OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S, WATERLOO, ON N2L 6N5

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
V	VENT	CO	HORIZONTAL CLEANOUT ABOVE GRADE
SAN	SANITARY ABOVE GRADE OR FLOOR	CO	HORIZONTAL CLEANOUT BELOW GRADE
SAN(B)	SANITARY BELOW GRADE OR FLOOR	GI	GREASE INTERCEPTOR ABOVE GRADE
ST	STORM ABOVE GRADE OR FLOOR	GI(B)	GREASE INTERCEPTOR BELOW GRADE
ST(B)	STORM BELOW GRADE OR FLOOR	D	INDIRECT DRAIN (CONDENSATE, ETC.)
P(ST)	PUMP STORM DISCHARGE	P(GW)	PUMPED GROUND WATER
P(SAN)	PUMP SANITARY DISCHARGE	CO	RUNNING TRAP ABOVE GRADE OR FLOOR
GW	GROUND WATER WEEPING TILE (SOLID PIPE)	CO	RUNNING TRAP BELOW GRADE OR FLOOR
GW(P)	GROUND WATER WEEPING TILE (PERFORATED)	CO	UPTURNED CLEANOUT
CO	CLEANOUT IN RISER	CO	HORIZONTAL CLEANOUT
	BACKWATER VALVE		
RWL	RAIN WATER LEADER	VST	VENT STACK
SST	SANITARY STACK	SS	STAINLESS STEEL
BWV	BACKWATER VALVE	VTR	VENT THROUGH ROOF

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

3 TM0.0 SANITARY AND STORM SYMBOLS AND ABBREVIATIONS (MSD-012.03)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
DRAIN: (REFER TO SPECIFICATION FOR DETAILS AND ADDITIONAL TYPES NOT LISTED BELOW)			
CFRD (Lts)	CONTROL FLOW ROOF DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	CFRD	CONTROL FLOW ROOF DRAIN FROM ABOVE
RD	ROOF DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	RD	ROOF DRAIN FROM ABOVE
FD	FLOOR DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	FD	FLOOR DRAIN FROM ABOVE WITH TRAP
FFD	FUNNEL FLOOR DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	FFD	FUNNEL FLOOR DRAIN FROM ABOVE WITH TRAP
HD	HUB DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	HD	HUB DRAIN FROM ABOVE WITH TRAP
PD	PROMENADE DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	PD	PROMENADE DRAIN FROM ABOVE WITH TRAP
PFD	PLENUM DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	PFD	PLENUM FLOOR DRAIN FROM ABOVE WITH TRAP
PLD	PLANTER DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES	PLD	PLANTER FLOOR DRAIN FROM ABOVE WITH TRAP
SD	CORNER SCUPPER DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES		
SD	WALL SCUPPER DRAIN SIZE AS NOTED REFER TO SPECIFICATION FOR TYPES		
MH	MAINTENANCE HOLE		
MHCB	MAINTENANCE HOLE CATCH BASIN		
CB	CATCH BASIN		
AD	CIRCULAR EXTERIOR AREA DRAIN		
AD	SQUARE EXTERIOR AREA DRAIN		
TD	TRENCH DRAIN		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

2 TM0.0 SANITARY AND STORM SYMBOLS AND ABBREVIATIONS (MSD-012.02)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
6 M-01	DETAIL NUMBER DRAWING NUMBER	12 M-01	SECTION NUMBER DRAWING NUMBER
4	REVISION NUMBER		REVISION BUBBLE
RIO	ROUGH IN ONLY	NO	NORMALLY OPEN
RIC	ROUGH IN AND CONNECT	NC	NORMALLY CLOSED
A/D	ACCESS DOOR	SS	STAINLESS STEEL
	SERVICE CONTINUES	OR	ELBOWS
	REFER TO STANDARD DETAIL DRAWINGS FOR ADDITIONAL REQUIREMENTS OF EQUIPMENT NOTED		TEE
	EQUIPMENT/PIPING/DUCTWORK SHOWN DASHED BELOW		BRANCH OFF BOTTOM OF MAIN
	PIPING INTERSECTS PIPING BELOW		BRANCH OFF TOP OF MAIN
	PIPE DROP OR FROM BELOW		DIRECTION OF FLOW
	PIPE UP OR FROM ABOVE	CTE	CONNECT TO EXISTING
CAP	CAPPED CONNECTION	EX NEW	CONNECT TO EXISTING
TB	THRUST BLOCK		
GM	GAS METER		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

1 TM0.0 GENERAL AND SITE PLAN SYMBOLS AND ABBREVIATIONS (MSD-012.01)

MECHANICAL DRAWING LIST

Sheet Number	Sheet Title
GENERAL	
TM0.0	MECHANICAL DRAWING LIST AND LEGENDS
TM0.1	LEGENDS
TM0.2	DETAILS
TM0.3	DETAILS
DEMOLITION	
TM1.1	ROOF PLAN - MECHANICAL DEMOLITION
MECHANICAL	
TM2.1	FIRST FLOOR PLAN - MECHANICAL NEW
TM2.2	SECOND FLOOR PLAN - MECHANICAL NEW
TM2.3	ROOF PLAN - MECHANICAL NEW
SPECIFICATIONS	
TM3.1	MECHANICAL SPECIFICATIONS
TM3.2	MECHANICAL SPECIFICATIONS

REVISIONS

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NOTES:

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148 Fullarton St, Suite 1400 London Ontario N6A 5P3
519 963 8888 www.smithandandersen.com

KEY PLAN:

CLIENT:
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S,
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N2L 6N5

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
A - DETAIL NO.
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+VG ARCHITECTS
THE VENTIN GROUP LTD

N
CN

MECHANICAL DRAWING LIST AND LEGENDS

TM0.0

DRAWN BY :

CHECKED BY : NO

NOT USED

7 TM0.1

NOT USED

8 TM0.1

5 TM0.1 ELECTRICAL AND CONTROLS SYMBOLS AND ABBREVIATIONS (MSD-012.11)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
W	POWER REQUIREMENT FOR ELECTRIC TRACING	PE	PNEUMATIC-ELECTRIC
	ELECTRIC PIPE TRACING FOR SINGLE LINE PIPES	C	CONTROLLER
	ELECTRIC PIPE TRACING FOR DOUBLE LINE PIPES	TS	TEMPERATURE SENSOR
MCC	MOTOR CONTROL CENTRE	HS	HUMIDITY SENSOR
DS	DISCONNECT SWITCH		AIR FLOW MONITORING STATION
	SWITCH (MANUAL STARTER)	SP	STATIC
HOA	HAND-OFF-AUTO	VFD	VARIABLE FREQUENCY DRIVE
FZ	LOW TEMPERATURE THERMOSTAT	CO	CARBON MONOXIDE SENSOR
FS	HIGH TEMPERATURE THERMOSTAT	RS	REFRIGERANT SENSOR
T	ELECTRIC/LOW VOLTAGE THERMOSTAT/SENSOR	CO2	CARBON DIOXIDE SENSOR
T	PNEUMATIC/DIGITAL THERMOSTAT	NO2	NITROGEN OXIDE SENSOR
Fs	FLOW SWITCH	AFS	AIR FLOW STATION
S	SPEED SWITCH	PS	PRESSURE SENSOR
T	THERMOSTAT WITH LOCKABLE TAMPER GUARD	BTU	BTU METER

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

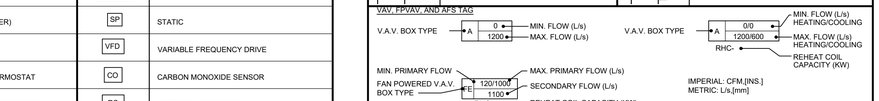
6 TM0.1 MECHANICAL EQUIPMENT NOMENCLATURE CONVENTION (MSD-012.12)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AC	SPLIT SYSTEM AIR CONDITIONING UNIT (REFER TO CU BELOW)	MUA	MAKEUP AIR UNIT
		P	PUMP (GENERAL)
ACH	AIR CURTAIN	P-HTG	HEATING WATER PUMP,
AFS	AIR FLOW STATION	P-CLG	COOLING WATER PUMP,
AHU	AIR HANDLING UNIT	P-FSP/FIRE	FIRE STANDPIPE PUMP/FIRE PUMP
ACCH	AIR COOLED CHILLER	P-DW	DOMESTIC WATER PUMP
SL	SILENCERS (TO BE READ IN CONJUNCTION WITH ASSOCIATED AIR HANDLING UNIT)	P-SAN	SANITARY PUMP
		P-STM	STORM PUMP
B	BOILER		
CH	CHILLER	P-DHWR	DOMESTIC HOT WATER RECIRC PUMP
CRU	COMPUTER ROOM AIR CONDITIONING UNIT	P-FO	FUEL OIL PUMP
CT	COOLING TOWER	P-CHEM	CHEMICAL FEED PUMP
CUH	CABINET UNIT HEATER	P-CHW	CHILLED WATER PUMP,
CU	CONDENSING UNIT	P-CDS	CONDENSER WATER PUMP,
DHWT	DOMESTIC HOT WATER TANK	RF	RETURN FAN
DHWH	DOMESTIC HOT WATER HEATER	RP	RADIANT PANEL
EF	EXHAUST FAN	RTU	ROOF TOP UNIT
ET	EXPANSION TANK	SCAC	SELF CONTAINED AIR CONDITIONING UNIT
EV	EVAPORATOR	SF	SUPPLY
ERW	ENTHALPY WHEEL	TF	TRANSFER FAN
FC	FLUID COOLER	UH	UNIT HEATER
FCU	FAN COIL UNIT	VHP	VERTICAL HEAT PUMP
FFH	FORCE FLOW HEATER	VFC	VERTICAL FAN COIL
HE	HEAT EXCHANGER		
HHP	HORIZONTAL HEAT PUMP		
HU	HUMIDIFIER UNIT		

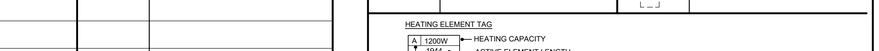
NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

3 TM0.1 AIR HANDLING SYMBOLS (MSD-012.09)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
F/D	FIRE DAMPER	SM/D	SMOKE DAMPER
M.O.D.	MOTOR OPERATED DAMPER	P.S.D.	POSITIVE SEAL DAMPER
M.D.	MANUAL DAMPER	B.D.D.	GRAVITY OR BACKDRAFT DAMPER
B.D.	BALANCING DAMPER	R.B.D.	REMOTE OPERATED BALANCING DAMPER
C.S.F/D	COMBINATION SMOKE AND FIRE DAMPER		VOLUME EXTRACTOR



	V.A.V. BOX (VARIABLE AIR VOLUME)		FAN POWERED BOX C/W RETURN AIR SILENCER OR ACOUSTICALLY LINED RETURN AIR
	V.A.V. BOX WITH ATTENTUATOR		FAN POWERED BOX C/W RETURN AIR SILENCER OR ACOUSTICALLY LINED RETURN AIR WITH REHEAT COIL
	V.A.V. BOX WITH REHEAT COIL		INDUCTION V.A.V. BOX
	V.A.V. BOX WITH REHEAT COIL AND ATTENTUATOR		PRESSURE INDEPENDENT AIR VALVE (LAB)
			TERMINAL UNIT (SEE NOTE 2)

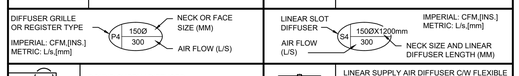


UH-x	HORIZONTAL UNIT HEATER		DUCT COIL
UH-x	DOWN BLAST UNIT HEATER	R-X	RADIATION HEATING RISER NUMBERS (S=SUPPLY AND R=RETURN)
	RADIANT HEATING PANEL		WALL FIN ELEMENT IN CONTINUOUS ENCLOSURE

NOTE: 1. - NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS
NOTE: 2. - SYMBOLS ARE DIAGRAMMATIC IN NATURE, REFER TO SPECIFICATION/SCHEDULES FOR EXACT DIMENSIONS/CLEARANCES

4 TM0.1 AIR HANDLING SYMBOLS (MSD-012.10)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY DUCT UP OR FROM ABOVE		ACOUSTICALLY LINED TRANSFER AIR DUCT
	SUPPLY DUCT DOWN OR FROM BELOW		SILENCER
	RETURN OR EXHAUST DUCT UP OR FROM ABOVE	CTS	CROSSTALK SILENCER
	RETURN OR EXHAUST DUCT DOWN OR FROM BELOW		DUCT WITH MINIMUM CLEARANCE FIRE RATED ENCLOSURE
	ROUND DUCT UP OR FROM ABOVE	F/D	DUCT WITH SLEEVE, INSULATION AND DAMPER
	ROUND DUCT DOWN OR FROM BELOW	CAP	CAPPED CONNECTION
	ACOUSTIC LINED DUCT		
	FLEXIBLE CONNECTION	RISE UP	RISE IN DUCT
	SQUARE ELBOW DUCT WITH TURNING VANE	SLOPE DN	DROP IN DUCT
	RADIUS ELBOW WITH TURNING VANES	SB	SOUND BAFFLE
	AXIAL FAN/INLINE FAN MIXED FLOW OR CENTRIFUGAL		PROPELLER FAN WITH PROTECTIVE SCREEN



	ROUND SUPPLY DIFFUSER		LINEAR SUPPLY AIR DIFFUSER C/W FLEXIBLE DUCT
	DUCTED RETURN OR EXHAUST REGISTER OR GRILLE		LIGHT TROFFER DIFFUSER TOP INLET C/W FLEXIBLE DUCT
	SQUARE OR RECTANGULAR DIFFUSER		LIGHT TROFFER DIFFUSER SIDE INLET C/W FLEXIBLE DUCT
	RETURN OR EXHAUST GRILLE		DUCT MOUNTED SUPPLY OR RETURN GRILLE
	ROUND RETURN OR EXHAUST GRILLE		LINEAR SUPPLY OR RETURN GRILLE
	SQUARE DIFFUSER		
	DIFFUSERS WITH BLANK-OFF PORTION (QTY SHOWN)		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

1 TM0.1 PLUMBING SYMBOLS AND ABBREVIATIONS (MSD-012.04)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
FIXTURES:	REFER TO SPECIFICATION FOR DETAILS AND ADDITIONAL TYPES NOT LISTED BELOW, SYMBOLS ON THIS LEGEND ARE DIAGRAMMATIC IN NATURE, REFER TO SPECIFICATIONS AND OUTLINES OF SPECIFIC FIXTURES BOLDED ON FLOORS PLANS.		
WC-	WATER CLOSET	BT	BATHTUB
U-	URINAL	SH-	SHOWER
L-	COUNTERTOP LAVATORY	BF- DF-	BOTTLE FILLER DRINKING FOUNTAIN
L-	WALL HUNG LAVATORY	EW	EMERGENCY EYEWASH
S-	SINGLE COMPARTMENT SINK	EW/SH	EMERGENCY EYEWASH/SHOWER
JS-	JANITOR SINK	ESH	EMERGENCY SHOWER
S-	DOUBLE COMPARTMENT SINK	FT	FLUSH TANK
NP	NON-POTABLE (IF SUFFIX IS APPENDED TO A DOMESTIC WATER SYSTEM, I.E. DCW-NP)	H	HIGH TEMPERATURE (IF PREFIX IS APPENDED TO A DOMESTIC HOT WATER SYSTEM, I.E. HDHW)
	DOMESTIC COLD WATER (DOM. COLD WATER) (DCW)	RRW	RECLAIM RAIN WATER
(B)	BURIED DOMESTIC COLD WATER (DOM. COLD WATER) (DCW)	G	NATURAL GAS LINE
	DOMESTIC HOT WATER (DOM. HOT WATER) (DHW)	GV	NATURAL GAS VENT LINE
	DOMESTIC HOT WATER RECIRCULATION (DOM. HOT WATER RECIRC.) (DHWR)	HB	HOSE BIBB
T	TEMPERED WATER	WH (NFWH)	WALL HYDRANT (OR NON FREEZE WALL HYDRANT)
WM	WATER METER	GH (NFGH)	GROUND HYDRANT (OR NON FREEZE GROUND HYDRANT)
	TEMPERED MIXING VALVE ASSEMBLY	NFPH	NON FREEZE POST HYDRANT
	TEMPERED MIXING VALVE CABINET	H/C HB	HOT AND COLD HOSE BIBB

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

2 TM0.1 FIRE PROTECTION (MSD-012.07)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
F	FIRE LINE		PENDANT/SEMI-RECESSED SPRINKLER HEAD
SP	WET SPRINKLER LINE		UPRIGHT SPRINKLER HEAD
DSP	DRY SPRINKLER LINE		CONCEALED SPRINKLER HEAD
F(WET)	WET FIRE LINE	NF	NON-FREEZE SPRINKLER HEAD
F(DRY)	DRY FIRE LINE	HT	HIGH TEMPERATURE SPRINKLER HEAD
SV	SUPERVISED VALVE		SIDEWALL SPRINKLER HEAD
FV	FIRE VALVE	W	WINDOW SPRINKLER HEAD
FSP	FIRE STANDPIPE		
FS	FLOW SWITCH		
	DELUGE SYSTEM VALVE		
	WET PIPE VALVE		
	DRY SYSTEM VALVE		
P	PREACTION SYSTEM VALVE		
	FIRE HYDRANT		
FG	FIRE GONG		
	FIRE DEPARTMENT CONNECTION		
	FIRE PUMP TEST HEADER		
FHC-x	FIRE HOSE CABINET AND TYPE	FVC-x	FIRE VALVE CABINET AND TYPE
SVC-x	SPRINKLER SHUT-OFF VALVE CABINET AND TYPE		
FE-x	FIRE EXTINGUISHER AND TYPE		
FEC-x	FIRE EXTINGUISHER CABINET AND TYPE	FR	FIRE HOSE-LESS CABINET

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

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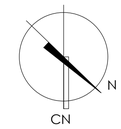

LEGENDS

TM0.1

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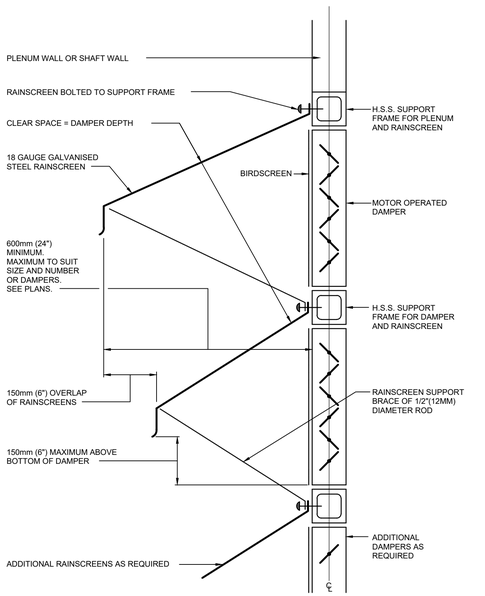
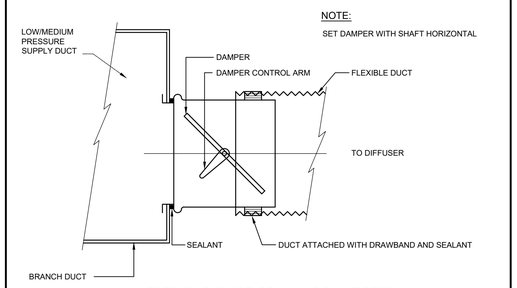
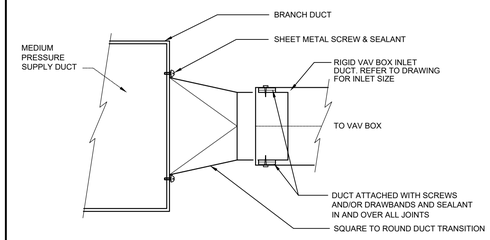


8 TM0.2 RAINSCREEN IN SHAFT OR AIRWELL (MSD-840.08)

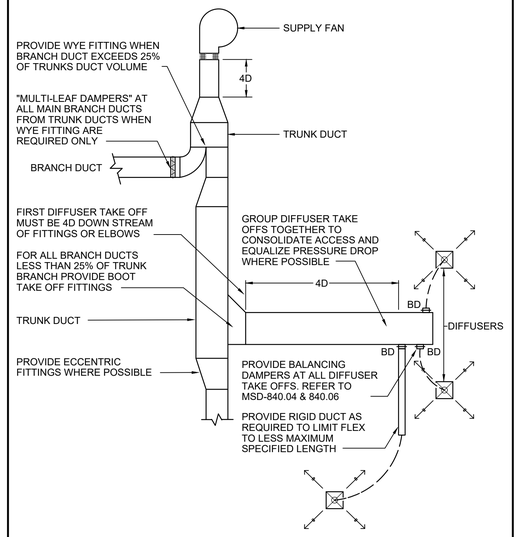


FLEXIBLE DUCT SPIN-IN CONNECTION



VAV BOX INLET

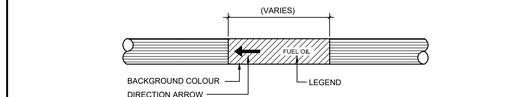
5 TM0.2 FLEXIBLE DUCT CONNECTIONS (MSD-840.06)



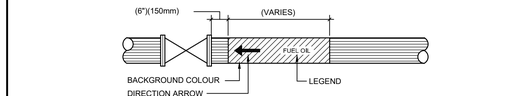
DEFINITIONS

TRUNK DUCT: - SERVING TWO OR MORE MAIN BRANCH DUCTS
MAIN BRANCH DUCT: - SETRVING TWO OR MORE BRANCH DUCT
BRANCH DUCTS: - SERVING TWO MORE DIFFUSERS
OUTLET DUCTS: - SERVING ONE DIFFUSER

3 TM0.2 BALANCING DAMPERS (MSD-840.03)



IDENTIFICATION FOR STRAIGHT PIPE RUNS



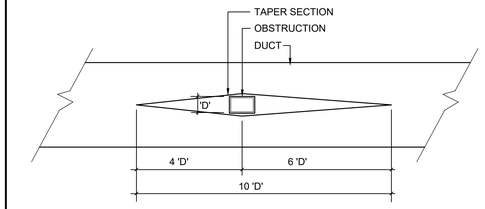
IDENTIFICATION AT VALVES AND EQUIPMENT

EXACT COLOURS SHALL CONFORM TO INDUSTRY STANDARD AS OUTLINES IN SPECIFICATION

MATERIAL CLASSIFICATION	BACKGROUND COLOUR
HAZARDOUS	YELLOW, 505-101
INHERENTLY LOW HAZARD	GREEN, 505-107
FIRE PROTECTION	RED, 509-102
MATERIAL CLASSIFICATION	LEGEND COLOUR
HAZARDOUS	BLACK, 512-101
INHERENTLY LOW HAZARD	WHITE, 513-101
FIRE PROTECTION	WHITE, 513-101

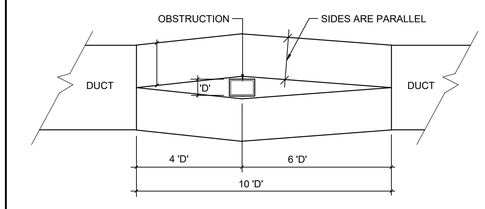
1 TM0.2 PIPE IDENTIFICATION (MSD-058.01)

8 TM0.2 NOT USED



WHERE 'D' = SIZE OF OBSTRUCTION + 25mm (1") MINIMUM CLEARANCE

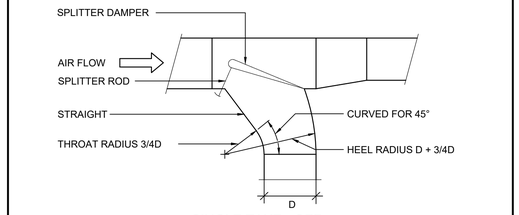
DUCT OBSTRUCTION (TO BE USED ONLY WHERE APPROVED)



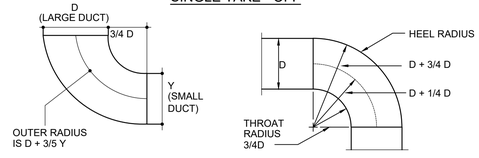
WHERE 'D' = SIZE OF OBSTRUCTION + 25mm (1") MINIMUM CLEARANCE

DUCT OBSTRUCTION

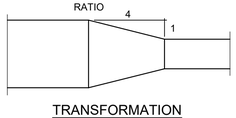
6 TM0.2 DUCT OBSTRUCTIONS (MSD-840.07)



SINGLE TAKE - OFF

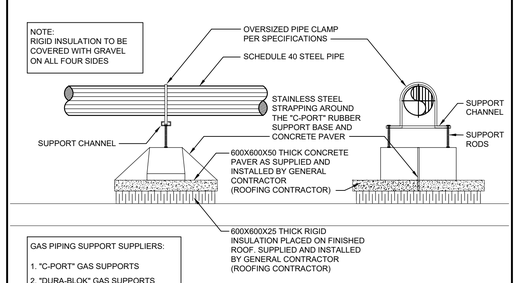


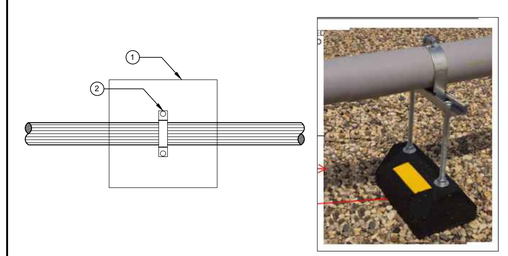
FULL RADIUS ELBOW FOR HORIZONTAL)



TRANSFORMATION

4 TM0.2 DUCT DETAILS (MSD-840.05)





2 TM0.2 GAS PIPING ON ROOF (MSD-350.02)

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Smith + Andersen
148 Fullarton St, Suite 1400 London Ontario N6A 5P3
519 963 8888 www.smithandandersen.com

KEY PLAN:

CLIENT:
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S,
WATERLOO, ON
N2L 6N5

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
A - DETAIL NO.
B - DETAIL NO. ORIGIN

+VG ARCHITECTS
THE VENTIN GROUP LTD

N
CN

DETAILS

TM0.2

DRAWN BY :

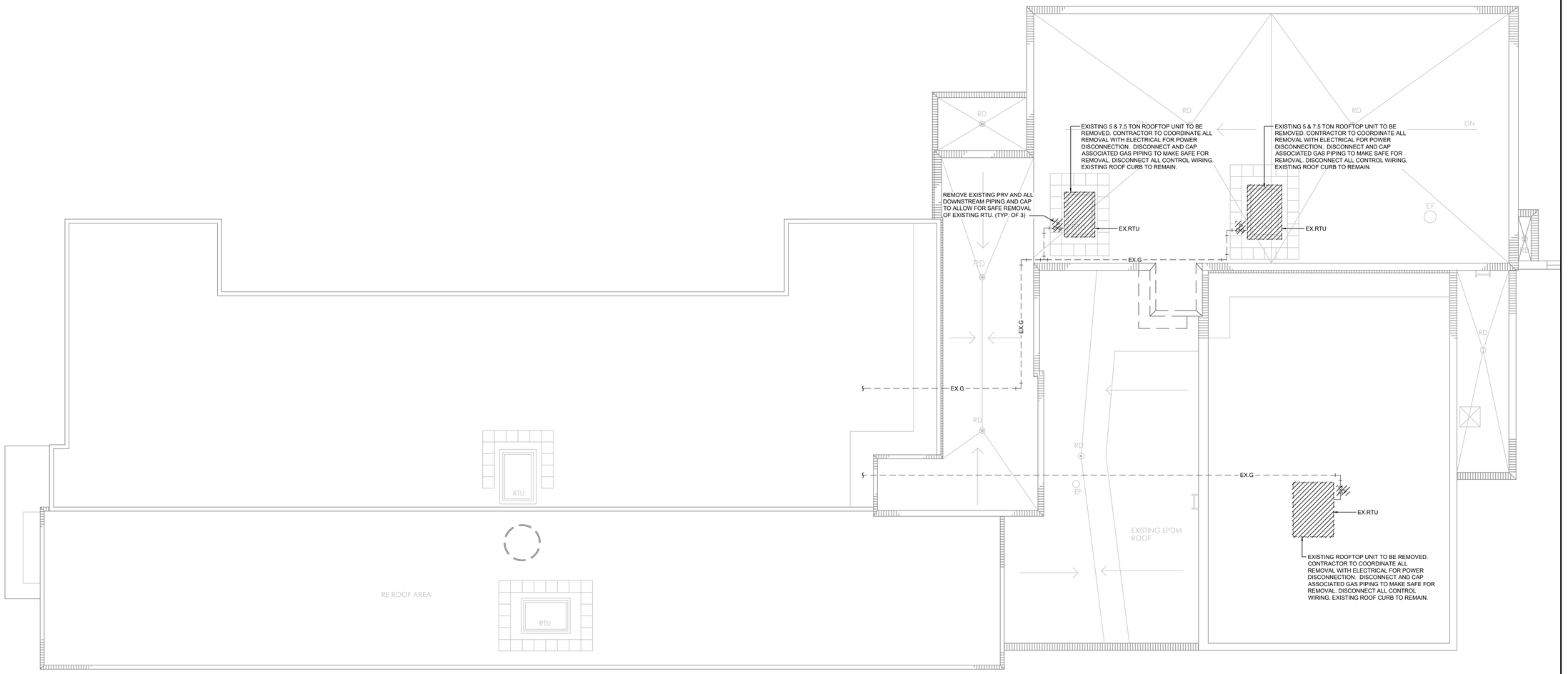
CHECKED BY : NO

DEMOLITION NOTES

1. DEMOLITION DRAWINGS INDICATE VISIBLE AND KNOWN DEVICES AND/OR SERVICES ANTICIPATED TO IMPACT THE SCOPE OF WORK AND ARE BASED ON INFORMATION AVAILABLE FROM OBSERVATION AND EXISTING DOCUMENTATION WHERE AVAILABLE. DEMOLITION DRAWINGS MAY NOT ACCOUNT FOR ALL SMALL OR MINOR SERVICES WITHIN THE AREA OF RENOVATION THAT REQUIRE REMOVAL OR RELOCATION. INCLUDE FOR ALL WORK REQUIRED TO MEET THE INTENDED FINAL OUTCOME.
2. PRIOR TO SUBMITTING THE BID, COMPLETE A DETAILED SITE SURVEY TO ACCOUNT FOR ALL COSTS ASSOCIATED WITH THE DEMOLITION SCOPE OF WORK FOR ALL EXISTING MECHANICAL SERVICES. A MANDATORY SITE VISIT IS SCHEDULED TO PERMIT INVESTIGATION OF EXISTING CONDITIONS PRIOR TO BID SUBMISSION. EXISTING DESIGN DOCUMENTS MAY BE AVAILABLE FOR REVIEW DURING THE MANDATORY SITE VISIT. EXISTING DESIGN DOCUMENTS REPRESENT INFORMATION THAT IS AVAILABLE AND MAY NOT COVER THE ENTIRE SCOPE OF WORK AREA OR SERVICES, DOCUMENT EXISTING CONDITIONS AS REQUIRED:
3. EXISTING MECHANICAL SERVICES INCLUDE, BUT ARE NOT LIMITED TO MATERIALS RELATED TO HVAC SYSTEMS, PLUMBING SYSTEMS, SPECIALTY PIPE SYSTEMS, BUILDING AUTOMATION SYSTEMS, LIFE SAFETY SYSTEMS (I.E. FIRE PROTECTION), ETC. AND OTHER SIMILAR BUILDING SERVICES.
4. REVIEW THE IMPACT OF EXISTING MECHANICAL SERVICES WITHIN AREAS AFFECTED BY THE PROPOSED SCOPE OF NEW WORK.
5. RECORD ALL EXISTING MECHANICAL SERVICES, DEVICES, ETC. NOT IDENTIFIED ON DEMOLITION DRAWINGS THAT ARE REQUIRED TO BE RETAINED AND/OR RELOCATED TO SUIT NEW WORK.
6. WHERE EXISTING MECHANICAL SERVICES TO REMAIN ARE LOCATED WITHIN OR ADJACENT TO RENOVATION AREAS, MAINTAIN OPERATION OF THESE SERVICES AND RELOCATE SERVICE AS REQUIRED TO SUIT NEW WORK. COORDINATE SERVICE DISRUPTION.
7. DISPOSE OF ALL MATERIALS NOT INDICATED TO REMAIN OR TO BE RETURNED TO OWNER/LANDLORD. SUBMIT THE DOCUMENTED PROCESS FOR THE SAFE DISPOSAL OF DEMOLISHED MATERIALS PRESENTING AN ENVIRONMENTAL RISK. FOLLOW ALL REGULATIONS FOR THE SAFE DISPOSAL OF HAZARDOUS MATERIALS.
8. COORDINATE ANY DEMOLITION OR NEW WORK ASSOCIATED WITH EXISTING MECHANICAL SERVICES REQUIRING A SERVICE DISRUPTION WITH THE OWNER/LANDLORD. PREPARE A DETAILED METHOD OF PROCEDURE TO COMPLETE THE REQUIRED SCOPE OF WORK AND DETERMINE THE START TIME AND DURATION OF THE DISRUPTION. PERFORM ALL SERVICE DISRUPTION WORK OUTSIDE OF NORMAL BUSINESS HOURS AND INCLUDE FOR ALL SPECIAL LABOUR RATES REQUIRED TO COMPLETE THE WORK.
9. PROTECT ALL EXISTING MATERIALS TO REMAIN OR TO BE RETURNED TO OWNER/LANDLORD TO PERMIT THE MECHANICAL DEMOLITION..
10. DEMOLISH THE EXISTING AREAS TO THE EXTENT INDICATED AND AS REQUIRED TO PERMIT THE NEW WORK.
11. MAINTAIN OPERATION OF ALL EXISTING LIFE SAFETY EQUIPMENT, INCLUDING ALL SPRINKLERS, FIRE HOSES, VALVES, AND FIRE EXTINGUISHERS. MODIFY THE EXISTING SPRINKLER HEADS TO SUIT OPEN CEILING CONDITIONS (I.E. PROVIDE UPRIGHT HEADS) TO ACHIEVE TEMPORARY SPRINKLER COVERAGE DURING VACANT/CONSTRUCTION PERIOD. PROVIDE CONSTRUCTION FIRE PROTECTION REQUIREMENTS IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION.
12. PRIOR TO DEMOLITION, PROVIDE AN AIR BALANCING REPORT TO DEMONSTRATE EXISTING SYSTEM OPERATION TO OWNER, CONSULTANTS, AND CONTRACTORS FOR REVIEW.
13. PRIOR TO COMMENCEMENT OF WORK, ORDERING OF EQUIPMENT, AND/OR FABRICATING MATERIALS, VERIFY THE EXISTING CONDITIONS TO CONFIRM THAT THE NEW EQUIPMENT AND SERVICES CAN BE INSTALLED AS GENERALLY INDICATED ON DRAWINGS. NOTIFY THE CONSULTANT REGARDING SIGNIFICANT DISCREPANCIES OR INTERFERENCES. PROVIDE INTERFERENCE DRAWINGS AS REQUIRED.
14. PROVIDE NEW CEILING T-BAR OR MODIFY THE T-BAR WHEREVER REQUIRED TO ACCOMMODATE NEW OR RELOCATED GRILLES AND DIFFUSERS.
15. WHERE DUCT/PIPE IS REMOVED THROUGH FIRE-RATED WALL OR FLOOR ASSEMBLIES, PROVIDE ULC LISTED FIRE STOPPING SYSTEMS AS SPECIFIED. INSTALL ALL FIRE STOPPING SYSTEMS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
16. WHERE EXISTING DUCT/PIPE INSULATION IS DAMAGED DURING DEMOLITION OR MINOR DAMAGE EXISTS FOR THE SERVICES TO REMAIN, REPLACE OR REPAIR TO MAINTAIN INTEGRITY OF THE EXISTING INSULATION. WHERE EXTENSIVE DAMAGE TO INSULATION IS AN EXISTING CONDITION, PRIOR TO DEMOLITION, DOCUMENT AND SUBMIT A DETAILED RECORD OF THE CONDITION FOR REVIEW BY THE CONSULTANT AND OWNER/LANDLORD.
17. WHERE MECHANICAL EQUIPMENT (I.E. A/C UNIT, ELECTRIC WATER HEATER, FAN, DISHWASHER) IS REMOVED, COORDINATE PROMPTLY WITH THE GENERAL CONTRACTOR AND/OR THE ELECTRICAL CONTRACTOR TO DISCONNECT AND MAKE SAFE THE ASSOCIATED POWER SUPPLY. ENSURE THAT NO ABANDONED LIVE POWER WIRING IS LEFT UNPROTECTED AT ANY TIME. PLUMBING SERVICES FOR THE FIXTURES SHOWN FOR DEMOLITION TO BE CUT AND CAPPED BACK TO THE MAINS. BRANCHES NOT TO BE LEFT INSIDE DRYWALLS OR CEILINGS.

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR SPECIFIED THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE. DETERMINE THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS BASED ON SITE CONDITIONS. REVIEW ALL REVISIONS WITH THE CONSULTANT.
2. READ FLOOR PLANS IN CONJUNCTION WITH SCHEMATICS. ASSUME INFORMATION SHOWN ON FLOOR PLANS TO BE APPLICABLE TO THE RELATED SYSTEM SCHEMATIC AND VICE-VERSA TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
3. VERIFY STRUCTURAL INTEGRITY OF ALL TEMPORARY AND PERMANENT OPENINGS. PROVIDE ADDITIONAL FRAMING TO ENSURE STRUCTURAL INTEGRITY AS REQUIRED.
4. REFER TO THE STANDARD DETAILS AND DETAIL SHEETS FOR ADDITIONAL INFORMATION.
5. THIS CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY INVESTIGATE AND UNDERSTAND THE EXISTING CONDITIONS AND THEIR RELATION TO THE DESIGN DRAWINGS/DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO THE CONTRACTOR FOR ANY HINDRANCES TO THE MECHANICAL INSTALLATION FROM SITE CONDITIONS WHICH EXISTED PRIOR TO TENDER SUBMISSION. AS SUCH AND WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE INTERFERENCE DRAWINGS AND SHALL SUBMIT THEM TO THE CONSULTANT FOR REVIEW.
6. THIS DRAWINGS DOES NOT SHOW ALL HIDDEN OR CONCEALED PIPING, DUCTS, PLUMBING, VENT PIPING AND EQUIPMENT TO BE REMOVED.
7. THE EXISTING SERVICES SHOWN ON THIS DRAWING SHEET ARE PROVIDED FOR INFORMATION PURPOSES AND TO ILLUSTRATE GENERAL LAYOUT. THEY MAY NOT BE 100% ACCURATE. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK LOCATION AND ROUTES OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS.



1 / TM1.1 ROOF PLAN - MECHANICAL DEMOLITION
SCALE: 1:100

REVISIONS

NO.	DATE	PARTICULAR
1	2026-03-17	ISSUED FOR PROGRESS REVIEW
2	2026-03-25	ISSUED FOR PROGRESS REVIEW
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ROOF PLAN - MECHANICAL DEMOLITION

TM1.1

DRAWN BY :
CHECKED BY : NO

DRAWING NOTES:

1. INSTALL SINGLE WALL BOXES 'WB-1' IN LOCATIONS AS SHOWN. WALL BOX SHALL HAVE 50% FREE AREA AND BE SLOPED TO BUILDING EXTERIOR FOR CONDENSATE RUNOFF, C/W NEOPRENE BACKDRAFT DAMPERS WITH MAGNET SET FOR (0.05 IN WC). WALL BOX SHALL BE BY AIRVENT OR REVERSOMATIC. FINISHING SHALL BE DETERMINED BY ARCHITECT DURING SHOP DRAWING REVIEW.
2. PROVIDE PRESSURE ACTIVATED TRAP PRIMER FOR ALL FLOOR DRAINS.
3. 19Ø DHW AND DCW, 38Ø DRAIN DOWN TO SERVE 'L-1' AND 25Ø DCW TO SERVE 'WC-1'. PROVIDE ISOLATION VALVES AT BRANCH TO ISOLATE BRANCH FROM MAIN. PROVIDE WATER HAMMER ARRESTOR AT END OF BRANCH LINE SERVING WATER CLOSETS.

PLUMBING SIZE				
PLUMBING FIXTURE	DCW	DHW	VENT	SANITARY
WC-1	25Ø	-	38Ø	100Ø
L-1	12Ø	12Ø	32Ø	38Ø
FD	-	-	38Ø	100Ø

PLUMBING AND DRAINAGE NOTES:

1. ALL SANITARY DRAINAGE BELOW GRADE SHALL BE MINIMUM 100MM UNLESS INDICATED OTHERWISE.
2. ALL FLOOR DRAINS SHALL BE COMPLETE WITH TRAPS AND TRAP PRIMERS.
3. ALL PIPING SHALL BE OVERHEAD, TIGHT TO UNDERSIDE OF THE STRUCTURE WITH SUFFICIENT ROOM FOR INSULATION UNLESS INDICATED OTHERWISE.
4. CLEANOUTS SHALL BE INSTALLED IN ACCORDANCE WITH ONTARIO BUILDING CODE AND LOCAL AHJ REQUIREMENTS.
5. FOR SLAB ON GRADE FLOORS, ALLOW FOR TRENCHING AND BACKFILLING OF ALL BELOW GRADE PLUMBING.
6. INSTALL NEW VENT PIPING AS PER ONTARIO BUILDING CODE AND LOCAL AHJ REQUIREMENTS.
7. THE EXISTING BASE BUILDING UNDER GROUND SANITARY SYSTEM SHALL BE SCOPED UNDER THIS CONTRACTOR WITH A CAMERA TO DETERMINE THE EXACT LOCATION. DETERMINE THE MAIN SANITARY PIPING INVERTS AND DETERMINE LOCATIONS WITH THE GENERAL CONTRACTOR TO DETERMINE TRENCHING LOCATIONS.

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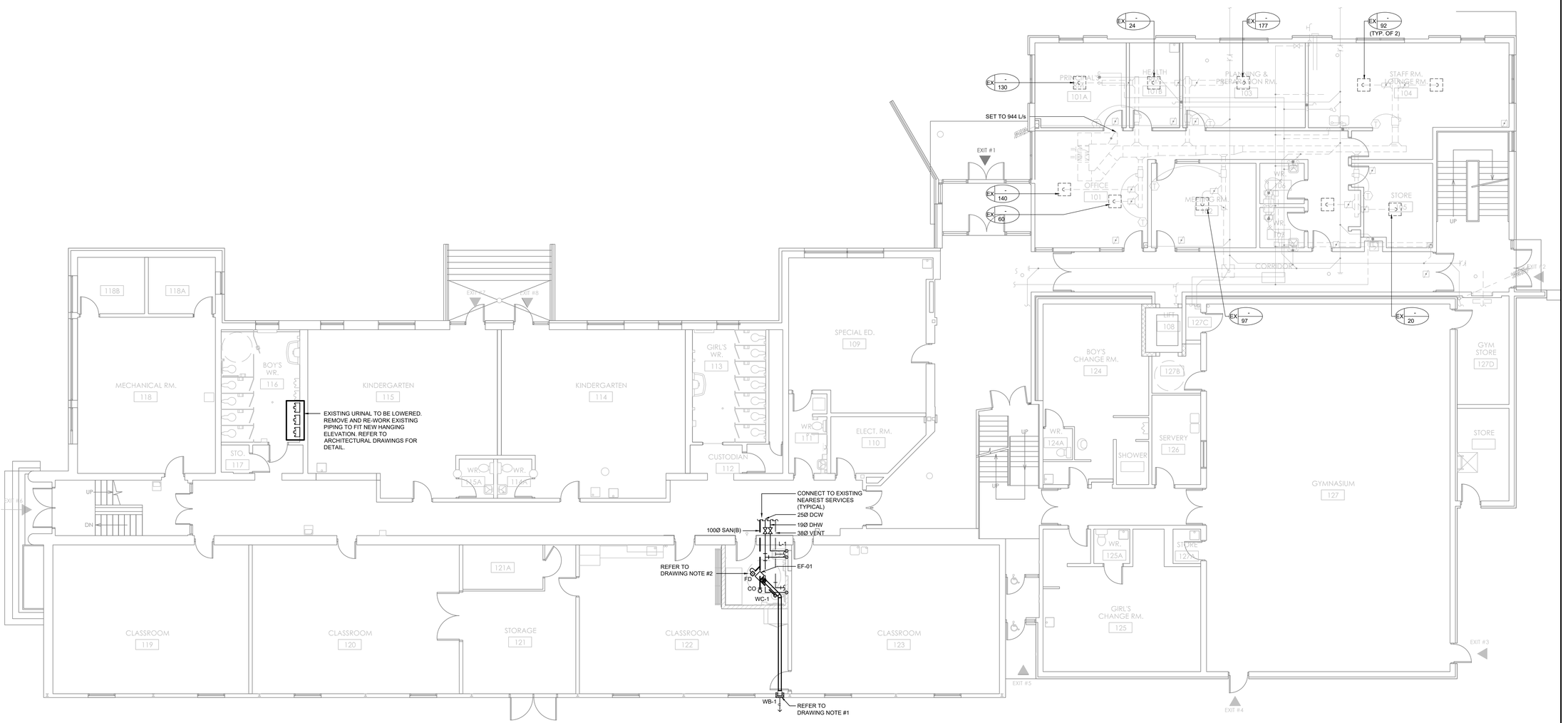

1 / TM2.1 FIRST FLOOR PLAN - MECHANICAL NEW
SCALE: 1:100

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FIRST FLOOR PLAN - MECHANICAL NEW

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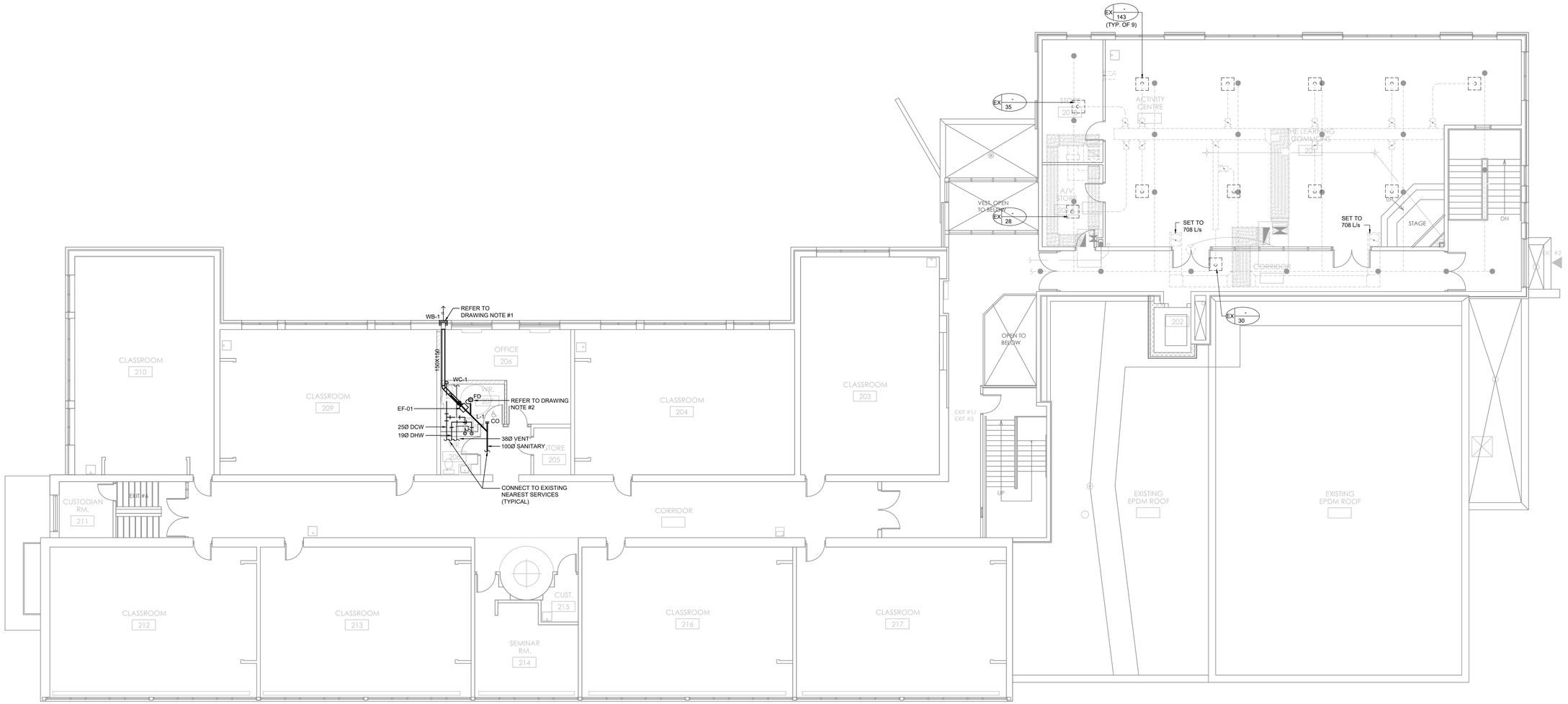

1 / TM2.2 SECOND FLOOR PLAN - MECHANICAL NEW
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SECOND FLOOR PLAN - MECHANICAL NEW

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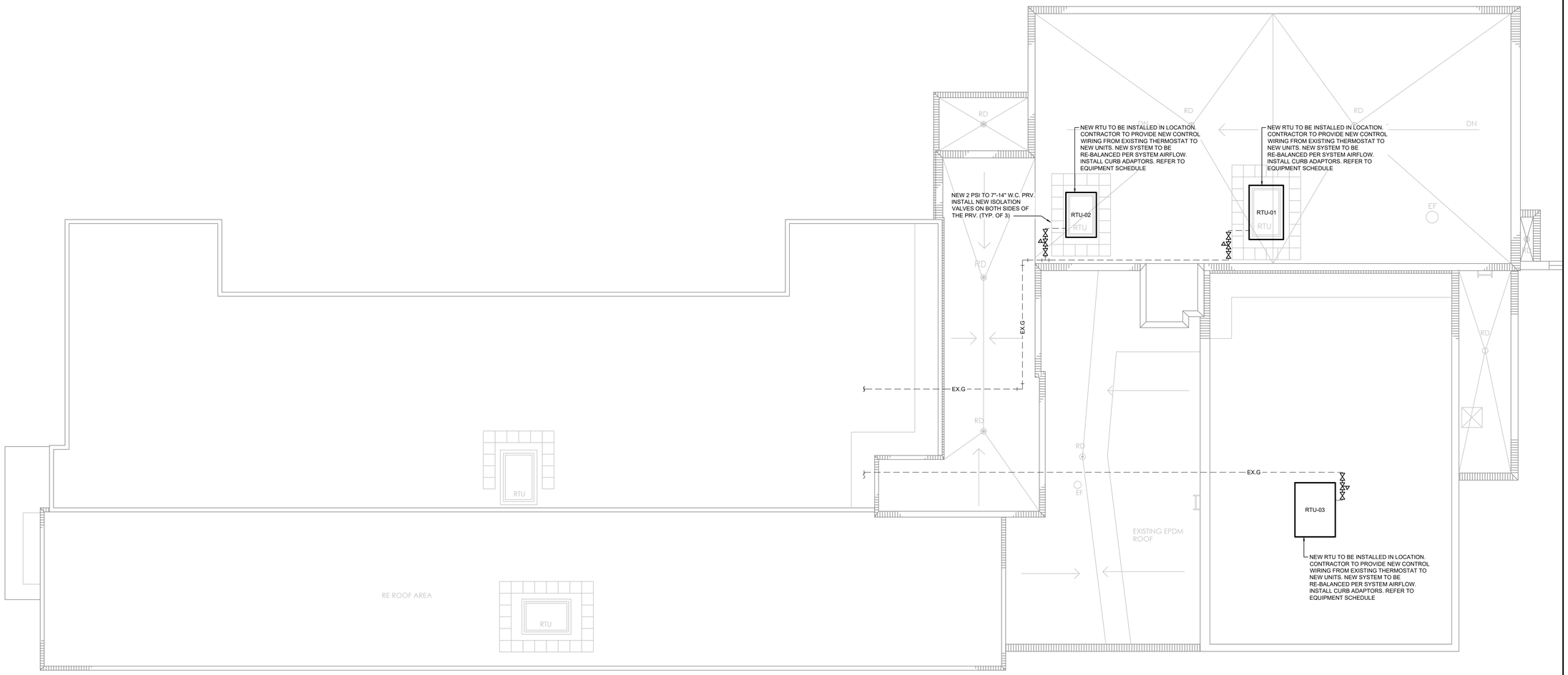

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ROOF PLAN - MECHANICAL NEW

TM2.3

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ROOFTOP AIR HANDLING UNIT SCHEDULE

TAG	GENERAL				MANUFACTURER		COOLING			HEATING				SUPPLY FAN		RETURN FAN		ELECTRICAL DATA		NOTES
	LOCATION	SERVICE	AIRFLOW (CFM)	%FRESH AIR	MAKE	MODEL	CAPACITY			TYPE	CAPACITY		INLET PRESSURE (IN.WC.)	SUPPLY AIR (CFM)	ESP (IN.WG)	RETURN AIR (CFM)	ESP (IN.WG)	V / PH/Hz	MCA	
							NOMINAL (TONS)	GROSS (MBH)	SENSIBLE (MBH)		INPUT (MBH)	OUTPUT (MBH)								
RTU-01	ROOF	LEVEL 2 - INTEGRATE LEARNING CENTER	3000	33	YORK	KYG08F2C3AA5G111A1	7.5	100.3	70.4	NATURAL GAS	220	176	7 - 14	3000	1	N/A	N/A	230/3/60	46.6	1,2,3,4,5,6,7,8,9
RTU-02	ROOF	LEVEL 1 - MULTIPLE ROOMS	2000	33	YORK	KYG06F2C1AA5G111A1	5	64.6	45.8	NATURAL GAS	145	116	7 - 14	2000	0.5	N/A	N/A	230/3/60	30.5	1,2,3,4,5,6,7,8,9
RTU-03	ROOF	GYM	4000	100	ENGINEERED AIR	DJS40/O/MV	UNIT IS HEATING ONLY			NATURAL GAS	325	263	7 - 14	4000	0.5	N/A	N/A	208/3/60	16.9	1,2,3,4,5,6,7,8,9,10

NOTES:
1) UNIT SHALL BE PROVIDED WITH STAINLESS STEEL GAS FIRED HEAT EXCHANGER.
2) UNIT DISCONNECT TO BE FIELD SUPPLIED.
3) EACH UNIT SHALL BE IN CONFORMANCE WITH ASHRAE 90.1 EFFICIENCY.
4) INSTALL CURB ADAPTORS TO MATE WITH EXISTING CURBS.
5) EACH UNIT FAN TO BE COMPLETE WITH INTERNAL VIBRATION ISOLATION.
6) UNIT SHALL BE PROVIDED COMPLETE WITH DRY BULB ECONOMIZER & BAROMETRIC RELIEF DAMPER.
7) UNIT SHALL HAVE SINGLE POINT POWER CONNECTION.
8) UNIT SHALL BE COMPLETE WITH A2L REFRIGERANT.
9) UNIT CONTROLS SHALL BE FACTORY MOUNTED AND WIRED.
10) PROVIDE VFD FOR RTU-03

1 TM3.1 ROOFTOP AIR HANDLING UNIT SCHEDULE

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE		TRIM		REMARKS
	MANUFACTURER	MODEL	MANUFACTURER	MODEL	
FD	WATTS	FD-100-EG-4	WATTS - TRAP SEAL PRIMER	MS-810	ROUND FLOOR DRAIN, STAINLESS STEEL STRAINER, HEAVY DUTY CAST, EXPOY COATED, 4" ANCHOR FLANGE AND MEMBRANCE CLAMP C/W TRAP PRIMER.
L-1	KOHLER	K-2035	KOHLER	K-13463/K-13480-A	WHITE BARRIER FREE (ADA) OVAL WALL MOUNT LAVATORY WITH OVERFLOW, SINK SHROUD AND CARRIER. C/W P-TRAP AND VALVED BRADIED SUPPLY HOSES. REFER TO MECHANICAL SPECIFICATIONS FOR P-TRAP AND SUPPLY HOSES. FAUCET: TOUCHLESS HARD-WIRED FAUCE, SOLID CAST BRASS BODY C/W INTEGRAL PROXIMITY SENSOR, VANDAL-RESISTANT 0.5 GPM FLOW CONTROL AERATOR, CONTROL MODULE, SOLENOID, STRAINER AND THERMAL MIXING VALVE. PROVIDE C/W FLEXIBLE CONDUIT FROM CONTROL MODULE TO FAUCET AND SOLENOID. EACH UNIT SHALL BE SUPPLIED WITH A 120/24 VAC 50 VA TRANSFORMER (15 VA POWER REQUIRED FOR EACH UNIT).
WC-1	AMERICAN STANDARD	MADERA 3461..001	SLOAN	8113-1.6	FLOOR MOUNTED WATER CLOSET, ELONGAGTED, EXPOSED FLUSH VALVE, LOW CONSUMPTION (6.0 Lpf / 1.6 gpf). WATER CLOSET C/W ELONGATED HEATY-DUTY SOLID PLASTIC SEAT, OPEN FRONT WITH COVER WITH STAINLESS STEEL CHECK HINGE AND POSTS, WASHERS, BOLTS. CENTOCO 8205TS.

2 TM3.1 PLUMBING FIXTURE SCHEDULE

FAN SCHEDULE

TAG	GENERAL			MANUFACTURER		FAN PROPERTIES								ELECTRICAL DATA				MOTOR	NOTES
	LOCATION	SERVICE	TYPE	MAKE	MODEL	(HI SPEED)		(LO SPEED)		(LO SPEED)		E.S.P. at Hi speed		DRIVE	RPM	V / PH / Hz	LOAD			VFD	
						(L/S)	(CFM)	(L/S)	(CFM)	(L/S)	(CFM)	(Pa)	(IN W.G.)				(AMP)	(KW)	(HP)	(Y / N)	
EF-1	UNIVERSAL WASHROOM	SANITARY EXHAUST	CEILING MOUNTED	GREENHECK	SP-A90	34	72	--	--	--	--	62.5	0.25	DIRECT	900	115/1/60	0.2	--	--	N	1,2

NOTES:
1) FAN TO BE COMPLETE WITH SPRING VIBRATION ISOLATION AND FLEXIBLE DUCTWORK CONNECTIONS.
2) FAN CONTROL SHALL BE INTERLOCKED TO OCCUPANCY SENSOR.

3 TM3.1 FAN SCHEDULE

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Smith + Andersen
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KEY PLAN:

CLIENT:
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S,
WATERLOO, ON
N2L 6N5

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
A - DETAIL NO.
B - DETAIL NO. ORIGIN

+VG ARCHITECTS
THE VENTIN GROUP LTD

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MECHANICAL SCHEDULES

TM3.1

DRAWN BY :

CHECKED BY : NO

1. GENERAL

1.1 THE DRAWINGS AND SPECIFICATIONS SHALL BE READ IN CONJUCTION WITH BASE BUILDING DRAWINGS AND SPECIFICATIONS. THE BASE BUILDING DESIGN DOCUMENTS ARE AVAILABLE FOR REVIEW AT THE BUILDING MANAGERS OFFICE. THE MOST STRINGENT REQUIREMENTS WILL APPLY.

1.2 THIS SPECIFICATION IS INTENDED TO BE A COMPLIMENT TO, AND MUST BE READ IN CONJUNCTION WITH ALL APPLICABLE CODES, STANDARDS, REGULATIONS AND BY-LAWS RELATING TO THE PRESENT WORK, WHICH SHALL COLLECTIVELY BE REFERRED TO AS "CODES". THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL RELEVANT CODES. EXTRAS WILL NOT BE ENTERTAINED DUE TO A LACK OF FAMILIARITY WITH THE RELEVANT CODES.

1.3 GENERAL CONTRACTOR'S RESPONSIBILITY SHALL INCLUDE, BUT NOT LIMITED TO,
1. ENSURE THAT CONSTRUCTION DOES NOT PROCEED UNLESS ANY PERMIT REQUIRED UNDER THIS ACT HAS BEEN ISSUED BY THE CHIEF BUILDING OFFICIAL
2. CONSTRUCT THE BUILDING IN ACCORDANCE WITH THE PERMIT
3. USE APPROPRIATE BUILDING TECHNIQUES TO ACHIEVE COMPLIANCE WITH THIS ACT AND THE BUILDING CODE.
4. WHEN SITE CONDITIONS AFFECT COMPLIANCE WITH THE BUILDING CODE, TO NOTIFY THE DESIGNER AND AN INSPECTOR OR REGISTERED CODE AGENCY, AS APPROPRIATE.
5. ENSURE NO PERSON CONSTRUCT OR DEMOLISH A BUILDING OR CAUSE A BUILDING TO BE CONSTRUCTED OR DEMOLISHED EXCEPT IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, DOCUMENTS AND ANY OTHER INFORMATION ON THE BASIS OF WHICH A PERMIT WAS ISSUED OR ANY CHANGES TO THEM AUTHORIZED BY THE CHIEF BUILDING OFFICIAL.

1.4 PERMITS AND FEES: APPLY FOR, OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND NEW UTILITY CONNECTION APPLICATIONS REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION. INCLUDE ALL TAXES.

1.5 ALL WORK MUST COMPLY WITH THE LANDLORDS GUIDELINES WHERE APPLICABLE.

1.6 ALL MATERIAL INSTALLED IN NON-COMBUSTIBLE BUILDINGS AND IN RETURN AIR CEILING PLENUMS SHALL MEET 25/50 FLAME/SMOKE SPREAD/DEVELOPMENT REQUIREMENTS.

1.7 THE WORD "PROVIDE" SHALL MEAN "SUPPLY, INSTALL, CONNECT AND TEST".

1.8 ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE AND ALL SPECIFIED INTERIM SCHEDULES. CONTRACTOR MUST COMPLY WITH THE GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE.

1.9 UNLESS NOTED OTHERWISE ON THE PLANS, GENERAL INTENT OF THE DESIGN IS TO CLEAN AND REUSE EXISTING DIFFUSERS, GRILLES, TERMINAL UNITS, THERMOSTAT, SPRINKLER HEADS, ETC. WITHIN REASON. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO TABULATE MECHANICAL ITEMS THAT ARE TO BE RE-USED, RELOCATED AND/OR REINSTALLED

1.10 TENDER SUBMISSION
1. INCLUDE ALL LABOUR AND MATERIAL REQUIRED FOR FULLY FUNCTIONING AND APPROVED MECHANICAL SYSTEMS. REFER TO OTHER SECTIONS OF THE SPECIFICATION FOR ANY ADDITIONAL REQUIREMENTS.
2. MECHANICAL CONTRACTOR SHALL CARRY THE COST OF ALL REQUIRED SUB-TRADES.
3. THE DRAWINGS INDICATE THE INTENT OF THE MECHANICAL CONTRACTOR MUST VISIT THE SITE PRIOR TO TENDER BID SUBMISSION TO DETERMINE SUITABILITY OF DESIGN GIVEN THE EXISTING SITE CONDITIONS, ALLOW FOR TIME AND MATERIAL NECESSARY TO ACCOMMODATE INSTALLATION CHALLENGES.
4. REPORT TO ENGINEER OF ANY AMBIGUITIES AND DISCREPANCIES WITHIN THE TENDER DOCUMENTS MINIMUM THREE (3) DAYS PRIOR TO TENDER CLOSING. ALLOW FOR THE INSTALLATION OF THE MORE COSTLY SCENARIO OR OPTION IN THE TENDER BID.
5. INCLUDE ANY ALTERNATIVE ROUTING OF NEW SYSTEMS TO ACCOMMODATE SITE CONDITIONS SUCH AS STRUCTURAL BEAMS, JOISTS, EXISTING DUCTS, EXISTING PIPES, EXISTING EQUIPMENT, AND SO ON. IN THE TENDER BID. EXTRAS FOR TIME AND MATERIAL SHALL NOT BE MADE FOR COORDINATE ITEMS AND ITEMS THAT THE CONTRACTOR SHOULD BE FAMILIAR WITH.
6. ALL SHUTDOWN, DRAINING AND FILLING OF ANY PORTION OF THE EXISTING BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE LANDLORD'S BUILDING OPERATIONS STAFF AND SHALL BE COORDINATED WITH THE LANDLORD FOR TIME AND DURATION OF INTERRUPTIONS. COMPLY WITH ALL OF THE LANDLORD'S INSTRUCTIONS, AND INCLUDE FOR ALL COSTS FOR THIS WORK IN THE TENDER PRICE.
7. INCLUDE THE COST OF PREMIUM TIME IN THE TENDER PRICE FOR WORK PROVIDED DURING NIGHTS, WEEKENDS OR OTHER TIMES OUTSIDE NORMAL WORKING HOURS, NECESSARY TO MAINTAIN ALL MECHANICAL SERVICES IN OPERATION AND TO MEET THE PROJECT SCHEDULE.
8. ALTERNATE/SUBSTITUTION OF EQUIPMENT AND PRODUCTS OTHER THAN SPECIFIED MAY BE PROPOSED.
   1. THE PERFORMANCE OF ANY ALTERNATE EQUIPMENT PROPOSED AS EQUAL SHALL NOT DEVIATE FROM THE STATED CAPACITIES, FLUID FLOW RATES, HEAT TRANSFER RATES, SOUND POWER (WHEN SPECIFIED), ETC.
   2. ELECTRICAL VOLTAGE AND PHASE MUST BE AS SPECIFIED. AMP DRAW MUST NOT EXCEED SPECIFIED.
   3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR EXAMINING THE AVAILABLE INSTALLATION SPACE AND ACCESS REQUIREMENTS OF THE PROPOSED ALTERNATIVES.
   4. ACCEPTANCE OF ALTERNATE EQUIPMENT SHALL BE AT THE DISCRETION OF THE CONSULTANT AND WILL ONLY OCCUR AFTER A REVIEW OF SUBMITTED SHOP DRAWINGS. COORDINATE, ASSUME RESPONSIBILITY AND PAY FOR ALL ADDITIONAL INSTALLATION COSTS INCURRED BY ALL OTHER TRADES RESULTING FROM ALTERNATES AND/OR SUBSTITUTES.
   5. MAKE REVISIONS TO RECORD DRAWINGS, INCORPORATING ALTERNATES AND/OR SUBSTITUTES AND ALL RELATED CHANGES.
   6. ALTERNATE EQUIPMENT AND PRODUCTS WILL NOT BE CONSIDERED SUBSEQUENT TO TENDER CLOSING.

1.11 GENERAL SCOPE AND COORDINATION
1. SITE AUDIT: PERFORM A THOROUGH SITE AUDIT OF THE EXISTING SYSTEM INCLUDING, BUT NOT LIMITED TO, EXISTING EQUIPMENT SIZES/LOCATION, DUCT SIZE/LOCATION, PLUMBING PIPE SIZE/LOCATION/INVERT PRIOR TO ORDERING MATERIAL AND COMMENCING WORK. VERIFY ALL EXISTING SERVICES THAT ARE BEING EXTENDED/RECONNECTED. VERIFY ROUTING OF ALL PROPOSED NEW SERVICES. REPORT TO ENGINEER WITH ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS. DETERMINE EXACT DIMENSIONS AND OTHER RESTRICTIVE CONDITIONS ON SITE, NOT FROM DRAWINGS.
2. REPORT TO ENGINEER OF ANY EXISTING NON-CODE COMPLIANT INSTALLATIONS.
3. COORDINATE WITH ALL TRADES TO DETERMINE INSTALLATION FEASIBILITY AND CLEARANCE REQUIREMENTS PRIOR TO COMMENCING WORK. REVIEW MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS TO BECOME FAMILIAR WITH ALL APPURTENANT COMPONENTS. ISSUES WITH INSTALLATION DUE TO LACK OF COORDINATION WILL RESULT IN THE CONTRACTOR HAVING TO RELOCATE NEWLY INSTALLED ITEMS AT THE CONTRACTOR'S OWN COST.
4. COORDINATE ALL CORE DRILLING LOCATIONS AND CHECK FOR EMBEDDED SERVICES WITH THE LANDLORD AND THE STRUCTURAL ENGINEER. X-RAY FLOOR AND FURNISH PRINTS OF THE RESULT FOR REVIEW BY THE LANDLORD AND THE STRUCTURAL ENGINEER.
5. PIPE SLEEVE SHALL BE PROVIDED FOR ALL PIPES THROUGH WALLS AND FLOORS. SLEEVE SHALL BE STANDARD WEIGHT STEEL PIPE WITH SMOOTH EDGE. FLOOR SLEEVE SHALL EXTEND ABOVE FINISHED FLOOR BY 2"(50mm) MINIMUM. SEAL WATER TIGHT.
6. FIRE STOP ALL PIPES AND DUCTS PENETRATING RATED WALLS/FLOORS WITH APPROVED AND ULC CAD 2S115 LISTED MATERIAL. ACCEPTABLE MANUFACTURERS, "HILTI" AND "3M". SEAL WATER TIGHT.
7. BUILDING SYSTEM TIE-IN: COORDINATE WITH THE LANDLORD FOR ALL NECESSARY SHUTDOWN OF SYSTEMS. INCLUDE OVERTIME/AFTER-HOUR COSTS IN THE TENDER FOR SYSTEM TIE-INS AND WORK REQUIRED WITHIN ADJACENT TENANT SPACES.
8. SITE UTILITY TIE-IN: COORDINATE WITH THE LANDLORD, UTILITY COMPANIES, AUTHORITIES, AND THE CONSULTANTS TO INTERRUPT, RE-ROUTE AND/OR CONNECT TO WATER, SEWER, STORM, DISTRICT ENERGY, OR GAS SYSTEMS WITH MINIMAL INTERRUPTIONS. CONTACT RESPECTIVE UTILITY COMPANY AND INFORM SERVICES INTERRUPTION TIMELINE TO PARTIES INVOLVED.
9. PERFORM CUTTING-PATCHING TO ACCESS/INSTALL MECHANICAL SERVICES. INCLUDE THIS SCOPE IN THE TENDER.
10. ACCESS PANELS: COORDINATE SIZE, LOCATION AND REQUIRED NUMBER WITH THE GENERAL CONTRACTOR. ARCHITECTURAL ACCESS DOOR WITH CONCEALED HARDWARE AND GYPSUM BOARD INLAY: ACUDOR, MIFAB OR EQUAL. MATCH FIRE RATING OF WALL/CEILING. ACCESS PANELS LOCATED IN DRYWALL CEILINGS SHALL BE RECESSED TYPE WITH A DRYWALL INFILL PANEL, AND SHALL BE FLUSH WITH THE SURROUNDING FINISHES. MECHANICAL SERVICES ARE TO BE COORDINATED TO MINIMIZE THE NUMBER OF ACCESS POINTS. COORDINATE LOCATION AND SIZES WITH THE CONSULTANT. PROVIDE A DRAWING FOR REVIEW INDICATING THE SIZE AND LOCATION OF ALL DOORS BEFORE PROCEEDING WITH THE INSTALLATION.
    1. VALVES, DAMPERS AND MISCELLANEOUS: 12"X12" (300X300)
    2. HVAC UNITS, FILTERS AND HOT WATER TANKS: 24"X24" (600X600)
11. PROVIDE DUCT ACCESS DOORS WITH SASH LOCKS AT BOTH SIDES OF FIRE DAMPERS, SMOKE DAMPERS, CONTROL DAMPERS, COILS AND AS REQUIRED FOR SERVICING FOR ANY OTHER DEVICE. SIZE TO BE MINIMUM 16"X12" (400X300).
12. NEW EQUIPMENT AND MATERIALS SHALL MATCH OR EXCEED BASE BUILDING STANDARDS. PROVIDE HIGHER STANDARD OF EQUIPMENT AND MATERIAL WHEN SPECIFIED. REMOVE UNACCEPTABLE MATERIALS AND INSTALL SUITABLE MATERIAL IN THEIR PLACE
13. HIGH-STANDARD, UNIFORM AND CONSISTENT WORKMANSHIP IS EXPECTED THROUGHOUT THE PROJECT. REMOVE AND REINSTALL SUB-STANDARD INSTALLATIONS AS PER THE DISCRETION OF THE ENGINEER, DESIGNER, ARCHITECT AND THE CLIENT.
14. PROTECT ALL EXISTING INSTALLATIONS AND SYSTEMS. REPAIR ANY DAMAGES CAUSED BY THIS TRADE AND ITS SUB-TRADES.
15. DISPOSE OF ANY REMOVED EXISTING MECHANICAL ITEMS THAT ARE NOT WANTED BY THE LANDLORD.
16. IDENTIFY EACH PIPE AND DUCT RUN COMPLETE WITH DIRECTIONAL FLOW ARROWS. LOCATE IDENTIFICATION NO MORE THAN 40 FT. (12 M) APART AND AT LEAST ONE TAG PER ROOM (WHEN PIPE CROSSING MULTIPLE ROOMS). USE 2 IN. (50 MM) HIGH LETTERING. MATCH THE BASE BUILDING IDENTIFICATION SYSTEM WHERE APPLICABLE. ALSO PROVIDE VALVE TAG AND EQUIPMENT NAME PLATES TO MATCH BASE BUILDING FORMAT AND NUMBERING SYSTEM. IDENTIFY EACH FAN, PUMP, A/C UNIT, ETC., WITH AN ENGRAVED LAMACOID NAMEPLATE, WHITE LETTERS ON BLACK BACKGROUND, MECHANICALLY ATTACHED.
17. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL FIXTURES, HVAC EQUIPMENT, DIFFUSERS/GRILLES, VALVES, BACK-FLOW PREVENTERS, FIRE EXTINGUISHERS, THERMOSTATS, ETC. CONTRACTOR SHALL NOT ORDER MATERIAL UNTIL SHOP DRAWINGS ARE REVIEWED AND APPROVED BY THE ENGINEER. ALLOW MINIMUM FIVE (5) BUSINESS DAYS FOR REVIEW BY THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY LONG LEAD ITEMS AND SUBMIT SHOP DRAWINGS TO THE ENGINEER ON A TIMELY MANNER.
18. HANGERS AND INSTALLATION
    1. ALL MECHANICAL ITEMS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDED INSTALLATION PRACTICES AND BE COMPLETE WITH VIBRATION ISOLATORS.
    2. PROVIDE ALL REQUIRED RIGGING, SUPPORT, DRILLING, APPROVED INSERTS, HANGERS AND AUXILIARY STRUCTURAL SUPPORT MEMBERS NECESSARY FOR MOUNTING AND HANGING EQUIPMENT.
    3. SUSPENSION FROM METAL DECK, OTHER DUCTS/PIPES, ONE HANGER FROM ANOTHER ARE NOT PERMITTED.
    4. PROVIDE DI-ELECTRIC SEPARATION BETWEEN NON-FERROUS MATERIAL AND STEEL HANGER MATERIALS. COPPER PLATED HANGERS, PLASTIC DIPPED HANGERS, OR WRAPPED PIPES ARE ACCEPTABLE FOR COPPER PLUMBING PIPES.
    5. ALL EQUIPMENT SHALL BE HORIZONTALLY MOUNTED AND LEVELED ACCOMMODATING ANY SLOPES C/W MOUNTING PAD/ROOF CURB AND VIBRATION ISOLATORS, UNLESS NOTED OTHERWISE.
19. PRIOR TO OPERATING ANY EXISTING OR NEW EQUIPMENT DURING ANY STAGE OF CONSTRUCTION, APPROVAL FROM THE LANDLORD AND CONSULTANT MUST BE RECEIVED IN WRITING.
20. PROVIDE ALL RIGGING AS MAY BE REQUIRED FOR ALL SYSTEM MATERIALS AND EQUIPMENT. PROVIDE ALL REQUIRED SUPPLEMENTARY STEEL SUPPORTS NECESSARY FOR MOUNTING OR HANGING EQUIPMENT EQUIPMENT BEING SUSPENDED FROM THE FLOOR STRUCTURE, OR SUPPORTED FROM OR ON THE ROOF SHALL HAVE SUPPORTS REVIEWED BY A STRUCTURAL CONSULTANT. ALL REQUIRED STRUCTURAL SUPPORTS OR STRUCTURAL REINFORCING, AS RECOMMENDED BY THE CONSULTANT, SHALL BE INCLUDED IN THE TENDER.
21. PROVIDE A COMPLETE ITEMIZED COST BREAKDOWN OF ALL MATERIALS, EQUIPMENT AND LABOUR COSTS ASSOCIATED WITH EACH SUBMISSION FOR ADDITIONAL OR DELETED WORK.
22. EACH CONTRACTOR SHALL TAKE OUT ALL NECESSARY FIRE AND LIABILITY INSURANCE, FREE OF EXTRA CHARGE, AND SHALL AGREE TO INDEMNIFY AND HOLD HARMLESS THE LANDLORD, TENANT AND ENGINEER FROM ALL INJURIES (INCLUDING DEATH) OR DAMAGE TO PROPERTY IN CONSEQUENCE OF THE PERFORMANCE OF THIS CONTRACT.
23. PROTECT ALL MATERIALS STORED ON SITE, INCLUDING THE LANDLORD'S MATERIAL, THE TENANT'S MATERIAL AND OTHER TRADES' MATERIAL. TAKE SPECIAL PRECAUTIONS TO PREVENT THE ENTRY OF DUST OR OTHER FOREIGN MATERIAL IN DUCTWORK, PIPING, ELECTRONIC COMPONENTS, OR THE INTERNAL MOVING PARTS OF EQUIPMENT. PROTECT ACOUSTIC INSULATION AT ALL TIMES FROM DUST AND DEBRIS. THE TRADE RESPONSIBLE FOR ANY DAMAGE OR CONTAMINATION SHALL BEAR THE COST OF REPLACEMENT, CLEANING OR REPAIR, WHICH SHALL BE DONE TO THE SATISFACTION OF THE LANDLORD, TENANT AND THE ENGINEER'S REPRESENTATIVE.
24. COORDINATION WITH DIVISION 16
    1. ALL STARTERS, CONTROLS RELAYS, 120V-24V STEP-DOWN TRANSFORMERS AND LOW VOLTAGE CONTROL WIRING BY DIVISION 15. ALL POWER WIRING BY DIVISION 16, UNLESS NOTED OTHERWISE.
    2. LINE VOLTAGE CONTROL SWITCHES SUCH AS FAN VARIABLE SPEED CONTROLLER AND REVERSE ACTING THERMOSTAT SUPPLIED BY DIVISION 15, INSTALLED BY DIVISION 16. COORDINATE ALL LOCATIONS.
    3. SUPPLY OF CONTROL PANELS, LOCATION OF CONTROL PANELS AND REQUIRED 120V-24V STEP-DOWN TRANSFORMER BY DIVISION 15. POWER WIRING TO CONTROL PANEL BY DIVISION 16
25. TEMPORARY PROVISIONS
    1. COORDINATE WITH OTHER TRADES FOR TEMPORARY POWER, HEATING AND VENTILATION PROVISIONS.
    2. NEW HVAC UNITS SHALL NOT BE USED FOR TEMPORARY HEATING AND VENTILATION PURPOSE DURING CONSTRUCTION UNLESS SPECIFICALLY APPROVED BY THE ENGINEER AND THE CLIENT/OWNER.
    3. PROVIDE 1" (25mm) THICK DISPOSABLE MEDIA FILTER OVER ALL EXISTING HVAC R/A OPENINGS AND T/A DUCTS, INCLUDING PACKAGED TERMINAL UNITS, TO PROTECT FROM CONSTRUCTION DUST AND FOULING. REPLACE RESPONSIBLE FILTERS EVERY TWO (2) WEEKS AS A MINIMUM AND MORE OFTEN AS REQUIRED. CLEAN ALL STRAINERS EVERY TWO (2) WEEK INTERVALS. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO CLEAN ANY FOULED EXISTING HVAC SYSTEMS. DISPOSE OF THE MEDIA FILTER UPON SHUTDOWN AND REPLACE ALL NEW AND EXISTING HVAC UNIT FILTERS WITH NEW.

1.12 INSPECTION AND CLOSE-OUT DOCUMENTS
1. THE CONTRACTOR SHALL SUBMIT A REQUEST FOR FINAL FIELD REVIEW AT LEAST 72 HOURS IN ADVANCE. WHEN THE FINAL FIELD REVIEW REQUEST IS MADE, THE FOLLOWING, AS A MINIMUM, MUST BE COMPLETED AND CONFIRMED IN WRITING BY THE MECHANICAL CONTRACTOR:
   1. ALL SYSTEMS READY FOR OPERATION;
   2. ALL FIXTURES AND EQUIPMENT CLEANED;
   3. ALL DUCTWORK CLEANED;
   4. ALL FIRE STOPPING AND FIRE DAMPERS INSTALLED AND TESTED;
   5. ALL FIRE EXTINGUISHERS INSTALLED.
2. FOR MECHANICAL CONTRACTOR'S REVIEW, A PDF COPY THE FOLLOWING DOCUMENTS MUST BE PROVIDED TO THE ENGINEER S OFFICE FOR REVIEW;
   1. PLUMBING SYSTEM FLUSHING, BUG TEST AND/OR CHLORINATION REPORT;
   2. FIRE STOPPING SEALANT LETTER OF COMPLETION;
   3. FIRE ALARM VERIFICATION CERTIFICATE;
   4. ALL EQUIPMENT START UP REPORTS;
   5. CITY FINAL PLUMBING INSPECTION CERTIFICATE;
   6. PRESSURE TEST REPORT ON ALL PIPING SYSTEMS;
   7. AIR BALANCING REPORT.
   8. OPERATING AND MAINTENANCE MANUAL,\
3. FOR MECHANICAL SYSTEMS FINANCIAL CLOSE, THE FOLLOWING ADDITIONAL DOCUMENTS MUST BE PROVIDED TO THE ENGINEER FOR REVIEW
   1. COPIES OF RED-LINED ANNOTATED AS-BUILT DRAWINGS.
4. TO SIMPLIFY THE CLOSING DOCUMENTATION REVIEW PROCESS, THE ABOVE-MENTIONED DOCUMENTS SHALL BE PROPERLY INDEXED AND COMPILED INTO A SINGLE SUBMISSION.
5. CONTRACTOR TO INCORPORATE THE ABOVE-MENTIONED ITEMS ALONG WITH THE SHOP DRAWINGS AND THE CONTRACTOR S LETTER OF GUARANTEE INTO AN OPERATING AND MAINTENANCE MANUAL AND GIVE IT TO THE OWNER ONCE THE OCCUPANCY IS ACHIEVED.

2. SHEET METAL AND DUCTWORK

2.1 PROVIDE DUCTWORK IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING, BUT NOT LIMITED TO, LATEST SMACNA AND ASHRAE STANDARDS, LOCAL SEISMIC ZONE REQUIREMENTS, NFPA 90A AND NFPA 90B, AND NFPA 96 FOR KITCHEN EXHAUST DUCTS. DUCTS SHALL BE CONSTRUCTED TO MATCH PRESSURE RATING OF SPECIFIED EQUIPMENT. COORDINATE ALL INTERFERENCES WITH ALL OTHER TRADES PRIOR TO INSTALLATION.

2.2 SEAL TO BE AIR-TIGHT AROUND ALL DUCTWORK AND PIPING PENETRATIONS THROUGH PARTITIONS, BAFFLES ABOVE CEILINGS, AND THROUGH FLOORS THAT ARE NOT FIRE RATED.

2.3 ALL DUCT SIZES INDICATE INSIDE CLEAR DIMENSIONS. PROVIDE ACOUSTIC LINING AS SPECIFIED ON THE INSULATION SECTION. PROVIDE DUCT TRANSITIONS TO REGULAR DUCTS AFTER MINIMUM 15FT (4.5m) OF LINED DUCTS.

2.4 DUCT TRANSITIONS, ELBOWS, AND BRANCH TAKE-OFFS.
1. LOW PRESSURE DUCT: MAXIMUM 25° TRANSITION, SHORT RADIUS ELBOW OR HARD 90° ELBOW C/W SINGLE THICKNESS TURNING VANES, ROUND SPIN-IN TAKE-OFF C/W BALANCING DAMPER, LESS THAN 10"Ø (250).
2. MEDIUM PRESSURE DUCT: MAXIMUM 15° TRANSITION. SMOOTH LONG RADIUS ELBOW OR HARD 90° ELBOW C/W DOUBLE THICKNESS TURNING VANES, CONICAL TAKE-OFF C/W BALANCING DAMPERS, UNLESS THE TAKE-OFF SERVES VAV BOXES.

2.5 RECTANGULAR DUCTS: MAXIMUM ASPECT RATIO OF 4:1, ALL TAKE-OFFS TO BE COMPLETED WITH SPLIT DAMPER OR BALANCING DAMPER.
1. RATIO OF THE LONGEST SIDE OF THE DUCT TO THE LEAST SHALL NOT EXCEED 4 TO 1 UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER'S REPRESENTATIVE.
2. MAKE LONGITUDINAL JOINTS PITTSBURGH LOCK SEAM AT EDGE OF DUCT, AND GROOVED SEAM ON FACE OF DUCT.
3. TRANSVERSE SEAMS SHALL BE FLAT DRIVE OR FLAT 'S' FOR ALL DUCTS WITH DIMENSIONS UP TO 400MM (16"). TRANSVERSE SEAM BE STANDING 'T' FOR ALL DUCTS WITH DIMENSIONS LARGER THAN 400MM (16").
4. BRACE AND STIFFEN ALL DUCTS, AND MAKE TIGHT SO THAT THEY WILL NOT BREATHE, RATTLE, VIBRATE OR SAG. CROSS-BREAK ALL RECTANGULAR DUCTS WITH HEIGHTS OR WIDTHS OF 300 MM (12 IN.) OR LARGER.
5. WHERE RECTANGULAR DUCTS ARE SHOWN, ROUND DUCTS MAY BE SUBSTITUTED AT THE CONTRACTOR'S OPTION, PROVIDED THERE IS SUFFICIENT ROOM. CONVERSION FROM RECTANGULAR TO ROUND DUCT, SIZING SHALL BE AS SHOWN ON CHARTS IN ASHRAE. CONTRACTOR MUST PROVIDE PROPOSED ROUND DUCT LAYOUT TO ENGINEER IN HAND SKETCH FORMAT COMPLETE WITH SIZES FOR APPROVAL PRIOR TO INSTALLATION.
   2.5.6. FOR LOW PRESSURE DUCTWORK UP TO 1500MM (60 IN.), PROVIDE 25MM (1 IN.) X 16 US GAUGE STRAPS WITH TWO SCREWS ON EACH SIDE OF THE THE DUCT AND ONE SCREW ON THE BOTTOM. STRAPS SHALL BE AT EACH JOINT AND NO MORE THAN 2400MM (96 IN.) ON CENTRES.

2.6 ROUND DUCTS
1. 10"Ø (250Ø) AND SMALLER: SEALED SNAP-LOCK, 12"Ø (300Ø) AND LARGER: SPIRAL LOCK-SEAM.
2. FOR DUCTWORK UP TO 450MM (18 IN.), PROVIDE ONE 25 MM (1 IN.) X 16 US GAUGE HANGER RING SUPPORTED FROM ONE 25 MM (1 IN.) X 16 US GAUGE HANGER STRAP. HANGER SHALL BE AT EACH JOINT BUT IN NO CASE MORE THAN A MAXIMUM 2400 MM (96 IN.) ON CENTRES.
3. ALL EXPOSED ROUND DUCTS AND MEDIUM PRESSURE DUCTS: SPIRAL LOCK-SEAM, REGARDLESS OF SIZE.
4. SUBSTITUTION OF ROUND DUCTS FROM RECTANGULAR DUCTS SHALL ONLY OCCUR ON DUCTS WITHOUT ACOUSTIC LINING, AND AFTER EXAMINING SITE INTERFERENCES. CONTRACTOR MUST PROVIDE PROPOSED ROUND DUCT LAYOUT TO ENGINEER IN HAND SKETCH FORMAT COMPLETE WITH SIZES FOR APPROVAL PRIOR TO INSTALLATION.

2.7 EXPOSED DUCTWORK OUTSIDE OF BUILDING: PROVIDE HIGH POINT AT CENTRE OF ALL EXPOSED DUCTS TO PREVENT WATER FROM POOLING. HAMMER OUT ALL DENTS PRIOR TO INSTALLATION. WATER PROOF ALL JOINTS WITH TWO COATS OF BRUSH-ON HEAVY WEATHER PROOFING SEALANT. STANDING FLANGED DUCT JOINS SHALL BE SEALED WITH ELASTOMER GASKET AND SHEET METAL COUNTER FLASHING COVER. PROVIDE 3-SIDED COUNTER FLASHING TO ALL DUCT CONNECTIONS TO EXPOSED AIR HANDLING EQUIPMENT. SEAL ALL SCREW HOLES. REFER TO INSULATION SECTION.

2.8 DUCT SEALER TO BE EQUAL TO PROSEAL AND FIBERSEAL, TO BE APPLIED WITH BRUSH OR FLOW GUN. DUCT SEALER SHALL BE NON-V.O.C., PERMANENTLY FLEXIBLE, LOW SHRINKAGE, AND ULC CLASSIFIED FOR SURFACE BURNING CHARACTERISTICS. APPLICATION TO BE MADE WHEN AIR SYSTEM(S) ARE OFF, TO ALLOW MATERIAL TO CURE 24-72 HOURS BEFORE PRESSURE TEST THE SYSTEM. WHERE DUCTS ARE EXPOSED, ALL JOINTS ARE TO BE WIPED CLEAN OF ANY EXCESS SEALER. WHERE DUCTS ARE EXTERNALLY INSULATED, SEALER MUST BE 100% AIR TIGHT, TO AVOID BLOWING OFF THE INSULATION. SINCE FIELD TEMPERATURE/HUMIDITY CONDITIONS MAY VARY. LONGER SET TIMES MAY REQUIRED FOR SPECIFIC INSTALLATIONS. APPLY AT A RATE OF 50 SQ.FT. PER GALLON (1/32" THICK).

2.9 FLEXIBLE DUCT: FLEXIBLE DUCTS SHALL BE SPIRAL ALUMINUM FLEXMASTER TRIPLE LOCK MODEL #T/L (#T/L-A ACOUSTIC DUCT) INSTALLED AS ONE CONTINUOUS PIECE. JOINING OF FLEXIBLE DUCTS IS NOT PERMITTED. MAXIMUM LENGTH SHALL NOT EXCEED 10 FT. 0 IN. (2500 MM). CONNECT TO DUCTWORK WITH DUCT SEALER IN THE JOINTS AND WITH SCREWS. DUCT TAPE IS NOT ACCEPTABLE. SIZE OF FLEXIBLE DUCTS SHALL BE EQUAL TO THE DIFFUSER NECK SIZE. DUCTING SHALL CONFORM TO NFPA 80A AND UL181.

2.10 PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL FANS AND ADJACENT DUCTWORK WITH A MINIMUM 6 IN. (150 MM) SEPARATION BETWEEN FAN AND DUCTWORK. FLEXIBLE CONNECTIONS SHALL CONSIST OF A PREASSEMBLED UNIT OF FIRE RESISTANT P.V.C. WEAVE EQUAL TO DURO DYNE CANFLEX.

2.11 FLEXIBLE DUCTS SHALL NOT BE USED UPSTREAM OF VARIABLE AIR VOLUME BOXES OR BY-PASS BOXES.

2.12 FIRE DAMPERS: ULC S112 AND S505 LISTED OUT-OF-AIR STREAM BLADES, DYNAMIC SPRING LOADED FIRE DAMPERS FOR PRESSURIZED DUCTS. SELECT FOR LOW OR MEDIUM PRESSURE APPLICATIONS. STATIC FIRE DAMPERS FOR TRANSFER AIR DUCT. PROVIDE LATCHED ACCESS DOORS IN DUCTWORK FOR ACCESS TO ALL FIRE DAMPERS. PROVIDE FIRE DAMPERS THROUGH ALL DUCT PENETRATIONS THROUGH RATED ASSEMBLIES.

2.13 BACK DRAFT DAMPERS: PROVIDE R10 INSULATED BLADE TYPE GRAVITY BACK DRAFT DAMPER FOR ALL EXHAUST AND OUTDOOR AIR LOUVERS AND ROOF GOOSENECK CONNECTIONS.

2.14 PROVIDE 1-1/2"X1-1/2"X1/8" (38X38X3) ANGLED STEEL FRAME ON EITHER SIDES OF ALL DUCT PENETRATIONS THROUGH PARTITIONS, FLOORS AND ROOF. SEAL ALL PENETRATIONS AIR TIGHT. PROVIDE FIRE-STOPPING THROUGH RATED ASSEMBLIES. PROVIDE WATER PROOFING AS REQUIRED.

2.15 WHERE BALANCING DAMPERS ARE PROVIDED IN DRYWALL CEILINGS, PROVIDE REMOTE CABLE ACTIVATED BALANCING DAMPERS. SCREW ACTUATOR TO BE COORDINATED WITH EQUIPMENT ACCESS PANEL LOCATION.

2.16 WHERE TRANSFER AIR OPENINGS IN DRYWALL WALLS ARE NOTED ON THE DRAWINGS, THE MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LAYOUT. THIS CONTRACTOR SHALL CO-ORDINATE AND VERIFY THAT THE REQUIRED NUMBER AND SIZE OF OPENINGS HAVE BEEN PROVIDED.
UNLESS BASE BUILDING STANDARDS ARE MORE STRINGENT, INSULATION SHALL BE:
1. S/A DUCTS: 1" (25mm) THICK RIGID GLASS FIBRE DUCT INSULATION C/W VAPOUR BARRIER.
2. EXPOSED S/A DUCTS INSIDE BUILDING: NO INSULATION.
3. S/A, R/A AND E/A DUCTS FROM ANY AIR HANDLING EQUIPMENT AND FANS: 1" (25mm) THICK, MINIMUM 15FT (4.5m) LENGTH FROM EQUIPMENT, INTERNAL.
4. T/A DUCTS: 1" (25mm), INTERNAL.
5. O/A AND E/A PLENUMS FROM WALL LOUVERS: 2" (50mm) THICK, INTERNAL.
6. O/A AND E/A DUCTS FROM WALL LOUVERS AND PERIMETER WALLS: 1" (25mm) THICK, EXTERNAL, MINIMUM 15FT (4.5m) LENGTH FROM LOUVERS AND PERIMETER WALL PENETRATION POINTS.
7. OUTSIDE AND MIXED AIR DUCTWORK, INCLUDING DUCTS TO AND FROM INDEPENDENT HEAT RECOVERY UNITS (ERW, HRV, ETC.). THICKNESS TO SUIT MINIMUM RSI-2.12 (R-12).
8. EXHAUST AIR DUCTWORK FROM INDEPENDENT HEAT RECOVERY UNITS (ERW, HRV, ETC.) UP TO CONNECTION TO EXTERIOR WALL OR ROOF. THICKNESS TO SUIT MINIMUM RSI-2.12 (R-12).

2.17 TEST, SEAL AND INSPECT ALL DUCTS BEFORE INSULATION. ALL INSULATION JOINTS TO BE TAPED AND SEALED AT 16" (400mm) INTERVALS. PROVIDE COMPLETE WRAP OF TAPE AROUND INSULATION. DO NOT USE STAPLES.

2.18 INSULATION CONTRACTOR TO COORDINATE WITH SHEET METAL CONTRACTOR TO ENSURE DUCT INSULATION IS APPLIED PRIOR TO DUCTWORK BEING INSTALLED TO UNDERSIDE OF SLABS, BEAMS OR OTHER SERVICES OR BEHIND OTHER DUCT RISERS AND SHAFTS.

2.19 AIR BALANCING
1. AIR BALANCING SHALL BE PERFORMED BY LANDLORD'S APPROVED AIR BALANCING COMPANY WHEN APPLICABLE. OBTAIN A LIST FROM THE LANDLORD.
2. TEST ALL DUCT SYSTEMS IN ACCORDANCE WITH APPLICABLE SMACNA AND ASHRAE 90.1 STANDARDS.
3. REFER T

6. TESTING, RECORD DRAWING, AND COMMISIONING

6.1 TESTING
1. TEST ALL FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH APPLICABLE N.F.P.A CODES.
2. TEST ALL DUCT SYSTEMS IN ACCORDANCE WITH APPLICABLE SMACNA AND ASHRAE 90.1 STANDARDS.
3. ALL PRESSURIZED DOMESTIC WATER PIPING: HYDRAULICALLY TESTED TO A PRESSURE OF 1100 KPA (150 PSI) AND PROVE TIGHT FOR A PERIOD OF 8 HOURS. TESTING WITH NITROGEN IS ALSO ACCEPTABLE PROVIDED A PRESSURE OF 1380 KPA (200 PSI) IS USED.
4. ALL DRAIN, WASTE AND VENT PIPING: HYDRAULICALLY OR NITROGEN TESTED TO A PRESSURE OF 10FT WATER COLUMN FOR A PERIOD OF 2 HOURS.
5. HEATING, CHILLED, CONDENSER AND HEAT PUMP WATER: HYDRAULICALLY TESTED TO 150% OF WORKING PRESSURE FOR A PERIOD OF 8 HOURS.
6. GAS PIPING: LEAKAGE TEST AS PER BC GAS CODES.
7. TRAP PRIMER OPERATION.
8. MOTORIZED DAMPER/ACTUATOR, VAV AND FPB CONTROLS OPERATION.
9. FANS, HEATING AND COOLING UNITS OPERATION.
10. POWER TO ALL UNITS INCLUDING HOT WATER TANKS AND HEATERS.
11. SPRINKLER PIPING: TEST AS PER NFPA 13.
12. MEDIUM PRESSURE DUCTWORK: STATIC PRESSURE OF THE SYSTEM PLUS 2" W.G. (450Pa).
13. FIRE DAMPERS AND SMOKE DAMPERS: CURTAIN DROP TEST AND ACTUATOR OPERATION VERIFICATION.
14. REFRIGERANT SYSTEM: LEAKAGE AND OPERATION TESTING AS PER MANUFACTURER'S RECOMMENDATION.
15. ALL TESTS MUST BE RECORDED AND SUBMITTED TO THE ENGINEER FOR REVIEW. INCLUDE A COPY OF ALL THE TEST RESULTS IN THE CLOSE-OUT DOCUMENT PACKAGE.

6.2 RECORD DRAWINGS
1. KEEP ACCURATE MARK-UP 'AS-BUILT' DRAWINGS ON SITE TO RECORD EXISTING AND NEW MECHANICAL CONDITIONS. LOCATE ALL BELOW GRADE SERVICES. MEASURE OFFSET FROM GRIDLINES, C/W INVERT ELEVATIONS. ALL ALTERNATIVE ROUTING, SIZE AND EQUIPMENT MUST BE UPDATED ON THE HARD COPY SET PRIOR TO SUBMISSION FOR CAD.
2. ENSURE THAT EACH 'AS-BUILT' DRAWING SHEET IS COMPLETE WITH DATE AND THIS CONTRACTOR'S COMPANY 'AS-BUILT' DRAWING STAMP.
3. THE CONTRACTOR TO RETAIN SMITH AND ANDERSEN FOR AUTOCAD 'RECORD DRAWINGS' PREPARATION AT A COST OF $500 PLUS GST.
4. AFTER COMPLETION, PROVIDE THE OWNER AND THE LANDLORD WITH ONE HARD COPY, PDF AND AUTOCAD (2014) 'RECORD DRAWINGS' ON ONE USB FLASH DRIVE PER CLOSE-OUT DOCUMENT SET.

6.3 O&M MANUAL
1. PROVIDE THREE OPERATING AND MAINTENANCE MANUALS EACH CONTAINING DATA SHEETS, BROCHURES, OPERATING AND MAINTENANCE INFORMATION, RECOMMENDED SPARE PARTS LISTS, LUBRICATING INSTRUCTIONS AND AIR AND WATER BALANCING REPORT, AND START UP CERTIFICATES FOR ALL NEW EQUIPMENT. INCLUDE A "REVIEWED" SET OF SHOP DRAWINGS AND BIND IN HARD COVERS WITH "OPERATING AND MAINTENANCE MANUAL" TITLE ON COVER. SUBMIT A SAMPLE MANUAL TO THE CONSULTANT FOR REVIEW BEFORE SUBMITTING THREE COPIES TO THE TENANT.
2. DATA FOR MANUALS SHALL INCLUDE:
   1. EQUIPMENT DATA: OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS AND SCHEDULES, RECOMMENDED SPARE PARTS, LUBRICATION SCHEDULE, ALL WIRING DIAGRAMS, EQUIPMENT OPERATING CURVES, EQUIDPMENT NAMEPLATE DATA AND SERIAL NUMBERS.
   2. SYSTEM DATA: VALVE SCHEDULE AND LOCAITONS, EQUIPMENT TAGS, FILTER SCHEDULE, CLEANING, MAINTAINING AND PRESERVING INSTRUCTIONS FOR ALL MATERIAL, PRODUCTS AND SURFACES.

6.4 COMMISSIONING
1. CONTRACTOR TO PROVIDE COMMISSIONING FOR ALL NEW EQUIPMENT PROVIDED UNDER THE CONTRACT INCLUDING CONTROLS SYSTEM.
2. COMMISSIONING SHALL INCLUDE: PREPARATION OF RECORD SHOP DRAWINGS, INSTALLATION REVIEW AND EQUIPMENT VERIFICATION, PLUMBING AND DRAINAGE SYSTEM TESTING, TESTING OF PIPING SYSTEMS, BALANCING OF WATER SYSTEMS, TESTING OF AIR SYSTEMS, BALANCING OF AIR SYSTEMS, BUILDING AUTOMATION SYSTEM COMMISSIONING, COMMISSIONING PERFORMANCE TESTING, TRAINING AND SYSTEM ACCEPTANCE.
3. PROVIDE A MINIMUM 8-HOUR SESSION OF ON-SITE TRAINING TO THE OWNER AND LANDLORD OR OWNER'S BUILDING OPERATION STAFF MEMBERS. VERIFY ALL SEQUENCE OF OPERATION AND DEMONSTRATE EQUIPMENT OPERATION TO OWNER, LANDLORD AND ENGINEER WHEN REQUESTED. PROVIDE A WRITTEN REPORT OF COMMISSIONING.
4. ALL SYSTEMS AND EQUIPMENT INSTALLED BY THE CONTRACTOR SHALL BE TESTED AND COMMISSIONED. THESE INCLUDE BUT ARE NOT LIMITED TO:
   1. FIXTURES;
   2. BACK-FLOW PREVENTERS;
   3. TRAP PRIMERS;
   4. HOT WATER TANKS AND HEATERS;
   5. FANS;
   6. HEATING AND COOLING TERMINAL UNITS, INCLUDING FAN COILS, HEAT PUMPS AND VAV BOXES;
   7. AIR HANDLING AND ROOFTOP UNITS;
   8. MOTORIZED DAMPER/ACTUATORS AND ALL CONTROLS;

6.5 CLEANING
1. CLEANING AND REMOVAL OF DEMOLISHED AND/OR SCRAP MATERIAL FROM SITE SHALL BE BY THIS CONTRACTOR. LEAVE SITE IN BROOM CLEAN CONDITION.
2. REPLACE FILTERS OF ALL HVAC UNITS SERVING THE PROJECT AREA INCLUDING, BUT NOT LIMITED TO MAIN AIR HANDLING UNIT, ROOF TOP UNIT, AND TERMINAL FAN COIL/HEAT PUMP UNITS UPON COMPLETION.

7. MOTORIZED CONTROL DAMPER

7.1 MOTORIZED CONTROL DAMPERS:
1. SIZING:
   1. DIMENSIONS: AS INDICATED. MAXIMUM DAMPER SECTION SIZE: 1200 MM X 1500 MM (48 IN. X 60 IN.). FOR DAMPERS LARGER THAN THE SECTION MAXIMUM, USE AN ASSEMBLY OF MULTIPLE, EQUALLY SIZED SECTIONS.
   2. TWO-POSITION: PARALLEL BLADE.
   3. MODULATING: OPPOSED BLADE. PARALLEL BLADE DAMPERS MAY BE USED FOR RETURN AIR AND BYPASS APPLICATIONS.
2. FRAME: 125 MM X 25 MM X 3 MM (5 IN. X 1 IN. X 0.125 IN.) 6063T5 EXTRUDED ALUMINUM WITH MOUNTING FLANGES ON BOTH SIDES.
3. BLADES: AIRFOIL SHAPE, 6063T5 EXTRUDED ALUMINUM, MAXIMUM 150 MM (6 IN.) DEPTH.
4. SEALS:
   1. BLADE EDGE: EXTRUDED THERMOPLASTIC RUBBER (TPR) SUITABLE FOR -58 DEG. C TO 135 DEG. C (-72 DEG. F TO 275 DEG. F), MECHANICALLY LOCKED IN PLACE AND EASILY REPLACEABLE IN THE FIELD.
   2. BLADE JAMB: SPRING-LOADED STAINLESS STEEL.
5. BEARINGS: MOLDED SYNTHETIC.
6. LINKAGE: CORROSION RESISTANT STEEL AND CONCEALED IN THE FRAME.
7. DRIVE SHAFT: CORROSION RESISTANT STEEL OF SQUARE OR HEXAGON SHAPE.
8. AXLE: CORROSION RESISTANT STEEL.
9. LEAKAGE: MAXIMUM 40.6 L/S/SQ M (8 CFM/SQ FT) AT 1.0 KPA (4 IN. W.G.) OF DIFFERENTIAL PRESSURE ACROSS FULLY CLOSED DAMPER WHEN TESTED TO AMCA STANDARD 511.
10. MAKE AND MODEL: RUSKIN CD-50 OR EQUIVALENT. SPEC SHEET LINK: MODEL CD-50

8. FLOOR DRAIN

8.1 WORK INCLUDED
1. CONFORM TO SECTION 20 05 00.00 _ GENERAL INSTRUCTIONS FOR MECHANICAL SECTIONS.

8.2 SUBMITTALS
1. SUBMIT SHOP DRAWINGS AND/OR CATALOGUE CUTS OF ALL ITEMS SUPPLIED IN ACCORDANCE WITH REQUIREMENTS OF SECTION 20 05 03.00 - SHOP DRAWINGS.

8.3 PRODUCTS
1. DELETE FLOOR DRAINS NOT REQUIRED. ADD NEW DRAINS IF REQUIRED.
2. MATERIALS
   1. FLOOR DRAINS SHALL BE J. R. SMITH, MIFAB, WATTS,OR ZURN.
3. FINISHED AREAS
   1. FLOOR DRAINS IN FINISHED AREAS SHALL BE ALL COATED CAST IRON BODY, FLASHING CLAMP WITH SEEPAGE OPENINGS AND ADJUSTABLE 127 MM (5") DIAMETER NICKEL BRONZE 6.35 MM (1/4") THICK STRAINER, SECURED WITH SS SCREWS, 100 MM (4") THROAT ON STRAINER. DRAIN SHALL BE COMPLETE WITH TRAP PRIMER CONNECTION. J.R. SMITH 2005A05NB_P050, ZURN ZN_415_B5, MIFAB F1100C_5_1, WATTS FD_100_C_A5_1, SPEC SHEET LINK: MODEL 2005A05NB-P050, MODEL ZN-415-B5, MODEL F1100C-5-1, MODEL FD-100-C-A5-1
   2. FLOOR DRAINS IN FINISHED AREAS AND STAINLESS STEEL TOP SHALL BE ALL COATED CAST IRON BODY, FLASHING CLAMP WITH SEEPAGE OPENINGS AND ADJUSTABLE 127 MM (5") DIAMETER STAINLESS STEEL HEAVY DUTY STRAINER WITH NO. 4 SATIN FINISH, SECURED WITH SS SCREWS, 100 MM (4") THROAT ON STRAINER. DRAIN SHALL BE COMPLETE WITH TRAP PRIMER CONNECTION. J.R. SMITH 2005_A05SS_P050, ZURN ZXSS_415_A5, MIFAB F1000C_5_3, WATTS FD_1100_C_5_3. SPEC SHEET LINK: MODEL 2005-A05SS-P050, MODEL ZXSS-415-A5, MODEL F1000C-5-3, MODEL FD-1100-C-5-3
   3. FUNNEL FLOOR DRAINS IN FINISHED AREAS SHALL BE SIMILAR TO FLOOR DRAINS IN FINISHED AREAS BUT WITH MINIMUM NOMINAL 127 MM (5") DIA. STRAINER. FULL OPENING FOR FUNNEL AND NOMINAL 75 MM X 225 MM (3 IN. X 9 IN.) OVAL FUNNEL. J.R. SMITH 2005_A05_NB_3591_OT_P050, ZURN ZN_415_BF, MIFAB F1100C_EG_1, WATTS FD_100_C_EG_1. SPEC SHEET LINK: MODEL 2005-A05-NB-3591-OT-P050, MODEL ZN-415-BF, MODEL F1100C-EG-1, MODEL FD-100-C-EG-1
4. NON_FINISHED AREAS
   1. FLOOR DRAINS IN NON_FINISHED AREAS SHALL BE COATED CAST IRON BODY, DRAINAGE FLANGE, ADJUSTABLE NOMINAL 200 MM (8 IN.) DIA. HEAVY_DUTY STRAINER. DRAIN SHALL BE COMPLETE WITH TRAP PRIMER CONNECTION. J.R. SMITH 2110_ZURN_Z_536_8, MIFAB 1320C_4_G_50, WATTS FD320_4. SPEC SHEET LINK: MODEL 2110-3591, MODEL Z-536-8-F0, MODEL 1320C-4-G-50, MODEL FD320-4-G-50
   2. FUNNEL FLOOR DRAINS IN NON_FINISHED AREA SHALL BE SIMILAR TO FLOOR DRAINS IN NON_FINISHED AREAS BUT WITH NOMINAL 75 MM X 225 MM (3 IN. X 9 IN.) OVAL FUNNEL. J.R. SMITH 2110_3591_ZURN Z_536_8_F0, MIFAB 1320C_4_G_50, WATTS FD320_4_G_50. SPEC SHEET LINK: MODEL 2110-3591, MODEL Z-536-8-F0, MODEL 1320C-4-G-50, MODEL FD320-4-G-50
   3. ELECTRONIC AUTOMATIC TRAP SEAL PRIMER SYSTEM SHALL HAVE 12 MM (1/2 IN.) CONNECTION BE COMPLETE WITH INTEGRAL BALL VALVE, CSA B64 BACKFLOW PREVENTION TO THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. THE UNIT SHALL BE PRE_PIPED WITH A COPPER MANIFOLD AND DISTRIBUTION SYSTEM SUITABLE FOR THE NUMBER OF DRAINS SERVED. ELECTRICAL COMPONENTS TO REQUIRE A SINGLE POINT POWER CONNECTION AT 120V. UNIT SHALL INCLUDE A MANUAL OVERRIDE SWITCH AND 24 HOUR TIMER WITH RELAY AND ADJUSTABLE DELAY. ALL COMPONENTS SHALL BE FACTORY ASSEMBLED AND INSTALLED INTO A COATED STEEL BOX WITH ACCESS DOOR FOR MOUNTED INSTALLATION. MIFAB MI 100 _UA SERIES, ZURN Z1020 SERIES OR PPP PT OR MPB_500 SERIES. ELECTRONIC TRAP SEAL PRIMERS ARE PREFERRED OVER THE PRESSURE DROP ACTIVATED TYPE. SELECT RECESSED OR SURFACE MOUNTED OPTIONS. COORDINATE THE LOCATION OF THESE PRIMERS WITH THE ARCHITECT. COORDINATE THE POWER REQUIREMENTS WITH ELECTRICAL.

8.4 EXECUTION
1. INSTALLATION
   1. PROVIDE ELECTRONIC TRAP SEAL PRIMER ASSEMBLIES FOR ALL FLOOR DRAIN TRAPS. TRAP PRIMER SHALL BE INSTALLED AT THE NEAREST COLD WATER SERVED FIXTURE OR FAUCET, EXCEPT DRINKING FOUNTAINS.
   2. PROVIDE ACCESS TO PRIMER ASSEMBLY FOR REPAIR OR REPLACEMENT.
   3. PROVIDE A GLOBE VALVE ON THE WATER SUPPLY FOR REGULATION AND SHUT_OFF.
   4. WHERE INTEGRAL BACKFLOW PREVENTION IS NOT SUFFICIENT TO THE MEET THE REQUIREMENTS OF CSA B64, PROVIDE A REDUCED PRESSURE BACKFLOW PREVENTION DEVICE ON THE WATER SUPPLY TO THE TRAP SEAL PRIMER IN A SUITABLE LOCATION AND DISCHARGE PIPED TO DRAIN.

9. ACCESS DOORS AND ACCESSIBILITY

9.1 SUBMITTALS
1. SUBMIT SHOP DRAWINGS SHOWING SIZE, TYPE AND LOCATION OF ALL ACCESS DOORS, FOR REVIEW, BEFORE INSTALLATION IN ACCORDANCE WITH SECTION 1 GENERAL.
2. HAVE BALANCING CONTRACTOR REVIEW PROPOSED ACCESS DOOR SIZES AND LOCATIONS TO ENSURE THAT SUFFICIENT ACCESS IS AVAILABLE. CONFIRM IN WRITING THAT THIS REVIEW HAS OCCURRED.

9.2 PRODUCTS
1. MATERIALS
   1. PROVIDE ACCESS DOORS THAT COMPLY WITH SECTION 08 31 00 - ACCESS DOORS AND PANELS FROM THE ARCHITECTURAL SPECIFICATION. COORDINATE THIS SPEC SECTION NUMBER/NAME WITH THE ARCHITECT. WHERE THE ARCHITECTURAL SPECIFICATION SECTION IS SILENT ON A REQUIRED ACCESS DOOR TYPE, COMPLY WITH THE PART 2 CLAUSES IN THIS SECTION.
   2. PROVIDE ACCESS DOORS BY ACUDOR, BAUCO OR MIFAB MANUFACTURING INC. STEEL THICKNESS (US GUAGE) INDICATED AS MINIMUM ACCEPTABLE.
   3. FOR DOORS IN SOLID WALLS, PROVIDE A 16 US GAUGE, PRIME PAINTED STEEL DOOR PANEL, RUST RESISTANT CONCEALED HINGES, FLANGED FRAME, AND SCREWDRIVER OPERATED LOCK. ACUDOR MODEL UF-5000 OR MIFAB MODEL UA.
   4. FOR DOORS IN DRYWALL PARTITIONS OR CEILINGS, PROVIDE A MINIMUM 22 US GAUGE, PRIME PAINTED STEEL RECESSED DOOR PANEL FOR THE ACCEPTANCE OF A DRYWALL INSERT, CONCEALED HINGES, DRYWALL BEAD FRAME, AND SCREWDRIVER OPERATED LOCK. BAUCO PLUS II, ACUDOR MODEL DW-5015 OR MIFAB MODEL CAD_DW.
   5. FOR DOORS IN DRYWALL PARTITIONS OR CEILINGS, PROVIDE 16 US GAUGE, PRIME PAINTED STEEL FLUSH DOOR PANEL, CONCEALED HINGES, DRYWALL BEAD FRAME, AND SCREWDRIVER OPERATED LOCK. ACUDOR MODEL DW-5040 OR MIFAB MODEL MDW. SPEC SHEET LINK: MODEL DW-5040, MODEL MDW
   6. FOR ACCESS DOORS IN FIRE RATED WALLS OR CEILINGS, PROVIDE ULC LABELED WITH INSULATED DOOR PANEL, CONCEALED HINGE, SELF_CLOSING, SELF_LATCHING, FLANGED FRAME, AND PRIME PAINTED. PROVIDE MASTER KEY OPERATED CATCH IN AREAS ACCESSIBLE TO THE PUBLIC. ACUDOR MODEL FW-5050 OR MIFAB MPFR. SPEC SHEET LINK: MODEL FW-5050, MODEL MPFR
   7. FOR DOORS IN TILED WALLS OR CEILINGS, PROVIDE 16 US GAUGE, STAINLESS STEEL, TYPE 304 WITH #4 SATIN FINISH, CONCEALED HINGES, WALL FRAME AND SCREW DRIVER OPERATED LOCK. ACUDOR MODEL UF-5000 OR MIFAB MODEL UA_SS. SPEC SHEET LINK: MODEL UF-5000, MODEL UA-SS
   8. FOR DOORS FOR MEDIUM AND HIGH SECURITY APPLICATIONS IN SOLID WALLS, PROVIDE 10 US GAUGE DOOR WITH MINIMUM 4 MM (3/16 IN.) WELDED ANGLE FRAME WITH HEAVY DUTY BUTT HINGES WELDED TO THE DOOR AND FRAME WITH MASTER KEYED CYLINDER LOCK PROVIDED BY THE OWNER. ACUDOR MODEL SD-6000 OR MIFAB MODEL MI_SADH.

9.3 EXECUTION
1. INSTALLATION
   1. PROVIDE ACCESS DOORS OF MINIMUM 600 MM X 600 MM (24 IN. X 24 IN.) SIZE. CUSTOM SIZE ACCESS DOORS MAY BE REQUIRED TO ALLOW COMBINING ACCESS DOORS IN CLOSE PROXIMITY AND TO ENSURE MAINTENANCE AND ACCESSIBILITY OF ALL PARTS REQUIRING PERIODIC MAINTENANCE.
   2. ENSURE ALL PARTS OF THE INSTALLATION REQUIRING PERIODIC MAINTENANCE ARE ACCESSIBLE. WHEREVER VALVES, DAMPERS AND OTHER APPURTENANCES ARE CONCEALED BY BUILDING CONSTRUCTION, PROVIDE ACCESS DOORS AND INSTALL UNDER THE RESPECTIVE TRADE SECTIONS (I.E. MASONRY, PLASTER, DRYWALL, TILE, ETC.). BE RESPONSIBLE FOR THE PROPER LOCATION OF THE ACCESS DOORS.
   3. FOR ALL MECHANICAL EQUIPMENT LOCATED ABOVE DRYWALL AND OTHER INACCESSIBLE CEILINGS, PROVIDE ACCESS DOORS THAT WILL ALLOW FOR FULL REMOVAL AND REPLACEMENT.
   4. FOR WALL MOUNTED PLUMBING FIXTURES WITH BACK WATER CONNECTION, PROVIDE AN ADJACENT ACCESS DOOR.
   5. WHEREVER POSSIBLE, LOCATE ITEMS REQUIRING ACCESS IN EASILY ACCESSIBLE AREAS (I.E. EXPOSED OR T_BAR CEILINGS).
   6. GROUP ITEMS IN ORDER TO MINIMIZE THE NUMBER OF ACCESS DOORS REQUIRED.
   7. INSTALL EACH ACCESS DOOR TO PROVIDE COMPLETE ACCESS TO EQUIPMENT FOR MAINTENANCE AND SERVICING.
   8. MAKE ANY CHANGES TO LOCATIONS OF ACCESS DOORS AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.
   9. SHOW THE FINAL INSTALLED LOCATIONS OF ALL ACCESS DOORS ON THE AS_BUILT DRAWINGS.

11. NATURAL GAS PIPING SYSTEM

11.1 WORK INCLUDED
1. CONFIRM TO SECTION 20 05 00.00. GENERAL INSTRUCTIONS FOR MECHANICAL SECTIONS.

11.2 PRODUCTS
1. MATERIALS
   1. PIPE AND FITTINGS FOR 860 KPA (125 PSI) AND LOWER, FULLY WELDED AS ACCEPTED BY AUTHORITY HAVING JURISDICTION:
      1. SCHEDULE 40 STEEL, ASTM A106 OR ASTM A53 UP TO 250 MM (NPS 10)
      2. STANDARD WEIGHT STEEL, ASTM A106 OR ASTM A53 LARGER THAN 250 MM (NPS 10)
      3. STEEL FITTINGS, ANSI/ASME B16.3, WELDED
      4. MALLEABLE IRON FITTINGS, THREADED, UP TO 50 MM (2 IN.) DIAMETER FOR CONNECTIONS CLOSE TO EQUIPMENT AND DIRT POCKETS.
      5. FACTORY APPLIED, THREE LAYER COATING OF EPOXY, ADHESIVE, AND PE PROTECTIVE COATING FOR UNDERGROUND STEEL PIPE.
         1. EPOXY PAINT, ADHESIVE, AND HEAT SHRINK PE SLEEVES JOINT COVER KITS.
   2. MANUAL VALVES FOR 860 KPA (125 PSI) AND LOWER, AS ACCEPTED BY THE AUTHORITY HAVING JURISDICTION:
      1. BALL OR PLUG TYPE
      2. CSA/CHA B3.16
      3. SUPERVISORY SWITCH (WHERE SPECIFIED OR SHOWN)
   3. ROOF PENETRATIONS:
      1. THALER MEF 9 18 GAS PIPE FLASHING WITH PERFORATED NECH, REMOVABLE CAP, EPDM GROMMET SEAL.

11.3 EXECUTION
1. INSTALLATION
   1. CONNECT TO THE METERING STATION AND PROVIDE ALL DOWNSTREAM PIPE AND APPURTENANCES.
   2. ALL PIPING UP TO AND INCLUDING THE METER AND INCOMING SERVICE PRESSURE REDUCING STATION IS BY THE NATURAL GAS SERVICE PROVIDER OR THEIR AGENT.
   3. PROVIDE PRESSURE REDUCING VALVES AND OVERPROTECTION DEVICES WHERE SHOWN OR AS REQUIRED FOR CONFORMANCE WITH CSA B149.1 FOR EQUIPMENT SUPPLIED UNDER THIS CONTRACT.
   4. PIPE RELIEF FROM PRESSURE REDUCING VALVES TO OUTDOORS. VENT LESS PRESSURE REDUCING VALVES MAY BE USED WHERE PERMITTED BY THE AUTHORITY HAVING JURISDICTION.
   5. WELD ALL DISTRIBUTION PIPING WITHIN THE BUILDING, AND UTILIZE SCREWED AND/OR FLANGED FITTINGS AT EQUIPMENT ONLY.
   6. PAINT NATURAL GAS PIPING IN ITS ENTIRETY AN APPROVED COLOUR IN ACCORDANCE WITH CSA B149.1. BANDING IS NOT PERMITTED.
   7. PROVIDE THERMAL EXPANSION CONTROL FOR GAS PIPING ON THE ROOF AS REQUIRED BY CSA B149.1.

REVISIONS

NO.	DATE	PARTICULAR
1	2026-03-17	ISSUED FOR PROGRESS REVIEW
2	2026-03-25	ISSUED FOR PROGRESS REVIEW
3	2026-03-27	ISSUED FOR TENDER

NOTES:

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Smith + Andersen
148 Fullarton St, Suite 1400 London Ontario N6A 5P3
519 963 8888 www.smithandandersen.com

KEY PLAN:

CLIENT:
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S,
WATERLOO, ON
N2L 6N5

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
A - DETAIL NO.
B - DETAIL NO. ORIGIN

+VG ARCHITECTS
THE VENTIN GROUP LTD

N
CN

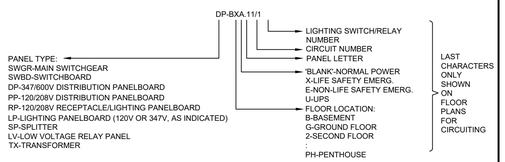
MECHANICAL SPECIFICATIONS

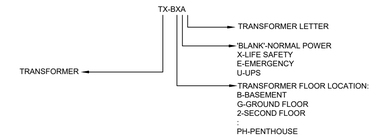
TM3.3

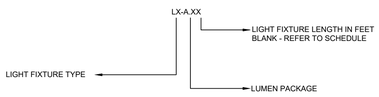
DRAWN BY :
CHECKED BY : NO

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S, WATERLOO, ON N2L 6N5







NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

4 E000 DESIGNATION DIAGRAM (ESD-000.17)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
6 / E-01	DETAIL NUMBER / DRAWING NUMBER	12 / E-01	SECTION NUMBER / DRAWING NUMBER
4	REVISION NUMBER		REVISION BUBBLE
A	AMPS	MO	MOTOR OPERATED
AD	ACCESS DOOR	MOD	MOTOR OPERATED DAMPER
AFCI	ARC FAULT CIRCUIT INTERRUPTER	MW	MICROWAVE
AFF	ABOVE FINISHED FLOOR	N	NEW
BBH	BASEBOARD HEATER	NC	NORMALLY CLOSED
BU	BATTERY UNIT	NIC	NOT IN CONTRACT
C	CONDUIT	NL	NIGHT LIGHT
CD	CANDELA	NO	NORMALLY OPEN
CL	CEILING MOUNTED	OC	OVER COUNTER
CS	CHARGING STATION	OL	OBSTRUCTION LIGHT
CV	CONVENTIONAL STYLE DEVICE	P	PARABOLIC LOUVRE
D	DEDICATED	PL	PATIENT LIFT
DG	DEDICATED GROUND	R	RELOCATE
DHWT	DOMESTIC HOT WATER TANK	RA	RANGE
DNC	DEDICATED NEUTRAL + BOND	RC	REVISE EXISTING CIRCUIT
DR	LAUNDRY DRYER	RH	RANGE HOOD
DW	DISHWASHER	RIC	ROUGH IN AND CONNECT
E	EXISTING	RO	ROUGH IN ONLY
EF	EXHAUST FAN	RR	REMOVE AND REINSTALL
EM	EMERGENCY CIRCUIT	SC	SEPARATE CIRCUIT
EP	ELECTRICAL SUITE PANEL	SF	SYSTEM FURNITURE
ER	EXISTING TO BE REMOVED	SP	SUITE ALARM PANEL
F	REFRIGERATOR	SSP	SLAVE SUITE ALARM PANEL
FF	FLOOR FEED	TYP	TYPICAL
FFH	FORCE FLOW HEATER	UC	UNDER CABINET MOUNTED
FL	FLOOR MOUNTED	U	UPS CIRCUIT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UH	UNIT HEATER
GFI	GROUND FAULT INTERRUPTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
GND	GROUND	V	VOLTS
HK	HOUSE KEEPING	W	WATTS
HMT	HARMONIC MITIGATING TRANSFORMER	WG	WIRE GUARD
ICE	ICE MACHINE	WAP	WIRELESS ACCESS POINT
IG	ISOLATED GROUND	WF	WALL FEED
JB	JUNCTION BOX	WP	WEATHERPROOF
KW	KILOWATTS	X	EXPLOSION PROOF DEVICE + BACK BOX
LV	LOW VOLTAGE	ZSCT	ZERO SEQUENCE CURRENT TRANSFORMER

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

3 E000 GENERAL AND SYMBOLS AND ABBREVIATIONS (ESD-000.03)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	WALL MOUNTED VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	EPS	WALL MOUNTED VOICE OUTLET FOR EMERGENCY PHONE STATION. CABLE TYPE AS PER SPECIFICATION
	WALL MOUNTED ABOVE COUNTER VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	EPS	WALL MOUNTED ABOVE COUNTER VOICE OUTLET FOR EMERGENCY PHONE STATION. CABLE TYPE AS PER SPECIFICATION
	WALL MOUNTED VOICE OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	IC	COMMUNICATIONS INTERCOM
	WALL MOUNTED ABOVE COUNTER VOICE OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		SERVICE POLE MOUNTED VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.
	WALL MOUNTED DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		RACEWAY MOUNTED VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.
	WALL MOUNTED ABOVE COUNTER DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		COAXIAL CATV OUTLET
	FLOOR MOUNTED VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	-J-J-J-J-	MAIN CABLE SUPPORT ROUTE FOR COMMUNICATIONS CABLING
	FLOOR MOUNTED VOICE OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	CB	COMMUNICATIONS BOX
	FLOOR MOUNTED DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	P	POWER ZONE BOX
	FURNITURE MOUNTED VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.	T	TELEPHONE ZONE BOX
	FURNITURE MOUNTED VOICE OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		
	FURNITURE MOUNTED DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		
	CEILING MOUNTED VOICE AND DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		
	CEILING MOUNTED DATA OUTLET(S). CABLE TYPE AS PER SPECIFICATION.		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

2 E000 DATA AND COMMUNICATIONS (ESD-000.05)

Sheet List Table

Sheet Number	Sheet Title
TE0.0	ELECTRICAL DRAWING LIST AND LEGENDS
TE0.1	ELECTRICAL LEGENDS
TED1.0	ROOF PLAN - ELECTRICAL DEMOLITION
TE1.0	ELECTRICAL FLOOR PLANS
TE1.1	ROOF PLAN - ELECTRICAL - NEW

1 E000 ELECTRICAL DRAWING LIST

REVISIONS

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NOTES:

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KEY PLAN:

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WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

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+VG ARCHITECTS
THE VENTIN GROUP LTD

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ELECTRICAL DRAWING LIST AND LEGENDS

TE0.0

DRAWN BY : AD
CHECKED BY : BT

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ALARM INITIATING DEVICES		
	CEILING MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR		AIR SAMPLING SYSTEM C/W SUPERVISORY AND ALARM ZONE
	WALL MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR		MANUAL PULL STATION
	CEILING MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR C/W RELAY BASE	FS	ALARM FLOW SWITCH (SUPPLIED BY OTHERS)
	CEILING MOUNTED RATE-OF-RISE HEAT DETECTOR	PS	ALARM PRESSURE SWITCH (SUPPLIED BY OTHERS)
	WALL MOUNTED RATE-OF-RISE HEAT DETECTOR	ACV	ALARM CHECK VALVE (SUPPLIED BY OTHERS)
	CEILING MOUNTED FIXED TEMPERATURE HEAT DETECTOR	DPV	ALARM DRY PIPE VALVE (SUPPLIED BY OTHERS)
	WALL MOUNTED FIXED TEMPERATURE HEAT DETECTOR	BMX	BEAM SMOKE DETECTOR (TRANSMITTER)
	DUCT TYPE PHOTO-ELECTRIC SMOKE DETECTOR	BMX	BEAM SMOKE DETECTOR (RECEIVER)
	CEILING MOUNTED COMBINATION HEAT + SMOKE DETECTOR		FLAME DETECTOR
SA	LOCAL 120V SMOKE ALARM		
CO/SA	LOCAL 120V COMBINATION CARBON MONOXIDE AND SMOKE ALARM		
CO	LOCAL 120V CARBON MONOXIDE DETECTOR		
SA	LOCAL 120V COMBINATION STROBE AND SMOKE ALARM		
	SUPERVISORY INITIATING DEVICES		
LP	LOW PRESSURE SUPERVISED SWITCH (SUPPLIED BY OTHERS)		
SV	SPRINKLER SUPERVISED VALVE (SUPPLIED BY OTHERS)		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

1 E001 FIRE ALARM LEGEND 1 OF 2 (ESD-000.07)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SIGNALING DEVICES		
	HORN	S	CEILING MOUNTED EMERGENCY EVACUATION SPEAKER
	DOUBLE SIDED HORN	S	WALL MOUNTED EMERGENCY EVACUATION SPEAKER
	HORN+STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.	S	CEILING MOUNTED EMERGENCY EVACUATION SPEAKER + STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
	DOUBLE SIDED HORN+STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.		
	MINI HORN	S	WALL MOUNTED EMERGENCY EVACUATION SPEAKER + STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
	SPEAKER HORN		
	FIRE ALARM BELL. 103mm(4") UNLESS OTHERWISE NOTED.		CEILING MOUNTED FIRE ALARM STROBE. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
	FIRE ALARM BELL/STROBE. 103mm(4") BELL UNLESS OTHERWISE NOTED. 15CD INTENSITY UNLESS OTHERWISE NOTED.		WALL MOUNTED FIRE ALARM STROBE. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
SS	10 MINUTES SILENCE SWITCH FOR SPEAKERS IN SUITES		
	ANCILLARY DEVICES		
ISO	ISOLATION MODULE	PACP	TROUBLE AND ALARM CONNECTION TO PRE-ACTION CONTROL PANEL
CTL	FIELD INSTALLED ADDRESSABLE CONTROL POINT		FLOOR MOUNTED DOOR HOLD OPEN DEVICE
FIRE	"FIRE, DO NOT ENTER" SIGN		WALL MOUNTED DOOR HOLD OPEN DEVICE
FPG	FIRE ALARM PASSIVE GRAPHIC		FIRE ALARM PANEL. CONTROL, DGP OR ANNUNCIATOR AS NOTED.
VDT	VIDEO DISPLAY TERMINAL, FOR BUILDING OPERATIONS PERSONNEL		END-OF-LINE RESISTOR TERMINATION
HS	SUPERVISED FIRE FIGHTERS HAND SET		SMOKE DAMPER, USED IN CONJUNCTION WITH MONITORING DEVICE FOR POSITION ANNUNCIATION AND CONTROL DEVICE
FASD	FIRE ALARM SHUT DOWN		
FASU	FIRE ALARM START UP		
RT	REMOTE TESTING STATION FOR DUCT SMOKE DETECTORS		
MON	FIELD INSTALLED MONITORING MODULE FOR ALARM OR SUPERVISORY		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

2 E001 FIRE ALARM LEGEND 2 OF 2 (ESD-000.08)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ALARM INITIATING DEVICES		
	CEILING MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR		AIR SAMPLING SYSTEM C/W SUPERVISORY AND ALARM ZONE
	WALL MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR		MANUAL PULL STATION
	CEILING MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR C/W RELAY BASE	FS	ALARM FLOW SWITCH (SUPPLIED BY OTHERS)
	CEILING MOUNTED RATE-OF-RISE HEAT DETECTOR	PS	ALARM PRESSURE SWITCH (SUPPLIED BY OTHERS)
	WALL MOUNTED RATE-OF-RISE HEAT DETECTOR	ACV	ALARM CHECK VALVE (SUPPLIED BY OTHERS)
	CEILING MOUNTED FIXED TEMPERATURE HEAT DETECTOR	DPV	ALARM DRY PIPE VALVE (SUPPLIED BY OTHERS)
	WALL MOUNTED FIXED TEMPERATURE HEAT DETECTOR	BMX	BEAM SMOKE DETECTOR (TRANSMITTER)
	DUCT TYPE PHOTO-ELECTRIC SMOKE DETECTOR	BMX	BEAM SMOKE DETECTOR (RECEIVER)
	CEILING MOUNTED COMBINATION HEAT + SMOKE DETECTOR		FLAME DETECTOR
SA	LOCAL 120V SMOKE ALARM		
CO/SA	LOCAL 120V COMBINATION CARBON MONOXIDE AND SMOKE ALARM		
CO	LOCAL 120V CARBON MONOXIDE DETECTOR		
SA	LOCAL 120V COMBINATION STROBE AND SMOKE ALARM		
	SUPERVISORY INITIATING DEVICES		
LP	LOW PRESSURE SUPERVISED SWITCH (SUPPLIED BY OTHERS)		
SV	SPRINKLER SUPERVISED VALVE (SUPPLIED BY OTHERS)		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

5 E001 FIRE ALARM LEGEND 1 OF 2 (ESD-000.07)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SIGNALING DEVICES		
	HORN	S	CEILING MOUNTED EMERGENCY EVACUATION SPEAKER
	DOUBLE SIDED HORN	S	WALL MOUNTED EMERGENCY EVACUATION SPEAKER
	HORN+STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.	S	CEILING MOUNTED EMERGENCY EVACUATION SPEAKER + STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
	DOUBLE SIDED HORN+STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.		
	MINI HORN	S	WALL MOUNTED EMERGENCY EVACUATION SPEAKER + STROBE COMBINATION. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
	SPEAKER HORN		
	FIRE ALARM BELL. 103mm(4") UNLESS OTHERWISE NOTED.		CEILING MOUNTED FIRE ALARM STROBE. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
	FIRE ALARM BELL/STROBE. 103mm(4") BELL UNLESS OTHERWISE NOTED. 15CD INTENSITY UNLESS OTHERWISE NOTED.		WALL MOUNTED FIRE ALARM STROBE. STROBE INTENSITY TO BE MIN. 15CD UNLESS OTHERWISE NOTED.
SS	10 MINUTES SILENCE SWITCH FOR SPEAKERS IN SUITES		
	ANCILLARY DEVICES		
ISO	ISOLATION MODULE	PACP	TROUBLE AND ALARM CONNECTION TO PRE-ACTION CONTROL PANEL
CTL	FIELD INSTALLED ADDRESSABLE CONTROL POINT		FLOOR MOUNTED DOOR HOLD OPEN DEVICE
FIRE	"FIRE, DO NOT ENTER" SIGN		WALL MOUNTED DOOR HOLD OPEN DEVICE
FPG	FIRE ALARM PASSIVE GRAPHIC		FIRE ALARM PANEL. CONTROL, DGP OR ANNUNCIATOR AS NOTED.
VDT	VIDEO DISPLAY TERMINAL, FOR BUILDING OPERATIONS PERSONNEL		END-OF-LINE RESISTOR TERMINATION
HS	SUPERVISED FIRE FIGHTERS HAND SET		SMOKE DAMPER, USED IN CONJUNCTION WITH MONITORING DEVICE FOR POSITION ANNUNCIATION AND CONTROL DEVICE
FASD	FIRE ALARM SHUT DOWN		
FASU	FIRE ALARM START UP		
RT	REMOTE TESTING STATION FOR DUCT SMOKE DETECTORS		
MON	FIELD INSTALLED MONITORING MODULE FOR ALARM OR SUPERVISORY		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

6 E001 FIRE ALARM LEGEND 2 OF 2 (ESD-000.08)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	WALL MOUNTED DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		WALL MOUNTED COMBINATION COMMS./ QUADPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R. REFER TO DETAIL.
	WALL MOUNTED ABOVE COUNTER DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		FLOOR OR CEILING MOUNTED (AS SHOWN) COMBINATION COMMUNICATION / QUADPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R. REFER TO CORRESPONDING DETAIL.
	WALL MOUNTED DUPLEX RECEPTACLE 120 VOLT, 20 AMP, CSA 5-20R (T-SLOT)		
	WALL MOUNTED ABOVE COUNTER DUPLEX RECEPTACLE 120 VOLT, 20 AMP, CSA 5-20R (T-SLOT)		FLOOR POKE THROUGH COMBINATION COMMUNICATION / QUADPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R. REFER TO CORRESPONDING DETAIL.
	WALL MOUNTED DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R, DEDICATED CIRCUIT		
	WALL MOUNTED DUPLEX RECEPTACLE 120 VOLT, 20 AMP, CSA 5-20R, DEDICATED CIRCUIT		FLOOR POKE THROUGH AS ABOVE WITH AUDIO/VISUAL REQUIREMENT. REFER TO DETAIL.
	WALL MOUNTED, SPLIT SWITCH CONTROLLED DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		WALL MOUNTED COMBINATION COMMS./ DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R. REFER TO DETAIL.
	WALL MOUNTED DUPLEX GROUND FAULT RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		FLOOR OR CEILING MOUNTED (AS SHOWN) COMBINATION COMMUNICATION / DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R. REFER TO CORRESPONDING DETAIL.
	WALL MOUNTED ABOVE COUNTER DUPLEX GROUND FAULT RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		
	WALL MOUNTED DUPLEX GROUND FAULT RECEPTACLE 120 VOLT, 20 AMP CSA 5-20R		FLOOR POKE THROUGH COMBINATION COMMUNICATION / DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R. REFER TO CORRESPONDING DETAIL.
	WALL MOUNTED ABOVE COUNTER DUPLEX GROUND FAULT RECEPTACLE 120 VOLT, 20 AMP CSA 5-20R		
	WALL MOUNTED QUADPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		FLOOR POKE THROUGH AS ABOVE WITH AUDIO/VISUAL REQUIREMENT. REFER TO DETAIL.
	WALL MOUNTED DUPLEX RECEPTACLE 120 VOLT, 15 AMP, 2 POLE, SPLIT CIRCUIT		SYSTEMS FURNITURE FEED POINT FOR POWER & COMMS. CABLING. LETTER DENOTES FEED LOCATION. W= WALL, F= FLOOR, P= PAC POLE, WM = WIREMOLD
	WALL MOUNTED ABOVE COUNTER DUPLEX RECEPTACLE 120 VOLT, 15 AMP, 2 POLE, SPLIT CIRCUIT		
	WALL MOUNTED SIMPLEX RECEPTACLE 250 VOLT, 15 AMP, 3Ø CSA 15-15R		CEILING MOUNTED DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R
	SPECIAL RECEPTACLE. TYPE AND DETAILS AS NOTED ON DRAWING.		CEILING MOUNTED SIMPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R
	WALL MOUNTED ABOVE COUNTER SIMPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R		CEILING MOUNTED QUADPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R
	WALL MOUNTED SIMPLEX RECEPTACLE 120 VOLT, 20 AMP, CSA 5-20R		FLOOR MOUNTED DUPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R
	WALL MOUNTED SIMPLEX RECEPTACLE 250 VOLT, 30 AMP, CSA 14-30R		FLOOR MOUNTED QUADPLEX RECEPTACLE 120 VOLT, 15 AMP, CSA 5-15R
	WALL MOUNTED SIMPLEX RECEPTACLE 120 VOLT, 30 AMP, CSA 5-30R		RACEWAY RECEPTACLE, TYPE AS SPECIFIED C/W QUANTITY OF DEVICES INDICATED
	WALL MOUNTED SIMPLEX RECEPTACLE 250 VOLT, 50 AMP, CSA 14-50R		SERVICE POLE, TYPE AS SPECIFIED C/W QUANTITY OF DEVICES INDICATED

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

3 E001 POWER LEGEND 1 OF 2 (ESD-000.11)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLUSH MOUNTED SINGLE TUB PANEL. RATING AS NOTED ON SINGLE LINE/PANEL SCHEDULE.	C	CONTACTOR
	FLUSH MOUNTED DOUBLE TUB PANEL RATING AS NOTED ON SINGLE LINE/PANEL SCHEDULE.		GROUND ROD WITH INSPECTION PIT
	SURFACE MOUNTED SINGLE TUB PANEL. RATING AS NOTED ON SINGLE LINE/PANEL SCHEDULE.	T	THERMOSTAT-16mm (1/2") CONDUIT TO ACCESSIBLE CEILING SPACE
	SURFACE MOUNTED DOUBLE TUB PANEL. RATING AS NOTED ON SINGLE LINE/PANEL SCHEDULE.	JB	JUNCTION BOX (SIZE SPECIFIED ON DRAWING)
	TRANSFORMER (SIZE NOTED ON SINGLE LINE DIAGRAM)		ELECTRIC UNIT HEATER
	DISCONNECT		ELECTRIC BASEBOARD HEATER. 'X' DENOTES TYPE. REFER TO BASEBOARD HEATER SCHEDULE.
	COMBINATION MANUAL STARTER WITH INTEGRAL DISCONNECT		GROUND BAR
	COMBINATION STARTER WITH INTEGRAL DISCONNECT	HD	HAND DRYER HARD WIRED CONNECTION
	DIRECT CONNECTION	M	METER
	DIRECT CONNECTION C/W DISCONNECT	R	RELAY
	MOTOR AND DISCONNECT	PB	PULL BOX
EB	MOTOR AND RELAY DISCONNECT DISCONNECT		GROUND BUS
	MOTOR AND COMBINATION STARTER WITH INTEGRAL DISCONNECT		DENOTES RECEPTACLE TYPE. REFER TO RECEPTACLE SCHEDULE.
HP VFD	VARIABLE FREQUENCY DRIVE AND VFD CABLE CONNECTION TO MOTOR. LINE AND LOAD SIDE WIRING OF HARMONIC FILTER AND VFD BY ELECTRICAL CONTRACTOR. MOTOR, VFD AND HARMONIC FILTER SUPPLIED BY MECHANICAL DIVISION.		UTILITY METERING CABINET
			DOOR BELL/CHIME
			CLOCK WALL MOUNTED
VFD	VARIABLE FREQUENCY DRIVE. LINE AND LOAD SIDE WIRING OF HARMONIC FILTER AND VFD BY ELECTRICAL CONTRACTOR, LOAD SIDE WIRING OF VFD TO BE VFD CABLE. VFD AND HARMONIC FILTER SUPPLIED BY MECHANICAL DIVISION.		CLOCK CEILING MOUNTED
			PUSH BUTTON
			MOTOR
HF	HARMONIC FILTER (SUPPLIED BY MECH. CONTRACTOR UNLESS NOTED OTHERWISE.) LINE AND LOAD SIDE WIRING OF HARMONIC FILTER BY ELECTRICAL CONTRACTOR.		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

4 E001 POWER LEGEND 2 OF 2 (ESD-000.12)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CEILING MOUNTED LINEAR LUMINAIRE. DIMENSIONS AS SHOWN. REFER TO SCHEDULE FOR TYPE.		CEILING MOUNTED WALL WASHER LUMINAIRE. ILLUMINATION DIRECTION DENOTED BY HATCHED SIDE.
	DENOTES FIXTURE ON EMERGENCY/NIGHT LIGHT CIRCUIT.		CEILING MOUNTED TRACK LIGHTING C/W NUMBER OF FIXTURES.
	WALL MOUNTED LINEAR LUMINAIRE. DIMENSIONS AS SHOWN. REFER TO SCHEDULE FOR TYPE.		WALL MOUNTED LUMINAIRE
	CEILING MTD. LUMINAIRE OR BASKET LUMINAIRE. LAMP ORIENTATION AS SHOWN. REFER TO SCHEDULE FOR TYPE.		PENDANT FIXTURE
	EXISTING LUMINAIRE TO BE REMOVED		CEILING MOUNTED LUMINAIRE
	EXISTING LUMINAIRE TO REMAIN		FLOOR MOUNTED LUMINAIRE
	POLE MOUNTED LUMINAIRE. NUMBER OF HEADS SHOWN. REFER TO SCHEDULE FOR FIXTURE AND POLE TYPE.		TRACK LIGHT WITH PENDANT LUMINAIRE AS INDICATED
	CEILING MOUNTED LUMINAIRE WITH GIMBALLED HEADS. REFER TO SCHEDULE FOR TYPE AND NUMBER OF HEADS.		BOLLARD LUMINAIRE
	VERTICAL WALL MOUNTED FLUORESCENT LUMINAIRE		
	CONTINUOUS STRIP LIGHT. REFER TO SCHEDULE FOR FIXTURE TYPE.		
	STAGGERED COVE LIGHT. DIMENSIONS AND NUMBER OF FIXTURES SHOWN. REFER TO SCHEDULE FOR FIXTURE TYPE.		
	RECESSED CEILING MOUNTED REMOTE ADJUSTABLE LUMINAIRE CONNECTED TO EMERGENCY LIGHTING BATTERY UNIT.	E	EMERGENCY LIGHTING BATTERY UNIT C/W NUMBER OF HEADS SHOWN
	WALL MOUNTED EMERGENCY SINGLE REMOTE HEAD	E	EMERGENCY LIGHTING BATTERY UNIT
	WALL MOUNTED EMERGENCY DOUBLE REMOTE HEAD	E	EMERGENCY LIGHTING BATTERY + EXIT LIGHT COMBINATION UNIT C/W NUMBER OF HEADS SHOWN
	CEILING MOUNTED EMERGENCY SINGLE REMOTE HEAD		EXIT LIGHT CEILING MOUNTED C/W FACES AND ARROWS AS INDICATED
	CEILING MOUNTED EMERGENCY DOUBLE REMOTE HEAD		EXIT LIGHT WALL MOUNTED C/W FACES AND ARROWS AS INDICATED

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

1 E001 LIGHTING LEGEND 1 OF 2 (ESD-000.09)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SINGLE POLE LINE VOLTAGE LIGHT SWITCH		
	2 GANG - LINE VOLTAGE LIGHT SWITCH		
	3 GANG - LINE VOLTAGE LIGHT SWITCH		
^{3}	3 WAY - LINE VOLTAGE LIGHT SWITCH		
^{4}	4 WAY - LINE VOLTAGE LIGHT SWITCH		
^{LV}	LOW VOLTAGE LIGHT SWITCH		
^{K}	KEY OPERATED LINE VOLTAGE SWITCH		
^{MS}	MASTER SWITCH		
^{AO}	ALL-OFF SWITCH		
	SINGLE POLE 347V SWITCH		
	DIMMER TYPE TO SUIT LOAD		
PC	CEILING MOUNTED PHOTO CELL SWITCH		
PC	WALL MOUNTED PHOTO CELL SWITCH		
DL	DAY LIGHT PHOTO SENSOR		
	TIME SWITCH		
OS X'	CEILING MOUNTED OCCUPANCY SENSOR. TYPE DENOTED BY 'X'. REFER TO OCCUPANCY SENSOR SCHEDULE.		
OS X'	WALL MOUNTED OCCUPANCY SENSOR. TYPE DENOTED BY 'X'. REFER TO OCCUPANCY SENSOR SCHEDULE.		
LC	LIGHTING CONTROL MODULE		
DIM	MULTI-ZONE LIGHTING CONTROL PANEL		
RS	REMOTE STATION WITH PRESET SCENE SELECTION BUTTON		
IR	PARTITION POSITION INFRARED SENSOR FOR LIGHTING CONTROL		

NOTE: NOT ALL SYMBOLS APPLY, REFER TO FLOOR PLANS AND DRAWINGS

2 E001 LIGHTING LEGEND 2 OF 2 (ESD-000.10)

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KEY PLAN:

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WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S,
WATERLOO, ON
N2L 6N5

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+VG ARCHITECTS
THE VENTIN GROUP LTD

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ELECTRICAL LEGENDS

TE0.1

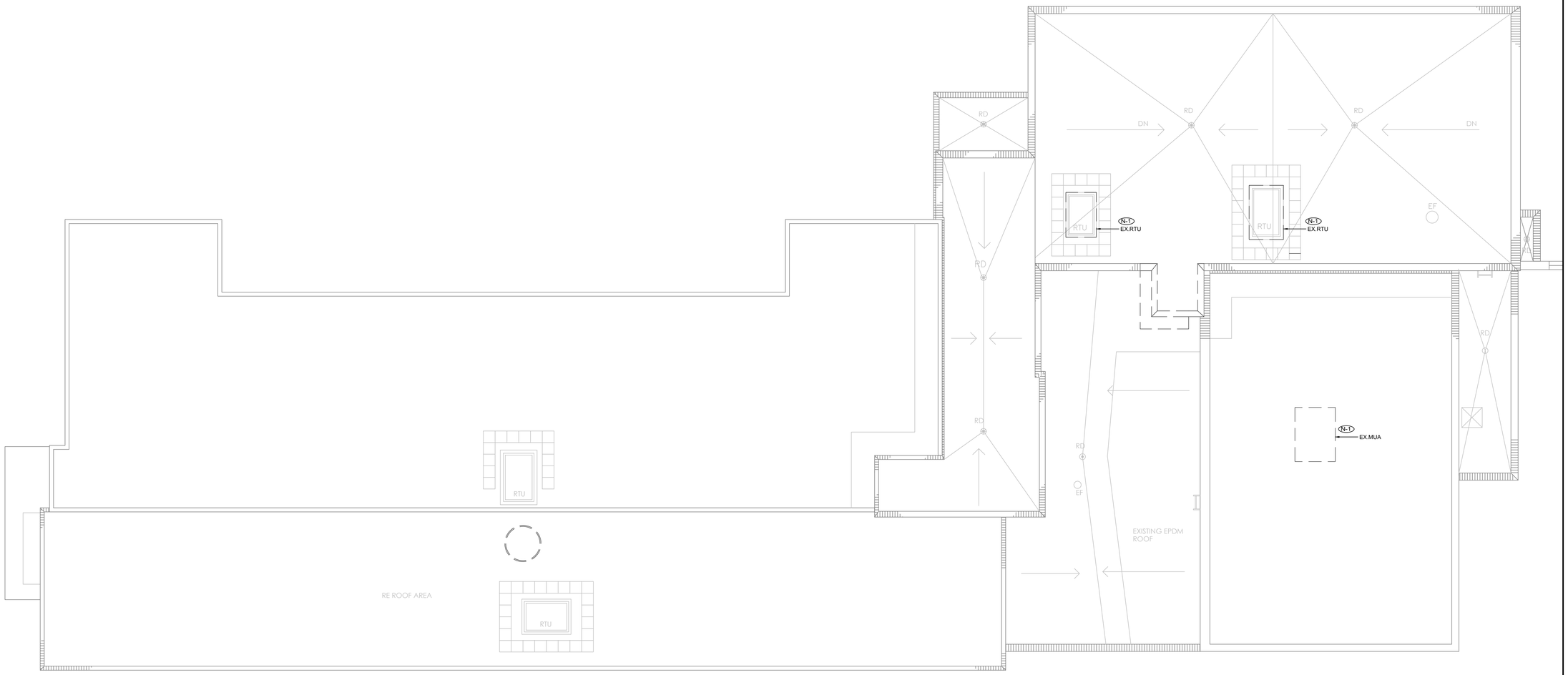
DRAWN BY : AD
CHECKED BY : BT

GENERAL NOTES:

1. REFER TO THE ARCHITECT'S DRAWINGS TO DETERMINE COMPLETE EXTENT OF DEMOLITION AND ALLOW FOR ALL COSTS.
2. COORDINATE WITH CONSTRUCTION MANAGER AND LANDLORD FOR DISPOSAL OF ALL MATERIALS FROM SITE
3. AT COMMENCEMENT OF PROJECT, CONTRACTOR SHALL CONFIRM EXISTING FEEDER SIZE AND OVERCURRENT PROTECTION FOR EACH MECHANICAL UNIT. REPORT FINDING TO CONSULTANT FOR REVIEW AGAINST NEW PRODUCT SHOP DRAWINGS.

DRAWING NOTES:

(N-1) DISCONNECT AND MAKE SAFE EXISTING ELECTRICAL POWER AND CONTROL WIRING TO ROOFTOP UNITS SCHEDULED FOR REMOVAL. CAP UNUSED CONDUCTORS AT SOURCE. COORDINATE WITH MECHANICAL CONTRACTOR.



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B - DETAIL NO. ORIGIN

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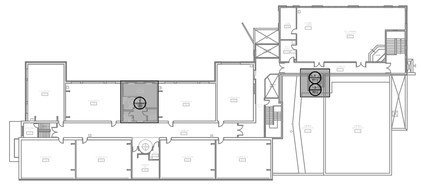
THE VENTIN GROUP LTD

N
CN

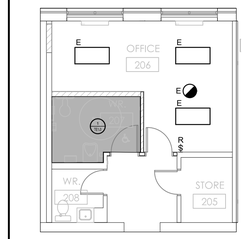
ROOF PLAN - ELECTRICAL DEMOLITION

TED1.0

DRAWN BY : AD
CHECKED BY : BT



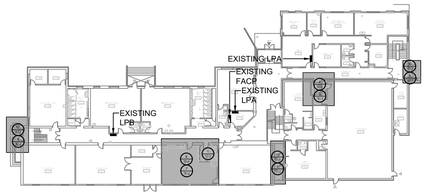
9 TE1.0 KEY PLAN - SECOND FLOOR
SCALE 1:250



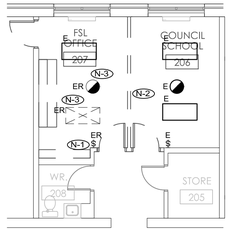
5 TE1.0 WASHROOM 207 - NEW
SCALE 1:100

DRAWING NOTES:

(N-1) RELOCATE LIGHT SWITCH TO NEW LOCATION AS SHOWN. CONNECT TO EXISTING CIRCUIT. TYPICAL.



10 TE1.0 KEY PLAN - FIRST FLOOR
SCALE 1:250



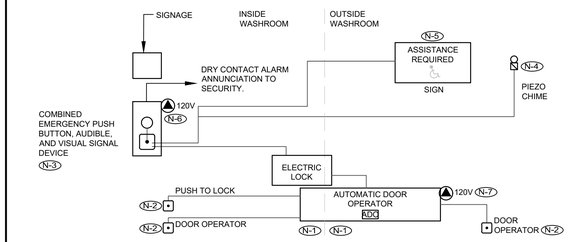
6 TE1.0 WASHROOM 207 - DEMOLITION
SCALE 1:100

DRAWING NOTES:

(N-1) REMOVE EXISTING LIGHT SWITCH AND ASSOCIATED WIRING AT LOCATION SHOWN. MAKE SAFE AND CAP BACK TO SOURCE. TYPICAL.

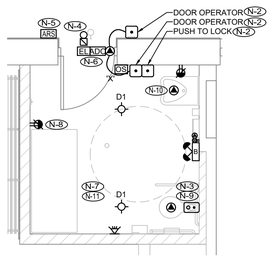
(N-2) RELOCATE ELECTRICAL DEVICES IMPACTED BY NEW OR MODIFIED MILLWORK AS REQUIRED. FINAL LOCATIONS TO BE COORDINATED WITH ARCHITECTURAL MILLWORK DETAILS. TYPICAL.

(N-3) REMOVE EXISTING LIGHTING FIXTURE. DISCONNECT AND MAKE SAFE. FIXTURE TO BE RETURNED TO SCHOOL BOARD FOR STORAGE.

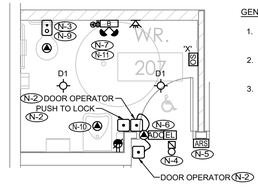


SYMBOLS | DESCRIPTION

ADO	AUTOMATIC DOOR OPENER
	PUSH BUTTON
	PIEZO CHIME
EL	ELECTRICAL LOCK
	EMERGENCY PUSH BUTTON
ARS	ASSISTANCE REQUIRED SIGN



UNIVERSAL WASHROOM



UNIVERSAL WASHROOM 207

DETAIL NOTES:

(N-1) MINIMUM SIZE CONDUITS SHALL BE 21mmC (3/4") UNLESS OTHERWISE NOTED.

(N-2) ALL PUSH BUTTONS ARE TO BE MOUNTED AT 1050mm ABOVE FINISHED FLOOR AND ARE TO BE OPERABLE USING A CLOSED FIST.

(N-3) ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMPTY CONDUIT COMPLETE WITH PULL STRING AND BACK BOXES FOR COMBINATION EMERGENCY PUSH BUTTON AND VISUAL SIGNAL DEVICE INSIDE OF WASHROOM. DEVICES SHALL BE PROVIDED BY DOOR HARDWARE CONTRACTOR. COORDINATE EXACT REQUIREMENTS WITH DOOR HARDWARE CONTRACTOR ON SITE PRIOR TO ROUGH-IN OR INSTALLATION.

(N-4) ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMPTY CONDUIT COMPLETE WITH PULL STRING AND BACK BOXES FOR PIEZO CHIME OUTSIDE OF THE WASHROOM. DEVICE IS TO BE PROVIDED BY DOOR HARDWARE CONTRACTOR. COORDINATE EXACT REQUIREMENTS WITH DOOR HARDWARE CONTRACTOR ON SITE PRIOR TO ROUGH-IN OR INSTALLATION

(N-5) ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EMPTY CONDUIT COMPLETE WITH PULL STRING AND BACK BOXES FOR 'ASSISTANCE REQUIRED', DEVICE IS TO BE PROVIDED BY DOOR HARDWARE CONTRACTOR, COORDINATE EXACT REQUIREMENTS WITH DOOR HARDWARE CONTRACTOR ON SITE PRIOR TO ROUGH-IN OR INSTALLATION.

(N-6) ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER CONNECTION FOR POWER DOOR OPERATOR.

(N-7) REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DEVICE LOCATIONS.

(N-8) 20A GFCI RECEPTACLE FOR ADULT CHANGE TABLE

(N-9) ELECTRICAL CONTRACTOR TO INSTALL A LAMACOID SIGN ABOVE THE EMERGENCY BUTTON THAT READS "IN THE EVENT OF AN EMERGENCY, PUSH EMERGENCY PUSH BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE". LETTERS ON LAMACOID MUST BE AT LEAST 25mm HIGH WITH A 5mm STROKE. SUBMIT SHOP DRAWING FOR ARCHITECT AND CONSULTANT REVIEW PRIOR TO MANUFACTURING AND RELEASE.

(N-10) PROVIDE 120V CONNECTION TO CONTROL TRANSFORMER SUPPLIED BY MECHANICAL TRADE FOR AUTOMATIC FAUCETS. COORDINATE WITH MECHANICAL TRADE ON SITE FOR EXACT LOCATION OF CONTROL TRANSFORMERS AND TYPE OF CONNECTION, PROVIDE GFI RECEPTACLE UNDER THE SINK IF NEEDED.

(N-11) CONNECT NEW ELECTRICAL DEVICES AND EQUIPMENT IN THIS SPACE TO EXISTING ELECTRICAL PANEL NEARBY. EXACT PANEL IDENTIFICATION, CIRCUITING, AND ROUTING TO BE CONFIRMED DURING CONSTRUCTION.

(N-12) EXHAUST FAN EF-01 TO BE AUTOMATICALLY CONTROLLED WITH LIGHTING FROM SENSOR SWITCH. FAN TO OPERATE UPON OCCUPANCY AND SHUT OFF AFTER TIME DELAY.

GENERAL NOTES:

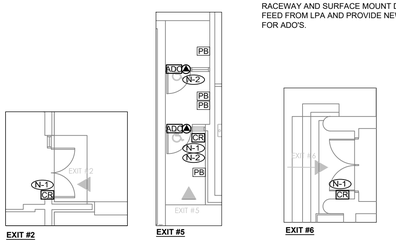
1. DOWNLIGHT D1 SHALL BE ACUITY IVO4 SERIES DOWNLIGHT, 80CRI, 1500LUMEN, 120V DRIVER - OR APPROVED EQUAL PRODUCT.
2. SENSR SWITCH SHALL BE 120V LINE VOTLAGE OCCUPANCY/VACANCY PIR SENSOR WITH MANUAL ON/OFF. WATTSTOPPER, SENSOR SWITCH OR APPROVED EQUAL.
3. FOR EACH WASHROOM PROVIDE NEW 15A-1P (ADO, CONTROLS) AND NEW 20A-1P (CHANGE TABLE) CIRCUIT. FEED LEVEL 1 FROM LPA AND LEVEL 2 FROM LPB.

1 TE1.0 TYPICAL UNIVERSAL WASHROOM
SCALE 1:50

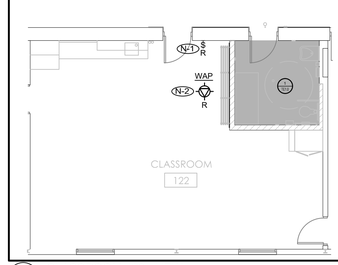
DRAWING NOTES:

(N-1) PROVIDE NEW FOB ACCESS CONTROL DEVICES UNDER CASH ALLOWANCE. PROGRAMMING AND SYSTEM INTEGRATION BY OTHERS.

(N-2) PROVIDE POWER AND CONNECTIONS FOR AUTOMATIC DOOR OPERATOR (ADO), INCLUDING BARRIER-FREE PUSH BUTTONS. USE SURFACE MOUNT ALUMINUM RACEWAY AND SURFACE MOUNT DEVICE BACKBOXES. FEED FROM LPA AND PROVIDE NEW 15A-1P BREAKER FOR ADO'S.



11 TE1.0 EXTERIOR DOORS #2,5,6 - NEW
SCALE 1:50

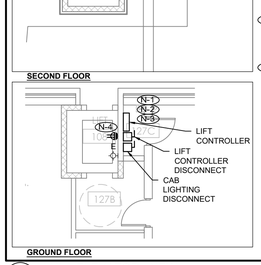


7 TE1.0 CLASSROOM 122 - NEW
SCALE 1:100

DRAWING NOTES:

(N-1) RELOCATE LIGHT SWITCH TO NEW LOCATION AS SHOWN. CONNECT TO EXISTING CIRCUIT.

(N-2) RELOCATE WIRELESS ACCESS POINT (WAP) TO NEW LOCATION AS SHOWN. CONNECT TO EXISTING CIRCUIT.



3 TE1.0 LULA ELEVATOR - NEW
SCALE 1:100

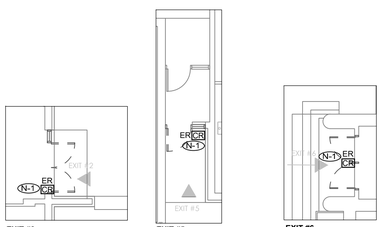
DRAWING NOTES:

(N-1) PROVIDE POWER SUPPLY AND DISCONNECTING MEANS FOR NEW LULA ELEVATOR IN COORDINATION WITH ELEVATOR CONTRACTOR AND MANUFACTURER REQUIREMENTS.

(N-2) PROVIDE SEPARATE DISCONNECTS FOR ELEVATOR CONTROLLER, ELEVATOR MACHINE, AND CAB LIGHTING AS REQUIRED BY CODE AND ELEVATOR MANUFACTURER.

(N-3) COORDINATE ALL ELEVATOR ELECTRICAL REQUIREMENTS WITH FIRE ALARM SYSTEM FOR REQUIRED INTERFACES. FIRE ALARM DEVICES AND PROGRAMMING BY OTHERS.

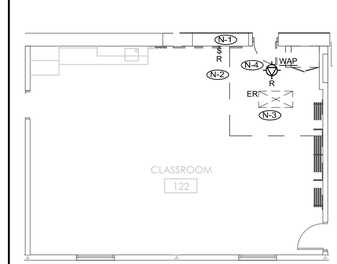
(N-4) PROVIDE NEW GFCI RECEPTACLE IN ELEVATOR PIT IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS. CONNECT TO EXISTING PANELBOARD IN THE GYM SPACE.



12 TE1.0 EXTERIOR DOORS #2,5,6 - DEMOLITION
SCALE 1:50

DRAWING NOTES:

(N-1) REMOVE EXISTING FOB READERS, ACCESS CONTROL DEVICES, AND ASSOCIATED WIRING AT DOORS SCHEDULED FOR REPLACEMENT. EXISTING WIRING SHALL BE USED AS A MEANS TO PULL NEW WIRING TO CARD READER LOCATIONS THROUGH MULLIONS.



8 TE1.0 CLASSROOM 122 - DEMOLITION
SCALE 1:100

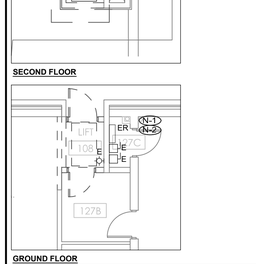
DRAWING NOTES:

(N-1) REMOVE EXISTING LIGHT SWITCH AND ASSOCIATED WIRING AT LOCATION SHOWN. MAKE SAFE AND CAP BACK TO SOURCE. TYPICAL.

(N-2) RELOCATE ELECTRICAL DEVICES IMPACTED BY NEW OR MODIFIED MILLWORK AS REQUIRED. FINAL LOCATIONS TO BE COORDINATED WITH ARCHITECTURAL MILLWORK DETAILS. TYPICAL.

(N-3) REMOVE EXISTING LIGHTING FIXTURE. DISCONNECT AND MAKE SAFE. FIXTURE TO BE RETURNED TO SCHOOL BOARD FOR STORAGE.

(N-4) RELOCATE WIRELESS ACCESS POINT (WAP) AS REQUIRED TO SUIT NEW OR MODIFIED MILLWORK. FINAL LOCATION TO BE COORDINATED WITH ARCHITECTURAL MILLWORK DETAILS. TYPICAL.



4 TE1.0 LULA ELEVATOR - DEMOLITION
SCALE 1:100

DRAWING NOTES:

(N-1) REMOVE EXISTING ELEVATOR EQUIPMENT AND ASSOCIATED ELECTRICAL SERVICES WITHIN THE ELEVATOR CONTROLLER ROOM AND HOISTWAY. MAKE SAFE AND CAP EXISTING ELECTRICAL SERVICES. TYPICAL.

(N-2) COORDINATE WITH ELEVATOR CONTRACTOR FOR DISCONNECTION AND REMOVAL OF EXISTING ELEVATOR CONTROLLER, CONTROLS, AND ASSOCIATED EQUIPMENT.

GENERAL NOTES:

1. REFER TO THE ARCHITECT'S DRAWINGS TO DETERMINE FULL EXTENT OF DEMOLITION AND ALLOW FOR ALL ASSOCIATED COSTS.
2. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS FOR DIMENSIONS, HEIGHTS, CONSTRUCTION DETAILING, FINISH AND COLORS.
3. MAKE GOOD ALL OPENINGS, PENETRATIONS, AND CORE HOLES CREATED BY REMOVAL OF ELECTRICAL DEVICES, RACEWAYS, AND EQUIPMENT.
4. ENSURE THAT ALL EXISTING ELECTRICAL DEVICES, EQUIPMENT AND LIGHTING WITHIN BASE BUILDING ROOMS, STAIRWELLS AND AREAS DEEMED NOT IN SCOPE SHALL REMAIN LIVE AND OPERATIONAL. ELECTRICAL CONTRACTOR TO ENSURE SERVICES TO THESE AREAS ARE ISOLATED AND PROTECTED DURING THE COURSE OF DEMOLITION AND CONSTRUCTION.
5. EXISTING CONDITIONS ARE SHOWN BASED ON FIELD SURVEY. ELECTRICAL CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN HERE SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING.
6. COORDINATE WITH CONSTRUCTION MANAGER AND LANDLORD FOR DISPOSAL OF ALL MATERIALS FROM SITE.
7. NO ADDITIONAL COST WILL BE APPROVED FOR ANY REVISIONS/MODIFICATIONS REQUIRED BY ANY TRADE OR CONTRACTOR DUE TO THE LACK OF COORDINATION BETWEEN TRADES AND CONTRACTORS.
8. ALL MODIFICATIONS TO FIRE ALARM SYSTEM AND DEVICES TO BE COMPLETED BY THE BASE BUILDING FIRE ALARM MANUFACTURER. THE BASE BUILDING FIRE ALARM MANUFACTURER IS RESPONSIBLE TO ENSURE THAT ALL ADDITIONAL COMPONENTS (MATERIAL, SOFTWARE, INCLUDING ANY LABOUR TO INSTALL OR MODIFY THE FIRE ALARM DEVICES) ARE INCLUDED FOR BASED ON THE ISSUED DRAWINGS. ELECTRICAL CONTRACTOR SHALL CONNECT NEW HORN/STROBE TO EXISTING CIRCUITS, WHERE THERE IS SPARE CAPACITY ON THE RESPECTIVE CIRCUITS. IF THERE IS NO CAPACITY ON THE EXISTING CIRCUITS, THE CONTRACTOR SHALL PROVIDE NEW FIRE ALARM CIRCUITS. ALLOW FOR ALL ASSOCIATED COSTS INCLUDING BUT NOT LIMITED TO: ASSOCIATED EQUIPMENT, DEVICES, PROGRAMMING,TESTING AND VERIFICATION TO MAKE THE SYSTEM OPERATIONAL AND CODE COMPLIANT. ALL FIRE ALARM VERIFICATION SHALL CONFORM TO CAN/ULC-S537 LATEST EDITION. THE FIRE ALARM SYSTEM SHALL BE INSTALLED IN CONFORMANCE WITH CAN/ULC-S524 LATEST EDITION.
9. BREAKERS ADDED TO EXISTING PANELS SHALL MATCH PANELBOARDS EXISTING FRAME AND KAIC RATING.

2 TE1.0 GENERAL NOTES

REVISIONS

NO.	DATE	PARTICULAR
01	2026-03-17	ISSUED FOR PROGRESS REVIEW
02	2026-03-25	ISSUED FOR PROGRESS REVIEW
03	2026-03-27	ISSUED FOR TENDER

NOTES:

Smith + Andersen
148 Fullarton St, Suite 1400 London Ontario N6A 5P3
519 963 8888 www.smithandandersen.com

KEY PLAN:

CLIENT:
WATERLOO CATHOLIC DISTRICT SCHOOL BOARD

PROJECT:
25779.001 S+A

OUR LADY OF LOURDES ELEMENTARY SCHOOL

55 ROSLIN AVE. S,
WATERLOO, ON
N2L 6N5

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
(A) A - DETAIL NO.
(B) B - DETAIL NO. ORIGIN

+VG ARCHITECTS
THE VENTIN GROUP LTD

N
CN

ELECTRICAL FLOOR PLANS

TE1.0

DRAWN BY : AD CHECKED BY : BT

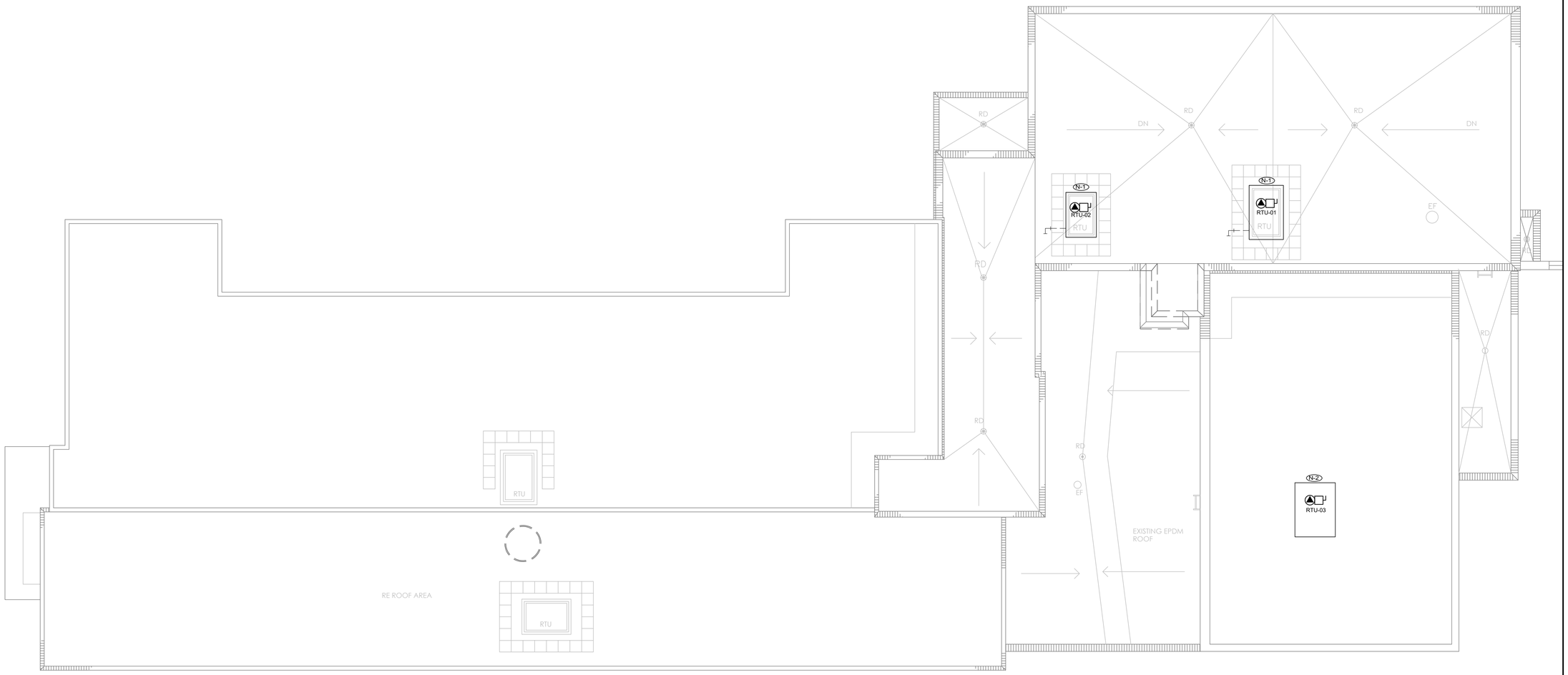
GENERAL NOTES:

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS FOR DIMENSIONS, HEIGHTS, CONSTUCTION, DETAILING, FINISH AND COLORS.
2. FINAL BREAKER SIZES, FEEDER ROUTING, AND ELECTRICAL CONNECTION DETAILS TO ROOFTOP EQUIPMENT TO BE CONFIRMED UPON FINAL MECHANICAL EQUIPMENT SELECTION AND SHOP DRAWING REVIEW.

DRAWING NOTES:

(N-1) PROVIDE ELECTRICAL POWER AND LOCKABLE DISCONNECT SWITCH FOR NEW ROOFTOP UNITS AS SHOWN. ELECTRICAL CONNECTIONS TO SUIT MANUFACTURER REQUIREMENTS AND MECHANICAL EQUIPMENT SCHEDULE. RE-USE EXISTING CIRCUIT TO FEED ROOFTOP UNITS. EXTEND WIRING AND CONDUITS AS NEEDED.

(N-2) PROVIDE ELECTRICAL POWER TO NEW ROOFTOP UNIT WITH NEW 25 A CIRCUIT BREAKER. PROVIDE LOCKABLE LOCAL DISCONNECT. EXTEND CONDUITS AND CONDUCTORS AS REQUIRED.



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THE VENTIN GROUP LTD

CN

ROOF PLAN - ELECTRICAL - NEW

TE1.1

DRAWN BY : AD
CHECKED BY : BT