.7.4.2. - 3.7.4.3

Ontario Building Code Data Matrix Part 11 Renovation of Existing Building				Building Cod Reference		
11.1	Existing Building classification:	Describe Existing Use: Construction Index: Hazard Index:  Not Applicable (no majo	Assembly A2 (Church /	Hall)	_ 11.2.1 _ T 11.2.1.1A _ T 11.2.1.1B to N	
11.2	Alteration to Existing Building is:	Basic Renovation  Extensive Renovation	■ □		11.3.3.1 11.3.3.2	
11.3	Reduction in Performance Level:	Structural: By Increase in occupant load By change of major occupant Plumbing: Sewage System:	□ No □ No cy: □ No □ No □ No □ No	☐ Yes ☐ Yes ☐ Yes ☐ Yes ☐ Yes	11.4.2 11.4.2.1 11.4.2.2 11.4.2.3 11.4.2.4 11.4.2.5	
11.4	Compensating Construction:	Structural: Increase in occupant load: Change of major occupancy: Plumbing: Sewage system:	■ No ■ No ■ No ■ No	☐ Yes (explain ☐ Yes (explain) ☐ Yes (explain) ☐ Yes (explain) ☐ Yes (explain)	11.4.3.2 11.4.3.3 11.4.3.4 11.4.3.5 11.4.3.6	
11.5	Compliance Alternatives Proposed:	■ No □ Yes (give number [s])			11.4.2	

FIRE RESISTANCE RATING SCHEDULE TRAVEL DISTANCE LINE OF EGRESS ROUTE + TRAVEL DISTANCE ARROWS DENOTE DIRECTION OF TRAVEL





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E-MAIL: contact@rm-eng.ca | WEB: rm-eng.ca

# **DRAWING LIST:**

### ARCHITECTURAL

COVER SHEET & OBC MATRIX PARTIAL GROUND FLOOR PLAN, DEMO PLAN & RCP PARTIAL SECOND FLOOR PLANS

PARTIAL SECOND FLOOR REFLECTED CEILING PLANS SCHEDULES, DETAILS & WASHROOM ELEVATIONS STRUCTURAL FRAMING & DETAILS

#### **MECHANICAL**

MECHANICAL TITLE PAGE

OFFICE MECHANICAL PLANS

KITCHEN VENTILATION, GAS PIPING & WASHROOM DEMOLITION PLAN

KITCHEN & WASHROOM PLUMBING PLAN

MECHANICAL SCHEDULES & DETAILS MECHANICAL SPECIFICATIONS

#### **ELECTRICAL**

ELECTRICAL TITLE PAGE

**ELECTRICAL SPECIFICATIONS** ELECTRICAL SPECIFICATIONS AND SCHEDULES

ELECTRICAL DEMOLITION PLANS

GROUND FLOOR ELECTRICAL PLANS

SECOND FLOOR ELECTRICAL PLANS

PARTIAL BASEMENT AND SECOND FLOOR ELECTRICAL PLANS

SURFACES FINISHES & MATERIALS WHERE DISTURBED BY NEW CONSTRUCTION.

#### **GENERAL NOTES**

- PATCH, PRIME & PAINT ANY EXISTING MECHANICAL RADIATOR COVERS, BASE BOARD HEATERS EXISTING MECHANICAL FIXTURES / EQUIPMENT (WALL OR CEILING) & ANY WIRE MOULDS / ELECTRICAL CONDUIT COVERS TO MATCH COLOUR OF WALL IN WHICH THEY ARE LOCATED IN ALL ROOMS IN SCOPE OF WORK.
- COORDINATE AND VERIFY WITH THE OWNER ALL ITEMS TO BE SALVAGED, MOVED & STORED PRIOR TO
- CAUSE NO DAMAGE TO EXISTING CONSTRUCTION TO REMAIN. TAKE CARE NOT TO ENCROACH ON

ADJACENT OCCUPIED AREAS OR AREAS NOT WITHIN THE SCOPE OF WORK. PROTECT ALL EXISTING

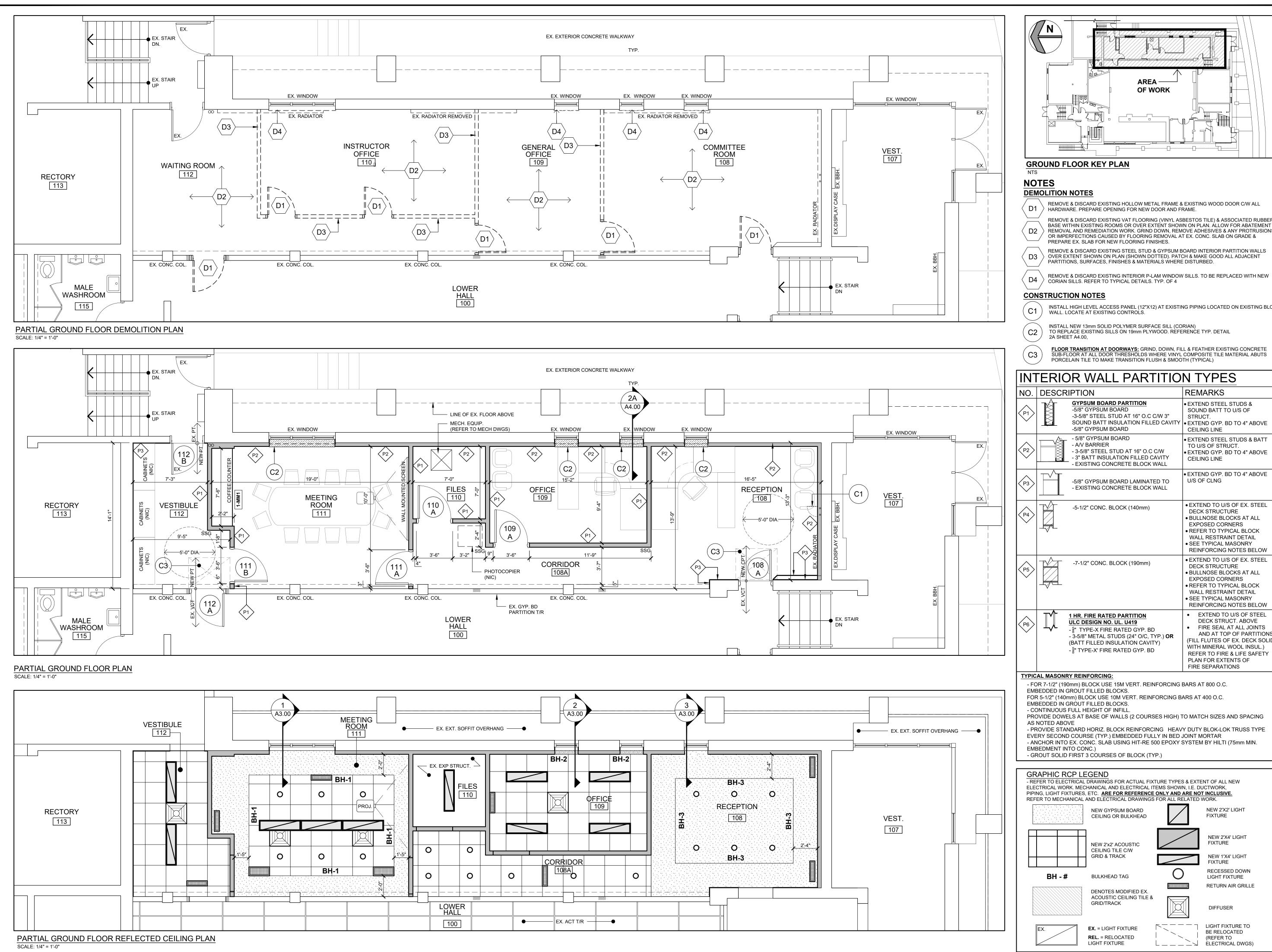
FINISHES, DOORS, FRAMES. ETC. WHICH ARE TO REMAIN. PATCH AND MAKE GOOD ALL EXISTING ADJACENT

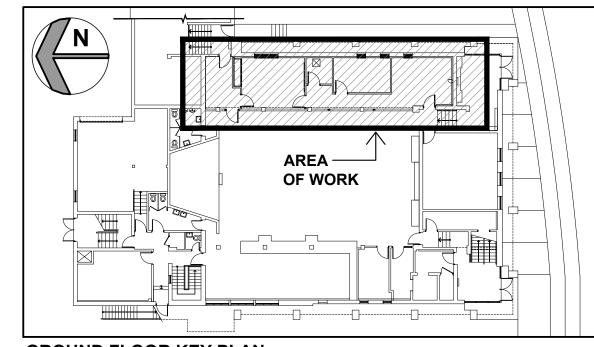
- MECHANICAL AND ELECTRICAL ITEMS SHOWN, I.E. DUCTWORK, PIPING, LIGHT FIXTURES, ETC. ARE FOR REFERENCE ONLY AND ARE NOT INCLUSIVE. REFER TO MECHANICAL AND ELECTRICAL DRAWING FOR ALL RELATED NEW AND DEMOLITION WORK REQUIRED.
- CONNECTIONS OF ALL NON STRUCTURAL ELEMENTS AND EQUIPMENT TO SUPPORTING STRUCTURE TO BE DESIGNED TO COMPLY WITH ARTICLE 4.1.8.18 OF THE 2012 ONTARIO BUILDING CODE FOR SEISMIC LOADS. CONTRACTOR TO SUBMIT SHOP DRAWINGS SHOWING THESE CONNECTIONS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER IF APPLICABLE.
- TRANSITIONS BETWEEN FLOOR FINISHES TO BE MADE SMOOTH, CONTINUOUS & FLUSH. GRIND DOWN EXISTING FLOOR SLAB ACROSS DOOR THRESHOLDS WHERE APPLICABLE TO SUIT THICKNESS OF NEW MATERIALS AND ENSURE NEW MATERIALS ARE INSTALLED FLUSH THROUGHOUT
- CONTRACTOR TO ALLOW FOR PATCHING AND REPAIR OF ALL EXISTING ADJACENT MATERIALS, SURFACES & FINISHES AT SLAB CUTTING & TRENCHING OF ALL PLUMBING FIXTURES AS WELL AS MECHANICAL EQUIPMENT TO BE REMOVED OR RELOCATED. REFER TO MECHANICAL DRAWINGS. PREPARE ALL SURFACES
- 8. CONTRACTOR TO ALLOW FOR PATCHING AND REPAIR OF ADJACENT MATERIALS AT ALL ELECTRICAL LIGHTING, EQUIPMENT, CONDUIT, RACEWAYS, ETC. TO BE REMOVED OR RELOCATED. REFER TO ELECTRICAL DRAWINGS. PREPARE ALL SURFACES FOR NEW FINISHES.
- APPLIANCES SHOWN IN KITCHENS, KITCHENETTES AND LAUNDRY ROOMS ARE SHOWN FOR REFERENCE. SUPPLY & INSTALL BY OTHERS, NOT IN CONTRACT. INCLUDES BUT IS NOT LIMITED TO; WASHERS, DRYERS, FRIDGES, STOVES, MICROWAVES, ETC.

ISSUED FOR TENDER 2022-03-18

PROJECT NUMBER

2021-15 A0.00





REMOVE & DISCARD EXISTING HOLLOW METAL FRAME & EXISTING WOOD DOOR C/W ALL

- REMOVE & DISCARD EXISTING VAT FLOORING (VINYL ASBESTOS TILE) & ASSOCIATED RUBBER BASE WITHIN EXISTING ROOMS OR OVER EXTENT SHOWN ON PLAN. ÁLLOW FOR ABATEMENT REMOVAL AND REMEDIATION WORK. GRIND DOWN, REMOVE ADHESIVES & ANY PROTRUSIONS
- OVER EXTENT SHOWN ON PLAN (SHOWN DOTTED). PATCH & MAKE GOOD ALL ADJACENT
- REMOVE & DISCARD EXISTING INTERIOR P-LAM WINDOW SILLS. TO BE REPLACED WITH NEW
- INSTALL HIGH LEVEL ACCESS PANEL (12"X12) AT EXISTING PIPING LOCATED ON EXISTING BLOCK
- SUB-FLOOR AT ALL DOOR THRESHOLDS WHERE VINYL COMPOSITE TILE MATERIAL ABUTS

NO.	DESCR	RIPTION	REMARKS
P1		GYPSUM BOARD PARTITION -5/8" GYPSUM BOARD -3-5/8" STEEL STUD AT 16" O.C C/W 3" SOUND BATT INSULATION FILLED CAVITY -5/8" GYPSUM BOARD	EXTEND STEEL STUDS &     SOUND BATT TO U/S OF     STRUCT.     EXTEND GYP. BD TO 4" ABOVE     CEILING LINE
P2		- 5/8" GYPSUM BOARD - A/V BARRIER - 3-5/8" STEEL STUD AT 16" O.C C/W - 3" BATT INSULATION FILLED CAVITY - EXISTING CONCRETE BLOCK WALL	EXTEND STEEL STUDS & BATT TO U/S OF STRUCT.     EXTEND GYP. BD TO 4" ABOVE CEILING LINE
P3		-5/8" GYPSUM BOARD LAMINATED TO - EXISTING CONCRETE BLOCK WALL	• EXTEND GYP. BD TO 4" ABOVE U/S OF CLNG
P4		-5-1/2" CONC. BLOCK (140mm)	EXTEND TO U/S OF EX. STEEL DECK STRUCTURE     BULLNOSE BLOCKS AT ALL EXPOSED CORNERS     REFER TO TYPICAL BLOCK WALL RESTRAINT DETAIL     SEE TYPICAL MASONRY REINFORCING NOTES BELOW
P5		-7-1/2" CONC. BLOCK (190mm)	EXTEND TO U/S OF EX. STEEL DECK STRUCTURE     BULLNOSE BLOCKS AT ALL EXPOSED CORNERS     REFER TO TYPICAL BLOCK WALL RESTRAINT DETAIL     SEE TYPICAL MASONRY REINFORCING NOTES BELOW
P6		1 HR. FIRE RATED PARTITION ULC DESIGN NO. UL. U419  - 5" TYPE-X FIRE RATED GYP. BD  - 3-5/8" METAL STUDS (24" O/C, TYP.) OR (BATT FILLED INSULATION CAVITY)  - 5" TYPE-X' FIRE RATED GYP. BD	EXTEND TO U/S OF STEEL     DECK STRUCT. ABOVE     FIRE SEAL AT ALL JOINTS     AND AT TOP OF PARTITIONS     (FILL FLUTES OF EX. DECK SOLI     WITH MINERAL WOOL INSUL.)  REFER TO FIRE & LIFE SAFETY

- ANCHOR INTO EX. CONC. SLAB USING HIT-RE 500 EPOXY SYSTEM BY HILTI (75mm MIN.

**LEGEND** ACOUSTIC CEILING TILE APPROXIMATELY BASE BOARD HEATER BOARD CENTRE LINE CONCRETE COLUMN CARPET TILE COMPLETE WITH DIAMETER DOUBLE DISH WASHER ELECTRICAL PANEL EXISTING **EXPOSED** FRIDGE GYPSUM HOLLOW METAL ON CENTRE LUXURY VINYL TILE MATERIAL MECHANICAL MINIMUM NOT IN CONTRACT PLASTIC LAMINATE PORCELAIN TILE RADIATOR RUBBER BASE RELOCATED ITEM REQUIRED STORAGE STAINLESS STEEL STAINLESS STEEL CORNER GUARD THICKNESS TO REMAIN UNDER SIDE VINYL COMPOSITE TILE WOOD ISSUED FOR TENDER I ISSUED FOR PERMIT 2022-01-1 ISSUED FOR CLIENT REVIEW 2021-08-20 ISSUED FOR REVIEW 2021-06-29 REVISIONS RAWINGS ARE NOT TO BE SCALED. CONTRACTOR MUST

THE PROJECT; AND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS BEFORE PROCEEDING WITH THE WORK. THE USE OF THIS DRAWING OR PART THEREOF IS FORBIDE TITHOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

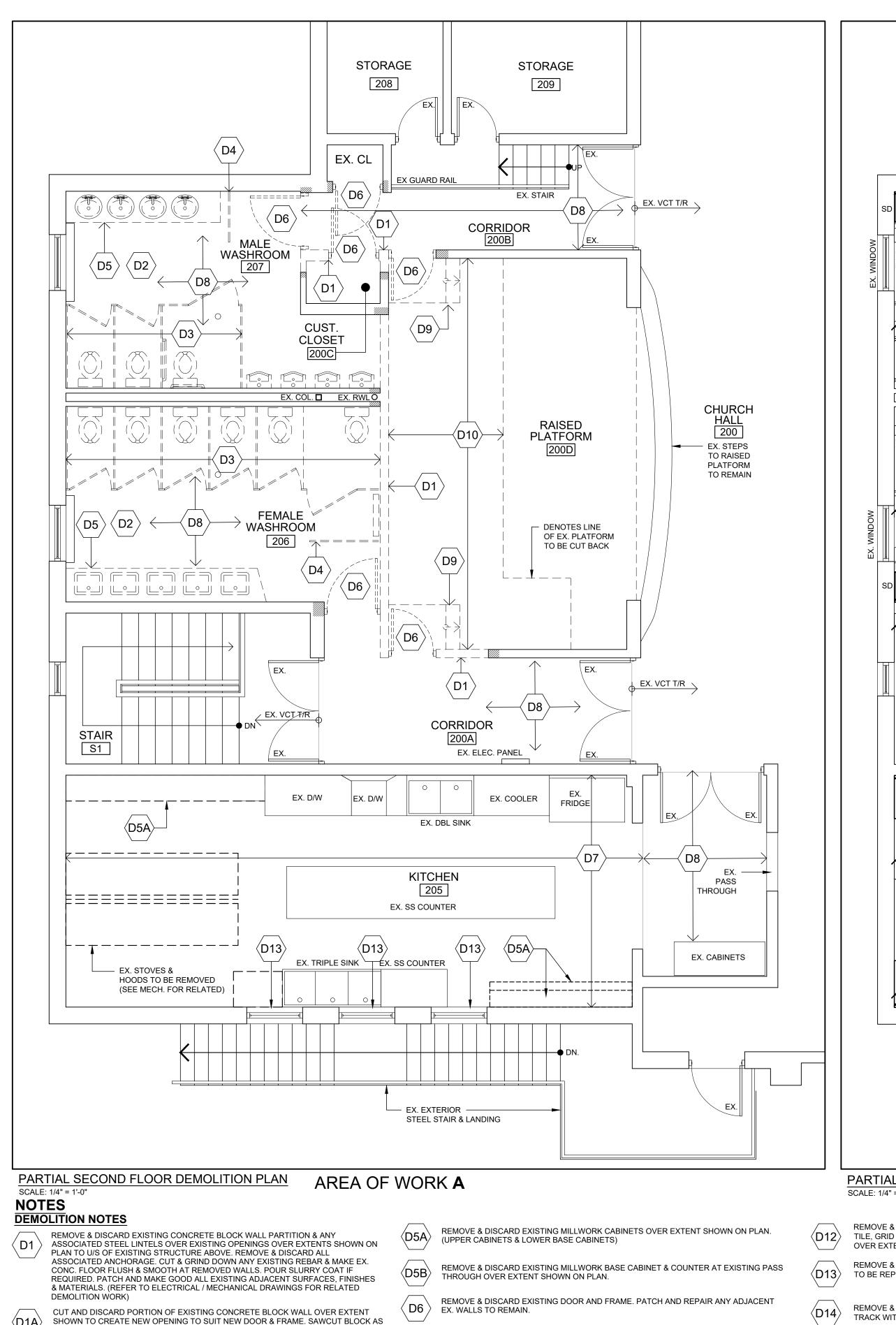
HOLY CROSS CROATIAN PARISH HALL RENOVATIONS 1883 KING ST E, HAMILTON, ON L8K 1V9

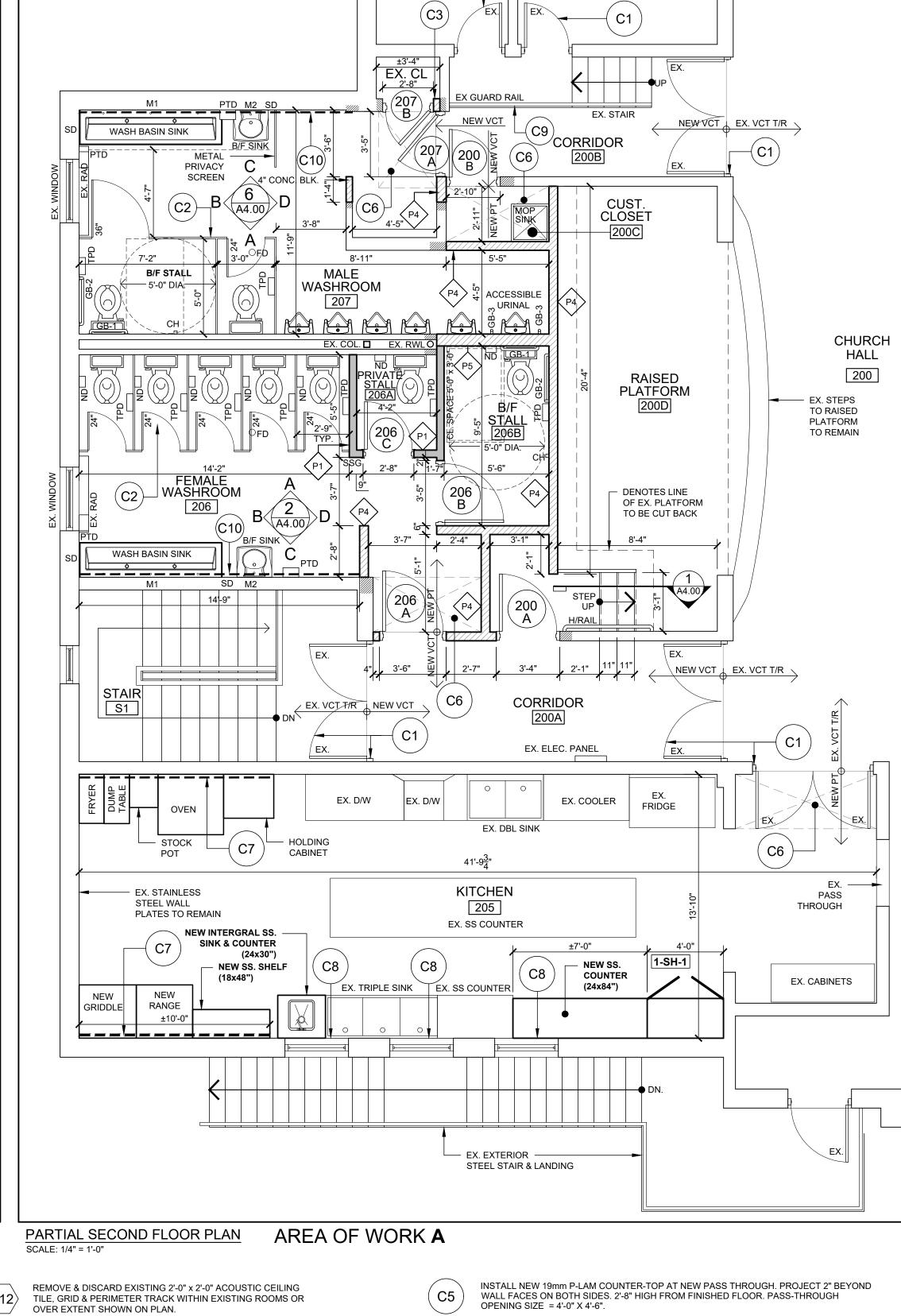
PARTIAL GROUND FLOOR PLAN, DEMO PLAN & RCP



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SCALE: AS NOTED	PROJECT:
START DATE: JUNE 2021	2021-15
DRAWN:	DRAWING:





ADHESIVES & ANY PROTRUSIONS OR IMPERFECTIONS CAUSED BY FLOORING REMOVAL & PREPARE FLOOR FOR NEW FLOORING FINISHES.

REMOVE & DISCARD EXISTING VCT FLOORING & ASSOCIATED RUBBER BASE WITHIN EXISTING ROOM OR OVER EXTENT SHOWN ON PLAN. GRIND DOWN, REMOVE ADHESIVES & ANY PROTRUSIONS OR IMPERFECTIONS CAUSED BY FLOORING

 $\langle$  D9  $\rangle$ REMOVE & DISCARD EXISTING WOOD STEPS / STRINGERS

REMOVE & DISCARD ALL EXISTING SUSPENDED STEEL PIPE COAT HANGING BARS & SHELVING THROUGHOUT EXISTING ROOM.

REMOVE & DISCARD EX. PORCELAIN TILE INTERIOR WINDOW SILL. TO BE REPLACED WITH NEW.

REMOVE & DISCARD EXISTING ACOUSTIC CEILING TILE, GRID & PERIMETER TRACK WITHIN EXISTING ROOMS OR OVER EXTENT SHOWN ON PLAN.

# **CONSTRUCTION NOTES**

ADJACENT CONCRETE BLOCK.

PATCH, PRIME & PAINT EXISTING HOLLOW METAL DOOR & FRAME. (BOTH SIDES) (TYP. DOOR SIZE ± 3'-0" x 7'-0"). MASK & PROTECT ALL EXISTING HARDWARE

INSTALL NEW METAL TOILET PARTITIONS AS PER NEW LAYOUT SHOWN.

INSTALL NEW CONCRETE BLOCK INFILL AT REMOVED DOOR AT FRAME.

APPROX. SIZE = 3'-0" x 7'-0". COURSING TO MATCH WITH EXISTING ADJACENT
BLOCK COURSING. SAWTOOTH AS REQUIRED AND KEEP FLUSH WITH EXISTING

INSTALL NEW PARTITION INFILL AT EXISTING RECESSED COVE (TO COVER EX. MIRROR) INFILL TO BE 1/2 " GYPSUM BOARD ON 4" STEEL STUD AT 16" O/C TO U/S OF EX. COVE.

FLOOR TRANSITION AT DOORWAYS: GRIND, DOWN, FILL & FEATHER EXISTING CONCRETE SUB-FLOOR AT ALL DOOR THRESHOLDS WHERE VINYL COMPOSITE TILE MATERIAL ABUTS PORCELAIN TILE TO MAKE TRANSITION FLUSH & SMOOTH (TYPICAL)

INSTALL NEW STAINLESS STEEL PROTECTION WALL PLATES TO MATCH EXISTING ALONG WALLS WHERE NEW KITCHEN HOODS / EQUIPMENT IS BEING LOCATED (DENOTED BY DASHED LINE). INSTALL TO U/S OF NEW KITCHEN HOODS. ALLOW FOR APPROX. AREA OF 10'-0" W x 6'-8" H.

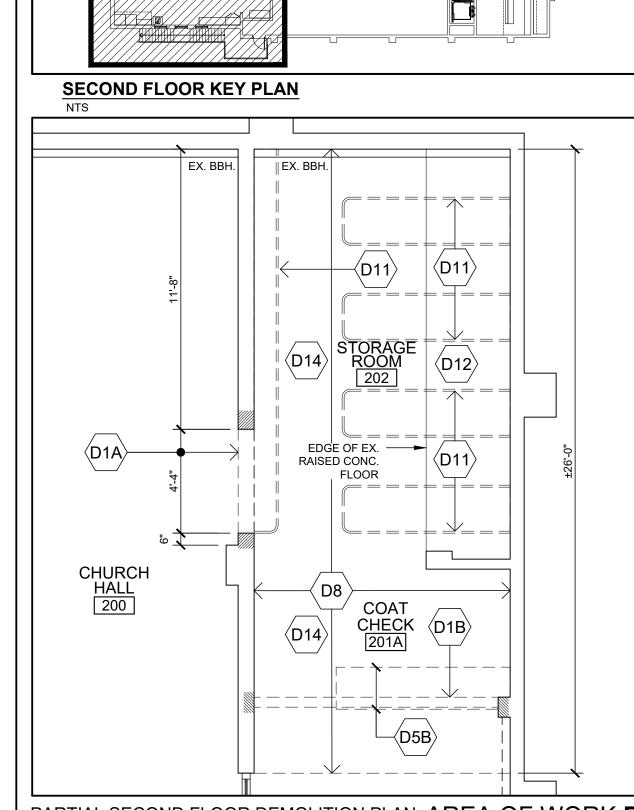
**STORAGE** 

209

INSTALL NEW 13mm SOLID POLYMER SURFACE SILL (CORIAN) TO REPLACE EXISTING SILLS ON 19mm PLYWOOD. REFERENCE TYP. DETAIL 2A SHEET A4.00 FOR SIMILAR CONSTRUCTION.

- INSTALL NEW VCT & RUBBER BASE AT EXISTING STAIRS & LANDING - REPLACE EXISTING RUBBER NOSINGS WITH NEW - PAINT EXISTING RISERS & SIDE OF LANDING - PAINT OUT EXISTING STEEL PICKETS AT EXISTING GUARD (HANDRAIL TO REMAIN)

INSTALL NEW CERAMIC WALL TILE (CWT) ALONG WALL SHOWN (DOTTED) (C10) FULL HEIGHT FROM FINISHED FLOOR TO U/S OF BULKHEAD. (REFER TO INTERIOR ELEVATIONS)



OF WORK B

OF WORK A



ACOUSTIC CEILING TILE APPROXIMATELY

BARRIER FREE

COMPLETE WITH

CENTRE LINE COAT HOOK

CONCRETE

DIAMETER

RAB BAR

HANDRAIL MIRROR

MATERIA

MINIMUM

MECHANICAL

NOT IN CONTRACT

PLASTIC LAMINATI

PORCELAIN TILE

RUBBER BASE RELOCATED ITEM REQUIRED SOAP DISPENSER

STORAGE STRUCTURE

THICKNESS

UNDER SIDE

ISSUED FOR TENDER

ISSUED FOR PERMIT

ISSUED FOR REVIEW

ISSUED FOR CLIENT REVIEW

REVISIONS

RAWINGS ARE NOT TO BE SCALED, CONTRACTOR MUST

THE PROJECT; AND MUST REPORT ANY DISCREPANCIES T

HE ARCHITECTS REFORE PROCEEDING WITH THE WORK

THE USE OF THIS DRAWING OR PART THEREOF IS FORBID

THOUT THE WRITTEN APPROVAL OF THE ARCHITECTS

STRUCT

PORCELAIN TILE PAPER TOWEL DISPENSER

STAINLESS STEEL STAINLESS STEEL CORNER GUAF

2022-01-1

2021-08-20

2021-06-29

TOILET PAPER DISPENSER TO REMAIN

VINYL COMPOSITE TILE

DISH WASHER ELECTRICAL EXISTING

APPROX

PARTIAL SECOND FLOOR PLANS

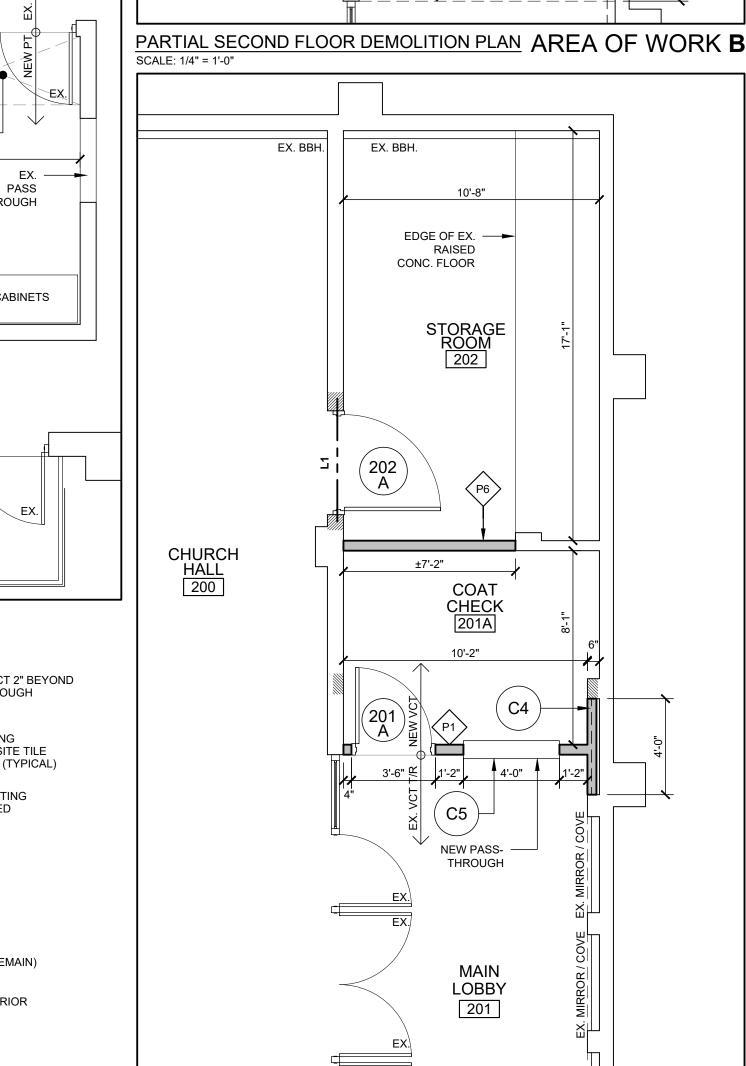


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AS NOTED START DATE: JUNE 2021

CHECKED

AREA OF WORK B



PARTIAL SECOND FLOOR PLAN

Web: www.2gai.com

DRAWN:

THE OWNER FOR FURTHER DIRECTION. PATCH AND REPAIR ANCHOR HOLES IN EX. WALLS TO REMAIN AND MAKE SURFACE READY TO RECEIVE NEW FINISHES. REMOVE & DISCARD EXISTING METAL TOILET PARTITIONS OVER EXTENT SHOWN. PATCH AND REPAIR EXISTING WALLS AND FLOOR AS REQUIRED.

PLASTER AROUND OPENING TO MATCH AND TIE IN WITH EXISTING.

SHOWN, FULL HEIGHT TO U/S OF STRUCTURE. APPROX. HEIGHT TO U/S OF EX.

MATERIALS AND SURFACES.

STRUCTURE 14'-2". PATCH AND MAKE GOOD ALL ADJACENT WALL FINISHES,

REQ'D. INSTALL NEW STEEL LINTEL ABOVE TO SUIT TO SUPPORT EXISTING BLOCK.

REFER TO TYP. LINTEL SCHEDULE. PATCH AND MAKE GOOD ALL EXISTING GYPSUM /

REMOVE & DISCARD EXISTING STUD WALL & GYP. BD PARTITION WALL OVER EXTENT

REMOVE EXISTING WASHROOM ACCESSORIES WITHIN EXISTING WASHROOMS SHOWN

INCLUDING BUT NOT LIMITED TO ALL PAPER TOWEL DISPENSERS, TOILET PAPER

DISPENSERS, SOAP DISPENSERS, GRAB BARS & MIRRORS ETC. AND TURN OVER TO

REMOVE & DISCARD EXISTING METAL PRIVACY SCREENS. REMOVE & DISCARD EXISTING MILLWORK VANITY C/W COUNTERS & DRAWERS, ETC.

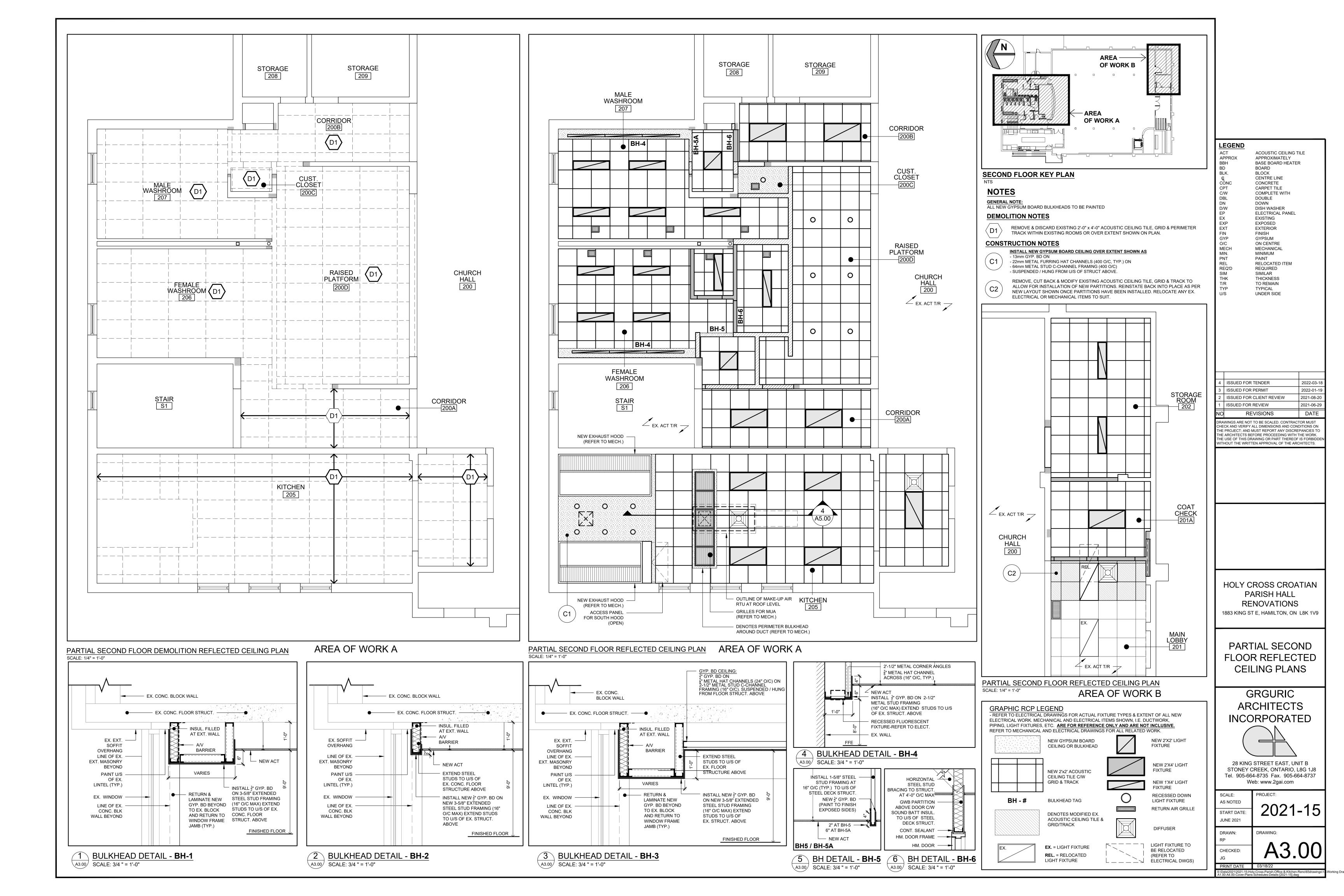
REFER TO MECHANICAL DRAWINGS FOR RELATED WORK.

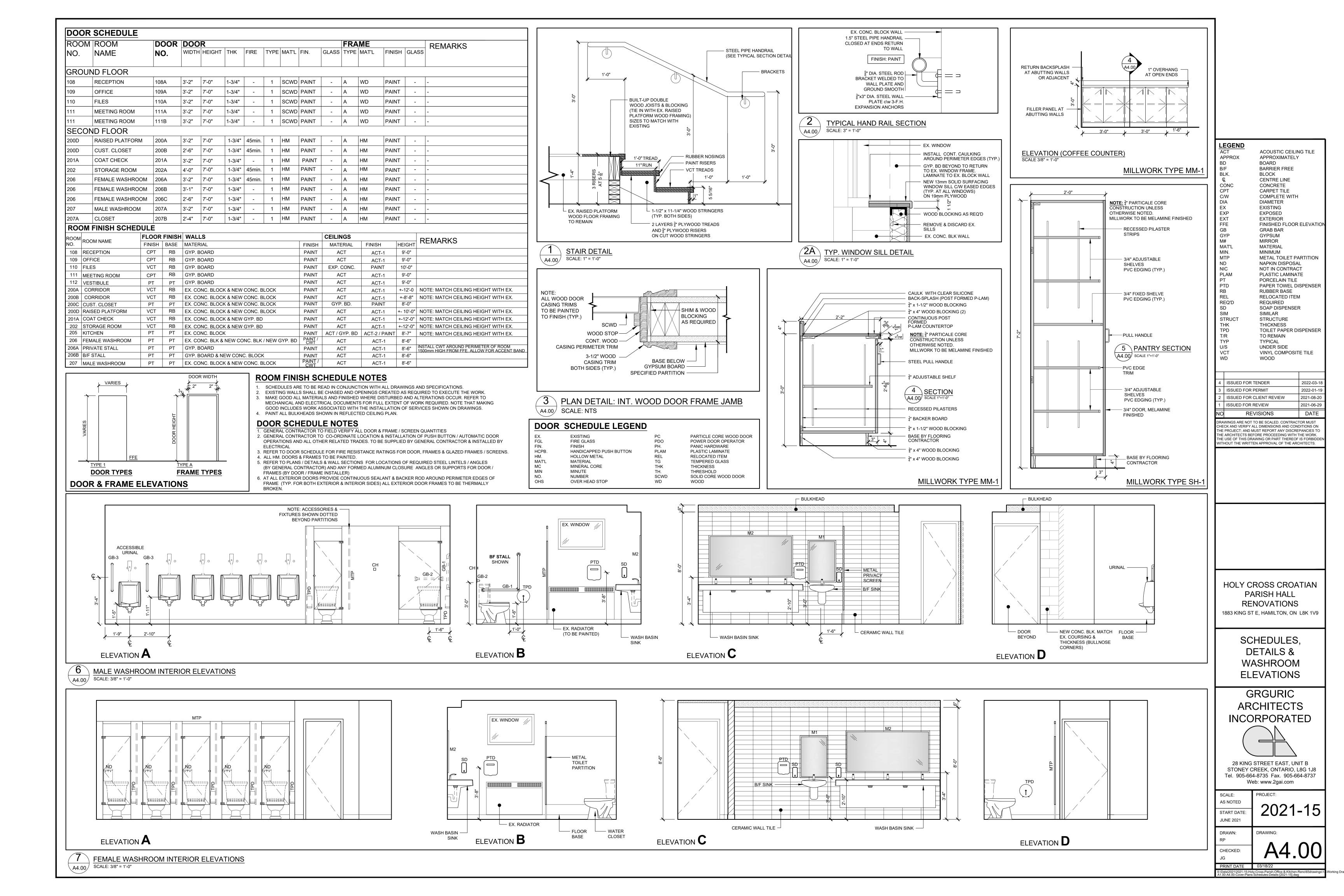
REMOVE & DISCARD EXISTING PORCELAIN TILE FLOORING & ASSOCIATED TILE BASE WITHIN EXISTING ROOM OR OVER EXTENT SHOWN ON PLAN. GRIND DOWN, REMOVE

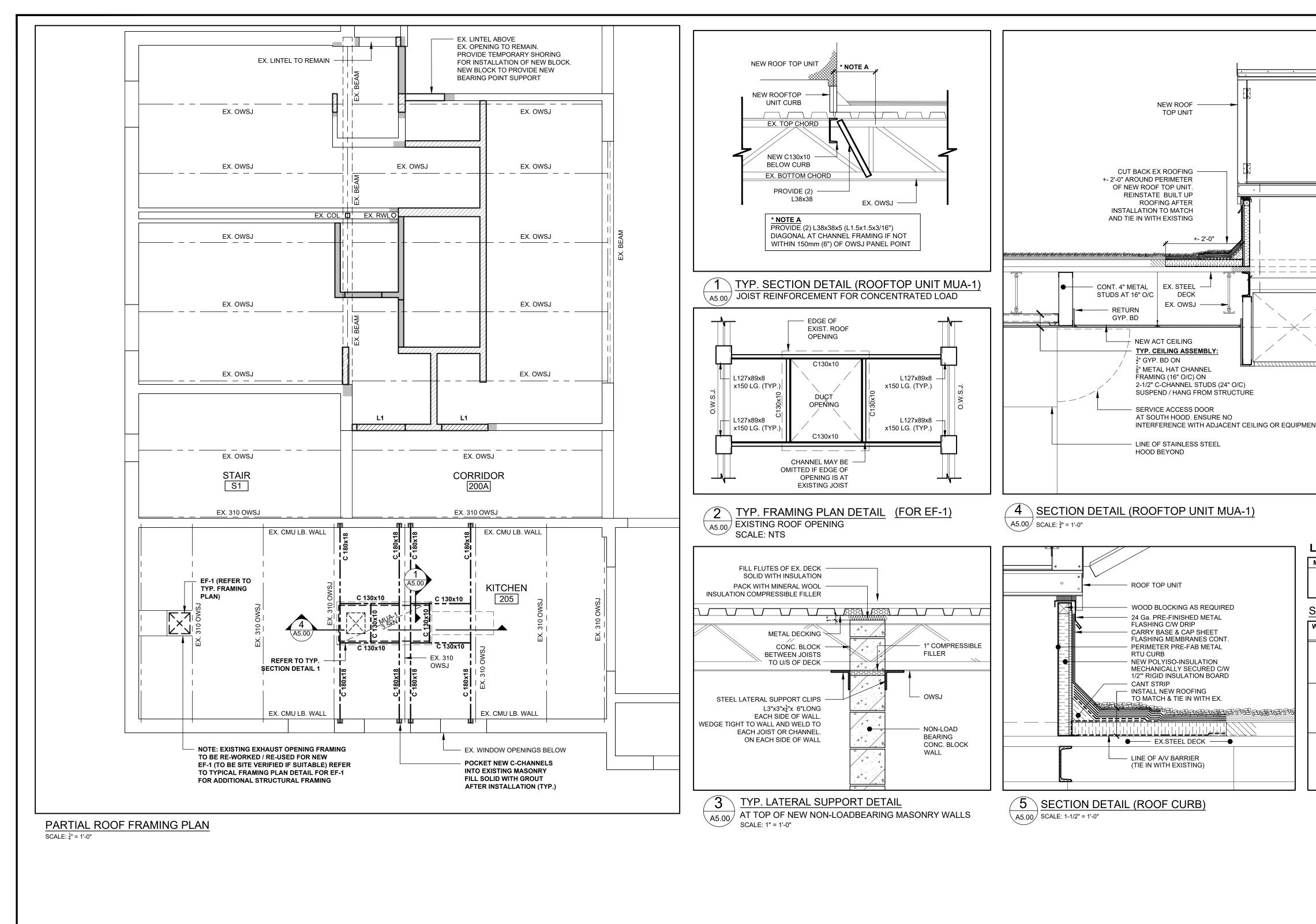
REMOVAL & PREPARE EX. FLOOR STRUCTURE FOR NEW FLOORING FINISHES.

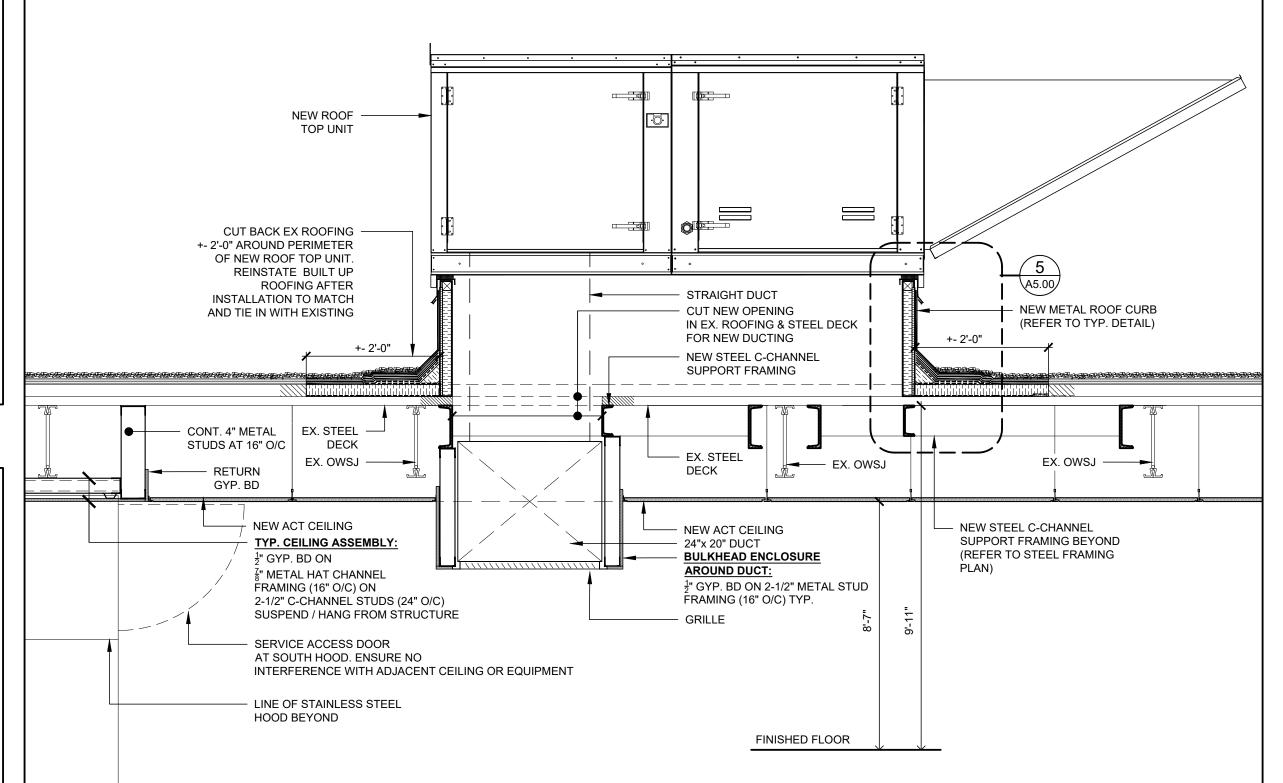
REMOVE, CUT BACK & DISCARD EXISTING RAISED PLATFORM ASSEMBLY TO EXTENTS DENOTED ON PLAN TO ALLOW FOR INSTALLATION OF NEW CONCRETE BLOCK PARTITION TO ACCOMMODATE WASHROOM EXPANSION. RE-FRAME EXISTING WOOD RAISED PLATFORM TO ASSEMBLY TO MATCH WITH EXISTING FRAMING.

EXISTING COVE HEIGHT = +- 10'-6"









LINTEL SCHEDULE

	L SCHEDULE		
MARK	SIZE	WALL	REMARKS
L1	SEE TYP. SCHEDULE BELOW	BLOCK	

STEEL LINTELS IN NON-LOAD BEARING WALLS:

WALL THICKNESS	SPAN (MM)	LINTEL SIZE (MM)	DETAILS
90mm (3-1/2")	UP TO 1200 >1200 TO 1800 >1800 TO 2400 >2400 TO 3000	L90x90x6 L127x90x6 L127x90x8 L150x90x9.5	LLV LLV LLV
140mm (5-1/2")	UP TO 1200 >1200 TO 1800 >1800 TO 2400	2-L64x64x6 2-L90x64x6 2-L90x64x8 W/100x10 PLATE	BACK TO BACK BACK TO BACK, LLV BACK TO BACK, LLV, PLATE WELDED TO U/S OF HORIZONTAL LEGS
190mm (7-1/2")	UP TO 1200 >1200 TO 1800 >1800 TO 2400 >2400 TO 3000	2-L75x90x6 2-L90x90x6 2-L100x90x8 2-L150x90x8	BACK TO BACK (LLH) BACK TO BACK BACK TO BACK (LLV) BACK TO BACK (LLV)

HOLY CROSS CROATIAN PARISH HALL RENOVATIONS 1883 KING ST E, HAMILTON, ON L8K 1V9

**LEGEND** 

**APPROX** 

CONC

CMU C/W DIA

MAT'L

O/C OWSJ

REQ'D

RWL

STRUCT

ACOUSTIC CEILING TILE

CONCRETE MASONRY UNIT

FINISHED FLOOR ELEVATION

AIR / VAPOUR

CENTRE LINE COLUMN

COMPLETE WITH

CONCRETE

DIAMETER

**EXISTING** 

EXPOSED

**EXTERIOR** 

GYPSUM

MATERIAL

MINIMUM

ON CENTRE

REQUIRED

SIMILAR

STRUCTURE

THICKNESS

TO REMAIN

UNDER SIDE

TYPICAL

WOOD

ISSUED FOR TENDER ISSUED FOR PERMIT

ISSUED FOR REVIEW

ISSUED FOR CLIENT REVIEW

REVISIONS

RAWINGS ARE NOT TO BE SCALED. CONTRACTOR MUST

THE PROJECT; AND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS BEFORE PROCEEDING WITH THE WORK.

THE USE OF THIS DRAWING OR PART THEREOF IS FORBIDE

VITHOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

**ROOF TOP UNIT** 

LONG

LOAD BEARING

NOT IN CONTRACT

OPEN WEB STEEL JOIST

RAIN WATER LEADER

2022-01-19

2021-08-20

2021-06-29

BOARD

BLOCK

APPROXIMATELY

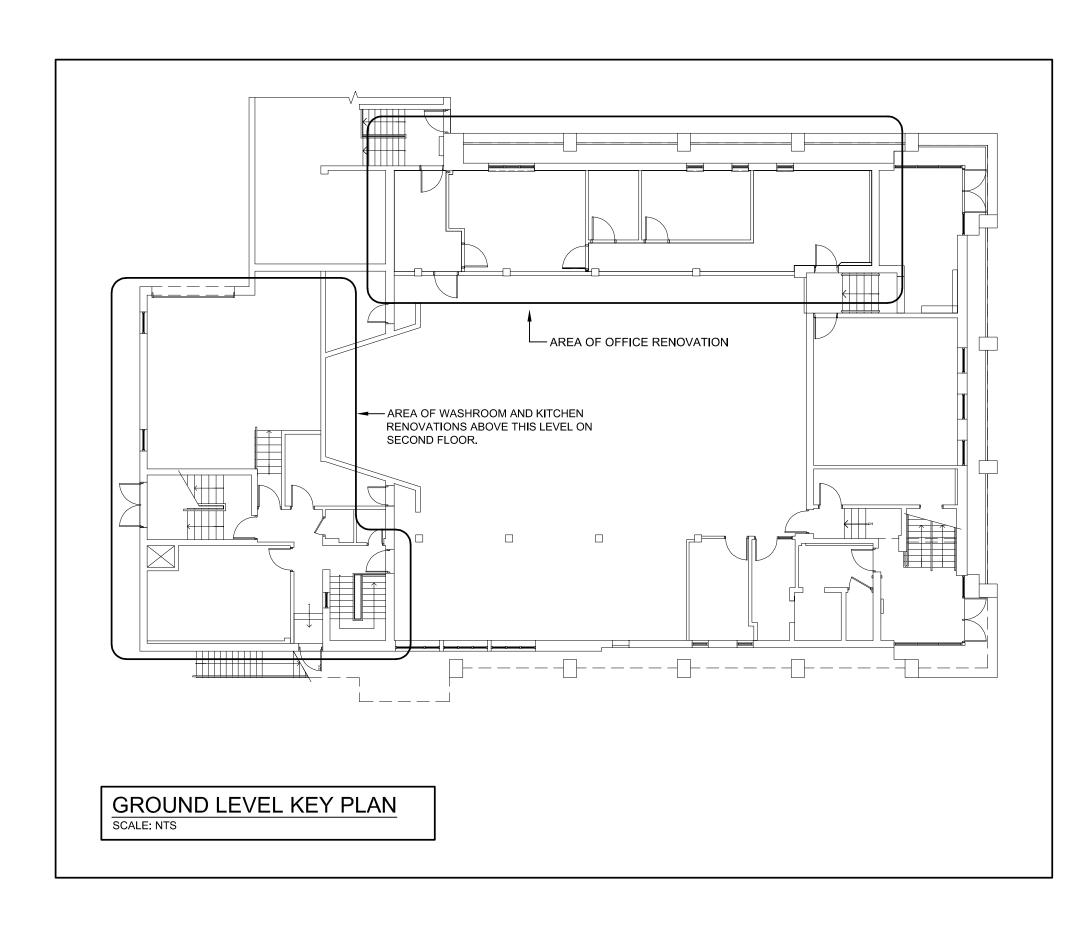
STRUCTURAL FRAMING & **DETAILS** 

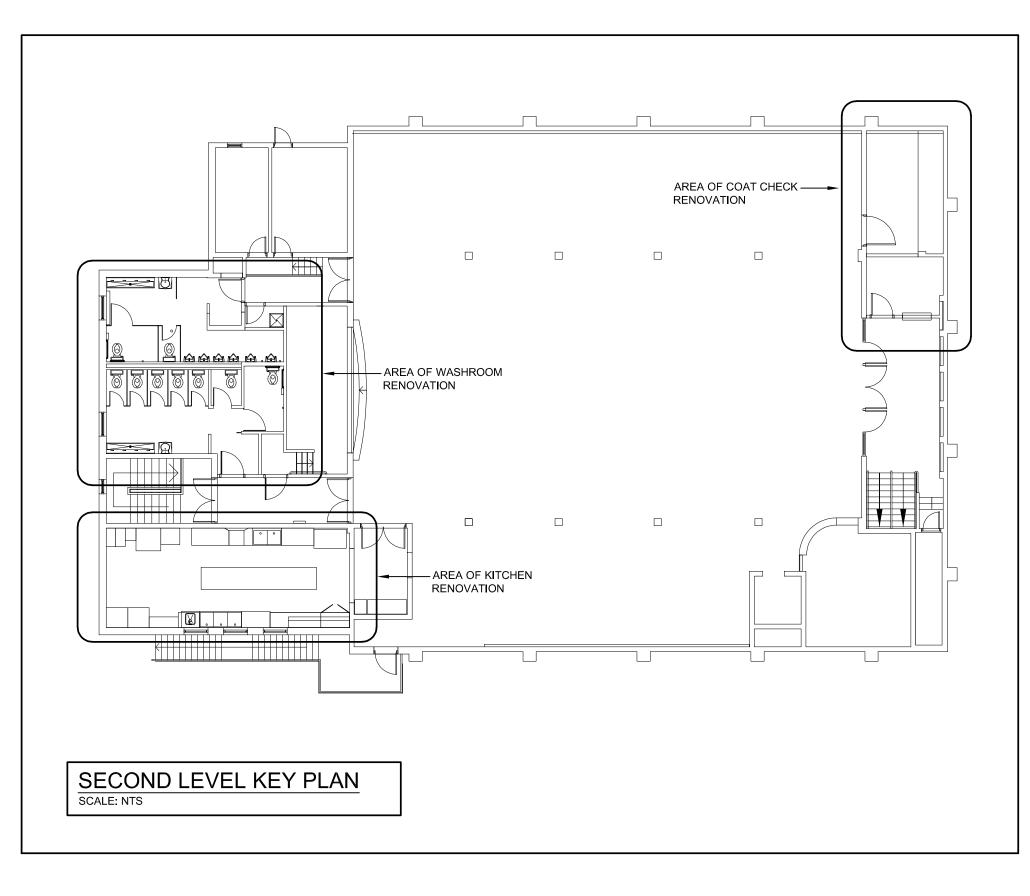
**GRGURIC** ARCHITECTS **INCORPORATED** 

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Web: www.2gai.com PROJECT: SCALE: AS NOTED START DATE: JUNE 2021

DRAWN: CHECKED:





# MECHANICAL DRAWING LIST

- M1 MECHANICAL TITLE PAGE
- M2 OFFICE MECHANICAL PLANS
- M3 KITCHEN VENTILATION, GAS PIPING & WASHROOM DEMOLITION / NEW HVAC PLAN
- M4 KITCHEN AND WASHROOM'S PLUMBING PLAN
- M5 MECHANICAL SCHEDULES AND DETAILS M6 MECHANICAL SPECIFICATIONS

HVAC LEGEND			
DESCRIPTION	SYMBOL		
RECT. / ROUND SUPPLY AIR DUCT UP / DOWN			
RECT. & ROUND RETURN OR EXHAUST AIR DUCT UP / DOWN			
THERMOSTAT C/W GUARD	$\square_{G}$		
DUCT TRANSITION	Δ		
FIRE DAMPER	FD		
FLEXIBLE DUCT CONNECTION	FC		
AIR BALANCING DAMPER	N.		
BACK DRAFT DAMPER	BDD		
OPPOSED BLADE DAMPER	OPD		
FIRE DAMPER	FD		
DUCTED AIR TRASNFER	A/T		
UNDER CUT	U/C		
SPLITTER DAMPER	SD		

PLU	JMBING LEGEND
SYMBOL	DESCRIPTION
	SAN. LINE ABOVE SLAB/GRADE
	SAN. LINE BELOW SLAB/GRADE
<b>〒 ○</b> co	CLEAN OUT
<b>C</b> FD	FLOOR DRAIN
<b>C</b> FFD	COMBINATION FLOOR FUNNEL DRAIN
<b>C</b> HD	HUB DRAIN
	COLD WATER LINE
	HOT WATER LINE
	GAS LINE
V	SANITARY VENT LINE
×	ISOLATION VALVE
<b>⊣</b> ∣нв	NON FREEZE HOSE BIBB C/W SHUT OFF VALVE & LOCK BOX

**GRGURIC** ARCHITECTS INCORPORATED



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SEAL

SUED FOR TENDER	03.07.2022
SUED FOR PERMIT	12.21.2021
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REVISIONS	DATE

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PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE:

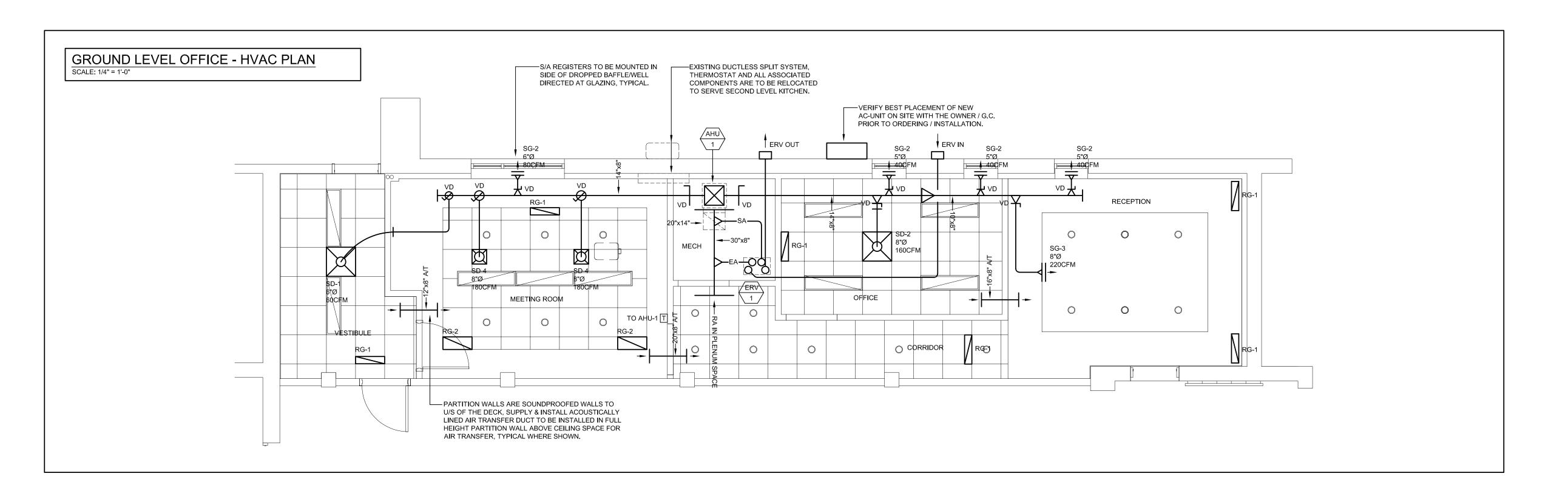
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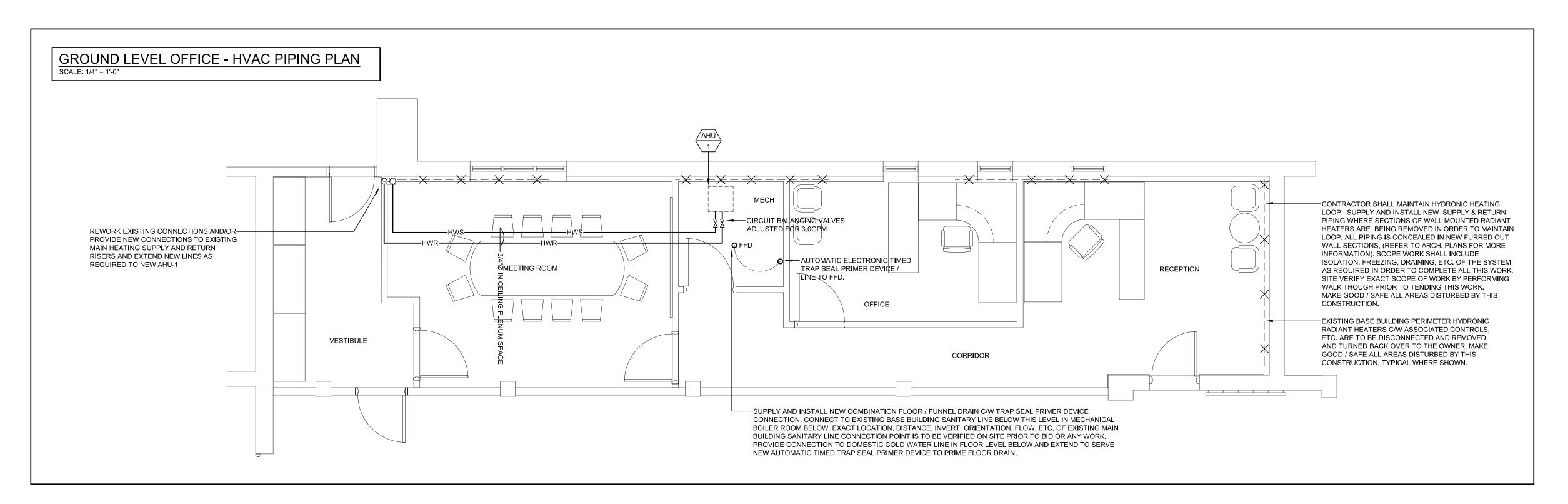
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DRAWING TITLE:

OFFICE MECHANICAL PLANS

PROJECT:

SCALE: AS NOTED

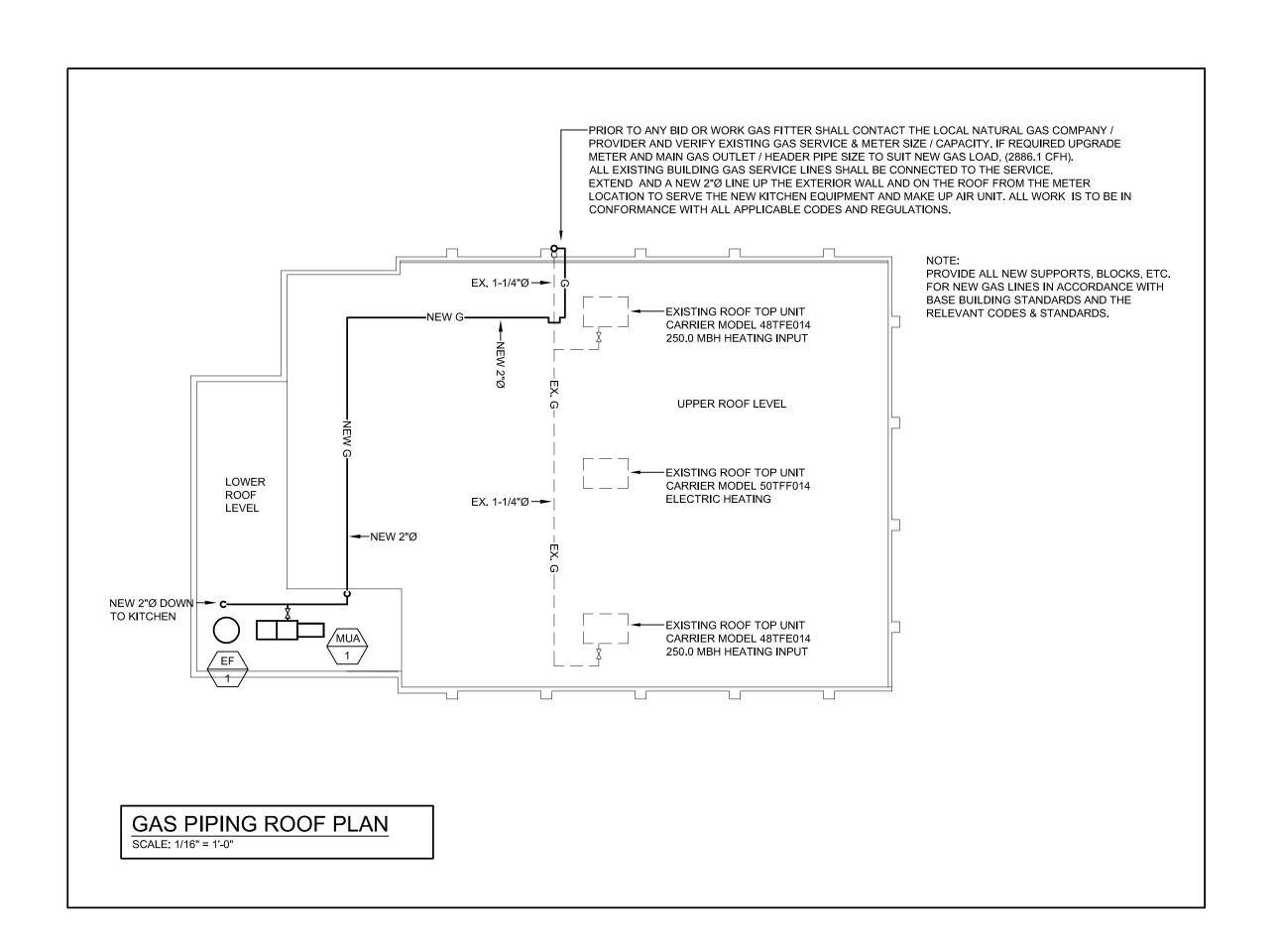
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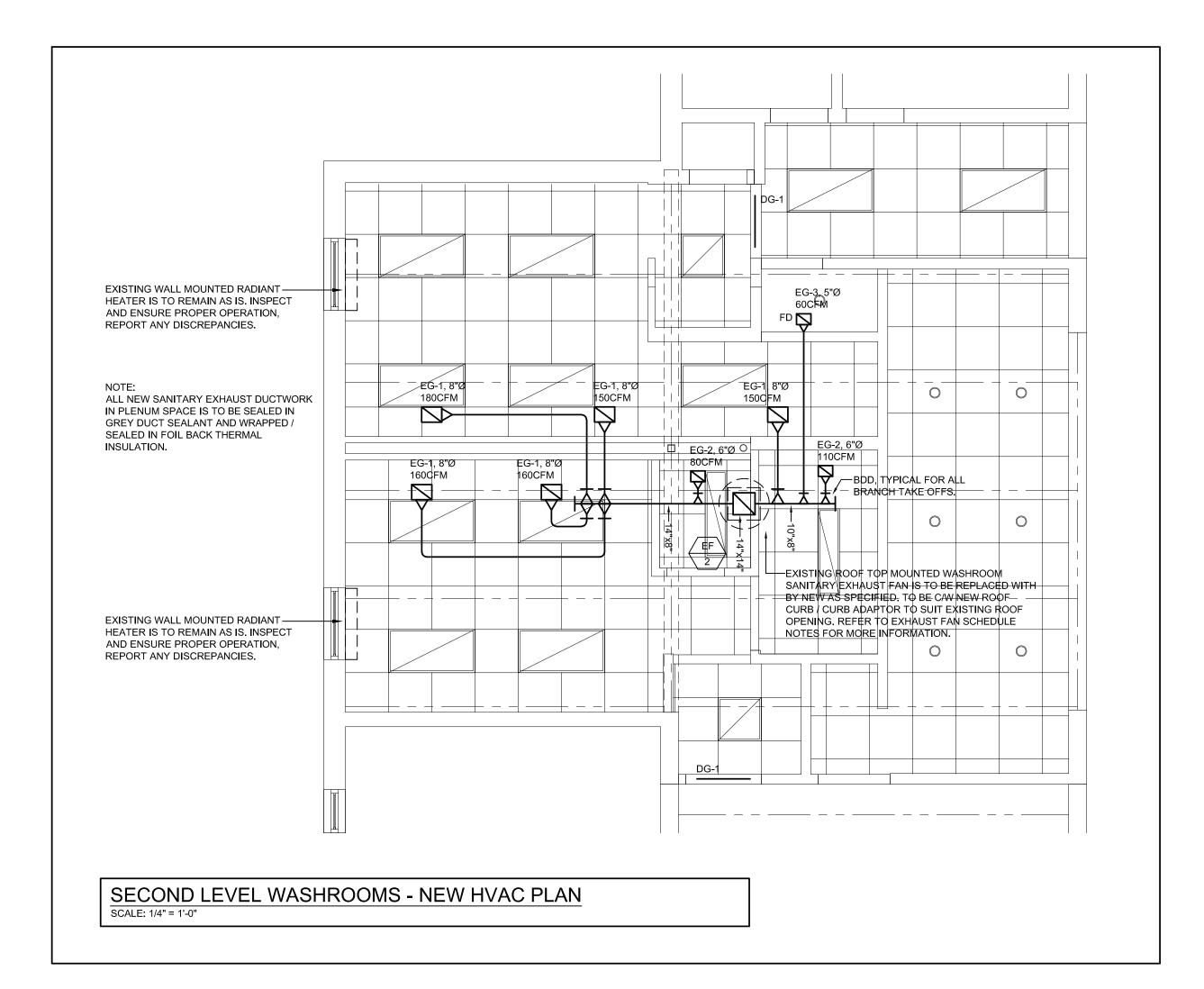
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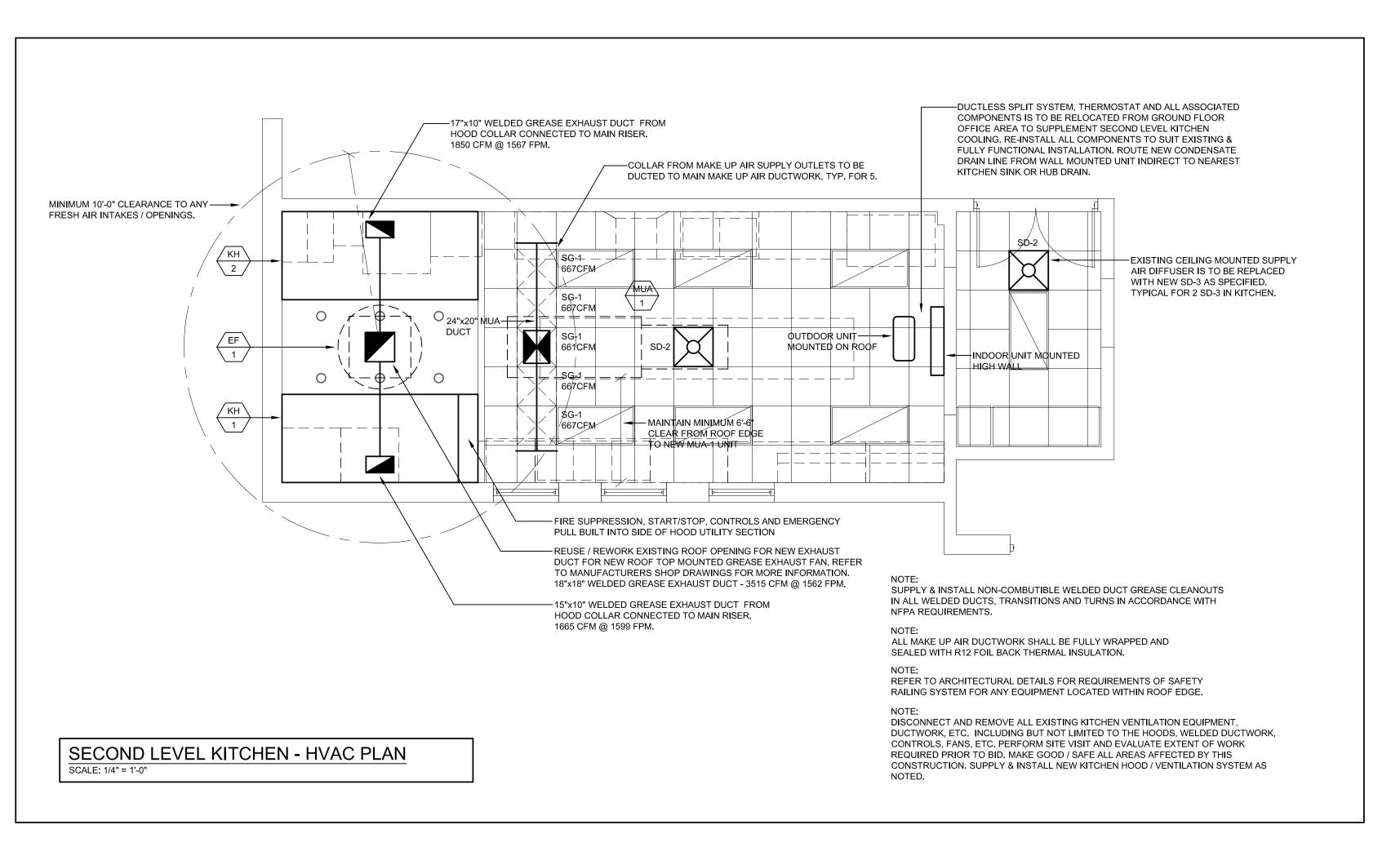
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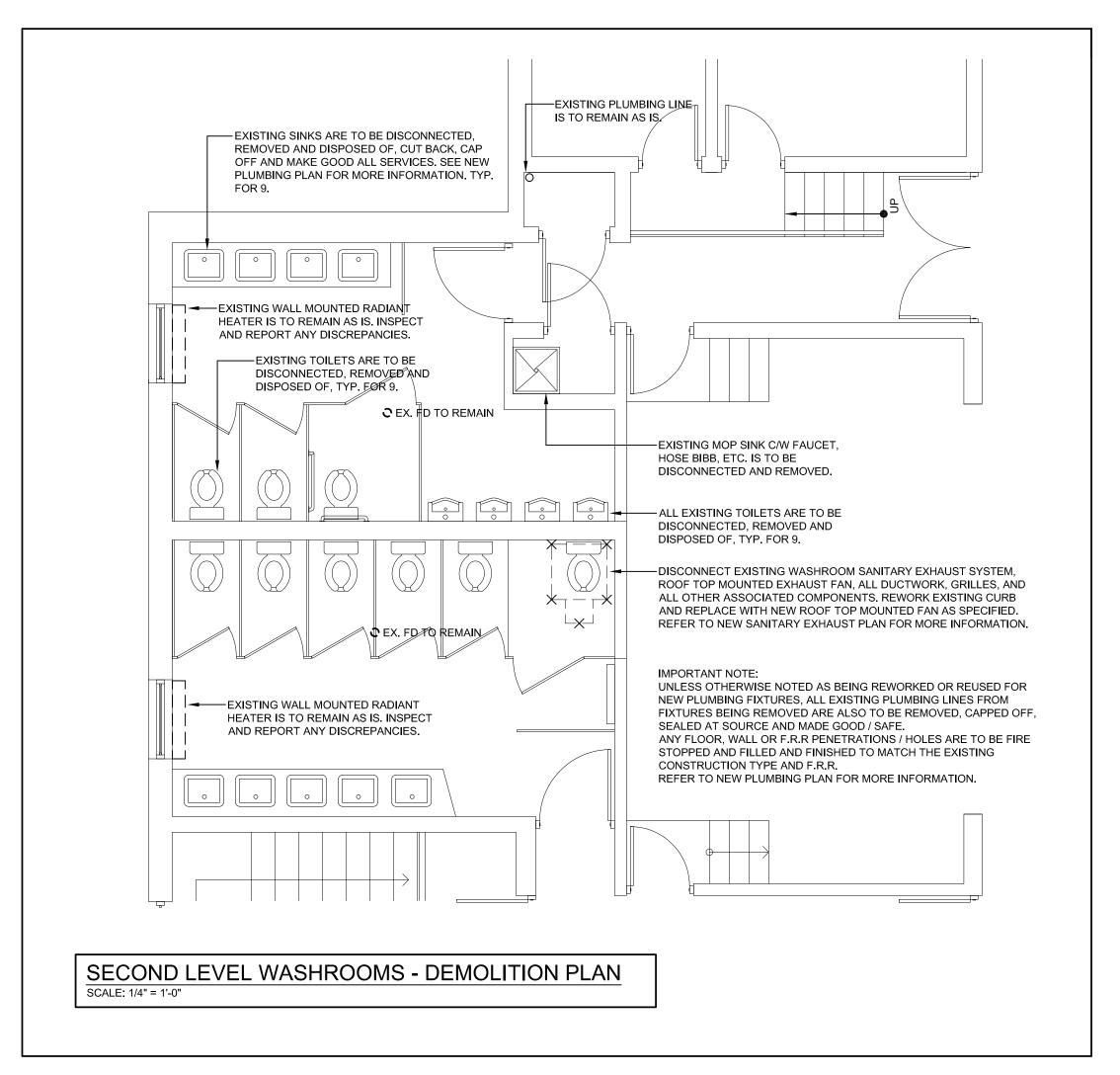
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DRAWING TITLE:

KITCHEN VENTILATION, GAS PIPING & WASHROOM DEMOLITION / NEW HVAC PLAN

SCALE:
AS NOTED
DATE:

20004

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N/13

**13** 

KEY NOTES:

REUSE EXISTING CONNECTION FROM EXISTING TOILET BEING REMOVED FOR NEW TOILET. TO BE C/W NEW FLOOR GASKET, FLEXIBLE
BRAIDED RISER LINE, ISOLATION VALVE, ESCUTCHEON, BOLTS, ETC. AS REQUIRED FOR NEW

SUPPLY AND INSTALL NEW TOILET C/W NEW ALL NEW SERVICE CONNECTIONS;

- NEW 1/2"Ø COLD WATER LINE CONNECTION. SITE VERIFY BEST CONNECTION POINT / LOCATION.
- NEW SANITARY LINE. CONNECT TO EXISTING MAIN SANITARY LINE IN CEILING SPACE OF GROUND LEVEL BELOW. - NEW SANITARY VENT LINE / STACK. CONNECT TO EXISTING MAIN SANITARY VENT LINE IN CEILING SPACE.

(3) EXISTING MAIN SANITARY LINE RISER IN CEILING SPACE OF GROUND LEVEL BELOW. REWORK / REUSE EXISTING CONNECTIONS FROM EXISTING TOILET BEING REMOVED FOR NEW TOILET. NEW TOILET IS TO BE C/W NEW GASKET, FLEXIBLE BRAIDED RISER LINE, ISOLATION

VALVE, ESCUTCHEON, BOLTS, ETC. 4 - REWORK 1/2"Ø COLD WATER LINE CONNECTION FOR NEW FIXTURE. - NEW FLOOR PENETRATION TO LEVEL BELOW - REWORK EXISTING 3"Ø SANITARY CONNECTION IN CEILING SPACE OF GROUND LEVEL BELOW

REWORK EXISTING PLUMBING CONNECTIONS FROM EXISTING URINAL BEING REMOVED FOR (5) NEW URINAL. TO BE C/W NEW GASKET, CHROME PLATED PIPING, ESCUTCHEON, WALL CARRIER HANGING KIT, BOLTS, ETC. AS REQUIRED FOR NEW INSTALLATION.

REWORK / EXTEND EXISTING CONNECTIONS FROM EXISTING MOP SINK BEING REMOVED FOR NEW MOP SINK. (6) - EXTEND EXISTING 1/2"Ø HOT AND COLD WATER LINES TO NEW FIXTURE LOCATION.

- NEW FLOOR PENETRATIONS TO LEVEL BELOW. - EXTEND / REWORK EXISTING SAN. / SAN. VENT CONNECTIONS IN FOR NEW FIXTURE. KEY NOTES:

REWORK / EXTEND EXISTING CONNECTIONS FROM EXISTING SINKS BEING REMOVED FOR NEW SINK.  $\langle 7 \rangle$  - REWORK EXISTING HOT AND COLD WATER LINES TO NEW FIXTURE LOCATION. - EXTEND / REWORK EXISTING SAN. / SAN. VENT CONNECTIONS FOR NEW FIXTURE.

SITE VERIFY EXISTING HOT AND COLD WATER LINE RISERS. CONNECT TO AND DISTRIBUTE NEW (8) PIPES TO SERVE NEW HAND SINK. CONNECT NEW SANITARY VENT LINE FROM SINK TO EXISTING MAIN SANITARY VENT STACK IN CEILING SPACE.

OPEN CEILING SPACE OF GROUND LEVEL BELOW TO LOCATE EXISTING MAIN SANITARY LINE IN © CEILING SPACE.
CONNECT NEW SANITARY LINE SERVING NEW KITCHEN HAND SINK TO EXISTING MAIN SANITARY LINE, (SITE VERIFY EXACT LOCATION PRIOR TO BID).

GAS LINE DOWN TO EMERGENCY GAS SHUT-OFF VALVE. CONTINUE PIPING TO SERVE COOKING EQUIPMENT MANIFOLDS. UPON ACTIVATION OF SUPPRESSION SYSTEM GAS VALVE IS TO CLOSE VIA AUTOMATIC SOLENOID VALVE.

GREASE INTERCEPTOR CALCULATIONS:

EXISTING 3 COMP. SINK (EQUIPMENT # 9): EXISTING 2 COMP. SINK (EQUIPMENT # 11): 24D X 24W X 24D = 13824 24D X 24W X 18D = 10368 13824 X 2 = 27648

10368 X 3 = 31104 31104 / 231 = 134.7 27648 / 231 = 119.7 134.7 X 0.75 = 101.0 101.0 / 2 MIN. = 50.5 119.7 X 0.75 = 89.8 89.8 / 2 MIN. = 44.9

J.R.SMITH COMMERCIAL KITCHEN GREASE INTERCEPTOR. UNIT IS TO BE MINIMUM 125 GPM UNIT. INSTALL UNIT SPECIFIC TO MANUFACTURERS SPECIFICATIONS AND REQUIREMENTS.

SUPPLY & INSTALL NEW FLOOR MOUNTED GREASE INTERCEPTOR EQUAL TO. MIFAB, WATTS OR

GREASE INTERCEPTOR AND SERVICING IS TO BE IN ACCORDANCE WITH CSA STANDARDS.

3"Ø SAN. LINE FROM GREASE INTERCEPTOR BELOW STAIR INTO CRAWL SPACE BELOW. CONNECT TO EXISTING STACK GOING BELOW SLAB IN CRAWL SPACE.

DRAIN LINES SERVING EXISTING 2 COMP. & 3 COMP. SINK IN KITCHEN ARE TO BE (13) REWORKED AND ROUTED INTO NEW FLOOR MOUNTED GREASE INTERCEPTOR AS

CONNECT NEW SANITARY VENTING FROM NEW FLOOR MOUNTED GREASE (14) INTERCEPTOR TO EXISTING NEAREST AVAILABLE VENT STACK IN HEATED STORAGE GARAGE.

KEY NOTES:

SUPPLY AND INSTALL NEW URINAL C/W NEW ALL NEW SERVICE CONNECTIONS. EXTEND COLD WATER LINE CONNECTION IN WALL, SANITARY / SAN. VENT LINES, ETC.

**GENERAL NOTES:** 

1. SUPPLY AND INSTALL ACCESS PANELS FOR ACCESS TO ALL CLEAN OUTS, VALVES, PIPES, ETC., COORDINATE LOCATIONS ON SITE. PAINT FINISH TO MATCH WALL / CLG. FINISH.

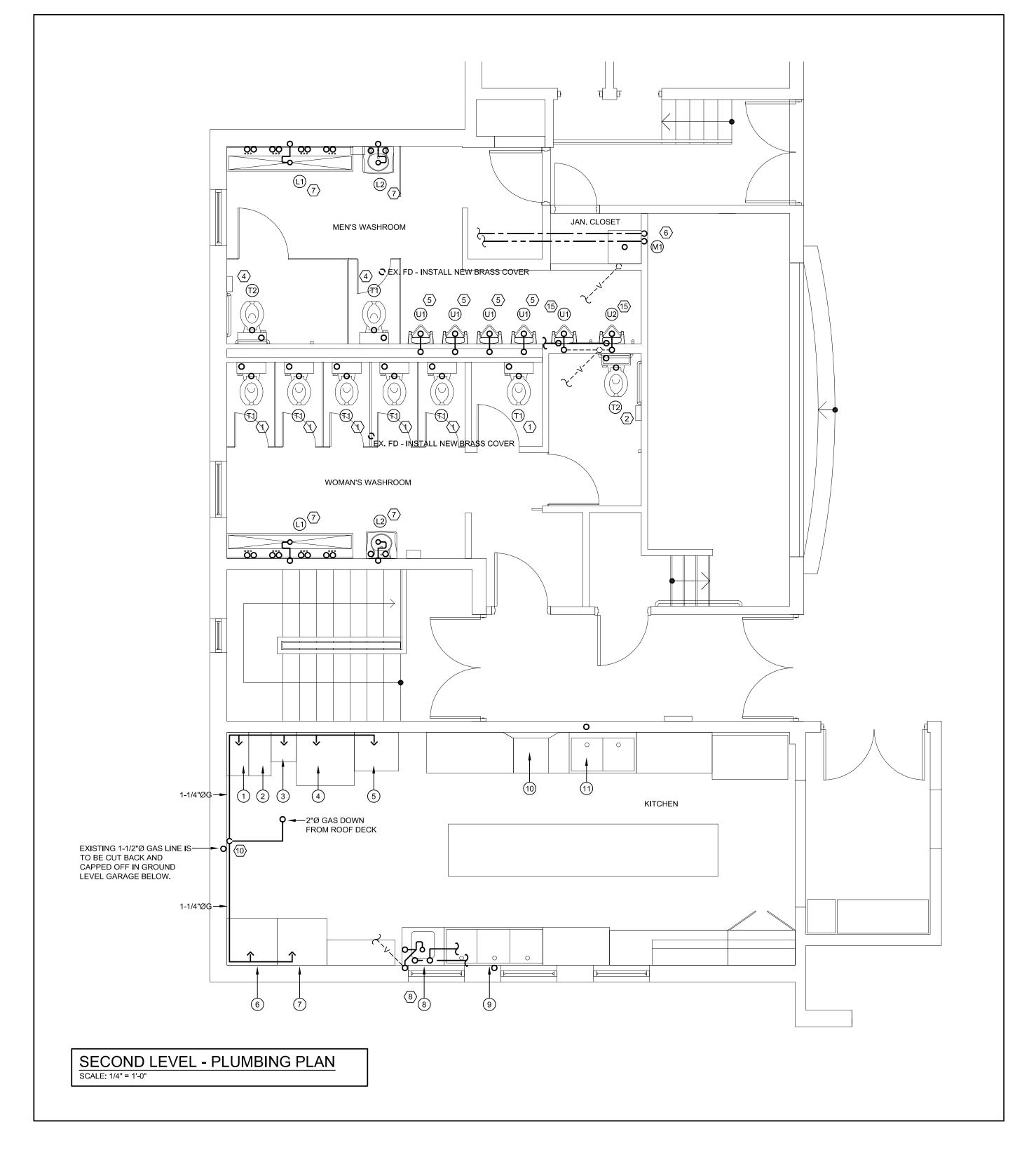
2. ALL FLOOR, WALL AND OTHER SUCH PENETRATIONS THROUGH A RATED SEPARATION ARE TO BE SLEEVED / FIRE STOPPED IN ACCORDANCE WITH APPROVED ULC PROCEDURES / MATERIAL DATA SHEETS. THIS INCLUDES ALL NEW WORK AND AREAS OF DEMOLITION WHERE OPENINGS ARE NO LONGER REQUIRED DUE TO PLUMBING DEMOLITION WORK.

3. CONTRACTOR IS RESPONSIBLE FOR ALL X-RAYING / SCANNING FLOOR SLAB PRIOR TO TRENCHING, CUTTING OR CORING AS REQUIRED FOR PLUMBING AND SERVICE LINE FEEDS FROM BELOW FINISHED FLOOR. ALL SERVICES PENETRATING FLOOR MUST BE SEALED TO MAINTAIN THE EXISTING FIRE RESISTANCE RATING AND WATER PROOFING, AS REQUIRED BY SITE CONDITIONS.

4. PRIOR TO TENDER / BID VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS, CONNECTION POINTS, ETC. SUBMIT ANY QUESTIONS OR REQUESTS FOR INFORMATION PRIOR TO CLOSING.

5. PERFORM ALL SANITARY VENTING IN ACCORDANCE WITH THE RELEVANT PLUMBING CODES & STANDARDS.

EXISTING HEATED GARAGE / STORAGE TO REMAIN AS IS -REMOVE AND CAP EXISTING MAIN SANITARY LINE DOWN TO BELOW SLAB **─**3"Ø **GROUND LEVEL - PLUMBING PLAN** 







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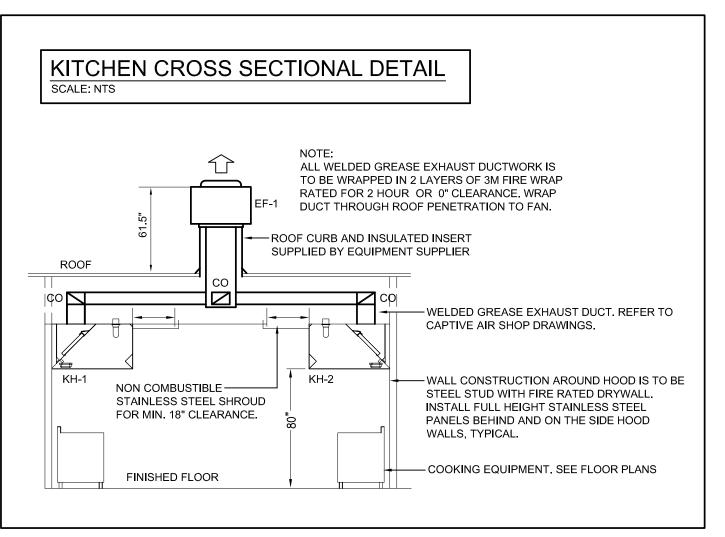
KITICHEN & WASHROOM PLUMBING PLAN

SCALE: AS NOTED DATE:

SEPT.2021

20004

DRAWING



TOTAL GAS LOAD	
ITEM NAME	GAS LOAD (MBH)
EXISTING ROOF TOP UNIT 1	250.0
EXISTING ROOF TOP UNIT 2	250.0
EXISTING BOILER 1	630.0
EXISTING BOILER 2	630.0
EXISTING DOMESTIC H.W.T 1	52.2
EXISTING DOMESTIC H.W.T 2	52.2
NEW MAKE UP AIR UNIT	330.7
NEW KITCHEN EQUIPMENT	691.0
TOTAL GAS LOAD	2886.1

#### GENERAL REQUIREMENTS FOR COMMERCIAL COOKING EQUIPMENT SECTION REF. ITEM REQUIREMENTS - EXHAUST SYSTEM REQUIRED HOOD 20 GAUGE STAINLESS STEEL HOOD 18 GAUGE STEEL - ALL JOINTS HAVE LIQUID TIGHT CONTINUOUS EXTERNAL WELDS 322 - GUTTER PROVIDED UNDER FILTER - HOODS OR ENCLOSURES ARE "ULC" LISTED 412 - DUCT 18 GAUGE STAINLESS STEEL - DUCT 16 GAUGE STEEL 4122 (a) - DUCT HAVE LIQUID TIGHT CONTINUOUS EXTERNAL WELD - DUCT LEADS DIRECTLY TO OUTSIDE WITHOUT TRAPS - DUCT SUPPORT - INSIDE BUILDING - VERTICAL DUCT INSIDE HAVE 2 HR. SHAFT < 4 STOREYS (c)(1)- VERTICAL DUCT INSIDE HAVE 2 HR. SHAFT > OR = 4 STOREYS - VERTICAL SHAFT ACCESS DOOR MEET N.F.P.A. #80 (1978) - EXHAUST SYSTEM SERVICES ONLY ONE FLOOR - EXHAUST SYSTEM SERVES COMMERCIAL COOKING ONLY - CLEANOUT AND ACCESS DOORS FOR EACH CHANGE OF DIRECTION - DUCT DO NOT PASS THROUGH FIRE SEPARATIONS - DUCT SUPPORT - OUTSIDE BUILDING 4123 (a) - RESIDUE TRAP AT BASE OF RISER-EXTERIOR ONLY 4131 - DUCT TERMINATES 40" ABOVE FINISHED ROOF DUCT TERMINATES 10 FT. FROM PROPERTY LINES - AIR INTAKES, ADJACENT BUILDINGS AND ADJOINING GRADE LEVELS 4132

- AN ADEQUATE SUPPLY OF MAKE-UP AIR SHALL BE PROVIDED. 53 (a) (CONSIDERATION SHOULD BE GIVEN TO TEMPERING THE AIR) - WHEN MAKE-UP AIR IS INTRODUCED INTO THE HOOD THE MAKE-UP AIR DUCT SHALL BE EITHER 1) SAME GUAGE AS HOOD WITH ALL JOINTS CONTINUOUSLY WELDED OR 2) AN APPROVED TYPE FIRE DAMPER IS INSTALLED AT THE INLET, THE MAKE-UP AIR DUCT CONNECTION NEED NOT TO BE WELDED AND CAN BE CONSTRUCTED - FILTERS ARE "ULC" LABELLED FOR USE

- RESIDUE TRAP UNDER HORIZONTAL DISCHARGE

- PILOT RUNNING LIGHT IS PROVIDED

- AIR VELOCITY IS 500 (MIN.)

- DAMPERS SHALL NOT BE INSTALLED IN DUCTS ON EXHAUST DUCTS SYSTEMS UNLESS SPECIFICALLY LISTED FOR SUCH USE OR REQUIRED AS PART OF A LISTED OR APPROVED DEVICE OR SYSTEM. 1033 - AUTOMATIC SHUT-OFF OF FUEL SOURCES
- APPENDIX "B" <u>CLEARANCE</u> PROTECTION AND CLEARANCE FROM COMBUSTIBLE MATERIALS
- 28 GAUGE SHEET METAL SPACED OUT 1" ON NON-COMBUSTIBLE SPACERS 22 GAUGE SHEET ON 1" MINERAL WOOL BATS REINFORCED WITH WIRE MESH OR EQUIVALENT
- 18" CLEARENCE CAN BE REDUCED TO 0" IF THE COMBUSTIBLE MATERIAL IS PROTECTED BY THE FOLLOWING: 1. STAINLESS STEEL OR ANY EQUIVALENT MATERIAL.

# KITCHEN EXHAUST HOOD

4133

512

- THE KITCHEN EXHAUST HOOD SHALL BE STAINLESS STEEL, FABRICATED AND INSTALLED TO MEET ALL ULC, NFPA AND LOCAL CODE REQUIREMENTS. - THE KITCHEN EXHAUST HOOD SHALL BE COORDINATED WITH THE FINAL EQUIPMENT AND SPACE LAYOUT.
- THE KITCHEN EXHAUST HOOD SHALL BE FURNISHED WITH CUT-OUTS AND FLANGES FOR THE CONNECTION OF THE EXHAUST AND SUPPLY DUCTS AS REQUIRED BY CODE. - THE KITCHEN EXHAUST HOOD SHALL BE FURNISHED WITH ALL BALLANCING DAMPERS AND FIRE DAMPERS REQUIRED BY CODE.
- THE KITCHEN EXHAUST HOOD SHALL BE FURNISHED WITH HANGING FLANGES HANGERS - KITCHEN HOOD TO BE INSTALLED BY G.C. CONSTRUCTION AND INSTALLATION TO MEET ALL LOCAL CODE REQUIREMENTS. CONTRACTOR TO INCLUDE SHOP DRAWINGS, CUT SHEETS & SPECIFICATIONS FOR HOOD INCLUDING FIRE PROTECTION SYSTEM

FIRE PROTECTION SYSTEM TO BE PROVIDED BY HOOD MANUFACTURER.

- 40" DIMENSION IS TO THE SUCTION SIDE OF THE EXHAUST FAN - 40" CLEARANCE TO FAN OUTLET IF FAN IS THE SAME GUAGE AS THE DUCT - FAN BEARINGS AND MOTOR SHALL NOT BE LOCATED IN THE AIR STREAM \*CLEARANCE CAN BE REDUCED AS PER APPENDIX "B" \*18" CLEARANCE FROM THE DRYWALL OR ANY OTHER COMBUSTIBLE MATERIAL PROVIDE EXTINGUISHER SYSTEM FOR PROTECTION OF DUCT, GREASE - REMOVAL DEVICES, HOOD & COOKING EQUIPMENT IN ACCORDANCE WITH N.F.P.A.96

# **GENERAL CONSTRUCTION NOTES:**

1. SUPPLY AND INSTALL ACCESS PANELS FOR ACCESS TO ALL CLEAN OUTS, VALVES, PIPES, ETC., (TENANT & LANDLORD EQUIPMENT), COORDINATE LOCATIONS ON SITE

CORING AS REQUIRED BY SITE CONDITIONS FOR PLUMBING AND SERVICE LINES MAINTAIN THE EXISTING FIRE RESISTANCE RATING AND WATER PROOFING, AS REQUIRED BY SITE CONDITIONS. MATERIAL ALTERATIONS TO THE EXISTING FLOOR ARE NOT TO DECREASE THE PERFORMANCE LEVEL OF THE FLOOR SYSTEM. CONTRACTOR TO ENSURE THAT NEW FLOOR FILLER IS LEVEL AND SMOOTH TO

IMPORTANT CONSTRUCTION NOTES

1. PERFORM ALL INSTALLATIONS IN ACCORDANCE WITH NFPA96, RELEVANT CODES

2. ALL PENETRATIONS TO BASE BUILDING STRUCTURE INCLUDING FLOOR WORK, EXTERIOR WALL WORK, ROOF WORK, FLASHING, ETC. IS TO BE PERFORMED BY A OWNER / LANDLORD APPROVED CONTRACTOR.

3. PROVIDE SUPPORT FOR ALL NEW EQUIPMENT IN ACCORDANCE WITH STRUCTURAL ENGINEER / ENGINEERING DETAILS.

4. UPON ACTIVATION OF FIRE SUPPRESSION SYSTEM ALL COOKING EQUIPMENT UNDER EXHAUST HOOD IS TO SHUT DOWN. PROVIDE AUTOMATIC SHUT OF SOLENOID VALVES FOR GAS EQUIPMENT. COORDINATE ALL THESE ITEMS WITH OTHER TRADES & KITCHEN EQUIPMENT MANUFACTURER ON SITE.

5. FIRE ALARM CONTRACTOR TO CONNECT THE TENANTS FIRE SUPPRESSION / HOOD EQUIPMENT TO MAIN BUILDING FIRE ALARM PANEL.

6. SITE VERIFY BEST INSTALLATION, ELEVATION / ARRANGEMENT OF ALL DUCTWORK TO BEST SUIT SITE CONDITIONS. PROVIDE AS-BUILT MARK UP.

8. WHERE CLEARANCES TO ANY COMBUSTIBLES CANNOT BE MAINTAINED, ALL WELDED DUCT IS TO BE WRAPPED IN 2 LAYERS OF EQUAL TO 3M TYPE FIRE BLANKET FOR GREASE EXHAUST DUCT FIRE PROTECTION SYSTEM. PERFORM ALL INSTALLATIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

9. HOOD GREASE EXHAUST DUCT MUST BE WRAPPED IN 2 LAYERS OF 3M TYPE FIRE BLANKET FOR GREASE EXHAUST DUCT FIRE PROTECTION SYSTEM 18" BELOW THE ROOF DECK.

10. PROVIDE ACCESSIBLE GREASE CLEAN OUTS ON ALL WELDED DUCTWORK AT ALL ELBOWS AND RISERS IN ACCORDANCE WITH NFPA REQUIREMENTS.

11. ADDITIONAL DUCT TRANSITIONS, ELBOWS, ETC. MAY BE REQUIRED ONCE A SITE MEASURE HAS BEEN PERFORMED AND A B.O.M. HAS BEEN OBTAINED.

12. CARRY COST IN BID TO HIRE A FIRE SUPPRESSION SYSTEM INSTALLER TO PROVIDE THE FOLLOWING; - ARRANGE FOR ENGINEERED FIRE SUPPRESSION SYSTEM SHOP DRAWINGS, (SEALED BY AN ENGINEER QUALIFIED TO PRACTICE IN THE PROVINCE OF ONTARIO). - MAKE ALL ARRANGEMENTS TO APPLY FOR AND PAY FEES FOR THE SUPPRESSION

SYSTEM PERMIT APPLICATIONS & INSPECTIONS. 13. PROVIDE ACCESS PANELS IN ALL DRYWALL CEILING AREAS WHERE ACCESS TO ANY EQUIPMENT OR DEVICES IS REQUIRED. SITE VERIFY QUANTITIES, SIZES AND LOCATIONS.

14. ALL WALLS SURROUNDING THE COOKING EQUIPMENT AREA, (FULL HEIGHT), SHALL BE LINED IN STAINLESS STEEL PANELS / SHROUD OR EQUIVALENT NON COMBUSTIBLE MATERIALS.

15. PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO ORDERING OR INSTALLING

16. ALL EQUIPMENT MUST BE LISTED AND APPROVED FOR USE IN CANADA.

17. DEMOLITION NOTE: DISCONNECT AND REMOVE ALL EXISTING EQUIPMENT, DUCTWORK, ETC. INCLUDING BUT NOT LIMITED TO THE HOODS, WELDED DUCTWORK. CONTROLS, FANS, ETC. PERFORM SITE VISIT AND EVALUATE EXTENT OF WORK REQUIRED PRIOR TO BID. MAKE GOOD / SAFE ALL AREAS AFFECTED BY THIS CONSTRUCTION. SUPPLY & INSTALL NEW KITCHEN HOOD / VENTILATION SYSTEM AS

18. ALL EXISTING BASE BUILDING DUCTS, EQUIPMENT, PIPES, ETC. NOT SHOWN ON PLAN, BUT PASSING THROUGH TENANT CEILING SPACE IS TO REMAIN AS IS.

19. ALL MATERIALS WITHIN THE CONCEALED SPACE MUST HAVE A FLAME-SPREAD RATING AND A SMOKE DEVELOPED CLASSIFICATION EQUAL TO OR GREATER THAN ANY REQUIREMENTS OUTLINED IN THE BUILDING CODE.

20. ALL FLEXIBLE DUCT RUNS TO BE NO MORE THAN 5'-0". USE SMOOTH WALL RIGID ROUND DUCT TO THIS POINT. REFER TO PLANS FOR DUCT SIZES.

ERV UNIT SCHEDULE										
UNIT	MANUFAC. / MODEL	CFM								
ERV-1	LIFEBRETH 130ERVD	140 CFM @ 0.4" SP								
2. PER 3. TER OUTSIDE	MINATE ERV INTAKE & EXH THROUGH WALL LOUVERS	TION TO MAIN R/A PLENUM. IAUST CONNECTIONS TO THE								

4. ERV INLET TO BE MIN. 6'-0" FROM ERV OUTLET & 10'-0" FROM ALL OTHER EXHAUST OUTLETS.

PERFORM ALL INSTALLATIONS IN ACCORDANCE WITH THE MANUFACTURERS & OBC GUIDELINES. ASHRAE 62.1 2019 TABLE 6.2.2.1 VENTILATION CALCULATION:

TO BE C/W FILTER SECTION, HANGING KIT FOR HIGH LEVEL

WHERE; RP X PZ + RA X AZ = VBZ((5 X 16) + (910 SQ. FT. X 0.06)) = 135 CFM / 140 CFM PROVIDED

INSTALLATION AND ANTI VIBRATION ISOLATORS.

						MOCP	
AHU-1	ADP PRODUCTS BVRMA131	1000 CFM @ 0.5" S.P.	1/3 HP ECM	3 ROW HOT WATER HEATING COIL 52.3 MBH @ 160°F EWT 3.0 GPM 0.8 WPD	2.5TON COOLING COIL 30.0 MBH	AHU 120V/1PH 7.1 MCA 15MOCP AC-UNIT 230V/1PH 18.8 MCA 30MOCP	UNIT TO BE C/W; - COOLING / HOT WATER HEATING COIL(S) OUTDOOR MOUNTED R410A AC UNIT. 2.5 TONS C/W LINE SET AND WALL MOUNTING HARDWARE HORIZONTAL DISCHARGE AC UNIT - THERMOSTAT, CONTROLS / WIRING AHU-1 BOTTOM RETURN AIR INLET, MOUNTING STAND C/W ANTI-VIBRATION ISOLATORS, FILTER RACK / SECTION, FILTER, (10 SPARE FILTERS), ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.

COOLING VOLTAGE REMARKS

CAPACITY MCA

MAKE UP	AIR UNIT SCHEDU	JLE								
UNIT REF	MANUFAC.	MODEL	HEA	ATING	S	UPPLY FA	Z	VOLTAGE	WEIGHT	DESCRIPTION
			IN (BTUH)	OUT (BTUH)	CFM	EXT SP	HP			ROOF TOP MOUNTED MAKE UP AIR UNIT C/W WP DISC., SWITCH, FILTER SECTION, ROOF CURB,
MUA-1	CAPTIVE AIRE	A2-D.500-20D	330703	304247	3339	0.5"	2.0	600V/3PH	685 LBS	INTAKE DAMPER, CONTROLS, MECHANICAL MODULATION GAS VALVE TO MAINTAIN DISCHARGE TEMP. MAKE UP AIR UNIT TO BE INTERLOCKED OPERATE WITH HOOD FAN THROUGH CAPTIVE AIRE CONTROL PANEL. ALL INSTALLATIONS ARE TO BE PERFORMED AS PER MANUFACTURERS SHOP DRAWINGS.

HOOD SC	DD SCHEDULE									
UNIT REF	MANUFACTURER MODEL	LENGTH	EXHAUST	VOLTAGE	COMMENTS					
KH-1	CAPTIVE AIRE 5424-SA-ND-2	9'-0" + 1'-0" UTILITY CABINET	1665 CFM	120/1PH	COMMERCIAL KITCHEN GREASE EXHAUST HOOD. TO BE C/W ULC LISTED CANOPY LIGHTS, KH-1 UTILITY CABINET SECTION MOUNTED ON SIDE OF HOOD HOUSING SUPPRESSION SYSTEM CYLINDERS, STOP START CONTROLS AND EMERGENCY PULL STATION. PERFORM INSTALLATION AS PER MANUFACTURER RECOMMENDATIONS AND NFPA96 CODES AND REGULATIONS. REFER TO MANUFACTURER SHOP DRAWINGS FOR EXACT DIMENSIONS, LOCATION, INFORMATION & SPECIFICATIONS.					
KH-2	CAPTIVE AIRE / SUNAIR 5424-SA-ND-2	10'-0"	1850 CFM	120/1PH						

HOOD EX	D EXHAUST FAN SCHEDULE							
UNIT	MANUFACTURER	MODEL	CFM	S.P.	VOLTAGE	H.P.	WEIGHT	NOTES:
EF-1	CAPTIVE AIRE	DU180HFA	3515	1.5"	600V/3PH	3.0	183 LBS	TO BE C/W WP DISC. SWITCH, CAPTIVE AIRE ROOF CURB. OPERATED THROUGH CAPTIVE AIRE UTILITY CABINET / CONTROL PANEL AND INTERLOCKED WITH MAKE UP AIR UNIT. ALL INSTALLATIONS ARE TO BE PERFORMED AS PER MANUFACTURERS SHOP DRAWINGS.

UNIT	MAKE	MODEL	RPM	CFM	S.P.	VOLTAGE
EF-2	GREENHECK	GB-131	1000	1050	0.375"	1/4 HP - 120V/1PH

AIR HANDLING UNIT SCHEDULE

UNIT REF. | MANUFACTURER | BLOWER | MOTOR | HEATING

MODEL NO. | CFM / S.P. | H.P. | CAPACITY

1. SUPPLY AND INSTALL NEW ADJUSTABLE BELT DRIVEN ROOF TOP MOUNTED EXHAUST FAN TO REPLACE EXISTING FAN. TO BE OPERATED BY SWITCH BY THE ELECTRICAL CONTRACTOR.

. NEW ROOF CURB / ROOF CURB ADAPTER, FLASHING , SEALING, ETC. AS REQUIRED TO TRANSITION OLD ROOF CURB TO ACCOMMODATE NEW ROOF CURB DIMENSIONS.

SYMBOL	MANUFACTURER/ CATALOG	NOM. S	SIZE	MOU	NTING	MAT	ERIAL	FINISH	DPR	BORDER	COMMENTS	
(1) (2)	NUMBER	SIZE	NECK	CLG.	OTHR.	STL.	ALUM.	(3)	(4)	(5)		
SD-1	E.H. PRICE - SPD	24"x24"	6"Ø	•		•		А		С	FLAT PANEL CEILING DIFFUSER	
SD-2	E.H. PRICE - SPD	24"x24"	8"Ø	•		•		А		С	FLAT PANEL CEILING DIFFUSER	
SD-4	E.H. PRICE - SPD	12"x12"	8"Ø	•		•		Α		В	FLAT PANEL CEILING DIFFUSER	
SG-1	E.H. PRICE - PDC	24"x24"	16"x16"	•		•		Α		С	4 WAY THROW PERFORATED MAKE UP SUPPLY AIR DIFFUSER	
SG-2	E.H. PRICE - 520	10"x4"			•	•		Α	•	В	ADJUSTABLE DOUBLE DEFLECTION GRILLE WITH BUILT IN OPPOSED BLADE DAMPER ASSEMBLY IN GRILLE COLLAR	
SG-3	E.H. PRICE - 520	18"x4"			•	•		Α	•	В	ADJUSTABLE DOUBLE DEFLECTION GRILLE WITH BUILT IN OPPOSED BLADE DAMPER ASSEMBLY IN GRILLE COLLAR	
RG-1	E.H. PRICE - 80	24"x6"		•		•		А		С	EGGCRATE RETURN AIR GRILLE	
RG-2	E.H. PRICE - 80	24"x10"		•		•		А		С	EGGCRATE RETURN AIR GRILLE	
EG-1	E.H. PRICE - 510Z	10"x8"		•		•		А	•	С	ADJUSTABLE SINGLE BLADE EXHAUST GRILLE C/W DUCTED SHEET METAL PLENUM INLET BOX ON TOP OF GRILLE IN	
EG-2	E.H. PRICE - 510Z	8"x6"		•		•		А	•	С	PLENUM SPACE SUITABLE FOR SIDE INLET ROUND DUCT CONNECTION - REFER TO PLANS FOR MORE INFORMATION.	
EG-3	E.H. PRICE - 510Z	6"x6"		•		•		А	•	С		
DG-1	E.H. PRICE - STG	24"x22"			•	•		В		А	AIR TRANSFER GRILLE MOUNTED LOW IN DOOR	

 SYMBOL KEY -FIRST LETTER: S-SUPPLY R-RETURN E-EXH T-TRANSFER

A - WHITE BAKEN ON ENAMEL FINISH

B - TO MATCH DOOR COLOR

FACTORY FURNISHED OPPOSED BLADE OR BUTTERFLY TYPE

SECOND LETTER: D-DIFFUSER R-REGISTER G-GRILLE DAMPER ADJUSTABLE BEHIND FROM FACE OF DIFFUSER / GRILLE. PROVIDE OPTIONAL DIRECTIONAL BLOW FEATURE FOR 5. BORDER STYLE-OTHER THAN 4-WAY. "A" SURFACE MOUNTED

"B" PROVIDE WITH FRAME FOR DRYWALL CEILING MOUNTING. "C" LAY-IN FRAME FOR T-BAR CEILING.

KITCHEN	I EQUIPMENT SCHEDULE			İ			ı	
ITEM#	ITEM NAME	COLD WATER	HOT WATER	INDIRECT WASTE	DIRECT WASTE	VENT S <b>I</b> ZE	GAS MBH	NOTES
1	NEW FRYER						100.0	
2	NEW DUMP TABLE							
3	NEW STOCK POT						80.0	
4	NEW OVEN						106.0	
5	NEW HOLDING CABINET						100.0	
6	NEW GRIDDLE						92.0	
7	NEW RANGE						213.0	
8	NEW HAND SINK	1/2"Ø	1/2"Ø		1-1/2"Ø	1-1/2"Ø		
9	EXISTING 3 COMP. SINK							SEE PLAN NOTES
10	EXISTING DISHWASHER							
(11)	EXISTING 2 COMPARTMENT SINK							SEE PLAN NOTES

REF#	SPECIFICATION	CW	HW	SAN	VENT
L1	REGENCY 96"x17.5" FOUR STATION MULTIPLE WALL HUNG STAINLESS STEEL HAND SINK. TO BE C/W WALL MOUNTED ARM CARRIERS, HANGING KIT, 4 MANUAL FAUCETS, 3 STAINLESS STEEL SOAP DISPENSERS, HOT WATER THERMOSTATIC MIXING VALVE, SHUT OFF VALVES, FLEXIBLE BRAIDED RISERS, P-TRAP, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION	3/4"Ø	3/4"Ø	2"Ø	2"Ø
L2	ELKAY WCL1923OSDC UNIVERSAL BARRIER FREE DESIGN WALL HUNG STAINLESS STEEL HAND SINK. TO BE C/W WALL MOUNTED CARRIERS, HANGING KIT, MANUAL LKD232SBH5C GOOSENECK FAUCET, STAINLESS STEEL SOAP DISPENSER, HOT WATER THERMOSTATIC MIXING VALVE, SHUT OFF VALVES, FLEXIBLE BRAIDED RISERS, P-TRAP, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION	1/2"Ø	1/2 <b>"</b> Ø	1-1/2"Ø	1-1/2"Ø
M1	FIAT TSB-3000 FLOOR MOUNTED TERRAZZO MOP SINK C/W WALL MOUNTED FAUCET. 24"x24"x12" WITH 6" DROP OPEN FRONT WITH STAINLESS STEEL CAPS, 145BB STRAINER PLATE, 51340075000 BRASS DRAIN ASSEMBLY, 832AA HOSE / BRACKET COMBINATION KIT, 834AA FAUCET ADAPTOR, MSG24" WALL GUARD 830AA BLOCK WALL SURFACE MOUNTED MOP SINK FAUCET C/W WALL HANGER SUPPORT KIT AND PIPE SUPPORT BRACKET / HANGERS REQUIRED TO SECURE FAUCET ASSEMBLY TO WALL.	1/2"Ø	1/2"Ø	3"Ø	2"Ø
Т1	AMERICAN STANDARD CADET ELONGATED BOWL PRESSURE ASSIST TOILET 2462.016. FLOOR MOUNTED VITREOUS CHINA TOILET CONFIGURATION, PRESSURE ASSIST FLUSHING TECHNOLOGY, OPEN FRONT SOFT CLOSE SEAT RIM, CHROME TRIP LEVER, SHUT OFF VALVE, BOLTS / BOLT CAPS, FLEXIBLE BRAIDED RISER, FLANGE / GASKET, ESCUTCHEONS, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION	1/2"Ø		3"Ø	2"Ø
T2	AMERICAN STANDARD CADET ELONGATED BOWL PRESSURE ASSIST TOILET 2462.016. FLOOR MOUNTED VITREOUS CHINA TOILET CONFIGURATION, PRESSURE ASSIST FLUSHING TECHNOLOGY, OPEN FRONT SOFT CLOSE SEAT RIM & SEAL LID / COVER, LEFT HAND SIDE CHROME TRIP LEVER, SHUT OFF VALVE, BOLTS / BOLT CAPS, FLEXIBLE BRAIDED RISER, FLANGE / GASKET, ESCUTCHEONS, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION	1/2"Ø		3"Ø	2"Ø
U1	AMERICAN STANDARD MAYBROOK URINAL 6581.001EC. WALL HUNG TOP SPUD VITREOUS CHINA WITH EVERCLEAN, STRAINER, WALL HANGER SUPPORT KIT, SELECTRONIC SENSOR OPERATED URINAL FLUSH VALVE HARD WIRED AC POWERED 6062.051.002, TRANSFORMER COVER PLATE, BOTTOM OUTLET CHROME DRAIN KIT & WALL CARRIER / HANGER SUPPORT KIT.	3/4"Ø		1-1/2"Ø	1-1/2"Ø
U2	AMERICAN STANDARD PINTBROOK BARRIER FREE URINAL 6002.001. WALL HUNG TOP SPUD VITREOUS CHINA WITH EVERCLEAN, STRAINER, WALL HANGER SUPPORT KIT, SELECTRONIC SENSOR OPERATED URINAL FLUSH VALVE HARD WIRED AC POWERED 6062.051.002, TRANSFORMER COVER PLATE, BOTTOM OUTLET DRAIN KIT, WALL CARRIER / HANGER SUPPORT KIT & SIDE GRAB BARS. PERFORM ALL INSTALLATIONS IN ACCORDANCE WITH ARCH. DETAILS AND BARRIER FREE REQUIREMENTS.	3/4"Ø		1-1/2"Ø	1-1/2"Ø

. PRIOR TO BID CONFIRM MAKE MODEL, FINISH, ETC. OF ALL FIXTURES WITH OWNER, PROVIDE SHOP DRAWINGS FOR

2. SUPPLY AND INSTALL SHUT OFF VALVES AT ALL FIXTURE LOCATIONS. ANY MIXING VALVES, VALVES, ETC LOCATED IN WALLS REQUIRE ACCESS PANELS

4. PROVIDE ALL NECESSARY, GASKETS, FLEXIBLE BRAIDED RISERS, COUPLINGS, P-TRAPS, WALL CARRIERS, ETC. AS REQUIRED FOR ALL FIXTURE COMPLETE INSTALLATIONS

5. PERFORM ALL FIXTURE INSTALLATIONS IN ACCORDANCE WITH THE MANUFACTURERS SHOP DRAWINGS

# **GRGURIC ARCHITECTS** INCORPORATED



28 KING STREET EAST, UNIT B STONEY CREEK, ONTARIO, L8G 1J8 Tel. 905-664-8735 Fax. 905-664-8737 Web: www.2gai.com

SEAL

1	ISSUED FOR TENDER	03.07.2
0	ISSUED FOR PERMIT	12.21.20
-	ISSUED FOR REVIEW	12.12.20
-	ISSUED FOR COORDINATION	10.22.20
O	REVISIONS	DATE

AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PROJECT; AND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS BEFORE PROCEEDING WITH THE WORK THE USE OF THIS DRAWING OR PART THEREOF IS FORBIDDEN VITHOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

RAWINGS ARE NOT TO BE SCALED. CONTRACTOR MUST CHECK

ENGINEERING CONSULTANTS:



ENGINEERING

499 BROOKSIDE DRIVE, OAKVILLE, ONTARIO, L6K 1R4 TEL: (416) 726-1648 | (905) 617-4808 E-MAIL: contact@rm-eng.ca | WEB: rm-eng.ca

PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE:

MECHANICAL SCHEDULES & DETAILS

PROJECT:

SCALE: AS NOTED

DATE:

SEPT.2021

DRAWING

WITH THE OWNER, LANDLORD AND G.C. PAINT FINISH TO MATCH WALL / CLG. FINISH.

2. ALL FLOOR, WALL AND OTHER SUCH PENETRATIONS THROUGH A RATED SEPARATION ARE TO BE SLEEVED / FIRE STOPPED IN ACCORDANCE WITH APPROVED MATERIALS, STANDARDS AND BASE BUILDING SPECIFICATIONS..

3. CONTRACTOR IS RESPONSIBLE FOR ALL X-RAYING. SCANNING. FLOOR CUTTING OR BELOW FINISHED FLOOR. ALL SERVICES PENETRATING FLOOR MUST BE SEALED TO ACCEPT FLOOR FINISH.

### A. GENERAL CONDITIONS

1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS ARE A PART OF THIS CONTRACT AND APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15.

2. THE CONTRACTOR FOR THIS WORK IS REQUIRED TO READ THE ENTIRE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL OTHER TRADES.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS SUBCONTRACTORS WITH A FULL SET OF BID DOCUMENTS (INCLUDING SPECIFICATIONS) AND THE COORDINATION OF HIS WORK AND INSPECTIONS AND THE WORK AND INSPECTIONS OF HIS SUBCONTRACTORS WITH ALL OTHER TRADES ON SITE CONFORMING TO THE GENERAL CONTRACTOR'S TIME SCHEDULE.

4. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO DETERMINE CONDITIONS AFFECTING THE WORK, BIDS SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS, FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.

5. WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURNISHED AND INSTALLED" WITH THE EXCEPTION WHERE ITEMS ARE "PROVIDED BY TENANT" WHICH MEANS "FURNISHED ONLY" (INSTALLED BY CONTRACTOR), EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

6. THE CONTRACTOR SHALL PROVIDE A SAFETY RAILING SYSTEM ALONG ROOF EDGE WHERE SERVING OF MECHANICAL EQUIPMENT IS REQUIRED AND NOT WITHIN STANDARD GUIDELINES FOR CLEARANCES TO THE ROOF EDGE.

#### B. GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS. TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE LANDLORD SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR, CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE LANDLORD, AS REQUIRED. FIELD VERIFY THE EXACT TYPE, SIZE AND LOCATION, ETC. OF EXISTING PIPE AND DUCTS IN THE TENANT SPACE PRIOR TO BID.

2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF CONTRACT.

3. ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT ACCESS TO ALL EQUIPMENT FOR SERVICE.

4. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS DIVISION. CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER AND THE LANDLORD. PATCHING SHALL MATCH, FINISH OF SURROUNDING AREA.

1. ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES. ALL WORK SHALL CONFORM TO THE LANDLORD'S CRITERIA, THE PROVINCE, JURISDICTION'S, CITY'S AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. THE CONTRACTOR SHALL INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE TENANT TO THE CONTRACTOR.

#### D. LICENSES, PERMITS, INSPECTIONS & FEES

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS, AND FEES REQUIRED OR RELATED TO HIS WORK

2. FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT SUBSTANTIAL COMPLETION DATE OF

1. DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE. THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED.

2. THE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK, FOR MAKING ALL SUCH MODIFICATIONS AND CHANGES, INCLUDING THOSE INVOLVING OTHER TRADES WITH THE COST THEREOF INCLUDED IN HIS BID. IN SUCH CASE, CONTRACTOR SHALL SUBMIT DRAWINGS AND SPECIFICATIONS PRIOR TO STARTING WORK SHOWING ALL SUCH MODIFICATIONS AND CHANGES. HIS PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.

# F. DISCREPANCIES IN DOCUMENTS

1. DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE GENERAL CONTRACTOR IN WRITING, PRIOR TO SUBMITTAL OF BID. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ADVISE THE TENANT'S CONSTRUCTION MANAGER, IN WRITING, OF VARIATIONS TO CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, TENANT'S CONSTRUCTION MANAGER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

# G. TRADE NAMES AND MANUFACTURERS

1. WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM STANDARD FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL IN WRITING BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO ACCEPTANCE. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

# I. SHOP DRAWINGS

1. SUBMIT SIX COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT. SUBMISSIONS MUST BE EARLY ENOUGH TO ALLOW THE TENANT'S CONSTRUCTION MANAGER EIGHT WORKING DAYS FOR REVIEW WITHOUT CAUSING DELAYS OR CONFLICTS TO THE JOB'S PROGRESS. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS USING THE MANUFACTURER'S LISTED ON THE DRAWINGS. SHOP DRAWINGS SHALL INCLUDE ALL DATA THAT PERTAINS TO THE REQUIREMENTS SET FORTH ON THE DRAWINGS AND IN THE SPECIFICATIONS. THE SUBMITTAL SHALL INCLUDE BUT NOT LIMITED TO CUTS OR CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERISTICS OF EQUIPMENT SHALL SHOW MAJOR DIMENSIONS, ROUGHING-IN DATA, CAPACITY, CURVES, PRESSURE DROP, CODE COMPLIANCE, MOTOR AND DRIVE DATA AND ELECTRICAL DATA. OBSERVE SPECIAL INSTRUCTIONS WHEN REQUIRED. SUBMITTALS SHALL BEAR THE STAMP OF THE GENERAL AND SUBCONTRACTOR SHOWING THAT HE HAS REVIEWED AND CONFIRMED THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS OR INDICATE WHERE EXCEPTIONS TAKE PLACE. LACK OF SUCH CONTRACTOR'S REVIEW AND APPROVAL WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY TENANT'S CONSTRUCTION MANAGER. ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTENANCE MANUALS LEFT ON SITE AT JOB COMPLETION.

2. TENANT'S CONSTRUCTION MANAGER'S REVIEW OF SHOP DRAWINGS OR SCHEDULES SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS OR OTHER DEFICIENCIES OR DEVIATIONS IN THE SHOP DRAWING FROM THE CONTRACT DRAWINGS AND SPECIFICATIONS.

TENANT.

1. THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS:

A. LOCATION OF CONCEALED PIPING VALVES AND DUCTS.

REVISIONS, ADDENDUMS, AND CHANGE ORDERS. SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.

2. AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, THE CONTRACTOR SHALL MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. THE DRAWINGS ARE TO BE TURNED OVER TO THE

D. EXACT ROUTING OF ALL SANITARY AND DOMESTIC WATER PIPING UNDER FLOOR.

1. THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORK UNDER HIS CONTRACT AND SHALL MAKE GOOD, REPAIR OR REPLACE AT HIS OWN EXPENSE. ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF 12 MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION BY THE TENANT'S CONSTRUCTION MANAGER. PROVIDE EXTENDED WARRANTIES AS SPECIFIED WITH INDIVIDUAL FOUIPMENT. IN CASE OF REPLACEMENT OR REPAIR OR EQUIPMENT DUE TO FAILURE WITHIN GUARANTEE PERIOD, GUARANTEE ON THAT PORTION OF WORK SHALL BE EXTENDED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SUCH REPLACEMENT OR REPAIR.

#### L. OPERATIONS MANUALS

1. ONE COPY OF EACH OPERATION AND MAINTENANCE MANUAL FOR ALL EQUIPMENT FURNISHED ON JOB SHALL BE COLLECTED AND INSERTED IN A 3" THREE RING BINDER AND TURNED OVER TO THE OWNER. EACH NOTEBOOK SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS, PAMPHLETS OR BROCHURES APPROVED SHOP DRAWINGS AND WARRANTIES OBTAINED FROM EACH MANUFACTURER OF PRINCIPAL ITEMS OF EQUIPMENT, AS-BUILT DRAWINGS, TESTING REPORTS AND CERTIFICATES.

#### M. SLEEVES

1. THE CONTRACTOR SHALL PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH IT'S RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2" ABOVE THE FLOOR.

2. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RTV" FOAM, "3M" FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THE FIRE RATING OF THE FLOOR OR WALL. CONFORM TO U.L. ASSEMBLY RATING OF FLOOR OR WALL.

3. SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.GAUGE GALVANIZED STEEL MINIMUM.

#### 4. DUCT SLEEVES TO BE MINIMUM 14 GAUGE STEEL.

#### N. HANGERS & SUPPORT

1. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, DUCT STANDS, HANGER RODS, SEISMIC SUPPORT, ETC., NECESSARY FOR THE INSTALLATION OF WORK AS REQUIRED IN ACCORDANCE WITH STRUCTURAL ENGINEERING DRAWINGS, DETAILS AND SPECIFICATIONS, TYPICAL FOR ALL EQUIPMENT, DUCTWORK, ETC. (BUILDING INTERIOR AND EXTERIOR

2. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING OR DUCTWORK. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OF BAR JOIST. WHERE INTERFERENCES OCCUR, IN ORDER TO SUPPORT DUCTWORK OR PIPING, THE CONTRACTOR MUST INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, ACCESS DOORS AND OTHER EQUIPMENT SERVICE REQUIREMENTS AND/OR OTHER TRADES. HANGER TYPES AND INSTALLATION METHODS ARE SUBJECT TO LANDLORD CRITERIA.

3. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6" LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

4. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED FROM ONE ANOTHER.

#### O. ACCESS DOORS

1. FURNISH STEEL ACCESS DOORS AND FRAMES, MIN. 16" X 20" OR AS SHOWN ON DRAWINGS, TO GENERAL CONTRACTOR FOR ALL LOCATIONS WHERE NECESSARY TO PROVIDE ACCESS TO CONCEALED VALVES, AND OTHER EQUIPMENT REQUIRING SERVICE OR INSPECTION. LOCATION, TYPE, SIZE AND NUMBER AS DETERMINED BY CONTRACTOR AND APPROVED BY TENANT CONSTRUCTION MANAGER TO SUIT EQUIPMENT REQUIREMENTS. GENERAL CONTRACTOR WILL INSTALL ACCESS DOORS AND FRAMES.

2. ACCESS DOORS LOCATED IN FIRE-RATED WALLS, FLOORS, CEILING-FLOOR OR CEILING-ROOF ASSEMBLIES SHALL BE FIRE RATED, UNDERWRITER'S LABORATORIES, (C)

3. ACCESS DOORS SHALL BE FLUSH TYPE, MANUFACTURED FROM NO. 14 GAUGE STEEL STEEL, PROVIDED WITH ANCHORS, ACCESS DOORS SHALL BE SUITABLE FOR INSTALLATION IN WALL OR CEILING MATERIALS SHOWN IN ROOM FINISH SCHEDULES.

# P. ELECTRICAL MOTORS

1. FURNISH, INSTALL AND ALIGN ALL MOTORS REQUIRED FOR THIS EQUIPMENT, UNLESS THEY ARE FACTORY INSTALLED ON THE UNIT, ALL STARTERS AND ASSOCIATED WIRING AND SAFETY SWITCHES FOR SUCH MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL MEET ALL REQUIREMENTS AS DEFINED IN THE ELECTRICAL DIVISION OF THE SPECIFICATIONS.

2. DESIGN, CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NEMA, ANSI, ISEE STANDARDS FOR ELECTRICAL EQUIPMENT. ALL MOTORS SHALL BE SUITABLE FOR OPERATION ON VOLTAGE VARIATION OF PLUS OR MINUS 10%%%, 40 DEGREES C AMBIENT TEMPERATURE; HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.

# Q. LOW VOLTAGE (24 VOLT) WIRING

1. THE CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR HIS EQUIPMENT. THIS WORK INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.

2. ALL WORK IS TO CONFORM TO THE LATEST ADDITION N.E.C AND TO DIVISION 16 ELECTRICAL SPECIFICATIONS.

3. ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.

# R. COMMISSIONING AND DEMONSTRATION

1. THE COMMISSIONING PROCESS REQUIRES THE COMPLETE PROCESS TO TEST, ADJUST AND BALANCE THE ENTIRE SYSTEM.

# S. FIRE STOPPING

1. PROVIDE LISTED & APPROVED FIRE STOPPING, FIRE STOPPING DEVICES AND SEALANT AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND TYPES OF SEPARATIONS

# T. SEISMIC SUPPORT

1. THE CONTRACTOR SHALL ENGAGE A SEISMIC RESTRAINT SYSTEM ENGINEER TO PROVIDE ENGINEERED SHOP DRAWINGS FOR SEISMIC RESTRAINT SUPPORT SYSTEMS ON ALL MECHANICAL EQUIPMENT, PIPES, DUCTWORK, ETC. DESIGN AND ALL SPECIFICATIONS MUST BE PERFORMED BY A PROFESSIONAL ENGINEER REGISTERED AND INSURED IN THE PROVINCE OF ONTARIO SPECIALIZING IN THE DESIGN OF SEISMIC RESTRAINT SYSTEMS

MECHANICAL HEATING, VENTILATION, AND AIR CONDITIONING

# A. SCOPE OF WORK

1. THE HVAC CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR, REASONABLY IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: (REFER TO RESPONSIBILITY SCHEDULE FOR EXACT RESPONSIBILITIES)

A. ROOF MOUNTED PACKAGED MECHANICAL EQUIPMENT, AND APPURTENANCES.

B. DUCTWORK, FITTINGS, DAMPERS, AND INSULATION. C. DIFFUSERS, GRILLES, AND REGISTERS. D. TESTING, ADJUSTING, AND BALANCING.

2. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE HVAC SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND CONFRONTATIONS

A. HVAC EQUIPMENT

1. PRIMARY PACKAGED EQUIPMENT.

A. PROVIDE MECHANICAL EQUIPMENT AS INDICATED IN SCHEDULE ON DRAWINGS. B. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES, AND ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. C. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL AIR CONDITIONING EQUIPMENT MUST HAVE A CONDENSATE DRAIN AND BE TRAPPED IN ACCORDANCE WITH MANUFACTURERS DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS.

#### 2. TOILET EXHAUST FANS

A. WHERE SHOWN ON DRAWINGS, PROVIDE A TOILET EXHAUST FAN UNIT COMPLETE WITH GRAVITY BACK DRAFT DAMPERS. ALL DUCTWORK, ROOF OPENINGS AND CAPS NECESSARY TO PROVIDE A COMPLETE EXHAUST SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR. REFER TO PLANS FOR APPLICABILITY.

3. BASEBOARD, CABINET, AND UNIT HEATERS A. ELECTRIC HEATING DEVICES WILL BE SUPPLIED AND INSTALLED BY ELECTRICAL TRADE DIVISION 16.

### 4. VIBRATION ISOLATION DEVICES

A. VIBRATION ISOLATION DEVICES SHALL BE PROVIDED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, ETC.) AND STRUCTURE. B. VIBRATING EQUIPMENT HUNG FROM STRUCTURE SHALL BE ISOLATED WITH RUBBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES. C. EXAMINE DEAD LOAD AND OPERATING LOAD CONDITIONS WHEN SELECTING DEVICES.

ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR. D. CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND AT THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC. E. CONSULT MANUFACTURER FOR APPLICATION DATA.

### 5. CURBS AND STEEL FRAMING FOR SUPPORT A. THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING

REQUIRED TO INSTALL ALL HVAC EQUIPMENT AS DESCRIBED OR IMPLIED ON THE DRAWINGS. CURBS SHALL BE A MINIMUM OF 14" HIGH, OF THE SAME MANUFACTURER OF THE EQUIPMENT SUPPORTED. INSULATE UNDER THE COMPRESSOR SECTION TO PREVENT CONDENSATION. ALL CURBS MUST BE INSTALLED SO THAT TOP OF CURBS ARE "DEAD" LEVEL. ALL PENETRATIONS OF EXISTING STRUCTURE SHALL BE DONE IN ACCORDANCE TO THE LANDLORD'S GUIDELINES AT THIS CONTRACTOR'S EXPENSE.

### B. NEW METAL DUCTWORK - NO FIBERGLASS DUCT PERMITTED

1. NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. SIGNIFICANT DEVIATIONS FROM DESIGN MUST BE APPROVED. BY TENANT'S CONSTRUCTION MANAGER PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT MAINS ARE TO BE RECTANGULAR UNLESS NOTED OTHERWISE, ALL DUCT BRANCHES TO DIFFUSERS ARE TO BE ROUND RIGID DUCT. (FLEXIBLE DUCT CONNECTIONS TO THE DIFFUSER ARE NOT TO EXCEED 5'-0").

2. EXCEPT AS OTHERWISE INDICATED, FABRICATE AND INSTALL SPIRAL & RECTANGULAR DUCTS WITH GALVANIZED SHEET STEEL, IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" OF THE LATEST EDITION. CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, ZINC COATED Z90 GALVANIZED STEEL, REINFORCING TYPES AND INTERVALS, TIE ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.

A. ALL EXPOSED ROUND SPIRAL DUCTWORK IS TO BE ROUND SPIRAL TYPE DUCTWORK, UNLESS SPECIFICALLY NOTED OTHERWISE ON PLAN NOTES; 8"Ø OR LESS = 26GA. 9"Ø - 22"Ø = 24GA.

B. RECTANGULAR DUCTWORK SHALL BE GALVANIZED STEEL METAL; DUCTS UP TO 12" ON THE LONGEST DIMENSION: 26 GA. DUCTS 13" - 28" ON THE LONGEST DIMENSION: 24 GA. DUCTS 29" - 48" ON THE LONGEST DIMENSION: 22 GA.

24"Ø - 36"Ø = 22GA

3. EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO THE FOLLOWING PRESSURE CLASSIFICATIONS: (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE).

A. SUPPLY DUCTS: 2 INCHES WATER GAUGE, POSITIVE PRESSURE B. RETURN AND EXHAUST DUCTS: 2 INCHES WATER GAUGE, NEGATIVE PRESSURE. PRESSURE TEST DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SMACNA STANDARDS.

4. AS A MINIMUM, CROSS BREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8" WIDE X 3/16" DEEP ON 12" CENTERS TO PREVENT VIBRATIONS.

INSTALL DOUBLE THICKNESS TURNING VANES IN ALL RIGHT ANGLE ELBOWS. 6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACNA STANDARDS AND STRUCTURAL DETAILS.

7. WHERE DUCTS PASS THROUGH ROOFS AND FLOORS, PROVIDE AS MINIMUM

1- 1/2"X1-1/2" X1/8" STEEL ANGLE FRAMES AT EACH SIDE OF OPENING. THE ANNULAR SPACE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CAULKED WITH SILICONE SEALANT OR FIREPROOFED AS REQUIRED BY ASSEMBLY FIRE RATING.

8. ALL TRAVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR TIGHT WITH DAP CMC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.

9. SOFT ELASTOMER BUTYL GASKET WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.

10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

11. PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, CONTROLS, AND OTHER ITEMS IN DUCTWORK THAT REQUIRE SERVICE OR INSPECTION. IF THE ACCESS PANEL LOCATION IS EXPOSED TO THE SALES AREA, IT MUST BE APPROVED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO INSTALLATION. LAY-IN SUPPLY AND RETURN AIR DIFFUSERS, GRILLES AND REGISTERS WITH PLASTER FRAMES MAY BE USED AS ACCESS LOCATIONS.

# 12. FLEXIBLE CONNECTIONS

A. FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, ETC.) AND DUCTS OR CASINGS. ALSO, PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS. B. FLEXIBLE CONNECTIONS SHALL CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION. C. FLEXIBLE CONNECTION IS TO BE RATED FOR THE OPERATING PRESSURE OF THE

13. FIRE DAMPERS A. PROVIDE PRIMARY FIRE DAMPERS WHERE INDICATED OR REQUIRED BY CODES. DAMPERS SHALL BE DESIGNED FOR HORIZONTAL OR VERTICAL FLOW OF AIR AS REQUIRED. FIRE DAMPERS SHALL BE ULC LABELED. B. FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIRSTREAM AND A 165°F FUSIBLE LINK, TYPE A, AS MINIMUM.

C. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS. D. PROVIDE DUCT ACCESS DOORS IN AN ACCESSIBLE LOCATION FOR ALL FIRE DAMPERS. DOOR IS TO BE 20 GA GALVANIZED DOOR WITH QUICK-OPENING LATCH AND PIANO HINGE.

A. FLEXIBLE AIR DUCT SHALL BE 1" INSULATED CLASS 1 AND RATED FOR THE OPERATING PRESSURE OF THE SYSTEM. DUCT CONSTRUCTION MATERIAL (PLASTIC, CLOTH, ALUMINUM) MUST ADHERE TO LOCAL CODES AND LANDLORD'S REQUIREMENTS AND BE INCLUDED AS SUCH IN THE BID.

B. FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APPROVAL FROM TENANT'S CONSTRUCTION MANAGER. C. FLEXIBLE DUCT SHALL NOT EXTEND OVER 5'-0" IN LENGTH AT ANY ONE LOCATION.

15. SUPPLY AIR TAKE-OFF FITTINGS A. PROVIDE CONICAL OR "BELL-MOUTH" TAKE-OFFS FROM MAIN DUCTWORK TO ROUND BRANCHES. INSTALL PER MANUFACTURER'S INSTRUCTIONS. B. PROVIDE 45° RECTANGULAR TAKE-OFFS FROM MAIN DUCTWORK TO RECTANGULAR

DAMPERS.

A. PROVIDE MANUAL LOCKING QUADRANT VOLUME CONTROL DAMPERS WITH HANDLE OPERATORS IN EACH BRANCH DUCT AND AS SHOWN ON PLANS TO FACILITATE AIR BALANCING. B. WHERE ACCESS TO BALANCING DAMPER IS RESTRICTED, YOUNG'S REGULATORS SHALL BF USFD C. ALL RECTANGULAR DAMPERS IN OUTSIDE AIR, RELIEF AIR, OR RETURN AIR DUCTS ARE TO BE OF OPPOSED BLADE TYPE. ALL OUTSIDE AIR DUCT DAMPERS MUST ALSO BE OF THE LOW LEAKAGE TYPE

D. ALL MOTORIZED DAMPERS NOT FURNISHED WITH EQUIPMENT ARE TO BE HONEYWELL

17. DIFFUSERS, GRILLES, AND REGISTERS

A. PROVIDE DIFFUSERS GRILLES AND REGISTERS AS SCHEDULED. DEVICES TO BE COMPLETE WITH DAMPERS FRAMES AND ALL ACCESSORIES. FINISH AS INDICATED. B. INSTALL ALL AIR DEVICES AS LOCATED ON THE ARCHITECTURAL REFLECTED CEILING

C. APPROVED MANUFACTURERS: E.H.PRICE, EQUALS BY METALAIRE, NAILOR, TITUS OR KRUEGER IS ACCEPTABLE.

18. DUCTWORK INSULATION A. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.

INSULATION MUST COMPLY WITH NFPA 90A B. ALL DUCTWORK IN THE PLENUM SPACE ABOVE THE CEILING SHALL BE EXTERNALLY INSULATED WITH A MINIMUM OF 1"THICK, 1-1/2 LB. DENSITY (R=5.6) DUCT WRAP WITH VAPOR BARRIER. VAPOR BARRIER IS TO BE MAINTAINED THROUGHOUT DUCT SYSTEM. ALL JOINTS MUST BE TAPED SO THAT NO INSULATION FIBER IS VISIBLE. EXTEND DUCTWORK INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS, AND SIMILAR

C. ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAT 50 WHEN TESTED IN ACCORDANCE WITH ASTM C 411, OR AS REQUIRED BY LOCAL CODES.

#### 19. SYSTEM CLEANOUT

A. DUCTWORK AND AIR HANDLING EQUIPMENT IS TO BE CLEANED OUT AND BLOWN OUT BEFORE PAINTING IS STARTED BY THE GENERAL CONTRACTOR. B. FILTERS MUST BE IN UNITS AT ANY TIME FANS ARE OPERATED. A CLEAN FILTER MUST BE IN UNIT WHEN THE SPACE IS COMPLETED FOR TURNOVER TO THE TENANT.

#### D. SYSTEM TESTING, ADJUSTING, AND BALANCING

1. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR WHO IS CURRENTLY LICENSED ASSOCIATED AIR BALANCING COUNCIL (AARC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) BALANCING CONTRACTOR. NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST RECENT STANDARDS OF THEIR SOCIETY. PAYMENT OF ALL COSTS FOR TESTING SHALL BE MADE BY THE HVAC CONTRACTOR.

2. THE HVAC CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIOR TO THE AIR BALANCE. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN

3. BALANCE AIR QUANTITIES TO WITHIN 5%%% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS, OR THE ADDITION OF DAMPERS REQUIRED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST TO THE TENANT

4. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION: A. AABC OR NEBB CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR. B. INSTRUMENTATION LIST WITH LAST CALIBRATION DATES.

MAKE AND MODEL NUMBERS OF ALL HVAC EQUIPMENT TESTED. D. AIR CFM AND STATIC PRESSURE READINGS (DISCHARGE AND SUCTION) AS MEASURED BY PITOT TUBE DUCT TRAVERSE AT THE UNIT.

E. MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG.

F. MOTOR AND FAN RPMS, SHEAVE SIZES AND BELT SIZES. G. OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING. H. MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT.

I. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED). J. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.

5. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.

6. THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL.

7. THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHALL RECHECK ANY ITEMS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.

8. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION & MAINTENANCE

### E. DEMOLITION SPECIFICATION

1. EQUIPMENT INDICATED TO BE REMOVED SHALL BE TAKEN FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS. LANDLORD SHALL HAVE THE OPTION TO RECEIVE ANY ITEMS CALLED TO BE REMOVED PRIOR TO REMOVAL FROM SITE. EQUIPMENT REQUIRED TO BE TURNED OVER TO THE OWNER SHALL BE PLACED IN A MUTUALLY ACCEPTABLE LOCATION.

2. THE WORK SHALL INCLUDE THE REMOVAL OF MATERIALS AS DIRECTED. PRIOR TO REMOVING EQUIPMENT AND MATERIALS FROM THE PROJECT SITE, THE BUILDING MANAGER SHALL INSPECT AND ADVISE WHICH ITEMS WILL BE RESTORED.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL FROM THE PREMISES ALL DEBRIS RESULTING FROM REMOVAL OF MECHANICAL WORK.

4. CONTRACTOR SHALL CAP AIRTIGHT ALL REMAINING DUCTS, AT ALL POINTS OF

5. DEMOLITION AND OTHER WORK WHICH CREATES DISTURBING NOISE, MUST BE PERFORMED AFTER NORMAL WORKING HOURS OR ON WEEKENDS. THE DELIVERY HANDLING, AND INSTALLING OF MATERIALS, EQUIPMENT AND DEBRIS MUST BE ARRANGED TO AVOID ANY INCONVENIENCE AND ANNOYANCE TO OTHER TENANTS. CLEANING MUST BE CONTROLLED TO PREVENT DIRT AND DUST FROM INFILTRATING INTO ADJACENT TENANT OR MECHANICAL AREAS. WELDING OR BURNING MUST BE PERFORMED ONLY DURING TIMES SPECIFICALLY APPROVED BY THE BUILDING MANAGER.

6. IN CASES WHERE EXISTING PIPE IS REMOVED AND CUT BACK TO EXISTING RISERS. CONTRACTOR SHALL PROVIDE NEW OUTLETS FOR FUTURE USE AS TIGHT AS POSSIBLE TO EXISTING RISERS: 4"CAPPED SANITARY OUTLET IN CEILING OF FLOOR BELOW, 2"CAPPED VENT OUTLET, AND NEW VALVED AND CAPPED CW AND HW OUTLETS ABOVE NEW CEILING ELEVATION. SIZE OF NEW VALVED CW & HW OUTLETS SHALL MATCH EXISTING RISER TAPS.

7. PATCH SLAB TO MATCH EXISTING THROUGHOUT.

# **DIVISION 15**

#### MECHANICAL PLUMBING A. SCOPE OF WORK

1. THIS CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION AND FACILITIES NECESSARY FOR, REASONABLY IMPLIED AND INCIDENTAL TO, THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL THE WORK FOR THE PLUMBING SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS, TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: (REFER TO RESPONSIBILITY SCHEDULE FOR EXACT

RESPONSIBILITIES) A. COMPLETE SANITARY PIPING SYSTEMS OF WASTE, DRAINS, AND VENTS. B. COMPLETE COLD AND HOT WATER PIPING SYSTEMS, APPURTENANCES AND INSULATION. C. PLUMBING FIXTURES AND EQUIPMENT AS SCHEDULED. D. NATURAL GAS PIPING AND FITTINGS

E. TESTS AND ADJUSTMENTS. 2. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE PLUMBING SYSTEM, MATERIALS, AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCES AND

3. RELOCATION OF EXISTING WATER, WASTE, VENT, OR DRAINAGE LINES TO FACILITATE STORE DESIGN CRITERIA MUST BE INCLUDED IN BID PROPOSAL.

# A. PLUMBING EQUIPMENT

CONFRONTATIONS.

1. PROVIDE NEW PLUMBING EQUIPMENT AS SHOWN ON THE DRAWING AND SPECIFIED IN THE PLUMBING FIXTURE SCHEDULE.

2. WHERE EXISTING PLUMBING FIXTURES ARE TO BE REUSED, REPLACE BALL COCK VALVE SEALS, LEAVE IN PROPER WORKING ORDER.

# B. GENERAL PIPING REQUIREMENTS

1. GENERALLY, SANITARY AND POTABLE WATER CONNECTIONS WILL BE MADE AT SERVICE LOCATIONS. FIELD VERIFY EXACT CONNECTION POINTS PRIOR TO SUBMITTING BID AND NOTIFY THE TENANT'S CONSTRUCTION MANAGER IF CONDITIONS ARE NOT AS SHOWN ON THE PLANS OR AS STATED IN THE SPECIFICATIONS. CONTRACTOR MUST VERIFY THE OPERABILITY OF ENTIRE SYSTEM PRIOR TO TIE IN AS FOLLOWS: A. SNAKE SANITARY FOR A DISTANCE OF 100 FEET AND REPORT ANY BLOCKAGE. B. TEST WATER PRESSURE TO INSURE MINIMUM OF 50 PSI.

2. INSTALL ALL NECESSARY PIPE HANGERS, SADDLES, AND CARRIERS TO PROPERLY SUPPORT ALL PIPING AND FIXTURES. HANGERS SHALL SUIT TYPE OF PIPING PROVIDED AND BE SPACED AT A MAXIMUM SPAN OF 5 FEET.

3. ESCUTCHEONS SHALL BE CHROME PLATED, SIZE AS REQUIRED AND PLACED AT ALL PIPE PENETRATIONS AT WALLS, FLOORS, AND CEILINGS IN FINISHED AREAS.

4. FLASHING SHALL BE SEALED WATERTIGHT AND PERFORMED IN ACCORDANCE TO THE LANDLORD'S CRITERIA.

A. PIPING - ALL MATERIALS MUST BE CSA LISTED / APPROVED FOR USE IN CANADA

- IPEX SYSTEM 15 PERMITTED BURIED IN GRADE BELOW SLAB ONLY. - IPEX XFR TO BE INSTALLED ABOVE GRADE AND ALL PLENUM SPACES.

A. WASTE, DRAIN AND VENT PIPING SHALL BE SERVICE WEIGHT, CAST IRON SOIL PIPE. VENT PIPING ABOVE FLOOR TO BE COPPER. B. JOINTS: BELOW FLOOR SLAB - COMPRESSION TYPE PLASTIC SEAL (HUB AND SPIGOT). ABOVE FLOOR SLAB - NEOPRENE SEALING SLEEVE WITH STAINLESS STEEL SHIELD AND CLAMP WITH APPROVED NEOPRENE - BASED LUBRICANT, (HUBLESS). GALVANIZED VENT -

SCREWED JOINTS WITH TEFLON TAPE ON MALE THREADS. C. PITCH WASTE LINES 3" AND SMALLER NOT LESS THAN 1/4" PER FOOT. PITCH LARGER MAINS NOT LESS THAN 1/8" PER FOOT. INSTALL A CLEANOUT AT BASE OF EACH SOIL STACK, AT EACH CHANGE

D. IN DIRECTION, AT INTERVALS NOT OVER 50 FEET, AND ELSEWHERE AS SHOWN ON DRAWINGS OR REQUIRED BY LOCAL CODE. CLEAN OUTS SHALL ONLY BE INSTALLED IN NON-PUBLIC AREAS, UNLESS GIVEN EXPRESSED, WRITTEN PERMISSION BY TENANT'S CONSTRUCTION MANAGER. WHEN GIVEN PERMISSION TO INSTALL IN PUBLIC AREAS, THE CLEANOUTS SHALL HAVE STAINLESS STEEL WALL COVERS AND BRASS FLOOR COVERS (FLUSH WITH FINISHED FLOOR) PROVIDED BY THE CONTRACTOR. PROVIDE COVERS WITH INSET AREA FOR CARPETED FLOOR LOCATIONS. ALL CLEAN-OUT LOCATIONS SHALL BE APPROVED BY THE TENANT'S CONSTRUCTION MANAGER.

E. INSULATE ALL HORIZONTAL RUNS OF PIPING LOCATED IN CEILING SPACES WHEN APPLICABLE. INSULATION TO BE AS SPECIFIED FOR WATER PIPING. F. INSULATE THE TRAP, SANITARY AND SUPPLY PIPES UNDER LAVATORY WITH 1/2" ARMSTRONG "ARMAFLEX" PIPING INSULATION OR TRUEBRO MODEL 102W "HANDI LAV **GUARD" INSULATION KIT.** 

2. CONDENSATE PIPING SHALL BE TYPE "L" DRAWN COPPER TUBE WITH LEAD FREE SOLDERED JOINTS AND WROUGHT COPPER FITTINGS WITH DIELECTRIC SEPARATION BETWEEN DISSIMILAR METALS.

3. POTABLE WATER PIPING: (IPEX AQUARISE PIPING OR EQUAL MATERIAL FOR COMMERCIAL RETURN AIR PLENUM USE IS PERMITTED), OTHERWISE; A. BELOW GRADE: TYPE 'K', ANNEALED TEMPERED COPPER TUBE FOR PIPE SIZES 2

INCHES AND SMALLER. BRAZE ALL JOINTS.

F. SECURE PIPE AT ANGLE STOPS.

DETERMINE IF A GAS SYSTEM IS REQUIRED.

B. ABOVE GRADE: TYPE 'L' DRAWN COPPER TUBE WITH WROUGHT COPPER FITTINGS AND LEAD FREE SOLDER. C. INSTALL AIR CHAMBER SHOCK ABSORBERS IN PIPING SYSTEM TO PREVENT NOISE AND DAMAGE DUE TO WATER HAMMER. D. ALL BRANCH PIPING SYSTEM SHALL HAVE ACCESSIBLE SERVICE VALVE. PROVIDE SHUT OFF VALVES IN THE SUPPLY PIPING TO EVERY FIXTURE. PROVIDE ACCESS DOORS WHERE

E. PROVIDE WATER METER AND REMOTE READER PER LANDLORD'S CRITERIA OR LOCAL UTILITIES REQUIREMENTS IF APPLICABLE. REFER TO PLANS FOR FOR ADDITIONAL INFORMATION.

G. PROVIDE FLEXIBLE INSERTS AT ALL PIPE PENETRATIONS THROUGH FRAMING TO KEEP

B. LOW PRESSURE (14" W.C. AND BELOW) GAS LINES SHALL BE BLACK STEEL, SCHEDULE

PIPES FROM HITTING FRAME WHEN IN OPERATION. A. PROVIDE A COMPLETE GAS PIPING SYSTEM IF APPLICABLE. REFER TO PLANS TO

40, ASTM A-120, WITH MALLEABLE THREADED FITTINGS FOR 2" AND SMALLER, AND WITH WELDED JOINTS FOR 2-1/2" AND LARGER. MEDIUM PRESSURE (ABOVE 14" W.C.) SHALL HAVE WELDED JOINTS. C. PROVIDE A GAS COCK, DIRT LEG, AND UNION CONNECTION TO EACH PIECE OF EQUIPMENT. PROVIDE GAS METER AND/OR REGULATOR AS REQUIRED. REGULATOR TO BE VENTED TO THE EXTERIOR.

D. PITCH PIPING AT A UNIFORM GRADE OF 1/4" IN 15 FEET UPWARD IN DIRECTION OF

FLOW. SUPPORT PIPING EVERY 5 FEET. SUPPORT AS REQUIRED BY LANDLORD CRITERIA, AS DETAILED ON DRAWINGS, OR BY STANDARD INDUSTRY PRACTICE, WHICHEVER IS MORE E. GAS PIPING EXPOSED ON ROOF MUST BE PAINTED WITH RUST-INHIBITING PAINT. F. INSTALLATION, TESTING AND PURGING OF GAS PIPING SHALL BE DONE PER THE REQUIREMENTS OF THE LOCAL GAS COMPANY, LOCAL CODES, AND APPLICABLE NFPA 54

G. CONTACT AND COORDINATE GAS SERVICE AND METER REQUIREMENTS WITH THE LOCAL GAS COMPANY AND THE LANDLORD PRIOR TO BID. A. INSULATE ALL WATER AND INTERIOR CONDENSATE PIPING WITH 1" THICK (K=0.23 @ 75 F) SNAP-ON FIBERGLASS PIPE INSULATION WITH AN ALL SERVICE JACKET TO MEET LOCAL

CODES AND ULC FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATINGS OF 50. APPROVED MANUFACTURER: MANVILLE MICRO-LOK.

6. TEST & STERILIZATION A. LEAKAGE TESTS SHALL BE PER LOCAL CODES, MINIMUM AS FOLLOWS: 1. TEST POTABLE WATER PIPING AND CONDENSATE PIPING AT 125 PSIG FOR SIX HOURS. 2. TEST DRAIN, WASTE, VENT PIPING BY A 10' WATER COLUMN FOR TWO HOURS. ALL JOINTS SHALL BE GAS AND WATER TIGHT.

4. STERILIZE POTABLE HOT & COLD WATER LINES UPON COMPLETION OF SYSTEM. STERILIZE WATER SYSTEM IN ACCORDANCE WITH LOCAL CODES. B. FIRE STOPPING

AS REQUIRED WHERE PIPING PENETRATES ALL FIRE RATED SEPARATIONS.

3. TEST GAS PIPING WITH PER NFPA 54 CODES.

GENERAL NOTES, (MECHANICAL HVAC & PLUMBING); 1. FIRE DAMPERS SHALL BE INSTALLED IN CONFORMANCE WITH DIV. B, 9.10.13.13, 3.1.8.4 &

1. PROVIDE ULC / CSA APPROVED FIRE STOPPING SEALANTS AND FIRE STOPPING DEVICES

2. INSULATION AND COVERINGS ON HEATING AND AIR CONDITIONING PIPING WHERE THE FLUID TEMP. EXCEEDS 120°C SHALL BE NON-COMBUSTIUBLE MATERIALS OR SHALL NOT FLAME, GLOW, SMOKE OR SMOLDER WHEN TESTED IN ACCORDANCE WITH ASTM C411.

3. AIR INTAKES AND EXHAUST OUTLETS SHALL BE SHIELDED FROM THE ENTRY OF SNOW & RAIN AND SHALL BE FITTED WITH CORROSION RESISTANT SCREENS OF MESH HAVING MAX. 15MM OPENINGS.

COMBUSTIBLE MATERIALS ARE PERMITTED PROVIDED THEY COMPLY WITH DIV. B. 6.2.9.2

4. EXHAUST DUCTS AND OUTLETS SHALL CONFORM TO DIV. B. 6.2.3.8 OF THE OBC. 5. DIV. B. 6.2.1.3 - STRUCTURAL MOVEMENT - MECHANICAL SYSTEMS AND EQUIPMENT SHALL BE DESIGNED AND INSTALLED TO ACCOMMODATE THE MAXIMUM RELATIVE

STRUCTURAL MOVEMENT PROVIDED FOR IN THE CONSTRUCTION FOR THE THE BUILDING. 6. CONDENSATE DRAINS FROM HVAC EQUIPMENT SHALL BE INDIRECTLY DRAINED & CONNECTED TO THE DRAINAGE SYSTEM FORMING MIN. 25MM AIR BREAK AS PER DIV. B.

7. PIPING PENETRATING FIRE SEPARATIONS ARE REQUIRED TO BE SEALED AT THE PENETRATION BY FIRE STOPS AND IN COMPLIANCE WITH DIV. B. 9.10.9.6 AND 9.10.9.7. THE APPROVED FIRE STOP SYSTEM AND INSTALLATION DETAILS MUST BE SUBMITTED TO THE FILED INSPECTOR FOR APPROVAL. INSTALLATION SHALL BE COORDINATED ON SITE AND SUBJECT TO THE APPROVAL OF THE FIELD INSPECTOR.

8. CAST IRON DRAINAGE, VENT PIPING AND FITTINGS SHALL BE CERTIFIED TO CAN/BSA-B70

9. COPPER PIPING OR TUBING USED SHALL BE CERTIFIED TO ASTM B88 OR COMPLY WITH

11. NOMINALLY HORIZONTAL PIPING SHALL BE SUPPORTED AT MAX. INTERVALS SPECIFIED IN DIV. B. 7.3.4.5

10. BACK WATER VALVES AND INSTALLATIONS SHALL CONFORM TO DIV. B. 7.4.6.4 OF THE

12. BACKFLOW PREVENTION DEVICES SHALL BE SELECTED INSTALLED AND TESTED IN CONFORMANCE WITH CAN/CSA-B64-10 & REGION STANDARDS. 13. ALL WORK, PROCEDURES, PRACTICES & MATERIALS MUST BE IN STRICT CONFORMANCE

REGULATIONS AND SPECIFICATIONS. 14. PROVIDE FINAL AS-BUILT MARK UP.

15. ALL SANITARY VENTING MUST BE IN STRICT ACCORDANCE WITH THE PLUMBING CODE RULES AND REGULATIONS.

WITH THE LATEST EDITION OF ALL THE RELEVANT CODES, RULES, STANDARDS,

16. CONFIRM ALL ROUGH IN CONNECTION POINTS WITH FIXTURES BEING INSTALLED PRIOR

17. PROVIDE ISOLATION SHUT OFF VALVES AT ALL FIXTURE LOCATIONS.

INCORPORATED

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ISSUED FOR TENDER ) ISSUED FOR PERMIT 12.21.2021 12.12.202 ISSUED FOR REVIEW ISSUED FOR COORDINATION 10.22.2021 DATE REVISIONS

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PROJECT: HOLY CROSS PARISH

1883 KING ST. EAST, HAMILTON, ON

OFFICE & KITCHEN

RENOVATION

L8K 1V9 DRAWING TITLE:

> MECHANICAL **SPECIFICATIONS**

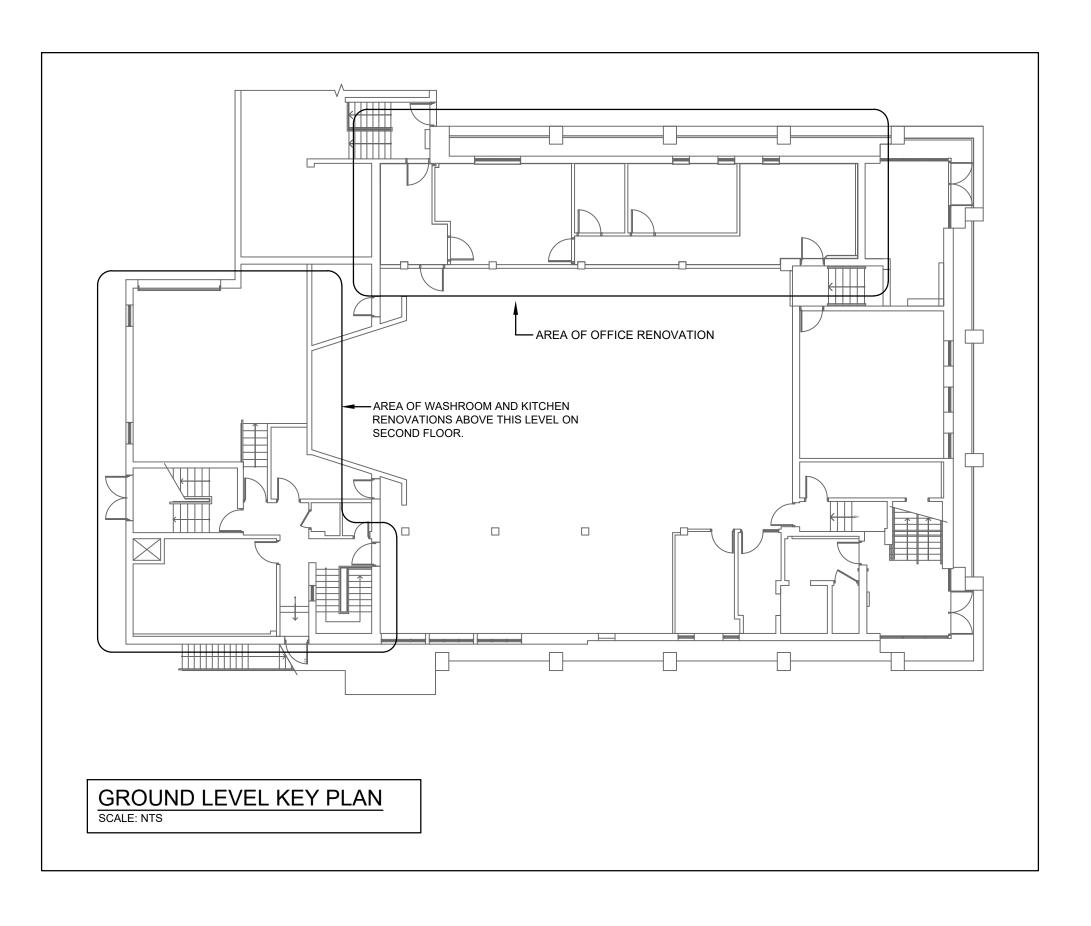
> > PROJECT:

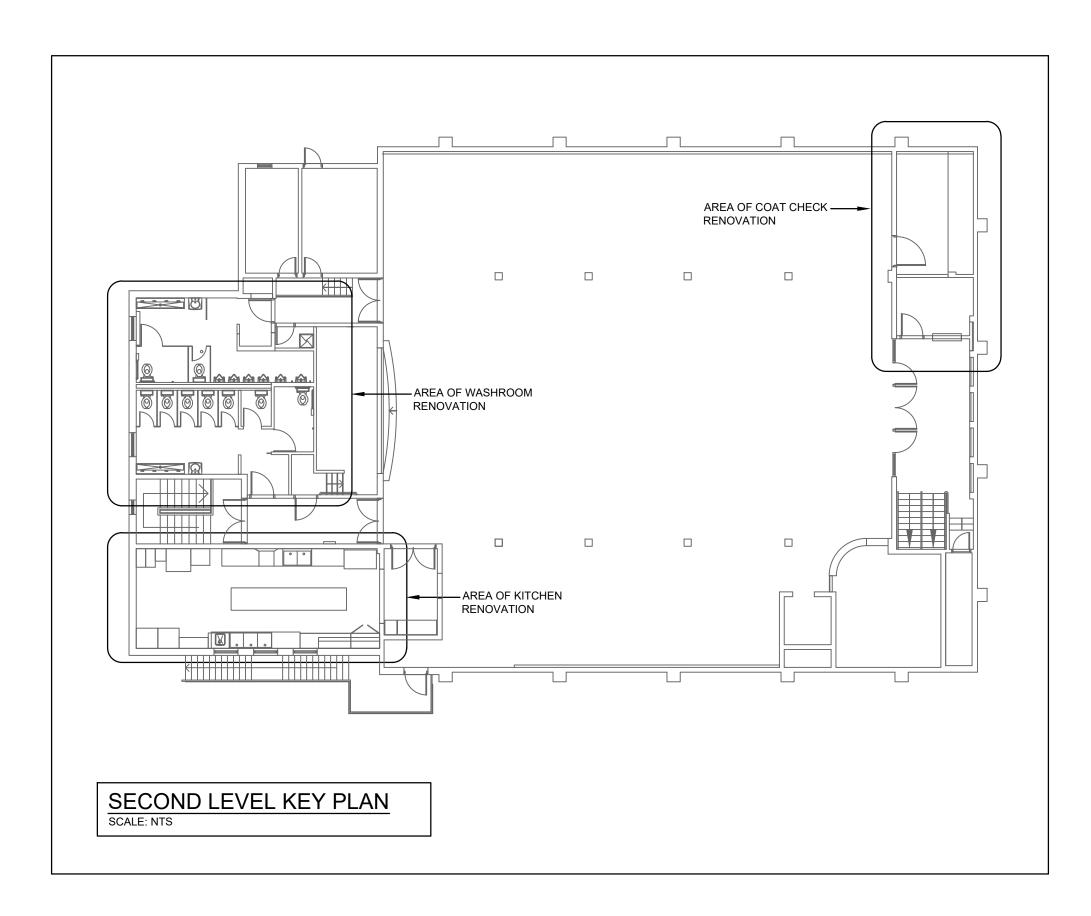
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SEPT.2021

SCALE:

DRAWING





# **ELECTRICAL DRAWING LIST**

E0.01 - ELECTRICAL TITLE PAGE

E0.02 - ELECTRICAL SPECIFICATIONS
E0.03 - ELECTRICAL SPECIFICATIONS AND SCHEDULES
E1.01 - ELECTRICAL DEMOLITION PLANS
E1.02 - GROUND FLOOR ELECTRICAL PLANS

E1.03 - SECOND FLOOR ELECTRICAL PLANS E1.04 - PARTIAL BASEMENT AND SECOND FLOOR ELECTRICAL PLANS

	ELECTRICAL	LEGEN			ABBREVIATIONS
IGHTIN	NG SYSTEMS	RECE	PTACLE/DIRECT CONNECTIONS	AC	ABOVE COUNTER
<u> </u>	120V TOGGLE SWITCH.	Ψ	120V, 2P, 3W DUPLEX RECEPTACLE (CSA #5 SERIES)	AFF	ABOVE FINISHED FLOOR
 #	MULTIPLE SWITCH INSTALLATION UNDER	———— →	120V, QUAD RECEPTACLE	ATC	AUTOMATIC TEMPERATURE CONTROL
<del></del>	COMMON PLATE	•••	ASA ASS VIDIDI EV DECEDT WITH I C	BAS	BUILDING AUTOMATION SYSTEM
(\$)	FAN CONTROL. SEE 'MECHANICAL EQUIPMENT STARTER AND ELEC. DATA SCHEDULE' FOR	<u> </u>	15A, 120 V DUPLEX RECEPT WITH I.G.	BFG	BELOW FINISHED GRADE
	TYPE OF DEVICE.	#	15A/120V DUPLEX RECEPT., SPLIT WIRED	BMS	BUILDING MANAGEMENT SYSTEM
(OS)	CEILING MOUNTED OCCUPANCY SENSOR	•	SPECIAL RECEPTACLE AS NOTED ON DWG	С	CONDUIT
WITCH S	UBSCRIPTS: K - KEY OPERATED		SINGLE/MULTI-GANG FLUSH FLOOR MOUNTED	C/B	CIRCUIT BREAKER
- DOUB - THRE	LE POLE (DPST). S - SPEED SWITCH		FLOOR BOX PROVIDE COMBINATION/TYPE OF POWER RECEPTACLES AND/OR DATA OUTLETS AS	Ę	CENTERLINE
- FOUR	WAY DS - DOOR SWITCH		INDICATED	E/EX/EXIST	EXISTING TO REMAIN
D - DIMMER WG - WIRE GUARD OS - OCCUPANCY SENSOR NL - NIGHT LIGHT			SINGLE/MULTI-GANG SURFACE MOUNTED FLOOR	EC	EMPTY CONDUIT
OVER	CH C/W MANUAL RIGHT EIGHT	$\blacksquare$	BOX PROVIDE COMBINATION/TYPE OF POWER RECEPTACLES AND/OR DATA OUTLETS AS	EM	EMERGENCY
			INDICATED	EMT	ELECTRICAL METALLIC TUBING
	LIGHTING FIXTURES, LETTER WITHIN INDICATES	$\bigcirc$	120 VOLT DIRECT CONNECTION , 1PH.	ER	EXISTING RELOCATED
	TYPE. (SUBSCRIPT "NL" INDICATES NIGHT LIGHT. IE: NO LOCAL SWITCHING).		230 VOLT DIRECT CONNECTION, 1 PH.	EWC	ELECTRIC WATER COOLER
<u> </u>			347/600 VOLT DIRECT CONNECTION 3 PH	FA	FIRE ALARM
$\bowtie$	SELF POWERED EXIT SIGN. UNIVERSAL MOUNTING HARDWARE. BEGHELLI	JB	JUNCTION BOX	G/GRD/GND	GROUND
	GUIDA GD-E-SP-L-ROC-1-U	AV	AV RECEPTACLE. REFER TO LAYOUT FOR	HL	MOUNTED AT HIGH LEVEL
	SELF POWERED COMBINATION EXIT SIGN C/W REMOTE HEADS. UNIVERSAL MOUNTING	<u> </u>	REQUIREMENTS.	HP	HORSE POWER
	HARDWARE. BEGHELLI STELLA COMBO SL-E-12-72-1- 2 - 7W MR16 LED EMERGENCY	ГЪ	DISCONNECT SWITCH (UNFUSED). SUBSCRIPT INDICATES SIZE. SUBSCRIPT "N" INDICATES	LVR	LOW VOLTAGE RELAY
	HEADS.		COMPLETE WITH SOLID NEUTRAL.	MER	MECHANICAL EQUIPMENT ROOM
<>>	DUAL REMOTE EMERGENCY HEADS. BEGHELLI BTMR2		COMBINATION POWER/DATA SURFACE MOUNTED MULTI-OUTLET WIREMOLD WITH DUPLEX	MTD	MOUNTED
<b>V</b>	2 x 7W-12V LED MR16 LAMPS		RECEPTACLES AND DATA OUTLETS AS INDICATED	NCB	NON-AUTOMATIC CIRCUIT BREAKER
<b>~</b>	EMERG. BATTERY PACK C/W REMOTE HEADS.		FLUSH MOUNTED, SURFACE MOUNTED PANELBOARDS.	NIC	NOT IN CONTRACT
	BEGHELLI NOVA NV-12-200; 2 x 7W-12V LED MR16 LAMPS.	$\bigcirc$	MOTOR WITH JUNCTION BOX AND FLEXIBLE	NTS	NOT TO SCALE
RE AL	ARM SYSTEM	,	CONDUIT CONNECTION	ОС	ON CENTER
	MANUAL PULL STATION	1A.8	TYPICAL CIRCUIT NUMBER INDICATE PANEL '1A' AND CIRCUIT NUMBER 8.	Р	POLES
		NOTE:		PH	PHASE
$\bigcirc$	HEAT DETECTOR	DIRECT (	CONNECTION VOLTAGE INFORMATION INDICATED  JIT No.	STD	STANDARD
	SMOKE DETECTOR	SUBSCRI		SPDT	SINGLE POLE DOUBLE THROW
<b>2</b> 0	FIRE ALARM BELL		VE COUNTER/BACK SPLASH NG MOUNTED	SPST	SINGLE POLE SINGLE THROW
ISCEL	LANEOUS	F - FLOO	R MOUNTED. DUND FAULT CIRCUIT INTERRUPTER.	SWBD	SWITCHBOARD
	PUSHBUTTON. SUBSCRIPT INDICATES TYPE.  1 - PUSH BUTTON FOR DOOR OPENER SUPPLIED BY	IG - ISOL	ATED GROUND TYPE	REL	TO BE RELOCATED
• 1	OTHER, INSTALL BY DIV 16.	WP - WE	RECEPTACLE ATHERPROOF TYPE	REM	TO BE REMOVED
	2 - PUSH BUTTON FOR DOOR BUZZER SUPPLIED AND INSTALL BY DIV 16.	USB - RE	CEPTACLE C/W 2 x USB OUTLETS	REP	TO BE REPLACED
(cp)		COMMI	UNICATION SYSTEM	TYP	TYPICAL
(SP)	PA SPEAKER		TELEPHONE OUTLET	UNF	UNFUSED
				UON	UNLESS OTHERWISE NOTED
		◁	ONE (1) FLUSH WALL OUTLET UNLESS OTHERWISE NOTED ON LAYOUT. PROVIDE (1) RJ45 JACKS AND (1)	UPS	UNINTERRUPTIBLE POWER SUPPLY
		7	CAT 6 UTP CABLE FROM IT ROOM. REFER TO HWDSB IT STANDARDS FOR ADDITIONAL INFORMATION.	VT	VAPORTIGHT
		<,●	CABLE TV OUTLET	W	WIRE
		4	VOICE/DATA COMBO OUTLET	WP	WEATHERPROOF
		WAP	WIRELESS ACCESS POINT	XP	EXPLOSION PROOF
		VVAF			
		AV	AV OUTLET		

# **GRGURIC** ARCHITECTS INCORPORATED



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2	ISSUED FOR TENDER	07.03.202
1	ISSUED FOR PERMIT	12.20.202
NO	REVISIONS	DATE

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PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE:

ELECTRICAL TITLE PAGE

PROJECT:

SCALE: AS NOTED DATE:

SEPT.2021

20004

DRAWING

E0.01

#### **ELECTRICAL SPECIFICATIONS**

#### 1. <u>CODES AND STANDARDS</u>

1.1. DESIGN AND PERFORMANCE OF COMPONENTS AND METHODS SPECIFIED HEREIN SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE CODES, STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS OF THE ENTITIES LISTED BELOW:

1.1.1. OBC ONTARIO BUILDING CODE

OESC ONTARIO ELECTRICAL SAFETY CODE 1.1.2.

1.1.3. CSA CANADIAN STANDARDS ASSOCIATION

UNDERWRITER'S LABORATORIES OF CANADA 1.1.4. ULC NATIONAL FIRE PROTECTION ASSOCIATION 1.1.5. NFPA

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, 1.1.6. OSHA AND ALL AGENCIES HAVING JURISDICTION.

1.2. COMPLY WITH ELECTRICAL AND BUILDING CODE BULLETINS IN FORCE AT TIME OF BID SUBMISSION.

1.3. ALL ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH BASE BUILDING STANDARDS AND LANDLORD'S REQUIREMENTS.

#### 2. <u>SCOPE OF WORK</u>

#### 2.1. THE SCOPE OF WORK SHALL CONSIST OF THE FOLLOWING:

- PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED FOR COMPLETE INSTALLATION OF ALL WORK INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.
- SUPPLYING, INSTALLING AND CONNECTING ALL PANELBOARDS, FEEDERS. POWER OUTLETS, LIGHT FIXTURES, SWITCHES, CONTROLS, CONDUITS, AND
- SUPPLYING AND INSTALLING NEW TELEPHONE/COMMUNICATION OUTLETS AND RACEWAY
- SUPPLYING AND INSTALLING NEW CIRCUIT BREAKERS.

REQUIRED TO MAINTAIN CONTINUITY.

- OTHER WORK SHOWN ON DRAWING AND INDICATED IN SPECIFICATIONS
- ELECTRICAL CONNECTIONS TO EQUIPMENT, MOTORS, ETC FURNISHED BY THE OWNER AND/OR OTHER TRADES.
- CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK. CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY WIRES, CONDUIT AND JUNCTION BOXES 6. QUALITY ASSURANCE
- 2.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND APPROVALS AND SHALL PAY ALL ASSOCIATED COSTS AND FEES.
- 2.3. SUBMIT TO THE LOCAL ELECTRICAL INSPECTION DEPARTMENT, THE NECESSARY NUMBER OF DOCUMENTS FOR EXAMINATION, SPECIAL INSPECTION AND APPROVAL, PRIOR TO THE COMMENCEMENT OF THE WORK, AND PAY ALL COSTS AND ASSOCIATED
- 2.4. PROVIDE CERTIFICATE(s) OF ACCEPTANCE FOR THE AUTHORITIES INSPECTION DEPARTMENT, UPON COMPLETION OF WORK.
- 2.5. VERIFY EXISTING CONDITIONS IN FIELD AND INCLUDE IN THE BID PRICE ALL WORK REQUIRED TO ACCOMMODATE THE EXISTING INSTALLATION.
- 2.6. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE OWNERS AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID FOR AN AMOUNT ACCEPTABLE TO OWNER AND GENERAL CONTRACTOR.
- 2.7. PROVIDE TEMPORARY LIGHT AND POWER SYSTEM (AS PART OF THE CONTRACT) ADEQUATE FOR THE REQUIREMENTS OF ALL TRADES DURING CONSTRUCTION. TEMPORARY SYSTEM SHALL BE DISCONNECTED AND REMOVED WHEN PERMANENT SERVICE IS IN OPERATION.

### 3. NOTICE TO BIDDERS

- THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS UPON WHICH THE CONTRACTOR SHALL SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOUR PROVISIONS.
- 3.2. WHEN CONFLICTS OCCUR IN THE SPECIFICATIONS OR ON THE DRAWINGS, OR BETWEEN 7. REMOVALS EITHER, THE ITEMS GREATER QUANTITY OR HIGHER COST SHALL BE PROVIDED.
- 3.3. THE CONTRACTOR SHALL PROVIDE ALL ITEMS OF LABOUR OR MATERIALS SPECIFICALLY 7.1 INDICATED, OR REQUIRED TO COMPLETE THE INTENDED INSTALLATIONS.
- 3.4. THE CONTRACTOR SHALL COORDINATE THE WORK SUCH THAT CONFLICTS IN SPACE LOCATIONS DO NOT OCCUR.
- 3.5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE, AND SHALL REPLACE ANY OF SAME WHICH MAY BE DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COSTS TO THE OWNER.
- 3.6. ALL WORK IN OCCUPIED AREAS SHALL BE PERFORMED OUTSIDE NORMAL WORKING HOURS OR SCHEDULED AS DIRECTED BY THE BUILDING MANAGEMENT.
- 3.7. THE CONTRACTOR SHALL PRICE THE WORK BASED ON ANY NECESSARY MODIFICATIONS OF THE EXISTING SYSTEMS. CONTRACTOR SHALL INCLUDE ALL NECESSARY OVERTIME WORK.
- 3.8. THE CONTRACTOR WILL BE HELD TO HAVE VISITED THE SITE AND EXAMINED THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES AND OF GENERAL CONSTRUCTION TRADES TO SATISFY ALL CONDITIONS INVOLVED. THE CONTRACTOR SHALL VERIFY ALL MEASUREMENTS GIVEN ON THE DRAWINGS AND THOROUGHLY BE ACQUAINTED WITH ALL EXISTING CONDITIONS AFFECTING THE PROPER INSTALLATION OF THE WORK.

# I. SUBMITTALS AND COORDINATION

- 4.1. SUBMIT THE FOLLOWING INFORMATION AS APPLICABLE AND AS REQUIRED FOR ALL WORK SPECIFIED UNDER THIS DIVISION:
- SUBMIT TWO (2) COPIES OF SHOP DRAWINGS OF ALL SPECIFIED EQUIPMENT INCLUDING DIMENSIONED EQUIPMENT LAYOUTS FOR REVIEW AND RECORDS PRIOR TO COMMENCEMENT OF WORK. EACH SHOP DRAWING SHALL BE

CHECKED AND STAMPED BY THE ELECTRICAL AND GENERAL CONTRACTOR

4.1.3. POINT-TO-POINT WIRING DIAGRAMS AND SEQUENCES OF OPERATION.

PRIOR TO SUBMISSION TO THE ENGINEER FOR REVIEW.

- REPRODUCIBLE DRAWINGS, PDF, OR AUTOCAD FILES.
- OPERATION AND MAINTENANCE MANUALS
- CERTIFIED FACTORY AND FIELD TEST REPORTS.
- MANUFACTURERS' CERTIFICATIONS, WARRANTIES AND SPARE PARTS.
- 4.2. SUBSTITUTIONS TO SPECIFIED ITEMS MUST COMPLY WITH ALL SPECIFICATION REQUIREMENTS AND WILL ONLY BE PERMITTED WHERE SUBMITTED AND APPROVED IN WRITING.

# 4.3. PROJECT CLOSEOUT

- 4.3.1. AFTER COMPLETION OF PROJECT AND PRIOR TO REQUESTING FINAL PAYMENT, THE CONTRACTOR SHALL GIVEN WRITTEN NOTICE THAT THE FOLLOWING ITEMS HAVE BEEN COMPLETED:
- 4.3.1.1. REQUIRED AGENCY APPROVALS.
- 4.3.2. COPY OF FINAL HYDRO INSPECTION CERTIFICATE. FIRE ALARM VERIFICATION

- ALARM SYSTEM WAS MODIFIED UNDER THE CONTRACT.
- 4.3.3. FINAL CLEANING AND ADJUSTMENT OF LIGHTING FIXTURES AND EQUIPMENT.
- RESOLUTION OF OUTSTANDING SUBMITTALS AND PUNCH LIST ITEMS.
- AS-BUILT DRAWINGS.
- TURNOVER OF SPARE LAMPS, KEYS, AND ANY REQUIRED SPARE PARTS OR 4.3.6.
- TOOLS.
- 4.3.7. SYSTEM STARTUP, TESTING AND ADJUSTMENT.
- MANUFACTURER'S CERTIFICATIONS, WARRANTIES AND O&M MANUALS. DEMONSTRATIONS AND OWNER INSTRUCTION.

#### 5. AS-BUILT DRAWINGS AND MAINTENANCE MANUALS

- CONTRACTOR SHALL KEEP RECORD OF ALL CHANGES, FIELD CONDITIONS, AND SHALL PREPARE AND PROVIDE AS-BUILT DRAWINGS INDICATING ANY DEVIATION FROM THE ORIGINAL ELECTRICAL DESIGN. THE REVISED DRAWING SHALL BE STAMPED "AS-BUILT" WITH THE DATE AND CONTRACTOR'S SIGNATURE. ONE (1) SET OF PRINTS AND A COMPACT DISK CONTAINING AUTOCAD FILES SHALL BE DELIVERED TO THE ENGINEER BEFORE FINAL PAYMENT IS MADE. AFTER REVIEW AND APPROVAL OF AS-BUILT CONTRACTOR SHALL DELIVER COMPACT DISK TO THE OWNER. CONTRACTOR SHALL PROVIDE TWO (2) PRINTS AND A COMPACT DISK OF AS-BUILT DRAWINGS TO THE BUILDING MANAGER UPON COMPLETION OF WORK.
- 5.2. PROVIDE TO THE OPERATIONS AND MAINTENANCE DATA MANUAL FOR THE INSTALLATION. THE MANUAL SHALL PROVIDE COMPREHENSIVE DETAILED INFORMATION ON THE APPROVED INSTALLATION, OPERATION AND USE, MAINTENANCE AND PARTS LIST. INCLUDE THE FOLLOWING INFORMATION:
  - NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED.TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, EXPLODED VIEW, TECHNICAL DESCRIPTIONS OF ITEMS AND PARTS LISTS. ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
- 5.2.2. THE CONSULTANT REVIEWED SHOP DRAWINGS
- CERTIFICATE(S) OF ACCEPTANCE FROM THE AUTHORITIES INSPECTION
- VERIFICATION REPORTS AND CERTIFICATE(S) FOR ANY NEW FIRE ALARM COMPONENTS OR TIE-INS AND ANY BASE BUILDING TIE-INS FOR MISCELLANEOUS SYSTEMS (I.E. SECURITY, LIGHTING, CONTROL, DIGITAL METERING).
- 5.2.5. LOAD BALANCE REPORT WRITTEN GUARANTEE

- 6.1. MATERIALS, EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF ALL APPLICABLE CODES AND THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE BUILDING STANDARDS AND THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY.
- 6.2. MATERIALS, EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE APPLICABLE REFERENCE STANDARDS AS PER SPECIFICATION SECTION 1.
- 6.3. THE CONTRACTOR SHALL HAVE COMPLETED AT LEAST TWO PROJECTS OF SIZE AND COMPLEXITY SIMILAR TO THOSE REQUIRED UNDER THIS CONTRACT. ALL WORKMEN SHALL BE SKILLED IN THEIR RESPECTIVE TRADE.
- 6.4. ALL WORK SHALL BE WARRANTED IN WRITING TO BE FREE FROM DEFECTS IN MATERIALS AND/OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER. WARRANTY SHALL INCLUDE ALL COSTS OF PARTS. LABOR. TRAVEL AND LIVING EXPENSES REQUIRED TO REPAIR OR REPLACE DEFECTIVE ITEMS.
- 6.5. INSPECTION:
- 6.5.1. ALL STAGES OF THE INSTALLATION WILL BE INSPECTED BY THE OWNER AND/OR OWNERS REPRESENTATIVE FOR COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS AND SPECIFICATIONS. ANY PORTION OF THE CONSTRUCTION NOT MEETING THOSE REQUIREMENTS TO THE SATISFACTION OF THE ENGINEER SHALL BE REPLACED AT NO ADDITIONAL COST TO THE
- PROVIDE PROPER EQUIPMENT AND REASONABLE ASSISTANCE AS THE OWNER AND/OR OWNERS REPRESENTATIVE MAY REQUIRE TO FACILITATE ACCESS AND

  11. BOXES INSPECTION AT THE CONSTRUCTION SITE.

- NOTES AND GRAPHIC REPRESENTATIONS ON THE DRAWINGS SHALL NOT LIMIT THE EXTENT OF REMOVALS REQUIRED. THE CONTRACTOR SHALL VISIT THE SITE AND CAREFULLY EXAMINE EXISTING CONDITIONS AND SHALL PERFORM ALL WORK REQUIRED 11.2. BOXES SHALL CONTAIN SUITABLE KNOCKOUTS. BARRIERS SHALL BE FURNISHED AS TO ACHIEVE THE FINAL DESIGN INTENT AS REQUIRED BY THE CONTRACT DOCUMENTS. THE EXTENT OF ALL REMOVAL WORK SHALL BE COORDINATED WITH THE ARCHITECT.
- 7.2. WHERE PORTIONS OF AN EXISTING BRANCH CIRCUIT ARE REMOVED. WIRING TO REMAIN DEVICES ON THE CIRCUIT SHALL BE RECONNECTED OR MODIFIED IN AN APPROVED MANNER AS REQUIRED TO MAINTAIN CONTINUITY OF THE AFFECTED BRANCH CIRCUIT AND OPERATION OF THE REMAINING DEVICES.
- 7.3. ALL WORK REQUIRED TO REMAIN IN SERVICE BUT INTERFERING WITH THE ALTERATION SHALL BE RELOCATED AND RECONNECTED USING MATERIALS AND STANDARDS OF THIS CONTRACT
- 7.4. THE REMOVAL OF ALL TELEPHONE AND DATA DEVICES AND ASSOCIATED CABLE SHALL BE COORDINATED WITH THE APPROPRIATE BUILDING OPERATING PERSONNEL.
- 7.5. IN THE PROCESS OF REMOVING WIRING DEVICES, LIGHTING FIXTURES AND OTHER ELECTRICAL EQUIPMENT AND MATERIALS, THIS CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PREVENT DAMAGE TO ARCHITECTURAL SURFACES AND MATERIALS WHICH ARE TO REMAIN, INCLUDING WALLS, FLOORS, CEILINGS, WINDOWS DOORS, MOLDINGS, STRUCTURAL MEMBERS, ETC. THE COST TO REPAIR OR REPLACE ANY MATERIAL DEEMED BY THE ARCHITECT TO HAVE BEEN UNDULY DAMAGED BY THIS CONTRACTOR DURING DEMOLITION OR CONSTRUCTION SHALL BE PAID BY THIS CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

# 4.1.1. MANUFACTURERS' PRODUCT DATA SHEETS AND SAMPLES WHERE REQUIRED. 8. BASIC MATERIAL AND METHODS

- COORDINATE ALL WORK WITH THE WORK OF OTHER TRADES PRIOR TO INSTALLATION. ASSIST IN THE PREPARATION OF COORDINATION DRAWINGS AS REQUIRED BY THE GENERAL CONDITIONS.
- 8.2. ALL SHUTDOWN OF BUILDING POWER, FIRE ALARM AND SIGNAL SYSTEMS SHALL BE COORDINATED WITH BUILDING OPERATING PERSONNEL. WORK TO ACCOMMODATE OFF-HOUR SHUTDOWNS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
- 8.3. CUT AND PATCH NON STRUCTURAL SURFACES AS REQUIRED. REPAIRS SHALL MATCH ORIGINAL FINISH, PENETRATIONS OF FIRE RATED PARTITIONS SHALL BE SEALED WITH APPROVED MATERIAL TO PROVIDE THE SAME RATING AS THE PARTITION. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED PARTITIONS.
- 8.4. PROVIDE EXPANSION FITTINGS WHERE RACEWAYS CROSS BUILDING EXPANSION JOINTS.
- EQUIPMENT, DEVICES AND ENCLOSURES SHALL BE RATED NEMA 1 FOR INTERIOR LOCATIONS, NEMA 3R FOR DAMP LOCATIONS AND NEMA 4 FOR WET LOCATIONS.

# 9. DELIVERY, STORAGE AND HANDLING

ALL EQUIPMENT SHALL BE DELIVERED IN MANUFACTURER'S ORIGINAL PROTECTIVE PACKAGING AND STORED IN A CLEAN, DRY PLACE PROTECTED FROM WEATHER, FUMES, WATER, DUST AND PHYSICAL DAMAGE. TOUCH UP DAMAGED FINISHES TO MATCH THE ORIGINAL FINISH.

# 10. RACEWAYS

10.1. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL CONFORM TO CSA C22.2 NO 45. FITTINGS SHALL BE THREADED.

- CERTIFICATE (AS PER STANDARD ULC 537) MUST BE PROVIDED WHEN THE FIRE 10.2. ELECTRICAL METALLIC TUBING (EMT) SHALL CONFORM TO CSA C22.2 NO.83. FITTINGS SHALL BE STEEL GLAND AND RING COMPRESSION TYPE.
  - 10.3. FLEXIBLE METALLIC CONDUIT SHALL CONFORM TO CSA C22.2 NO.56. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL CONFORM TO CSA C22.2 NO.56. FITTINGS SHALL BE
  - 10.4. PVC TELECOMMUNICATION AND TV CABLE DUCTS SHALL BE MANUFACTURED TO CSA
  - 10.5. ALL CONDUIT FITTINGS AND CONNECTORS SHALL BE STEEL WITH INSULATED THROATS TO CAN/CSA C22.2 NO.18. DIE-FORMED ZINC FITTINGS ARE NOT ACCEPTABLE. BUSHINGS SHALL BE PROVIDED AT ALL CONDUIT TERMINATIONS. BUSHINGS LARGER THAN 1" (27mm) SHALL BE GROUNDING TYPE. PVC BUSHINGS MAY BE UTILIZED ONLY FOR 3/4" (21mm)
  - BRANCH CIRCUIT CONDUITS TERMINATING AT PANELBOARDS. 10.6. MINIMUM RACEWAY SIZE SHALL BE 3/4" (21mm). RACEWAYS SHALL BE RUN PARALLEL TO BUILDING STRUCTURAL LINES. RACEWAYS SHALL NOT BE RUN HORIZONTALLY BELOW 8'-0" AFF IN PARTITIONS. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200LB TEST NYLON DRAG LINE.
  - 10.7. ALL WIRING BETWEEN JUNCTION BOXES AND FOR CIRCUIT HOMERUNS BETWEEN FIRST OUTLET SERVED BY THE BRANCH CIRCUIT AND THE PANELBOARD SHALL BE RUN IN EMT OR RGS AS REQUIRED.
  - 10.8. RACEWAY UTILIZATION SHALL BE AS FOLLOWS:
  - 10.8.1. RIGID GALVANIZED STEEL (RGS) IN CONCRETE SLABS; EXPOSED IN ALL MECHANICAL EQUIPMENT ROOMS; FIRE ALARM SYSTEMS.
  - 10.8.2. ELECTRICAL METALLIC TUBING (EMT) INTERIOR CONCEALED AND EXPOSED LOCATIONS; EXPOSED IN MECHANICAL ROOMS ABOVE 8'-0" AFF; INTERIOR COMMUNICATIONS WIRING.
  - 10.8.3. FLEXIBLE METALLIC CONDUIT FINAL CONNECTIONS TO TRANSFORMERS (MAXIMUM LENGTH 3'-0") AND LIGHTING FIXTURES IN INTERIOR LOCATIONS (MIN. LENGTH 18", MAXIMUM LENGTH 6'-0"); WHERE APPROVED BY THE ENGINEER.
  - 10.8.4. LIQUID TIGHT FLEXIBLE CONDUIT FINAL CONNECTIONS TO MOTORS AND MECHANICAL EQUIPMENT.
  - AC CABLE FINAL CONNECTIONS ONLY FROM JUNCTION BOXES ABOVE CEILINGS TO RECEPTACLES AND LIGHT FIXTURES (MAXIMUM LENGTH 10'-0" (3.048M). NOT TO BE USED FOR HOMERUNS OR FEEDERS TO MECHANICAL EQUIPMENT. INSTALL CONDUIT TO CSA C22.1.
  - 10.9. INSTALL CONDUIT TO CSA C22.1
  - 10.10. ALL CONDUIT AND TUBING SHALL BE CUT SQUARE AND REAMED AT THE ENDS
  - 10.11. CONDUIT AND TUBING RUNS SHALL BE MECHANICALLY AND ELECTRICALLY CONTINUOUS FROM SERVICE STARTING TO ALL OUTLETS AND EQUIPMENT. CONDUIT SHALL ENTER AND BE SECURELY CONNECTED TO A CABINET, JUNCTION BOX, PULLBOX OR OUTLET BOX BY MEANS OF LOCKNUTS ON THE OUTSIDE AND INSIDE AND AN INSULATED BUSHING ON THE INSIDE. IN TUBING OR FLEXIBLE METAL CONDUIT THE ONE COMPRESSION LOCKNUT SHALL BE MADE WRENCH-TIGHT. ALL LOCKNUTS SHALL BE THE BONDING TYPE WITH SHARP EDGES FOR DIGGING INTO THE METAL WALL OF AN ENCLOSURE AND SHALL BE INSTALLED IN A MANNER THAT WILL ASSURE A LOCKING AND ELECTRICALLY CONTINUOUS INSTALLATION. LOCKNUTS AND BUSHINGS ARE NOT REQUIRED WHERE CONDUITS ARE 15. LIGHTING FIXTURES AND EQUIPMENT SCREWED INTO TAPPED CONNECTIONS. FOR ECCENTRIC AND CONCENTRIC KNOCKOUTS, PROVIDE GROUND RINGS.
  - 10.12. UNLESS OTHERWISE SPECIFIED, ALL CONDUIT AND TUBING SHALL BE INSTALLED CONCEALED. IN GENERAL, ALL CONDUIT AND TUBING SHALL BE RUN IN HUNG CEILINGS AND FURRED SPACES WHERE THEY EXIST. WHERE CONDUIT IS RUN EXPOSED IT SHALL BE SECURELY SUPPORTED WITH ZINC COATED MALLEABLE IRON PIPE STRAPS OR OTHER APPROVED MEANS. ALL CONDUITS SHALL BE SUPPORTED FROM STRUCTURAL MEMBERS.
  - 10.13. EVERY CONDUIT SYSTEM SHALL BE INSTALLED COMPLETE BEFORE ANY CONDUCTORS ARE DRAWN IN. WIRE PULLING LUBRICANTS, WHEN UTILIZED, SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF UNDERWRITERS' LABORATORIES, INC., APPLICABLE TO THE SPECIFIC CONDUCTOR OR CABLE INSULATION AND RACEWAY MATERIAL.
  - 10.14. ALL VERTICAL RUNS OF CONDUIT OR TUBING TERMINATING IN THE BOTTOMS OF WALL BOXES OR CABINETS, OR SIMILAR LOCATIONS, SHALL BE PROTECTED FROM THE ENTRANCE OF FOREIGN MATERIAL PRIOR TO THE INSTALLATION OF CONDUCTORS.
  - 10.15. SIZE ALL CONDUITS FOR A MAX. 40% FILL. TO INCLUDE DEDICATED INSULATED GROUND

# 10.16. RUN CONDUITS IN WEBBED PORTION OF STRUCTURAL STEEL.

- 11.1. OUTLET, PULL AND JUNCTION BOXES SHALL BE FABRICATED FROM WELDED STEEL AND CONFORM TO CSA-C22.2 NO. 18 AND NEMA OS1. BOXES FOR INTERIOR LOCATIONS SHALL BE CODE GAUGE, GALVANIZED SHEET STEEL. BOXES FOR MECHANICAL ROOMS SHALL BE CAST STEEL WITH GASKETED COVERS.
- REQUIRED BY CODE AND TO SEPARATE SWITCHES FOR 347 VOLT CIRCUITS ON DIFFERENT PHASES.
- 11.3. BOXES SHALL BE SIZED AS REQUIRED BY CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER, THE MINIMUM BOX SHALL BE 4" SQUARE BY 1-1/2" DEEP. COVERS GREATER THAN 50LB SHALL BE DIVIDED INTO MULTIPLE SECTIONS.

# WIRES, CABLES, SPLICES AND TERMINATIONS

- 12.1. POWER AND CONTROL WIRING SHALL BE COPPER, MINIMUM 98% CONDUCTIVITY, WITH TYPE RW90 INSULATION RATED 600 VOLTS. MINIMUM WIRE SIZE SHALL BE #12 AWG. CONDUCTORS SHALL BE SOLID FOR WIRE SIZED #10 AWG AND SMALLER AND STRANDED FOR WIRE SIZES #8 AWG AND LARGER.
- 12.2. CONDUCTOR SIZES ARE BASED ON CONNECTED EQUIPMENT HAVING A TEMPERATURE MARKING OF 75OC OR HIGHER. WHERE EQUIPMENT DOES NOT HAVE A TEMPERATURE MARKING OR IT HAS A MARKING LOWER THAN 75OC, INCREASE THE SIZE OF THE CONDUCTORS ACCORDINGLY.
- 12.3. FOR WIRES IN CONDUIT, CONDUCTOR SIZES ARE BASED ON NOT MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A CONDUIT. WHERE MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN A CONDUIT INCREASE THE CONDUCTOR SIZE ACCORDINGLY.
- 12.4. ALL HOME RUNS TO BE IN EMT CONDUIT.
- 12.5. AC CABLE SHALL BE 90°C RATED CODE TYPE AC90. JACKET SHALL BE ALUMINUM INTERLOCKING ARMOUR. AC CABLE #12 MAY BE USED IN CEILING SPACE FROM CEILING DISTRIBUTION BOX DOWN TO RECEPTACLES IN PARTITIONS. AC RUNS IN CEILING SPACE NOT TO EXCEED 3048MM (10'-0") IN LENGTH.
- 12.6. CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:

208/120V	<u>PHASE</u>	600/347V
RED	Α	ORANGE
BLACK	В	BROWN
BLUE	С	YELLOW
WHITE	NEUTRAL	GRAY OR WHITE WITH TRACER
GREEN	GROUND	GREEN
WHITE WITH TRACER	NEUTRAL FOR G	SFI CIRCUIT

- 12.7. CONDUCTORS #6AWG AND SMALLER SHALL HAVE COLOR CODED INSULATION. CONDUCTORS #4AWG AND LARGER SHALL BE IDENTIFIED WITH COLOR INSULATION OR PHASING TAPE.
- 12.8. CONDUCTOR SIZES SHALL BE INCREASED WHERE REQUIRED BY CODE AND/OR THE ENGINEER TO COMPENSATE FOR 2% VOLTAGE DROP AND HIGH AMBIENT TEMPERATURE.
- CMP PLENUM RATED. 12.10. SPLICES FOR WIRE SIZES #10 AWG AND SMALLER SHALL BE MADE WITH SPRING CONNECTORS AND TAPE. SPLICES FOR WIRE SIZES #8 AWG AND LARGER SHALL BE HYDRAULIC COMPRESSION TYPE WITH PRE-MOULDED COVER AND TAPE.

12.11. CONCEAL NEW WIRING WHEREVER POSSIBLE. AC TYPE MAY BE USED IN CEILING SPACES, WALL CHASES, ETC. SHORT RUN FROM OUTLET BOX TO DEVICE ONLY. ANY EXPOSED WIRING IN CEILING SPACES SHALL BE CSA FT6 RATED. SURFACE MOUNTED WORK IN ALL AREAS SHALL BE MINIMIZED. SEEK ARCHITECT'S AND ENGINEER'S APPROVAL.

### 13. WIRING DEVICES

- 13.1. WIRING DEVICES SHALL BE SPECIFICATION-GRADE DECORA STYLE WITH NEMA CONFIGURATIONS AS INDICATED ON THE DRAWINGS. COLOR AND FACEPLATES OF DEVICES SHALL BE AS SELECTED BY THE ARCHITECT. WIRING DEVICES SHALL BE MANUFACTURED BY EATON, HUBBELL, LEVITON, LEGRAND OR APPROVED EQUAL.
- 13.2. FACEPLATES SHALL BE NON-MAGNETIC STAINLESS STEEL WITH BRUSHED FINISH UNLESS SPECIFIED BY THE ARCHITECT. FACEPLATES SHALL BE FURNISHED FOR ALL COMMUNICATIONS OUTLETS AND SHALL BE CONFIGURED TO SUIT THE SYSTEM SUPPLIERS' REQUIREMENTS.
- 13.3. DEVICES MOUNTED ADJACENT TO EACH OTHER SHALL BE FURNISHED WITH A COMMON FACEPLATE AND BE GANGED IN ONE BOX.
- 13.4. ALTER LOCATION OF OUTLETS/SWITCHES AT NO COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED 3M (10'-0") AND INFORMATION IS GIVEN BEFORE ROUGH-IN.
- 13.5. WHERE NEW, EXISTING OR NEW AND EXISTING SWITCHES ARE MOUNTED AT SAME LOCATION, MOUNT SWITCHES BEHIND COMMON FACEPLATE.

#### 14. BRANCH CIRCUIT PANELBOARDS

- 14.1. BRANCH CIRCUIT PANELBOARDS SHALL BE 600/347V, 208/120V, 3Ø, 4-WIRE AND/OR 240/120V, 1Ø, 3-WIRE CONFIGURATION WITH COPPER BUS BARS, NEUTRAL BUS AND SEPARATE GROUND BUS BONDED TO PANEL ENCLOSURE. PROVIDE 200% NEUTRAL AND ISOLATED GROUND BUS WHERE INDICATED ON DRAWINGS. CABLE LUGS SHALL BE MECHANICAL TYPE. PANELBOARDS SHALL BE MANUFACTURED BY SCHNEIDER ELECTRIC/SQUARE D, GENERAL ELECTRIC, SIEMENS, OR EATON.
- 14.2. CIRCUIT BREAKERS SHALL BE MOULDED CASE, BOLT-IN-PLACE WITH THERMAL-MAGNETIC TRIP ELEMENT. MINIMUM INTERRUPTING RATINGS SHALL BE 22,000 AIC FOR 208/120V AND 65,000 AIC FOR 600/347V UNLESS NOTED OTHERWISE ON DRAWINGS. MAIN CIRCUIT BREAKERS SHALL BE MOUNTED SEPARATELY FROM BRANCH BREAKERS AT TOP OR BOTTOM. MOULDED CASE CIRCUIT BREAKERS TO BE AS PER CSA C22.2 NO.5.
- 14.3. PANELBOARD ENCLOSURES SHALL BE GALVANIZED CODE GAUGE STEEL WITHOUT PRE-PUNCHED KNOCKOUTS. TRIMS SHALL BE SURFACE TYPE IN UNFINISHED SPACES AND FLUSH TYPE IN FINISHED SPACES, WITH ANSI 61 GRAY ENAMEL FINISH. DOORS SHALL BE DOOR IN DOOR TYPE CONSTRUCTION AND SHALL BE LOCKABLE AND ALL LOCKS 19. HANGERS AND SUPPORTS SHALL BE KEYED ALIKE. FURNISH TWO KEYS FOR EACH PANEL
- 14.4. PANELS SHALL HAVE A MINIMUM OF 4" GUTTER SPACE ON BOTH SIDES.
- 14.5. FURNISH AND INSTALL TYPEWRITTEN DIRECTORIES FOR EACH PANELBOARD, NEW AND EXISTING, INDICATING DEVICES SERVED. 14.6. PANELS MOUNTED ON MASONRY WALLS SHALL BE SHIMMED WITH WASHERS TO PROVIDE

A 1/2" SPACE BETWEEN PANELBOARD AND WALL

- 15.1. LIGHTING FIXTURES SHALL BE SPECIFICATION GRADE AND FURNISHED COMPLETE WITH ALL REQUIRED MOUNTING HARDWARE. FIXTURES SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE ESTABLISH THE PERFORMANCE REQUIREMENTS. SUBSTITUTIONS MUST MEET OR EXCEED THE PERFORMANCE OF THE SPECIFIED FIXTURE AND TO BE CSA APPROVED.
- 2. CONTRACTOR SHALL ENSURE COMPATIBILITY BETWEEN FIXTURE TRIMS AND CEILING SYSTEMS. FIXTURES RECESSED IN ACCESSIBLE CEILINGS SHALL BE FURNISHED WITH SEISMIC RESTRAINTS. FIXTURES RECESSED IN NON-ACCESSIBLE CEILINGS SHALL BE DESIGNED FOR BALLAST OR TRANSFORMER ACCESS THROUGH THE FIXTURE OPENING.
- 15.3. PROVIDE ALL EXIT AND EMERGENCY LIGHTS TO MATCH EXISTING BASE BUILDING TYPE (MANUFACTURER AND MODEL). REFER TO LIGHTING LAYOUT FOR FIXTURE LOCATIONS AND CONNECTIONS.
- 15.4. ALL EXIT SIGNS SHALL HAVE LED ILLUMINATION AND INTEGRAL BATTERY BACK-UP.
- 15.5. ALL NEW EXIT AND EMERGENCY LIGHTING TO MEET OR EXCEED CSA 22.2 No.141-15. 15.6. LOCATIONS OF LIGHTING FIXTURES INDICATED ON THE DRAWINGS ARE APPROXIMATE CONTRACTOR SHALL REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS, MODELS, AND TRIM TYPES OF ALL LIGHTING FIXTURES PRIOR TO
- 15.7. RECESSED FIXTURES SHALL BE FURNISHED COMPLETE WITH MOUNTING DEVICES AND ACCESSORIES.
- 15.8. FIXTURES SHALL BE ATTACHED TO CEILING SUPPORTING MEMBERS, AND SHALL NOT DEPEND UPON LATHING OR PLASTER FOR ALIGNMENT OR SUPPORT. FIXTURES IN SUSPENDED CEILINGS SHALL BE SUPPORTED BY SADDLE HANGERS OR TIE-BARS ATTACHED TO RUNNERS OR BETWEEN CROSSBARS OF CEILING SYSTEMS. MOUNTING SPLINES OR OTHER POSITIVE MEANS OF MAINTAINING ALIGNMENT AND RIGIDITY SHALL BE PROVIDED. SUPPORTING MEMBERS SHALL BE SURFACE PASSIVATED AND SHALL BE PRIMED OR PAINT DIPPED TO RESIST CORROSION. FASTENING DEVICES SHALL BE OF A POSITIVE, LOCKING TYPE, AND SHALL NOT REQUIRE THE USE OF SPECIAL TOOLS TO
- REMOVE. TIE WIRES SHALL NOT BE USED IN PLACE OF FASTENING DEVICES. 15.9. SPLICES SHALL NOT BE PERMITTED IN ANY RUN OF LIGHTING FIXTURE HOOKUP WIRE.
- 15.10. SEPARATELY MOUNTED OUTLET BOXES AND FLEXIBLE CONDUIT PIGTAIL CONNECTIONS (MAXIMUM LENGTH OF 6'-0") SHALL BE PROVIDED FOR LIGHTING FIXTURES RECESSED IN HUNG CEILINGS WITH ACCESSIBLE TILES. ONE (1) OUTLET BOX MAY SERVE UP TO A

### MAXIMUM OF FOUR (4) RECESSED LIGHTING FIXTURES. 16. SAFETY SWITCHES

INSTALLATION.

- 16.1. SAFETY DISCONNECT SWITCHES SHALL BE 250V OR 600V AS REQUIRED, HEAVY DUTY, HORSEPOWER RATED, QUICK-MAKE, QUICK-BREAK DESIGN IN NEMA 1 ENCLOSURE. ENCLOSURES EXPOSED TO WET OR RAIN CONDITIONS SHALL BE IN NEMA 3R ENCLOSURE.
- 16.2. PROVIDE INTERLOCKS TO PREVENT OPENING THE COVER WITH THE SWITCH IN THE "ON" POSITION OR CLOSING OF THE SWITCH WITH THE DOOR OPEN, EXCEPT THAT THE INTERLOCK SHALL BE TOOL RELEASABLE BY A QUALIFIED PERSON FOR INSPECTION OF THE CONTACTS OF MECHANISM.
- 16.3. PROVIDE FOR PADLOCKING HANDLE IN THE OFF POSITION.
- 16.4. PROVIDE NEUTRAL ASSEMBLY WHERE SCHEDULED.
- 16.5. SWITCHES SHALL BE CAPABLE OF WITHSTANDING THE AVAILABLE FAULT OR LET THROUGH CURRENT BEFORE THE FUSE OPERATES WITHOUT DAMAGE OR CHANGE IN RATING. THE SHORT CIRCUIT INTERRUPTING RATING OF THE FUSE SWITCH COMBINATION SHALL BE 100,000 RMS SYMMETRICAL AMPERES AND 12 TIMES THE CONTINUOUS CURRENT RATING WHEN UNFUSED AT RATED VOLTAGE.
- 16.6. FUSE CLIPS SHALL BE OF THE REJECTION TYPE, SHALL ACCOMMODATE DUAL ELEMENT. CURRENT LIMITING FUSES ONLY AND SHALL BE SIZED TO ACCEPT FUSES OF THE PROPER AMPERE RATING.
- 16.7. PROVIDE GROUND LUG IN EACH SWITCH.

- 17.1. FUSES SHALL BE CSA LISTED, TIME DELAY, CURRENT LIMITING AND HAVE AN
- INTERRUPTING CAPACITY OF AT LEAST 200,000 AMPERES RMS SYMMETRICAL. 17.2. THE TIME-CURRENT CHARACTERISTICS AND RATINGS SHALL BE SUCH THAT POSITIVE
- SELECTIVE COORDINATION IS ASSURED. 17.3. FUSE VOLTAGE RATINGS SHALL BE 600V OR 250V AS REQUIRED.
- 17.4.1. BUSSMANN TYPE LPN-RK (250V) OR TYPE LPS-RK (600V)
- 12.9. COMMUNICATIONS CABLING RUN EXPOSED IN AIR HANDLING PLENUMS SHALL BE TYPE 17.4.2. MERSEN A2D (250V) OR A6D (600V) 17.4.3. LITTELFUSE TYPE LLN-RK (250V) OR LLS-RK (600V)

17.4. CLASS RK1 (TIME DELAY) FUSES, REJECTION TYPE

17.5. CLASS L (TIME DELAY)

17.5.1. BUSSMANN TYPE KRP-C

17.5.2. LITTELFUSE TYPE KLP-C

17.5.3. MERSEN A4BQ 17.6. CLASS CC (TIME DELAY) FUSES, REJECTION TYPE

17.6.1. BUSSMANN TYPE LP-CC 17.6.2. MERSEN ATDR

17.6.3. LITTELFUSE TYPE KLDR

#### LIGHTING CONTROL

- 18.1. SENSORS AND SWITCH CONTROL SYSTEMS SHALL BE MANUFACTURED BY HUBBELL CONTROL SOLUTIONS, SENSOR SWITCH OR APPROVED EQUAL. SYSTEM SHALL CONSIST OF THE FOLLOWING:
- CEILING MOUNTED OCCUPANCY SENSOR HUBBELL CONTROL SOLUTIONS
- 18.1.2. 24VDC UNIVERSAL VOLTAGE POWER PACK (SWITCHPACK) HUBBELL CONTROL SOLUTIONS UNIVERSAL VOLTAGE POWER PACKS.
- WALL MOUNTED OCCUPANCY SENSOR SWITCH HUBBELL CONTROL SOLUTIONS MODEL #LIGHTHAWK LHMTS. CONFIRM VOLTAGE ON SITE.
- 18.2. ALL ASSOCIATED WIRING AS PER MANUFACTURERS SPECIFICATIONS. ARCHITECT TO CONFIRM COLOR OF FACEPLATE AND SWITCH.
- 18.3. SENSORS SHALL UTILIZE A COMBINATION OF PASSIVE INFRARED AND ULTRASONIC TECHNOLOGY TO ACTIVATE AND/OR MAINTAIN LIGHTING. SENSORS SHALL INCLUDE ADJUSTMENTS FOR COVERAGE PATTERN AND SENSITIVITY, TIME DELAY TO OFF (1 MIN. 20 MIN.) WITH LED DISPLAYS.
- 18.4. BEFORE THE TENANT MOVE-IN DATE AND TURN OVER OF THE PROJECT, THE CONTRACTOR SHALL COORDINATE THE SENSITIVITY, CALIBRATION AND ADJUSTMENTS OF ALL SENSORS IN THE FIELD IN CORRELATION WITH LIGHTING REQUIREMENTS, USAGE AND THE OWNER.

18.5. ALL REQUIRED POWER PACKS ARE TO BE PROVIDED WITH TRANSFORMERS AND RELAYS

18.6. PROVIDE 10' OF LOW VOLTAGE CABLE SLACK BETWEEN SENSOR AND ROOM

# CONTROLLER.

- 19.1. THREADED RODS SHALL BE FULLY GALVANIZED, MINIMUM 3/8" DIAMETER. MODULAR CHANNEL SUPPORTS SHALL BE GALVANIZED STEEL. SUPPORT CLIPS AND FASTENERS SHALL BE LISTED AND APPROVED FOR THE APPLICATION. STRAPS AND CLAMPS SHALL BE MALLEABLE IRON.
- 19.2. HANGERS MUST NOT BE WELDED TO STRUCTURAL STEEL MEMBERS AND BURNING OF HOLES IN STRUCTURAL STEEL IS PROHIBITED.
- 19.3. DO NOT USE ANY BASE BUILDING SUPPORTS OR EQUIPMENT, INCLUDING CEILING SUPPORT SYSTEM. SUPPORT FROM STRUCTURAL MEMBERS. 19.4. SUPPORTS SHALL BE SIZED TO ACCOMMODATE THE LOAD REQUIRED. ALL WORK SHALL

BE SUPPORTED INDEPENDENTLY OF THE WORK OF OTHER TRADES, INCLUDING CEILING

- SYSTEM SUPPORTS. 19.5. PANELS AND EQUIPMENT LOCATED ON OTHER THAN MASONRY WALLS SHALL BE
- MOUNTED WITH MODULAR CHANNEL SUPPORTS SECURED TO THE BUILDING STRUCTURI 19.6. THE CONTRACTOR SHALL ENGAGE A SEISMIC RESTRAINT SYSTEM ENGINEER TO PROVID ENGINEERED SHOP DRAWINGS FOR SEISMIC RESTRAINT SUPPORT SYSTEMS ON ALL ELECTRICAL EQUIPMENT ETC WHERE REQUIRED BY LOCAL BUILDING CODES AND THE AUTHORITIES HAVING JURISDICTION. DESIGN AND ALL SPECIFICATIONS MUST BE PERFORMED BY A PROFESSIONAL ENGINEER REGISTERED AND INSURED IN THE

PROVINCE OF ONTARIO SPECIALIZING IN THE DESIGN OF SEISMIC RESTRAINT SYSTEMS

# 20. GROUNDING

20.4. THE DISTRIBUTION SYSTEM SHALL BE COMPLETELY AND PROPERLY GROUNDED USING APPROVED FITTINGS IN ACCORDANCE WITH LATEST EDITION OF THE ELECTRICAL SAFETY CODE. SEPARATE INSULATED GROUND CONDUCTORS SHALL BE RUN WITH ALL FEEDERS WHERE INDICATED, RECEPTACLE BRANCH CIRCUITS AND FLEXIBLE CONNECTIONS TO

EQUIPMENT SHALL BE COMPLETELY GROUNDED IN AN APPROVED MANNER. PROPER

STEEL, OR COLD WATER SERVICE PIPING IN ACCORDANCE WITH CODE REQUIREMENTS

HARDWARE REQUIRED FOR A COMPLETE GROUNDING SYSTEM SHALL BE INSTALLED BY THE CONTRACTOR. 20.6. WYE-CONNECTED TRANSFORMER SECONDARY SHALL BE GROUNDED TO BUILDING

20.5. METAL RACEWAYS, METAL ENCLOSURES OF ELECTRICAL DEVICES AND OTHER

### FOR DERIVED SYSTEMS. SPLICES AND TERMINATIONS

LIGHTING FIXTURES AND EQUIPMENT.

- 21.1. NO SPLICES OR JOINTS WILL BE PERMITTED IN EITHER FEEDER OR BRANCHES EXCEPT
- AT OUTLETS OR ACCESSIBLE TERMINAL, SPLICE OR JUNCTION BOXES. 21.2. ALL MATERIALS REQUIRED FOR MAKING SPLICES AND/OR TERMINATIONS SHALL BE SUPPLIED IN COMPLETE KITS NOT OLDER THAN 6 MONTHS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ENSURING THAT ALL MATERIALS FURNISHED WILL NOT ADVERSELY AFFECT THE PHYSICAL OR ELECTRICAL PROPERTIES OF OTHER MATERIALS
- FURNISHED OR OF THE WIRE OR CABLE ITSELF. 21.3. WHERE THE CONTRACTOR MAKES CONNECTIONS TO EXISTING WIRES, HE SHALL OPEN AND DISCONNECT THE EXISTING SPLICES FROM SUCH WIRES AND INSTALL NEW SPLICES
- TO INCLUDE THE EXISTING WIRES AS REQUIRED. 21.4. ALL SPLICES FOR WIRE SIZES #10 AWG AND SMALLER SHALL BE MADE WITH INSULATED SPRING CONNECTOR APPLIED TO TWISTED CONDUCTORS. TWO HALF LAPPED LAYERS O VINYL TAPE EXTENDING A DISTANCE OF NOT LESS THAN ONE INCH FROM THE CONNECTOR SHALL BE APPLIED. SPLICES OTHER THAN THE AFOREMENTIONED WILL BE

COMPRESSION TYPE CONNECTORS WITH PRE-MOLDED COVER OVER WHICH TWO HALF

LAPPED LAYERS OF VINYL TAPE EXTENDING A DISTANCE OF NOT LESS THAN ONE (1) INCI

PERMITTED AT THE DISCRETION OF THE ENGINEER.

### FROM THE CONNECTOR SHALL BE APPLIED. **IDENTIFICATION OF WORK**

22.1. ALL PANELBOARDS, EQUIPMENT AND CABINETS SPECIFIED HEREIN SHALL BE CLEARLY IDENTIFIED WITH THE EQUIPMENT DESIGNATION, VOLTAGE AND AMPERE RATING, FUSE RATING, EQUIPMENT SERVED AND ORIGIN OF THE INCOMING FEED. IDENTIFICATION SHALL BE WHITE ON BLACK LAMACOID NAMEPLATE WITH 1/2" MINIMUM LETTERING MECHANICALLY ATTACHED TO EQUIPMENT.

21.5. ALL SPLICES FOR WIRE SIZES #8 AWG AND LARGER SHALL BE MADE WITH HYDRAULIC

22.2. FACEPLATES OF SWITCHES FOR EQUIPMENT SUCH AS REMOTE FANS AND MOTORIZED SCREENS SHALL BE IDENTIFIED WITH THE NAME OF THE DEVICE CONTROLLED. IDENTIFICATION SHALL BE BY INDELIBLE MARKER IN CONCEALED LOCATIONS AND ADHESIVE LABELS IN EXPOSED LOCATIONS. EMERGENCY DEVICES SHALL BE IDENTIFIED

# **ARCHITECTS INCORPORATED**

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SEAL

ISSUED FOR TENDER 07.03.202 ISSUED FOR PERMIT 12.20.2021 REVISIONS DATE

INGS ARE NOT TO BE SCALED. CONTRACTOR MUST CHECK ND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PROJECT MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS FORE PROCEEDING WITH THE WORK. HE USE OF THIS DRAWING OR PART THEREOF IS FORBIDDEN

THOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

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1883 KING ST. EAST, HAMILTON, ON

**ELECTRICAL** 

**SPECIFICATIONS** 

L8K 1V9 DRAWING TITLE:

SCALE: AS NOTED

DATE:

SEPT.2021

DRAWING

PROJECT:

- IN RED.
- 22.3. EMPTY CONDUITS SHALL BE IDENTIFIED WITH TAGS AT BOTH ENDS INDICATING THE LOCATION OF TERMINATION AT THE OPPOSITE END.
- 22.4. BALLAST COMPARTMENTS FOR FIXTURES OPERATING AT GREATER THAN 120 VOLTS SHALL BE IDENTIFIED WITH A BRIGHT ORANGE ADHESIVE WARNING LABEL INDICATING
- 22.5. ALL WIRES SHALL BE IDENTIFIED BY PANEL AND CIRCUIT NUMBER AT ALL TERMINATION AND SPLICE POINTS BY THE USE OF BRADY B-500 VINYL CLOTH TAPE OR EQUIVALENT METHOD.
- 22.6. ALL JUNCTION BOXES SHALL BE IDENTIFIED WITH PANEL AND CIRCUIT NUMBERS OF ALL CIRCUITS OR NAME OF COMMUNICATIONS SYSTEM CABLING CONTAINED WITHIN. JUNCTION BOXES IN EXPOSED LOCATIONS SHALL BE CLEARLY MARKED WITH IDENTIFYING LABELS. JUNCTION BOXES IN CONCEALED LOCATIONS SHALL BE MARKED WITH A BOLD, INDELIBLE MARKING PEN. LETTERING SHALL BE NEATLY AND LEGIBLY PRINTED, JUNCTION BOXES ON EMERGENCY SERVICE SHALL BE PAINTED RED AND LABELED AS EMERGENCY.
- 22.7. CONDUIT RUNS FOR BRANCH CIRCUITING AND/OR COMMUNICATIONS CABLING SHALL BE IDENTIFIED AT EVERY 50 FEET OF LENGTH, AND AT EACH OUTLET AND PULL BOX WITH CIRCUIT NUMBER OR SYSTEM NAME.

#### 23. CUTTING AND PATCHING

- 23.1. ALL CUTTING AND PATCHING REQUIRED FOR EQUIPMENT INCLUDED IN THESE
- SPECIFICATIONS SHALL BE DONE BY THIS CONTRACTOR. 23.2. CONTRACTOR SHALL NOT DO ANY CUTTING THAT MAY IMPAIR THE STRENGTH OF BUILDING CONSTRUCTION. NO HOLES ARE TO BE DRILLED INTO ANY STRUCTURAL
- 23.3. ALL CUTTING OF EXISTING FLOORS, CEILINGS AND WALLS SHALL BE PERFORMED IN A MANNER SO AS TO MINIMIZE DAMAGE TO ADJACENT MATERIALS. PATCHING OF ALL SURFACES SHALL BE PERFORMED IN A MANNER APPROVED BY THE ARCHITECT TO INSURE COMPLETE MATCHING WITH ADJACENT FINISHES AFTER FINAL TREATMENT OF SURFACES.

MEMBERS. CLAMPS OR OTHER APPROVED HOLDING DEVICES ARE TO BE USED.

#### 24. SEALING OF PENETRATIONS

- 24.1. ALL PENETRATIONS OF WALLS, FLOORS OR CEILINGS MUST BE SEALED IN AN APPROVED MANNER USING AN OUTER CIRCUMFERENTIAL SLEEVE FILLED INSIDE AND OUT.
- 24.2. ALL PENETRATIONS OF FIRE RATED WALLS, FLOORS OR CEILINGS SHALL BE SEALED WITH FIRESTOPPING MATERIAL LISTED WITH, AND BEAR LABEL OF CSA AND ULC, AND MAINTAIN SAME FIRE RATING AS FLOOR, WALL OR CEILING ASSEMBLY. REFER TO ARCHITECTURAL 29.9. WARRANTEE: THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP DRAWINGS FOR LOCATIONS OF FIRE RATED PARTITIONS.

#### 25. POWER INTERRUPTION NOTE

- 25.1. ELECTRICAL POWER MUST BE SHUT OFF PRIOR TO THE CONTRACTOR PERFORMING ANY WORK IN RACEWAYS WITH LIVE ELECTRICAL CIRCUITS OR ANY OTHER LIVE ELECTRICAL CIRCUITS OR EQUIPMENT. ANY POWER INTERRUPTION SHALL BE COORDINATED WITH THE OWNER AND BUILDING OPERATING PERSONNEL, PROVIDING A MINIMUM OF SEVEN (7) DAYS ADVANCE NOTICE.
- 25.2. TAPS INTO LIVE RISERS ARE NOT PERMITTED

#### 26. FINAL CLEANUP AND FIELD TESTS

- 26.1. AFTER COMPLETION OF THE ENTIRE ELECTRICAL INSTALLATION:
  - 26.1.1. THE CONTRACTOR, PRIOR TO FINAL ACCEPTANCE, SHALL CLEAN ALL PANELS, SWITCHES, CABINETS, DEVICES PLATES, FIXTURES AND OTHER ITEMS FURNISHED UNDER THIS CONTRACT AND SHALL ENSURE THAT ALL PANELBOARD 30.1. HORIZONTAL CABLING DIRECTORIES ARE IN PLACE AND COMPLETED OR REVISED AS REQUIRED BY THE WORK, AND THAT ALL IDENTIFICATION AND MARKING OF EQUIPMENT, CABLES, ALL JUNCTION BOXES AND OTHER ITEMS IS COMPLETED.
- 26.1.2. THE CONTRACTOR SHALL REPAIR OR REPLACE, AS DIRECTED BY THE ENGINEER, ANY ITEM DAMAGED DUE TO INSTALLATION OR RELOCATION OF EQUIPMENT OR DEVICES AT NOT ADDITIONAL COST TO THE OWNER.
- 26.2. IN ADDITION TO OTHER TESTS WHICH MAY BE REQUIRED BY OTHER DIVISIONS, PERFORM FIELD TESTS IN THE PRESENCE OF THE ENGINEER. TO DEMONSTRATE THE PROPER FUNCTIONING OF THE ELECTRICAL INSTALLATION. THE ENGINEER SHALL BE GIVEN A MINIMUM OF 48 HOURS ADVANCE NOTICE OF ALL TESTS. REQUIRED FIELD TESTS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
- 26.2.1. OPERATION OF ALL ELECTRICAL EQUIPMENT FOR A PERIOD FOR A PERIOD OF 24 HOURS WITHOUT INTERRUPTION.
- 26.2.2. 1,000 VOLT MEGOHMMETER TEST FOR ALL WIRES AND CABLES FURNISHED. CONTRACTOR SHALL FURNISH A TEST REPORT TO THE ENGINEER INDICATING TEST METHOD USED AND RESULTS. IF GROUND RESISTANCE ON ANY CIRCUIT IS LESS THAN THAT REQUIRED BY CSA, SUCH CIRCUITS ARE TO BE CONSIDERED DEFECTIVE AND MUST BE REPLACED.
- 26.2.3. MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTION AS REQUIRED TO OBTAIN THE BEST BALANCE OF CURRENT BETWEEN PHASES AND SUBMIT A REPORT FOR INSERTION INTO MANUALS.
- 26.3. ALL DEFECTIVE FIXTURES CABLES OR OTHER EQUIPMENT ENCOUNTERED DURING THE COURSE OF TESTING SHALL BE PROMPTLY REPLACED AND RETESTED TO THE SATISFACTION OF THE ENGINEER.

# 27. PLYWOOD

27.1. PLYWOOD BACKBOARDS SHALL BE 19MM (3/4") THICK, ULC OR CSA FIRE RETARDANT FIR REFER TO DRAWINGS FOR SIZE. PRIME AND PAINT BACKBOARDS WITH FIRE RETARDANT PAINT EQUAL TO CGSB SPEC. #1-GP-151M, OF A COLOUR AS SELECTED BY THE ARCHITECT OR CONSULTANT. FIRE RETARDANT LABELS SHALL NOT BE PAINTED OVER.

# 28. COORDINATION OF MECHANICAL DRAWINGS

- 28.1. UNLESS INDICATED OTHERWISE ON THE ELECTRICAL DRAWINGS, ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF THE FOLLOWING:
- 28.1.1. STARTERS AND DISCONNECT SWITCHES (INSTALLATION ONLY)
- 28.1.2. LINE AND LOAD SIDE WIRING FOR STARTERS.
- 28.1.3. LINE AND LOAD SIDE WIRING TO VARIABLE SPEED DRIVES.
- 28.1.4. ALL POWER WIRING (120V & ABOVE) TO ALL MECHANICAL EQUIPMENT
- 28.1.5. ALL MOTORIZED DAMPER POWER CONNECTIONS (120V & ABOVE).
- ADDITIONAL FIRE ALARM DEVICES.
- 28.1.7. WIRING TO ELECTRIC SPACE HEATERS.
- 28.2. MECHANICAL DIVISIONS WILL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF THE FOLLOWING:
- 28.2.1. STARTERS AND DISCONNECT SWITCHES TO MECHANICAL UNITS
- ALL VARIABLE SPEED DRIVES AND CONTROL WIRING TO STARTERS.
- 28.2.3. PIPE TRACING AND RELATED CONTROLS.
- ELECTRIC HOT WATER HEATERS.
- 28.2.5. ALL INTERPOSING RELAYS, RELAYS, CONTACTORS AND 120V CONTROL DEVICES.
- ALL 120V AND LOW VOLTAGE CONTROL WIRING AND CONDUITS.
- SHOULD THE MECHANICAL CONTRACTOR CHANGE ANY OF THE MOTOR OR EQUIPMENT SIZES FROM THOSE IDENTIFIED ON THE MECHANICAL SCHEDULES AND DRAWINGS AT ANY STAGE OF THE PROJECT TO AIDE THEIR INSTALLATION,

- THE MECHANICAL CONTRACTOR WILL INCUR ALL EXTRA ELECTRICAL COSTS TO REVISE THE ELECTRICAL FEEDERS, BREAKERS, STARTERS AND EQUIPMENT TO SUPPLY POWER TO THE REVISED PIECE OF EQUIPMENT.
- 28.3. DETERMINE EXACT LOCATION OF STARTERS, MOTORS AND LINE VOLTAGE CONTROLS BASED ON THE MECHANICAL DRAWINGS TO COORDINATE WITH THE LOCATIONS OF ALL EQUIPMENT TO ENSURE THE REQUIRED CLEARANCES ARE MAINTAINED. IF NO WALL LOCATION IS SUITABLE FOR THE MOTOR STARTERS THEN MOUNT THE STARTERS ON A PLYWOOD BACKBOARD NEAR THE RESPECTIVE EQUIPMENT TO MEET THE APPLICABLE CODE REQUIREMENTS FOR MOTOR ISOLATION SWITCHES. IF A MOTOR OR PIECE OF EQUIPMENT IS LISTED ON ONE OF THE STARTER SCHEDULES BUT IS NOT SHOWN ON THE FLOOR PLANS, THE CONTRACTOR IS TO REFERENCE THE MECHANICAL DRAWINGS FOR THE LOCATION OF THE RESPECTIVE PIECE OF EQUIPMENT. NO ADDITIONAL COSTS WILL BE ENTERTAINED.

#### FIRE ALARM SYSTEM

- 29.1. NEW DEVICES TO BE MATCH EXISTING SYSTEM ON SITE. CONTRACTOR TO CONFIRM EXISTING FIRE ALARM SYSTEM ON SITE PRIOR TO TENDERING.
- 29.2. ALL WORK, MATERIALS, INSTALLATION LOCATIONS, HEIGHTS, CLEARANCES, ETC. SHALL BE IN COMPLIANCE WITH THE APPLICABLE CODES, STANDARDS AND REGULATIONS

CAN/ULC-S530, AND SUBJECT TO THE LOCAL AUTHORITIES HAVING JURISDICTION

- 29.3. ALL INSTALLATIONS AND EQUIPMENT SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE NATIONAL BUILDING CODE, ONTARIO BUILDING CODE, CAN/ULC S-524, CAN/ULC-S525, CAN/ULC-S526, CAN/ULC-S527, CAN/ULC-S528, CAN/ULC-S529,
- 29.4. ALL TESTING AND VERIFICATION SHALL BE IN CONFORMANCE WITH CAN/ULC S-537. PROVIDE FINAL ACCEPTANCE, VERIFICATION TEST / REPORTS & CERTIFICATION OF
- 29.5. SUPPLY AND INSTALL ALL NECESSARY EQUIPMENT & MATERIALS TO ACCOMMODATE DEVICES WIRING, ETC. ALL EQUIPMENT MUST BE OPERATIONAL, TESTED AND VERIFIED TO THE SATISFACTION OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
- 29.6. PROVIDE ALL NECESSARY CONDUITS, WIRING, JUNCTION BOXES, ETC. REQUIRED FOR A COMPLETE SYSTEM INSTALLATION. COORDINATE CONDUIT ROUTING ON SITE WITH ALL
- 29.7. MOUNT AND CALIBRATE ALL DEVICES IN ACCORDANCE THE WITH O.B.C., CAN/ULC STANDARDS AND LOCAL AUTHORITIES HAVING JURISDICTION.
- 29.8. OBTAIN AND PAY FOR PERMITS, FEES AND FURNISH CERTIFICATES AS EVIDENCE THAT ALL WORK CONFORMS TO THE LAWS AND REGULATIONS OF ALL GOVERNING AUTHORITIES HAVING JURISDICTION.
- OF FINAL ACCEPTANCE BY THE OWNER / AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE DURING THE DESIGN, INSTALLATION AND TESTING AND GUARANTEE PERIOD OF DEFECTS IN THIS WORK, MATERIALS OR EQUIPMENT.
- 29.10. ALL WORK SHALL BE PERFORMED BY AN APPROVED / CERTIFIED CONTRACTOR.
- 29.11. DO NOT RUN FIRE ALARM CABLE IN THE SAME RACEWAY WITH NON FIRE ALARM CABLE. AVOID INSTALLING FIRE ALARM CABLES NEAR SOURCES OF ALTERNATING CURRENT (LIGHTING, POWER, ETC.).
- 29.12. OBSERVE ALL POLARITY ON ALL FIRE ALARM CIRCUITS. NO TEE TAPPING IS PERMITTED ON ALARM INITIATING OR INDICATING CIRCUITS (STROBES, HORNS, ETC.).
- 29.13. ANY REQUIREMENTS FOR SHIELDING CERTAIN CONDUCTORS OR RUNNING THEM IN SEPARATE RACEWAYS SHALL BE AS RECOMMENDED BY THE MANUFACTURERS DOCUMENTATION.

### 30. DATA/VOICE SPECIFICATION

- PROVIDE AND INSTALL ALL HORIZONTAL DATA CABLING AS INDICATED. HORIZONTAL DATA CABLES SHALL BE 4-PAIR 100 OHM UTP, 22 TO 24 AWG, CMR/CMP, FT6/FT4 FIRE RATED, CERTIFIED TO ANSI/TIA/EIA-568-B.2. CATEGORY 6 SPECIFICATIONS, AND BLUE IN COLOUR, THE FULL END TO END 100 METER CHANNEL THAT INCLUDES A WORST CASE OF FOUR TERMINATIONS (INCLUDING CONSOLIDATION POINT AND CROSS CONNECT) MUST MEET ALL OF THE CRITERIA (AS A MINIMUM) AS DEFINED IN SECTION 1.10. THE CHANNEL PERFORMANCE SPECIFICATIONS ALL OF THE PARAMETERS IN SECTION 1.10 MUST BE TESTED (AND PUBLISHED) UP TO AND INCLUDING 1 GHZ AND WARRANTABLE UP TO AND INCLUDING 1 GHZ FOR A MINIMUM PERIOD OF 30 YEARS.
- 30.1.2. PROVIDE AND INSTALL ALL HORIZONTAL VOICE CABLING AS INDICATED. HORIZONTAL VOICE CABLES SHALL BE 4-PAIR UNSHIELDED TWISTED PAIR, CSA FT6/CMP PLENUM FIRE RATED, CERTIFIED TO ANSI/TIA/EIA-568-B.2. CATEGORY 6 SPECIFICATIONS, AND WHITE IN COLOUR. ALL FUTURE REFERENCE TO 'VOICE CABLE' SHALL REFER TO THE REQUIREMENTS AS STATED IN THIS SECTION. THE CABLE MUST BE CSA CERTIFIED AND STAMPED ACCORDINGLY. ALL CATEGORY 6 UTP VOICE CABLE SHALL HAVE A WHITE OUTER JACKET. OTHER COLORS MAY BE ACCEPTABLE IF APPROVED IN WRITING BY THE CONSULTANT.
- 30.1.3. WHEN INSTALLED IN CONDUIT, FT4 TYPE CABLES CAN BE USED.
- 30.1.4. ALL CABLES PULLED AND TERMINATED FOR SERVERS ARE TO BE TREATED EXACTLY THE SAME AS OTHER HORIZONTAL VOICE AND DATA CABLES.
- 30.1.5. THE INSTALLATION SHALL COMPLY WITH GOITS STANDARDS.
- 30.1.6. HORIZONTAL CABLING SHALL BE SUPPLIED AS END TO END SOLUTION BY BELDEN/NORDX OR HUBBELL.

# 30.2. MODULAR JACKS AND ADAPTORS

- 30.2.1. PROVIDE AND INSTALL ALL MODULAR JACKS AS INDICATED.
- 30.2.2. MODULAR JACK CURRENT RATING: 1.5 AMPERES MAXIMUM

MODULAR JACK DURABILITY: 750 MATING CYCLES

MODULAR JACK CONTACT PRESSURE: 100 GRAMS, MINIMUM PER CONTACT

# DIELECTRIC VOLTAGE STRENGTH: 1000V RMS AT 60HZ.

- 30.2.3. THE UTP MODULES MUST BE MATCHED APPROPRIATELY WITH THE VOICE AND DATA CABLES TO ENSURE THAT END TO END VENDOR WARRANTIES WILL BE APPLICABLE. ALL UTP DATA AND VOICE CABLES SHALL BE TERMINATED WITH THE JACK COLORS AS DESCRIEBED BELOW:
- DATA MODULE COLOR BLUE
- **VOICE MODULE COLOR WHITE**
- THE COLOR OF THE UTP MODULES MAY BE CHANGED AT THE DISCRETION OF THE CONSULTANT.
- 30.3. TERMINATION VOICE MODULES, RACKS AND PATCH PANELS
  - PROVIDE VOICE TERMINATION BLOCKS WHERE SHOWN ON DRAWINGS. VOICE TERMINATION PANELS TO BE MOUNTED ON DEDICATED RACK.
  - ALL UTP VOICE AND DATA MODULES SHALL BE 8-PIN RJ45'S CONFORMING TO THE ENHANCED CATEGORY 6 STANDARD. THE JACKS MUST ACCEPT EITHER RJ 45 OR RJ11 MALE PLUGS WITHOUT CAUSING ANY DAMAGE OR DEGRADATION TO THE CONNECTORS.

# 30.4. RISER CABLING - VOICE

30.5. CROSS-CONNECTION CABLES AND WIRE

THE 100 PAIR COPPER RISER VOICE CABLE SHALL CONSIST OF 24 AWG THERMOPLASTIC INSULATED CONDUCTORS. THE BINDER GROUPS ARE TO BE IDENTIFIED BY DISTINCTLY COLOURED BINDERS AND ASSEMBLED TO FORM A SINGLE COMPACT CORE COVERED BY A DUAL POLYLEFIN/POLYVINYL CHLORIDE INSULATION AND AN ALPLAST SHEATH. THE CONDUCTORS SHALL BE SOLID ANNEALED COPPER AND THE INSULATED CONDUCTORS SHALL BE TWISTED TO FORM PAIRS. THE CABLE SHALL BE CSA CERTIFIED CBC FT4 IN ACCORDANCE WITH CSA STANDARD C22.2 NO. 214M. THE CABLE SHALL MEET OR EXCEED MINIMUM CSA SPECIFICATIONS FOR 100 OHM UTP MULTIPAIR BACKBONE CABLES AS DEFINED IN CSA DOCUMENT CSA-T529M SECTION 10.3.

- 30.5.1. THE UTP DATA PATCH CORD FOR CONNECTING A DATA PATCH PANEL JACK TO ITS CORRESPONDING EQUIPMENT JACK SHALL BE OF UNSHIELDED TWISTED PAIR CORDAGE WITH EIGHT 24 AWG THERMOPLASTIC PLATED, STRANDED COPPER CONDUCTORS FORMED INTO FOUR INDIVIDUALLY TWISTED PAIRS WITH TIGHT TWISTING FOR HIGH SPEED OPERATIONS. THE UTP LINE CORD FOR CONNECTING THE STATION OUTLET JACK TO THE STATION EQUIPMENT (TYPICALLY A PERSONAL COMPUTER) IS TO BE OF EQUIVALENT CONSTRUCTION.
- 30.5.2. THE UTP PATCH/LINE CORD SHALL BE WIRED EIA-A TO EIA-A WITH A ONE-TO-ONE CORRESPONDENCE STRAIGHT-THROUGH AND TERMINATED ON BOTH ENDS ON 8-POSITION MODULAR LONG PLUGS WITH MINIMUM OF 50 MICRO-INCH GOLD PLATING. THE UTP PATCH CORDS SHALL BE C/W LABELS AT BOTH ENDS.
- 30.5.3. DATA PATCH CORDS AND DATA LINE CORDS SHALL BE SUPPLIED AND OF THE SAME MANUFACTURER AS THE HORIZONTAL CABLES AND SHALL MEET OR EXCEED THE PERFORMANCE CHARACTERISTICS OF THE HORIZONTAL DATA CABLE.

#### 30.6. TESTING

- 30.6.1. PROVIDE TEST REPORTS FOR BOTH DATA AND VOICE CABLING. UTP CAT 6 TESTING SHALL INCLUDE:
- -ATTENUATION
- -NEAR END CROSSTALK (NEXT)
- -INSERTION LOSS
- -ATTENUATION TO CROSSTALK, TO PSNEXT
- -POWER SUM (PS-NEXT) -RETURN LOSS (RL)
- -EQUAL LEVEL FAR END CROSSTALK (ELFEXT)
- -POWER SUM ELFEXT (PS-ELFEXT)
- -FAR END CROSSTALK (FEXT)
- -ATTENUATION TO CROSSTALK RATIO (ACR) -POWER SUM ATTENUATION TO CROSSTALK RATIO (PSACR)

### 30.7. IDENTIFICATION LABELS

- 30.7.1. EACH HORIZONTAL CABLE AND PATCH CORD SHALL BE AFFIXED WITH MECHANICALLY PRINTED LABELLING TABS OR TYPED LETTER SELF-ADHESIVE MYLAR AT BOTH ENDS. (THE LETTERING SHALL NOT BE EXPOSED.)
  - LABELING SCHEME:
  - -DATA CABLES: D.X-1 TO 100
  - -VOICE CABLES: V.X-1 TO 100
  - WHERE LETTERS AND NUMBERS DENOTE:
  - D- DATA CABLE, V-VOICE CABLE X - DENOTES FLOOR NUMBER
  - NEXT NUMBER DENOTES CABLE NUMBER

- 30.8.1. REFER TO ELECTRICAL DRAWINGS FOR GROUNDING DETAILS. GROUND WIRE SHALL BE STRANDED #6AWG COPPER WIRE, GREEN INSULATED JACKET.
- 30.8.2. ALL RACKS AND CABINETS MUST BE GROUNDED. PROVIDE AND INSTALL ONE GROUND WIRE FROM EACH RACK OR CABINET TO THE NEAREST APPROVED

### 30.9. RISER CABLING - FIBRE OPTICS

FLECTRICAL GROUND.

- 30.9.1. MULTI-MODE FIBER OPTIC CABLE SHALL CONSIST OF 24 STRANDS MULTI-MODE FIBRE OPTIC BETWEEN MAIN BELL ROOM AND SECOND FLOOR LAN ROOM AND 6 STRANDS MULTI-MODE FIBRE OPTIC BETWEEN 2ND FLOOR AND 3RD, 4TH, 5TH AND 6TH FLOOR WHICH SHALL BE TIGHT-BUFFERED, DUAL-WINDOW, GRADED-INDEX OPTICAL FIBRE.
- 30.9.2. THE MULTI-MODE FIBRE CABLE SHALL MEET REQUIREMENTS FOR FDDI AND IBM CHANNEL EXTENDER WITH MINIMUM PERFORMANCE PARAMETERS AS DETAILED IN THE FOLLOWING TABLE:

# **PARAMETER**

- MAXIMUM INDIVIDUAL ATTENUATION (DB/KM) 850NM 1300NM TYPICAL ATTENUATION (@23'C) 2.9 0.9
- MINIMUM BANDWITH 3db OPTICAL (mhz-KM) 200
- 30.9.3. ALL FIBRE CABLE SHALL BE ENCLOSED IN FIBRE DUCT OR CONDUIT TO THE POINT OF TERMINATION FOR MAXIMUM MECHANICAL AND ENVIRONMENTAL PROTECTION. ALL SUCH FIBRE PATHWAYS SHALL BE SIZED LARGE ENOUGH SO THAT ALL INTERNAL CABLING IS ROUTED FREELY INSIDE WITH NO CONTINUOUS CONTACT WITH THE ENVELOPING PATHWAY. (ALL FIBRE PATHWAYS SHALL MEET ALL RELEVANT BUILDING CODES.)
- 30.9.4. LEAVE A MINIMUM OF 7 FEET OF SLACK FIBRE CABLING AT THE TERMINATION CABINET ENDS.
- MULTI-MODE FIBRE CABLE SHALL BE ORANGE IN COLOUR. FIBRE CABLES SHALL BE AS MANUFACTURED BY HUBBELL, NORDX/CDT OR BY OCC.

CENTRE/PANEL

- 30.10. FIBRE OPTIC EQUIPMENT 30.10.1. FIBRE OPTIC RISER PANEL TO BE RACK MOUNTABLE FIBRE OPTIC DISTRIBUTION
- 30.10.2. FIBRE CABINET TO ACCOMMODATE UP TO 24 CONNECTORS ON THE SECOND FLOOR AND MINIMUM OF FOUR SEPARATE TIGHT BUFFERED CABLES.
- 30.10.3. SPOOLS FOR STORING PATCH CORD SLACK AND MECHANISM TO CONTROL BEND RADII WITHIN CABINET, HINGED FRONT OR SHELF PROVIDING EASY ACCESSIBILITY TO CONNECTORS AND SPLICES.
- 30.10.4. FIBRE OPTIC PANEL WITH ST CONNECTOR PANEL MODULES FULLY LOADED WITH ST SIMPLEX FIBRE OPTIC ADAPTERS. ALL CONNECTORS SHALL COMPLY TO ANSI. ALL ST CONNECTORS SHALL MEET
  - THE FOLLOWING SPECIFICATIONS: -ATTENUATION: <= 0.75DB PER MATED ST OR SC CONNECTOR PAIR @23°C ± 5°C
  - -RETURN LOSS: <= 20DB @ 23°C ± 5°C -TOTAL OPTICAL ATTENUATION: <= 1.5DB THROUGH THE CROSS-CONNECT FROM
- ANY TERMINATED OPTICAL FIBRE TO ANY OTHER TERMINATED OPTICAL FIBRE.
- -DURABILITY: <= 500 MATING CYCLES PER ANSI/EIA/TIA-455-21 @23°C ± 5°C -CONNECTOR OPTICAL AXIAL PULL STRENGTH: 2.2N @ 0°, 2.2N @ 90° WITH A
- MAXIMUM 0.5DB INCREASE IN ATTENUATION. -MAXIMUM INSERTION LOSS: 0.6DB

#### -FERRULE MATERIAL: CERAMIC 30.11. INSTALLATION NOTES:

- 30.11.1. ALL UTP CATEGORY CAT 6 CABLING MUST BE INSTALLED IN ACCORDANCE TO
- ANSI/TIA/EIA-568-B.2. CATEGORY 6 INSTALLATION REQUIREMENTS. 30.11.2. ALL CABLES SHALL BE NEATLY BUNDLED AND TIE-WRAPPED. VOICE AND DATA CABLES SHALL BE SEPARATED INTO TWO (2) DISTINCT BUNDLES AND ROUTED THROUGH THE SAME CONDUIT. SECURE BUNDLES TO AVAILABLE VERTICAL AND
- HORIZONTAL SUPPORTS AND NEATLY FASTEN TO PATCH PANELS. 30.11.3. ROUTE ALL CABLES TO MAINTAIN MINIMUM SEPARATIONS FROM SOURCES OF LIGHTING, POWER CABLES, HVAC AND OTHER ELECTRICAL EQUIPMENT. PROVIDE

ADDITIONAL MATERIALS IN ORDER TO MEET THE MINIMUM SEPARATION

- 30.11.4. ALL DATA AND VOICE CABLES ARE TO BE PULLED IN CONTINUOUS RUNS. NO
- CABLE SPLICES ARE ALLOWED.
- 30.11.5. ALL CABLING MUST BE ROUTED TO MINIMIZE CROSS-OVERS AND CONGESTION.
- 30.11.6. EXERCISE CAUTION WHEN PULLING CABLES TO ENSURE THAT THE MANUFACTURER'S MAXIMUM PULL-FORCE AND MINIMUM BEND RADII
- SPECIFICATIONS ARE ADHERED TO.
- 30.11.7. ALL CABLING SHALL BE NEATLY DRESSED AND COMBED ALONG BACK OF BACKBOARD AND AT ALL TERMINATION LOCATIONS.

EQUIVALENT.

DOCUMENTATION.

- 30.11.8. PROVIDE CABLE SUPPORTS, HARNESSES AND SLEEVES AS REQUIRED. ALL FREE RUNNING CABLES SHALL BE SECURELY FASTENED TO APPROPRIATE CABLE SUPPORTS AND HARNESSES WITH A MAXIMAL INTERSUPPORT CABLE SAG OF 150MM. ALL CABLES SHALL BE COMPLETELY SUPPORTED BY THE HARNESSES SO THAT NO WEIGHT IS TRANSFERRED TO ANY OTHER EXISTING FIXTURE OR CEILING SPACE STRUCTURE. CABLE SUPPORTS SHALL BE CADDY CABLECAT OR
- 30.11.9. WHEN TERMINATING THE CABLE AT MODULAR JACKS AND TERMINATION PANELS, THE LENGTH OF UNJACKETED CONDUCTORS SHALL NOT EXCEED 1"(25 MM). THE AMOUNT OF UNTWISTING OF CABLE CONDUCTORS MUST NOT BE GREATER THAN 1/2" (13 MM) AFTER TERMINATION.
- 30.11.10. EACH CABLE AND TERMINATION JACK SHALL BE LABELLED WITH MECHANICALLY PRINTED IDENTIFICATION LABEL. CABLE LABELS TO BE SELF-LAMINATING VINYL CONSTRUCTION WITH WHITE MARK-ON COLOUR AND CLEAR OVERLAPS. CABLE LABEL SHALL BE A MINIMUM OF 2"(50MM) WIDE AND OF SUFFICIENT LENGTH TO PERMIT CLEAR OVERLAP TO BE WRAPPED COMPLETELY AROUND CABLE AT LEAST ONE AND A HALF TIMES.

30.11.11. INSTALLERS SHALL BE CERTIFIED BY THE MANUFACTURER TO QUALIFY THE

INSTALLATION FOR A 25-YEAR WARRANTY. INSTALLER SHALL PROVIDE

CERTIFICATE WITHIN 14 DAYS OF CONTRACT AWARD AND SHALL INCLUDE

END-TO-END CHANNEL TEST REPORTS WITH PROJECT COMMISSIONING

LUMINAIRE SCHEDULE LAMP DESCRIPTION MANUFACTURER TYPE LUMEN 610MM x 610MM T-BAR RECESSED COLUMBIA LIGHTING LED 2109LM 120V MOUNTED LED FIXTURE; CRI 90 CAT#: LCAT22-9-35MWG-EDU LED 120V 100mm LED DOWNLIGHT; CRI 90 664LM CAT#: LTR-4RD-H-SL06L-DM1\_LTR-4RD-T-SL35K9WDS L2A LED 548LM 120V 100mm LED DOWNLIGHT; CRI 90 CAT#: LTR-4RA-H-06L35K8WD-DM1\_LTR-4RA-T-S 610MM x 610MM T-BAR RECESSED COLUMBIA LIGHTING LED 2991LM MOUNTED LED FIXTURE CAT#: CBT22-LSCS- 3500K 1220MM LED LINEAR PENDANT LITE CONTROL LED 3206LM 120V INDIRECT/DIRECT FIXTURE CAT#: SAE106-P-LPA-4-SOF-35K-080-6D-MOD 3500K 610MM x 1220MM T-BAR RECESSED COLUMBIA LIGHTING LED 3626LM 120V MOUNTED LED FIXTURE CAT#: CBT24-LSCS - 3500K 305MM x 1220MM T-BAR RECESSED COLUMBIA LIGHTING LED 2989LM 120V MOUNTED LED FIXTURE CAT#: CBT14-LSCS - 3500K LED 1586LM 120V 152mm LED DOWNLIGHT CAT#: LTR-6RD-H-SL15L-DM1\_LTR-6RD-T-SL35K8WDS PRESCOLITE LED 691LM 120V 152mm LED DOWNLIGHT L7A CAT#: LTR-6RD-H-SL06L-DM1 LTR-6RD-T-SL35K8WDS COLUMBIA LIGHTING LED LINEAR SUSPENDED LIGHT LED 3986LM 120V CAT#: CSL4-LSCS-3500K

- 1. ALL LIGHT FIXTURES ARE MUST BE LED TYPE.
- 2. CONTRACTOR TO CONFIRM VOLTAGE OF ALL FIXTURES WITH VOLTAGES AT EACH LOCATION IN THE EXISTING SCHOOL PRIOR TO
- 3. ALL LIGHT FIXTURES MUST BE CSA / ETL(C) LISTED AND APPROVED FOR USE IN CANADA. 4. IMPORTANT NOTE: COORDINATE ALL FIXTURE FINISHES AND LUMEN PACKAGES WITH LIGHTING SUPPLIER PRIOR TO PURCHASE OR

**GRGURIC ARCHITECTS INCORPORATED** 

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SEAL

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AWINGS ARE NOT TO BE SCALED. CONTRACTOR MUST CHECK IND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PROJEC ND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS REFORE PROCEEDING WITH THE WORK HE USE OF THIS DRAWING OR PART THEREOF IS FORBIDDEN

TITHOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

REVISIONS

DATE

**ENGINEERING CONSULTANTS:** 



ENGINEERING 499 BROOKSIDE DRIVE, OAKVILLE, ONTARIO, L6K 1R4 TEL: (416) 726-1648 | (905) 617-4808

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PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE: ELECTRICAL SPECIFICATIONS AND SCHEDULES

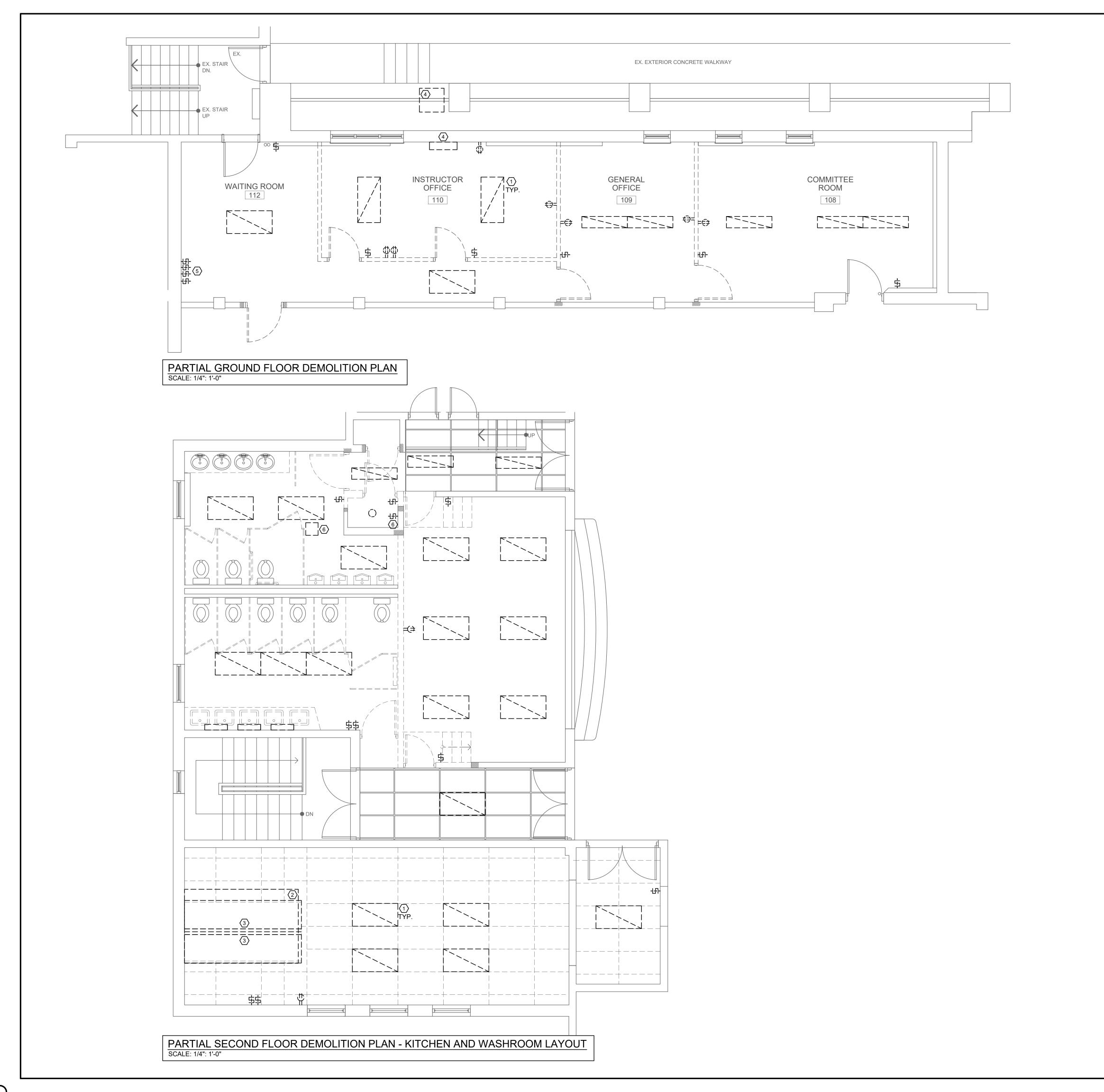
AS NOTED DATE:

SCALE:

SEPT.2021 DRAWING

PROJECT:

E0.03



#### DEMOLITION GENERAL NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND REMOVING ALL ELECTRICAL EQUIPMENT FROM AREAS BEING ALTERED OR DEMOLISHED. WIRING, CONDUIT AND EQUIPMENT REQUIRED TO MAINTAIN SERVICE IN OTHER PARTS OF THE BUILDING SHALL BE TEMPORARILY SUPPORTED, REROUTED, SERVICED OR RELOCATED AS REQUIRED. OBSOLETE CONDUITS AND CABLES SHALL BE DISCONNECTED FROM THEIR SOURCE OF SUPPLY, CUT BACK AS FAR AS POSSIBLE, AND SHALL BE REMOVED. ALL EXISTING WIRING NOT REMOVED SHALL BE DISCONNECTED, BLANKED-OFF AND MADE SAFE
- 2. CONTRACTOR SHALL ENSURE THAT AREAS NOT INCLUDED IN THIS CONTRACT ARE ADEQUATELY PROTECTED FROM DUST, DEBRIS, OR ANY OTHER DAMAGE RESULTING FROM WORK PERFORMED, AND THAT ANY CLEANING OR REPAIR REQUIRED IS PERFORMED WITHOUT COST TO OWNER.
- 3. CONTRACTOR SHALL ENSURE THAT ALL REFUSE IS REMOVED ON A DAILY BASIS AND THAT JOB SITE IS MAINTAINED IN AN ORDERLY AND SAFE CONDITION.
- PROVIDE TEMPORARY ELECTRICAL POWER FOR THE WORK OF THIS TRADE AND OTHER TRADES AS REQUIRED BY GENERAL CONTRACTOR OR OWNER.
- 5. THE CONTRACTOR SHALL REPLACE OR REPAIR ANY ITEMS WHICH ARE DAMAGED DUE TO THIS WORK AT NO EXTRA COST TO THE BUILDING OWNER.
- 6. REMAINING REMOVED EQUIPMENT AND MATERIALS, UNLESS OTHERWISE NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UPON COMPLETION OF THE WORK.
- 7. GENERAL CONTRACTOR SHALL REMOVE ALL NECESSARY CEILING TILES TO ALLOW DEMOLITION OF MECHANICAL AND ELECTRICAL SERVICES.
- 8. MECHANICAL & ELECTRICAL CONTRACTORS SHALL ASSIST THE GENERAL CONTRACTOR IN THE DEMOLITION WORK, BY CUTTING BACK MECHANICAL & ELECTRICAL SERVICES AS
- NEEDED FOR DEMOLITION WORK.

  9. REMOVE EXISTING OUTLETS NOT TO BE REUSED, PULL WIRES BACK TO RESPECTIVE PANEL
- 10. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING GOOD ANY SURFACES OR FINISHES DAMAGED AS A RESULT OF DEMOLITION.

### DRAWING KEY NOTES

- EXISTING LIGHT FIXTURES TO BE DISCONNECTED AND REMOVED. EXISTING CIRCUITRY TO REMAIN AND BE COILED UP IN THE CEILING SPACE AND LEFT FOR FUTURE CONNECTION TO NEW LIGHT FIXTURES. REFER TO DRAWING E1.02 & E1.03 FOR MORE INFORMATION.
- 2 EXISTING POWER FOR HOOD TO BE DISCONNECTED AND REMOVED.
- (3) EXISTING POWER TO KITCHEN APPLIANCES TO BE DISCONNECTED AND REMOVED.
- EXISTING AC UNIT (INDOOR AND OUTDOOR UNIT) TO BE DISCONNECTED AND REMOVED. EXISTING FEEDER TO BE REMOVED BACK TO SOURCE.
- DISCONNECTED EXISTING SWITCH BANK. CONTRACTOR TO SPLICE ALL FEEDERS AND COIL THEM UP IN EXISTING BOX. PROVIDE NEW BLANK COVERPLATE.
- DISCONNECT POWER TO EXISTING EXHAUST FAN IN WASHROOM. EXISTING FEEDER TO BE COILED UP AND LEFT FOR FUTURE CONNECTION TO EXHAUST FAN. DISCONNECT AND REMOVE EXISTING FAN SWITCH.

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SEAL

2 ISSUED FOR TENDER 07.03.2022 1 ISSUED FOR PERMIT 12.20.2021

DRAWINGS ARE NOT TO BE SCALED. CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PROJECT; AND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS BEFORE PROCEEDING WITH THE WORK. THE USE OF THIS DRAWING OR PART THEREOF IS FORBIDDEN WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

REVISIONS

DATE

ENGINEERING CONSULTANTS:



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PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE:

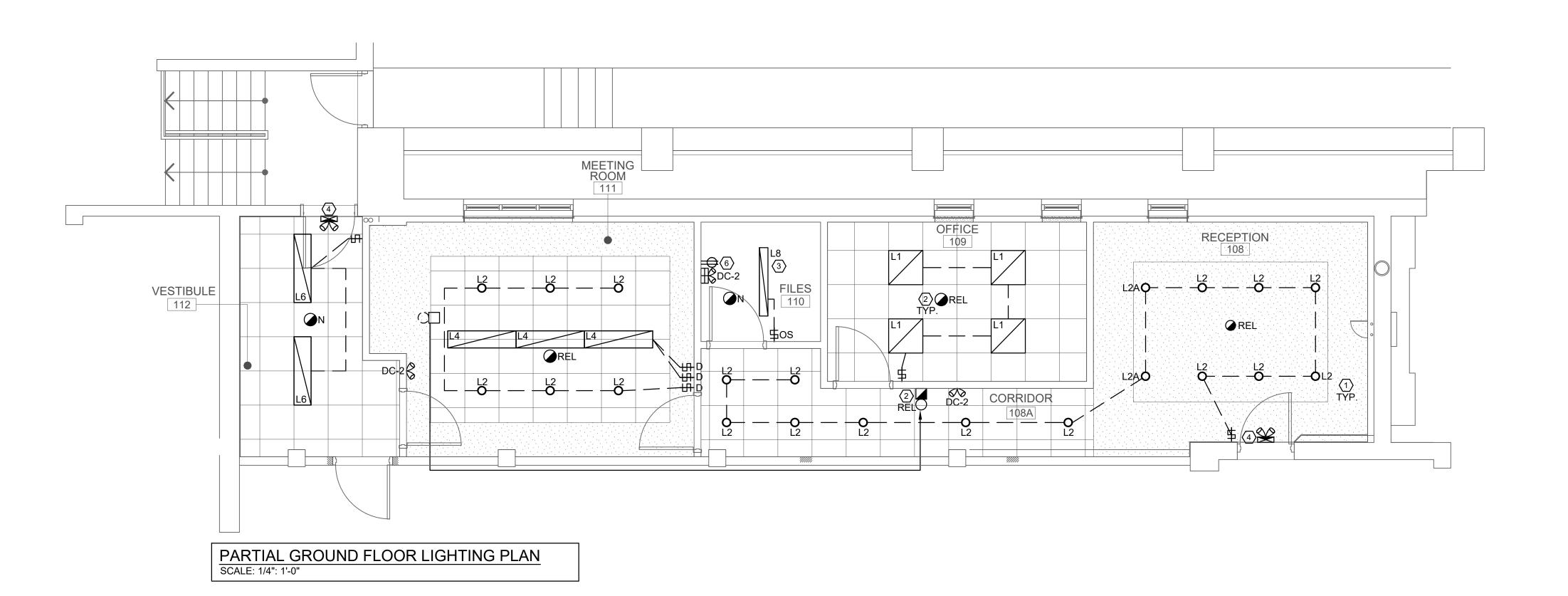
ELECTRICAL DEMOLITION PLANS

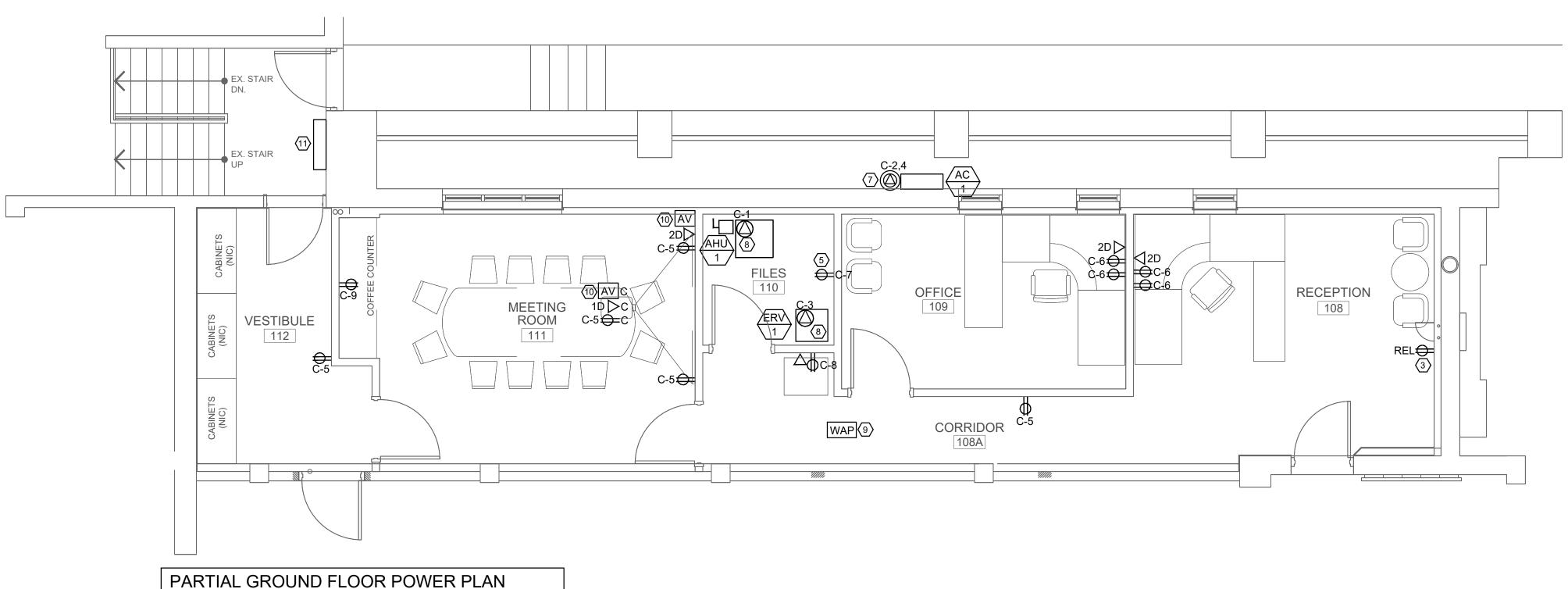
SCALE:
AS NOTED
DATE:

20004

DRAWING

SEPT.2021





SCALE: 1/4": 1'-0"

### **GENERAL NOTES**

- CONTRACTOR TO EXAMINE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
- COORDINATE ALL EQUIPMENT/SERVICE SHUT DOWN WITH FACILITY MANAGEMENT. 3. PROVIDE NEW EQUIPMENT AND ALL ASSOCIATED ACCESSORIES AS REQUIRED TO COMPLETE A FULLY
- FUNCTIONING SYSTEM.
- 4. COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH FACILITY MANAGEMENT.
- COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE DAILY.
- 6. ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE ANY WORK IS BEGUN.
- CONTRACTOR TO MAINTAIN FIRE SEPARATION. 8. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS AND/OR EXISTING CONDITIONS ARE TO BE
- REFERRED TO CONSULTANT FOR INSTRUCTIONS BEFORE ANY WORK IS BEGUN. 9. PROVIDE CAULKING AND FIRESTOPPING FOR ALL ELECTRICAL SERVICES PASSING THROUGH FIRE
- 10. FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL POWER, LIGHTING, SWITCHES, TELEPHONE AND DATA OUTLETS SEE ARCHITECTURAL DRAWINGS. CIRCUIT NUMBERS INDICATED ARE FOR IDENTIFICATION PURPOSES
- 11. PROVIDE SEPARATE NEUTRAL WIRE FOR EACH DEDICATED CIRCUIT.
- 12. TO PREVENT SOUND TRANSFER, STAGGER OUTLETS AN EITHER SIDE OF A PARTITION, DO NOT LOCATE BACK
- 13. ALL NEW EQUIPMENT TO BE LABELED. PROVIDE PANEL DIRECTORIES FOR NEW PANELS. UPDATE PANEL
- DIRECTORIES FOR EXISTING PANELS. 14. ALL BRANCH WIRING SHALL BE CONCEALED IN WALLS AND ABOVE HUNG CEILING.
- 15. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK. CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY WIRES, CONDUIT AND JUNCTION BOXES REQUIRED TO KEEP CONTINUITY.
- 16. VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT BEFORE ROUGHING. REFER TO MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS.
- ADVISE CONSULTANT OF ANY DISCREPANCIES. 17. IDENTIFY AND LABEL ALL NEW POWER RECEPTACLES.
- CONTRACTOR MUST PRACTICE PROPER LOCK AND TAG PROCEDURES.
- 19. BEAM CLAMPS ARE NOT PERMITTED TO HANG OR SUPPORT ELECTRICAL SERVICES.

# DRAWING KEY NOTES

- SUPPLY AND INSTALL NEW LIGHT FIXTURES AND SWITCHES USING EXISTING CIRCUITRY PREVIOUSLY USED FOR LIGHTING IN THIS AREA. CONTRACTOR TO EXTEND WIRING AS REQUIRED FOR A COMPLETE INSTALLATION.
- RELOCATE EXISTING FIRE ALARM DEVICES TO NEW LOCATIONS AS INDICATED ON LAYOUT. RELOCATE EXISTING HEAT DETECTORS TO NEW CEILINGS. PROVIDE NEW DEVICES AS INDICATED TO MATCH EXISTING FIRE ALARM SYSTEM. EXTEND CONDUIT AND WIRING TO LOCATIONS AS INDICATED ON DRAWINGS. RE-TEST COMPLETE. AFTER COMPLETION OF WORK THE FIRE ALARM SYSTEM MUST BE TESTED AND VERIFIED AS PER STANDARD ULC S537. CONTRACTOR TO PROVIDE VERIFICATION CERTIFICATE ONCE FIRE ALARM SYSTEM IS TESTED AND VERIFIED BY INSTALLER.
- 3 RELOCATE EXISTING RECEPTACLE INTO NEW WALL. EXTEND WIRING AS REQUIRED.
- PROVIDE NEW EXIT SIGNS AS INDICATED ON LAYOUT. WIRE NEW EXIT SIGNS TO NEAREST AVAILABLE EXIT SIGN CIRCUIT IN THE AREA.
- CONTRACTOR TO RELOCATE EXISTING DATA HUB INTO NEW FILES 110. CONTRACTOR TO PROVIDE NEW DATA CABLES FROM HUB ROOM ABOVE THE CEILING TO EACH OUTLET AS INDICATED ON THE LAYOUT. CONFIRM TYPE OF DATA CABLE ON SITE WITH OWNER AND EXISTING SYSTEM. PROVIDE NEW MAIN COMMUNICATION CABLE C/W NEW CONDUIT FROM THE MAIN TELEPHONE SERVICE INSIDE GARAGE TO THE HUB IN FILES 110. CONTRACTOR TO COORDINATE WITH INTERNET PROVIDER FOR ALL REQUIREMENTS.
- 6 CONNECT NEW EMERGENCY BATTER PACK TO NEAREST AVAILABLE LIGHTING CIRCUIT IN THE AREA.
- PROVIDE NEW 30A-2P POWER TO NEW AC UNIT AC-1 TO BE FED FROM NEW PANEL-C IN BASEMENT. CONTRACTOR TO PROVIDE NEW 30A-2P BREAKER FOR NEW AC UNIT. CONTRACTOR TO VERIFY BEST ROUTING OF NEW FEEDERS FROM BASEMENT TO EQUIPMENT LOCATION.
- PROVIDE NEW 15A-1P POWER TO NEW AIR HANDLING UNIT AHU-1 AND ENERGY RECOVERY UNIT ERV-1 RESPECTIVELY. BOTH UNITS TO BE FED FROM NEW PANEL-C IN BASEMENT. PROVIDE NEW BREAKER AS REQUIRED. CONTRACTOR TO VERIFY BEST ROUTING OF NEW FEEDERS FROM BASEMENT TO EQUIPMENT
- PROVIDE ONE NEW DATA CABLE FOR EACH WIRELESS ACCESS POINTS (BY CLIENT). DATA CABLES FOR WAP TO BE TERMINATED INTO DATA PATCH PANELS IN ROOM FILES 110. PROVIDE 10' CABLE SLACK FOR FINAL
- PROVIDE NEW AV OUTLETS IN CEILING (HDMI, AUDIO AND VGA) FROM CEILING AT THE PROJECTOR LOCATION TO WALL LOCATION AS INDICATED ON LAYOUT. PROVIDE NECESSARY CONDUITS IN WALL UP TO CEILING TO ACCOMMODATE ALL AV CABLES AS REQUIRED BY THE OWNER. VERIFY EXACT LOCATION WITH OWNER PRIOR
- (11) EXISTING FIRE ALARM CONTROL PANEL TO REMAIN AS IS.
- CONTRACTOR TO PROVIDE A DEDICATED SWITCH FOR THE UP LIGHT AND DOWNLIGHT PORTION OF THE L2 FIXTURE RESPECTIVELY (TOTAL OF 2). COORDINATE WITH LIGHT FIXTURE SUPPLIER FOR REQUIREMENTS.

GRGURIC ARCHITECTS **INCORPORATED** 



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SEAL

ISSUED FOR PERMIT 12.20.2021 **REVISIONS** DATE

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PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE:

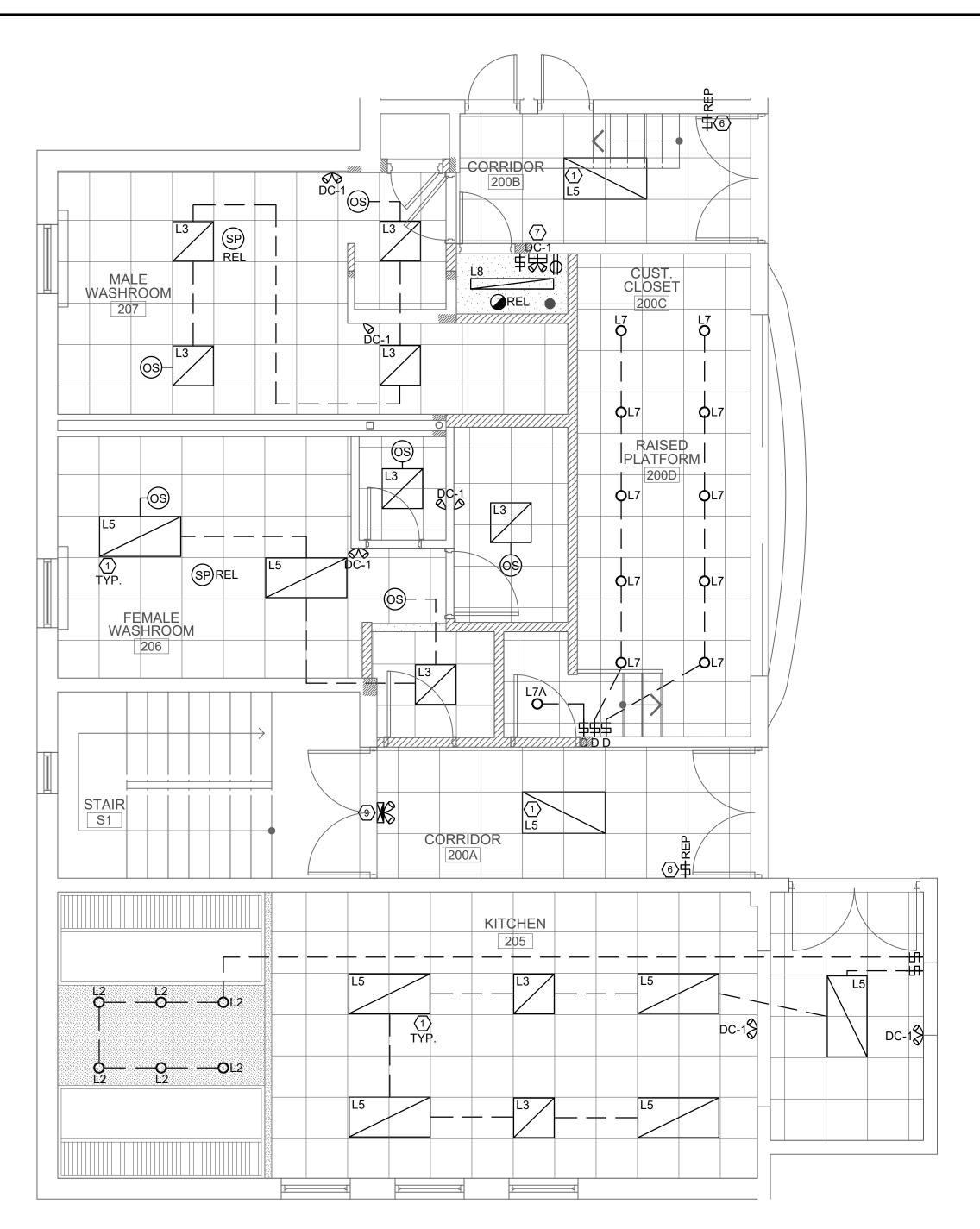
GROUND FLOOR **ELECTRICAL PLANS** 

SCALE: AS NOTED

DATE: SEPT.2021 PROJECT: 20004

DRAWING





PARTIAL SECOND FLOOR LIGHTING PLAN - KITCHEN AND WASHROOM LAYOUT

CIRCUIT		LOAD		NO	NO.	LOAD			CIRCUIT
DESIGNATION	BKR	Α	В	NO.	NO.	А	В	BKR	DESIGNATION
EXISTING TO REMAIN	2/20			1	2	1667		1/20	REL. SPLIT SYSTEM
EXISTING TO REMAIN	2/20			3	4		200	1/15	COUNTER RECEPTACL
EXISTING TO REMAIN	1/15			5	- 6			1/15	EXISTING TO REMAIN
EXISTING TO REMAIN	1/15			7	- 8			1/15	EXISTING TO REMAIN
EXISTING TO REMAIN	1/15			9	10			1/15	EXISTING TO REMAIN
EXISTING TO REMAIN	1/15			11	12			1/15	EXISTING TO REMAIN
EXISTING TO REMAIN	1/15			13	14			1/15	EXISTING TO REMAIN
KH-1 & KH-2	1/15		500	15	16			1/15	EXISTING TO REMAIN
GAS APPLIANCES	1/15	100		17	18			1/15	EXISTING TO REMAIN
CONVENTION OVEN	1/15		1200	19	20		200	1/15	ROOF REC. (GFI)
CONVENTION OVEN	1/15	1200		21	- 22	100		1/15	URINALS (GFI)
HOLDING CABINET	1/20		2000	23	24				

# GENERAL NOTES

- CONTRACTOR TO EXAMINE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
- COORDINATE ALL EQUIPMENT/SERVICE SHUT DOWN WITH FACILITY MANAGEMENT PROVIDE NEW EQUIPMENT AND ALL ASSOCIATED ACCESSORIES AS REQUIRED TO COMPLETE A FULLY FUNCTIONING SYSTEM.
- COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH FACILITY MANAGEMENT. 5. COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE DAILY.
- 6. ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE ANY WORK IS BEGUN.
- 7. CONTRACTOR TO MAINTAIN FIRE SEPARATION.
- 8. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS AND/OR EXISTING CONDITIONS ARE TO BE REFERRED TO CONSULTANT FOR INSTRUCTIONS BEFORE ANY WORK IS BEGUN.
- 10. FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL POWER, LIGHTING, SWITCHES, TELEPHONE AND DATA OUTLETS SEE ARCHITECTURAL DRAWINGS. CIRCUIT NUMBERS INDICATED ARE FOR IDENTIFICATION PURPOSES ONLY.

9. PROVIDE CAULKING AND FIRESTOPPING FOR ALL ELECTRICAL SERVICES PASSING THROUGH FIRE SEPARATIONS.

- 11. PROVIDE SEPARATE NEUTRAL WIRE FOR EACH DEDICATED CIRCUIT.
- 12. TO PREVENT SOUND TRANSFER, STAGGER OUTLETS AN EITHER SIDE OF A PARTITION, DO NOT LOCATE BACK TO BACK. 13. ALL NEW EQUIPMENT TO BE LABELED. PROVIDE PANEL DIRECTORIES FOR NEW PANELS. UPDATE PANEL DIRECTORIES FOR EXISTING PANELS.
- 14. ALL BRANCH WIRING SHALL BE CONCEALED IN WALLS AND ABOVE HUNG CEILING. 15. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF
- WORK. CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY WIRES, CONDUIT AND JUNCTION BOXES REQUIRED TO KEEP CONTINUITY.
- 16. VERIFY EXACT POWER REQUIREMENTS OF MECHANICAL EQUIPMENT BEFORE ROUGHING. REFER TO MECHANICAL SHOP DRAWINGS FOR MANUFACTURERS ELECTRICAL DATA AND INSTALLATION REQUIREMENTS. ADVISE CONSULTANT OF ANY DISCREPANCIES.
- 17. IDENTIFY AND LABEL ALL NEW POWER RECEPTACLES.
- 18. CONTRACTOR MUST PRACTICE PROPER LOCK AND TAG PROCEDURES.
- 19. BEAM CLAMPS ARE NOT PERMITTED TO HANG OR SUPPORT ELECTRICAL SERVICES. 20. ALL POWER REQUIREMENTS FOR KITCHEN EQUIPMENT TO BE VERIFIED AND CONFIRMED WITH OWNER.
- 21. AUTOMATIC SHUT-OFF IS REQUIRED FOR ALL ELECTRICAL EQUIPMENT UNDER THE HOOD. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH KITCHEN SUPPLIER AND MECHANICAL CONTRACTOR TO ENSURE ALL REQUIREMENT ARE MET. ALL INTERLOCKING OF ELECTRIC EQUIPMENT UNDER HOOD TO BE INTERLOCKED WITH SUPPRESSION SYSTEM BY THE ELECTRICAL
- CONTRACTOR. 22. FIRE SUPPRESSION SYSTEM IS TO BE INTERLOCKED WITH BASE BUILDING FIRE ALARM SYSTEM. COORDINATE WITH SYSTEM
- 23. BEFORE INSTALLING ANY RECEPTACLES OR OUTLET BOXES FOR KITCHEN EQUIPMENT THIS ELECTRICAL CONTRACTOR IS TO VERIFY TYPE OF CONNECTIONS AND EXACT LOCATIONS OF OUTLETS WITH ARCHITECT OR SCHOOL BOARD REPRESENTATIVE.

WASHROOM 207 CUST. CLOSET 200C | | | | | B/F STALL | | | | | PLATFORM 200D B/F STALL FEMALE WASHROOM 1 11 / / | ||/ / CHURCH HALL 200 CORRIDOR EX. D/W EX. D/W EX. COOLER EX. FRIDGE EX. DBL SINK **KITCHEN** FRYER K-4 <del>♥</del> NEW SS. SINK
1 & COUNTER (24x30") EX 😂 EX. SS COUNTER **NEW SS. COUNTER** EX. TRIPLE SINK EX. SS COUNTER (24x84") NEW NEW GRIDDLE | RANGE (DAC Фас

PARTIAL SECOND FLOOR POWER PLAN - KITCHEN AND WASHROOM LAYOUT

# DRAWING KEY NOTES

SUPPLY AND INSTALL NEW LIGHT FIXTURES AND SWITCHES/OCCUPANCY SENSORS USING EXISTING CIRCUITRY PREVIOUSLY USED FOR LIGHTING IN THIS AREA. CONTRACTOR TO EXTEND WIRING AS REQUIRED FOR A COMPLETE INSTALLATION.

**CORRIDOR** 200B

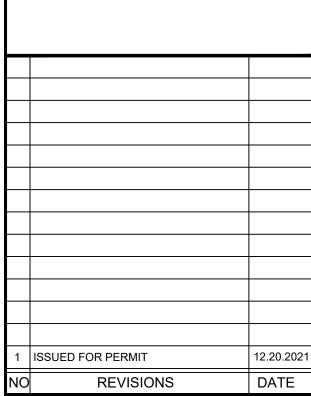
- EXISTING PANEL LP-K TO REMAIN. PROVIDE NEW BREAKERS AS REQUIRED FOR NEW CIRCUITS. NEW CIRCUITS AS NOTED ON LAYOUT ARE FOR REFERENCE ONLY. CONTRACTOR TO VERIFY EXISTING SPARE AND SPACES IN PANEL LP-K PRIOR TO TENDERING AND ADJUST CIRCUITS ACCORDINGLY.
- PROVIDE DEDICATED POWER FOR NEW EXHAUST FAN EF-1 AND MAKE UP AIR UNIT MUA-1 TO BE FED FROM MAIN 600V ELECTRICAL SERVICE PANEL-X IN BASEMENT MAIN ELECTRICAL ROOM. REFER TO PANEL SCHEDULE ON DRAWING E1.04 FOR MORE INFORMATION. PROVIDE 3#12 +GND IN 3/4" CONDUIT FROM PANEL TO EQUIPMENT LOCATIONS ON ROOF RESPECTIVELY. COORDINATE ALL REQUIREMENTS WITH MECHANICAL CONTRACTOR. CONFIRM ROUTING OF FEEDERS ON SITE PRIOR TO TENDERING. NEW NEMA 5-20R GFI RECEPTACLE IN WP COVER IN MUA TO BE PROVIDED BY MUA MANUFACTURER AND FIELD WIRED BY THE ELECTRICAL CONTRACTOR. NEW RECEPTACLE TO CONNECTED TO PANEL K-20. CONFIRM WITH UNIT SHOP DRAWINGS ON THE EXACT LOCATION OF CONVENIENCE RECEPTACLE. COORDINATE UNIT LOCATION AND ROTATION WITH MECHANICAL CONTRACTOR ON SITE.
- PROVIDE POWER TO WASHFOUNTAINS & URINALS AS INDICATED ON LAYOUT. CONTRACTOR TO PROVIDE POWER FROM PANEL K (CCT. #22). VERIFY ON SITE EXACT REQUIREMENTS ON SITE. COORDINATE ALL WORK WITH PLUMBING CONTRACTOR. PROVIDE ALL REQUIRED EQUIPMENT FOR A COMPLETE INSTALLATION. PROVIDE NEW GFI BREAKER.
- PROVIDE NEW RECEPTACLES IN STAGE AREA USING EXISTING CIRCUIT PREVIOUSLY USED FOR RECEPTACLE IN STAGE AREA PRIOR TO DEMOLITION. EXTEND WIRING AS REQUIRED.
- (6) REPLACE EXISTING SWITCHES WITH NEW SWITCHES C/W NEW COVERPLATES.
- (7) CONNECT NEW EMERGENCY BATTER PACK TO NEAREST AVAILABLE LIGHTING CIRCUIT IN THE AREA.
- PROVIDE DEDICATED POWER FOR RELOCATED SPLIT SYSTEM TO BE FED FROM PANEL-K (CCT. #2). REFER TO PANEL SCHEDULE FOR MORE INFORMATION. PROVIDE 2#12 + GND IN 3/4" CONDUIT FROM PANEL TO OUTDOOR UNIT ON ROOF. PROVIDE NEW FEEDER FROM OUTDOOR UNIT TO INDOOR UNIT AS REQUIRED. COORDINATE ALL REQUIREMENTS WITH MECHANICAL CONTRACTOR. CONFIRM ROUTING OF FEEDERS ON SITE PRIOR TO TENDERING.
- REPLACE EXISTING EXIT SIGN COMBO WITH NEW TO MATCH EXISTING EXIT SIGN. VERIFY EXACT REQUIREMENTS ON SITE.
- PROVIDE POWER TO KITCHEN HOODS KH-1 & KH-2 AND HOOD CONTROL PANEL. HOOD CONTROL START STOP STATION AND FIRE SUPPRESSION SYSTEM MOUNTED IN CABINET ATTACHED TO SIDE OF HOOD. ALL INTERLOCKING OF EXHAUST FAN AND MAKE UP AIR UNIT TO BE PERFORMED BY MECHANICAL CONTRACTOR. PROVIDE DRY CONTACT FROM FIRE ALARM PANEL TO SHUT DOWN HOOD EXHAUST FAN (EF-1), MAKE-UP AIR UNIT (MUA-1) AND CCT'S#K-17,19,21 & 23 UPON FIRE ALARM ACTIVATION. CONNECT TO FIRE ALARM ZONE IN FIRE ALARM PANEL TO MONITOR SUPPRESSION SYSTEM. COORDINATE ALL REQUIREMENTS WITH KITCHEN EQUIPMENT SUPPLIER AND HOOD MANUFACTURER.
- CONNECT POWER TO NEW EXHAUST FAN SERVING WASHROOMS USING EXISTING FEEDER PREVIOUSLY USED FOR EXHAUST FAN. PROVIDE NEW FAN SWITCH LOCATED IN CUSTODIAN ROOM 200C. COORDINATE ALL WORK AND SWITCH LOCATION WITH OWNER PRIOR
- CONTRACTOR TO RELOCATE EXISTING STARTERS FOR EF-9 AND EF-10 TO NEW CUSTODIAL ROOM 200C, CONTRACTOR TO EXTEND ALL FEEDERS TO NEW LOCATION AS INDICATED ON LAYOUT.

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SEAL



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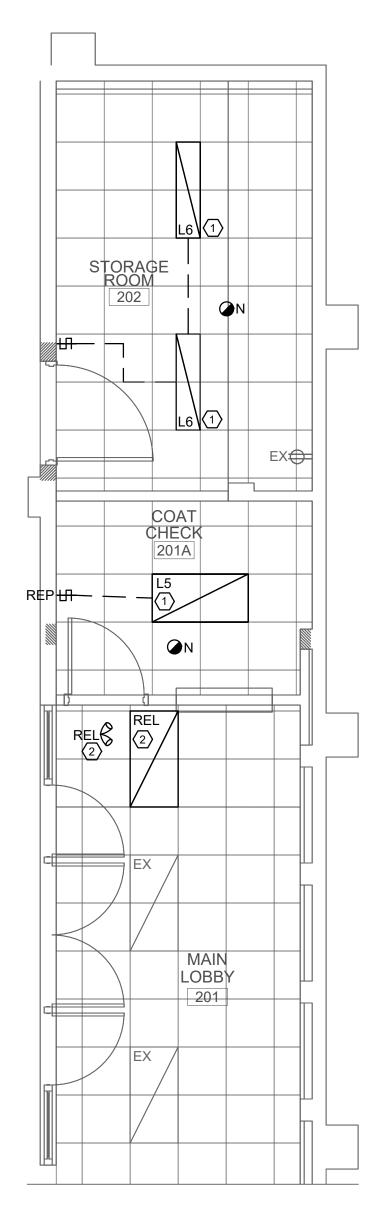
SECOND FLOOR **ELECTRICAL PLANS** 

SCALE: AS NOTED DATE:

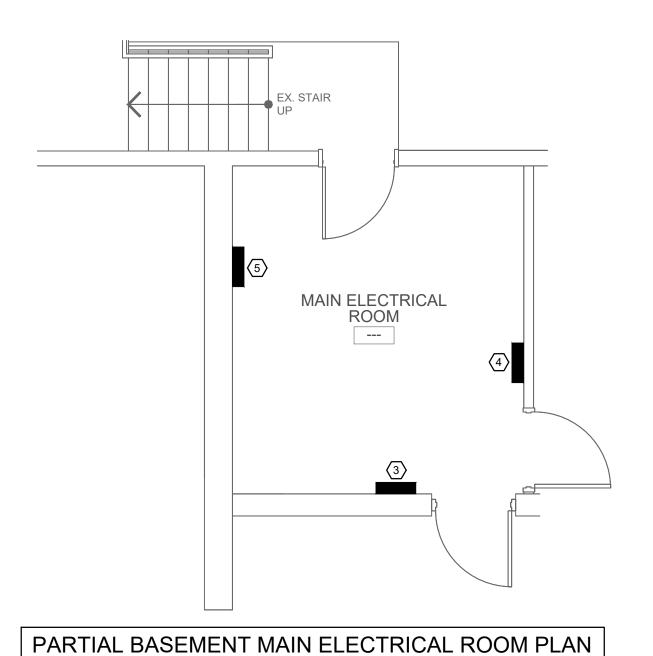
SEPT.2021

PROJECT: 20004

DRAWING



# PARTIAL SECOND FLOOR ELECTRICAL PLAN - COAT CHECK



SCALE: 1/4": 1'-0"

# EXISTING PANEL PP-X RATING: 100A-600V/3PH/3W

CIRCUIT	BKR	LOAD			NO	NO.		LOAD				CIRCUIT
DESIGNATION		Α	В	С	NO.		NO.	Α	В	С	BKR	DESIGNATION
					1	<b> </b>	2					
EX. RTU	3/15				3	$H_{ullet}$	4				3/15	EX. RTU
					5		6					
					7	+	8	1350			3/15	5 EF-1
EX. RTU	3/15				9	<del>                                      </del>	10		1350			
					11		12			1350		
					13		14	900				
					15		16		900		3/15	MUA-1
					17		18			900		

NOTE:
PROVIDE AS-BUILT PANEL DIRECTORY.

CIRCUIT		LOAD		No		NO.	LOAD			CIRCUIT	
DESIGNATION	N BKR	Α	В	NO.		NO.	Α	В	BKR	DESIGNATION	
AHU-1	1/15	852		1		2	2162		0/00	AC 4	
ERV-1	1/15		100	3	lack	4		2162	2/30	AC-1	
MEETING RM REC.	1/15	200		5	+	6	500		1/15	WORKSTATIONS	
IT RACK	1/15		200	7	+	8		800	1/20	PRINTER	
COFFEE COUNTER	1/15	1000		9	+	10			1/15	SPARE	
SPARE	1/15			11	+	12			1/15	SPARE	
SPARE	1/15			13	+	14			1/15	SPARE	
SPACE				15	+	16			1/15	SPARE	
SPACE				17	+	18				SPACE	
SPACE				19	+	20				SPACE	
SPACE				21	+	22				SPACE	
SPACE				23	$\downarrow$	24				SPACE	

# DRAWING KEY NOTES

- SUPPLY AND INSTALL NEW LIGHT FIXTURES AND SWITCHES USING EXISTING CIRCUITRY PREVIOUSLY USED FOR LIGHTING IN THIS AREA. CONTRACTOR TO EXTEND WIRING AS REQUIRED FOR A COMPLETE INSTALLATION.
- CONTRACTOR TO RELOCATE EXISTING LIGHT FIXTURE AND EMERGENCY REMOTE HEADS TO ACCOMMODATE NEW LAYOUT. EXTEND FEEDERS AS REQUIRED. VERIFY ON SITE EXACT REQUIREMENTS.
- (3) EXISTING MAIN ELECTRICAL SERVICE PANEL LP-A TO REMAIN AS IS. PROVIDE NEW 100A-240V/1P BREAKER TO SERVE NEW PANEL -C. CONTRACTOR TO VERIFY PANEL LP-A PRIOR TO TENDERING AND CONFIRM NEW BREAKERS CAN BE PROVIDED FOR NEW PANEL-C.
- EXISTING MAIN 600V ELECTRICAL SERVICE PANEL LP-X TO REMAIN AS IS. PROVIDE TWO (2) NEW 15A-600V/3P BREAKERS TO SERVE NEW EXHAUST FAN EF-1 AND MAKE UP AIR UNIT MUA-1 ON THE ROOF. CONTRACTOR TO VERIFY EXISTING PANEL LP-X PRIOR TO TENDERING AND CONFIRM NEW BREAKERS CAN BE PROVIDE. REPORT
- NEW 100A -120/240V/1P PANEL -C C/W 100A MAIN BREAKER. PROVIDE NEW 3#3AWG + GND IN 1 1/2" EMT CONDUIT FROM PANEL-A TO PANEL-C. CONFIRM ON SITE EXACT REQUIREMENTS FOR A FULL INSTALLATION.

**GRGURIC** ARCHITECTS INCORPORATED



28 KING STREET EAST, UNIT B STONEY CREEK, ONTARIO, L8G 1J8 Tel. 905-664-8735 Fax. 905-664-8737 Web: www.2gai.com

SEAL

2	ISSUED FOR TENDER	07.03.202
1	ISSUED FOR PERMIT	12.20.202
VО	REVISIONS	DATE

DRAWINGS ARE NOT TO BE SCALED. CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PROJECT; AND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECTS BEFORE PROCEEDING WITH THE WORK.
THE USE OF THIS DRAWING OR PART THEREOF IS FORBIDDEN
WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECTS.

ENGINEERING CONSULTANTS:



ENGINEERING

499 BROOKSIDE DRIVE, OAKVILLE, ONTARIO, L6K 1R4 TEL: (416) 726-1648 | (905) 617-4808 E-MAIL: contact@rm-eng.ca | WEB: rm-eng.ca

PROJECT:

HOLY CROSS PARISH OFFICE & KITCHEN RENOVATION

1883 KING ST. EAST, HAMILTON, ON L8K 1V9

DRAWING TITLE: PARTIAL BASEMENT AND SECOND FLOOR **ELECTRICAL PLANS** 

SCALE: AS NOTED DATE:

SEPT.2021

PROJECT: 20004

DRAWING