TORONTO Building

Toronto and East York District
100 Queen Street West
Toronto, ON M5H 2N2
Tel: 4163975330

BUILDING PERMIT

This card must be kept posted in a conspicuous place on site of construction.

18 197188 PLB 00 PS

Site Address 348 DAVENPORT RD

Project Description Municipal Shelter;

Building Permit Related(PS)

Date Issued Wednesday August 22, 2018

Will Johnston
Chief Building Official and
Executive Director

Mario Angelucci
Deputy Chief Building Official and
Director

TORONTO Building Toronto and East York District

THIS IS YOUR PERMIT TO CONSTRUCT
PERMIT NUMBER: 18 197188 PLB 00 PS

Owner:	**Address:**
CITY OF TORONTO	C/O CHRISTINE WALLACE 55 JOHN ST FLOOR 2 TORONTO ON M5V 3C6
CITY OF TORONTO	C/O SSHA PROGRAM SUPPORT, METRO HALL 55 JOHN ST 6 FL TORONTO, ON M5V 3C6 CAN

Project Description: Municipal Shelter; Building Permit Related(PS)

Project Location: 348 DAVENPORT RD

Ward:

The issuance of this permit is based on the drawings, specifications, details and information submitted with the application. The submitted documents have been reviewed for compliance with the Ontario Building Code, Zoning By-laws, applicable regulations and legislation.

The referenced permit number listed above and on your permit placard also appears on all plans reviewed for this building permit application. The validity of this permit is restricted to the person/company named as owner. Permit ownership cannot be transferred unless prior written authorization is given by the Chief Building Official.

The extent of construction authorized under this permit is limited to the description contained herein as follows:
Plumbing - Proposal for interior alterations to convert existing 4 storey mixed use building to a municipal women's shelter. See also 18 180707 ZZC.

Stated work and use must be in accordance with the plans, specifications, building permit notes and other information issued with this building permit. Changes to any documents submitted are not to be made unless prior authorization is obtained from the Chief Building Official or designate. False information may be grounds for revocation of the building permit.

Notwithstanding, it is the responsibility of the owner to comply with requirements of the Ontario Building Code and applicable laws as well as to ensure compliance ..

The permit placard must be posted in a conspicuous place on the construction site.

Mario Angelucci
Deputy Chief Building Official
Toronto and East York District

Issued by: Bavaro, Silvana
Date Issued: August 22, 2018

TORONTO Building Toronto and East York District

Please see the second page of this letter for additional requirements and inspection information.

WHEN YOU BEGIN DEMOLITION/CONSTRUCTION ...

Site Fencing

As soon as construction or demolition starts, your site must be entirely surrounded by a fence which is in compliance with the City of Toronto Municipal Code Chapter 363, Article III. The minimum requirement is plastic mesh fencing, 1.2 metres high, tied to posts spaced no more than 1.2 metres apart with an 11 gauge top and bottom wire threaded through the mesh and looped around each post. The Municipal Code is available on the City website at:

http://www.toronto.ca/legdocs/municode/1184_363.pdf

Construction Noise

Any construction which generates noise is prohibited in residential areas between the hours of 7:00 p.m. one day to 7:00 a.m. the next day, 9:00 a.m. on Saturdays, and all day Sunday and Statutory holidays.

When To Call For Inspection

You are required by Division C, Part 1, Article 1.3.5.1. of the Ontario Building Code, to notify the building inspection office at several prescribed stages of construction. Please contact the building inspection office at the telephone number listed below, when each of the following stages are substantially complete:

Inspection Stages

* Sewers/Drains/Sewage System
* Drain/Waste/Vents
* Occupancy
* Water Service
* Water Distribution
* Fire Service
* Plumbing Final

To Schedule your Next Mandatory Inspection

When you are ready to book your inspection, you may request an inspection online from your computer or smart phone using Toronto Building's Inspection Request web application at www.toronto.ca/building-inspection-request.

Alternatively, you may contact your local building inspection office by telephone at 416-338-0700, by fax 416-696-4151 or by email to TOBldgInsp@toronto.ca.

Inspections will take place within two days commencing at the start of business on the day following your notification (Inspection Request).

Please leave a telephone number where you can be reached or a message can be left.

The inspector assigned to your project is Joseph DeSousa (416) 338-0875

PERMIT PLANS MUST BE ON SITE

Your permit plans and specifications must be on site at all times. Inspections are conducted with your copy of the plans.

TORONTO Building

Will Johnston
Chief Building Official and Executive Director

Toronto Building
Toronto City Hall
12th Floor, East Tower
100 Queen Street West
Toronto, Ontario, M5H 2N2

August 22, 2018

BULLETIN - CONSTRUCTION SAFETY

The responsibilities of the City of Toronto under the Occupational Health and Safety Act apply to all our employees regardless of the location at which they are working.

Responsibilities for the Construction Safety Regulations on construction sites are clearly spelled out in the Act under the definitions of constructor, employer, supervisor and worker.

The City of Toronto believes that the goal of safe and injury free construction sites is a priority for all parties involved in building construction.

Safety training for the City of Toronto Building Inspectors is mandatory. However the delivery of a safe working environment on construction sites must include the compliance of individual builders with the Occupational Health and Safety Act.

Safety measures include the following:
1. Temporary guards on all openings,
2. Correct use of ladders,
3. Temporary or permanent stairs above or below grade by the time the sub floor is complete,
4. Clear and safe access to the site,
5. Protection of trenches and excavation below four feet deep, and
6. Correct use of fall prevention equipment where required.

As the employer responsible for the safety of building inspectors, the City of Toronto has instructed its Building Inspectors not to conduct inspections on sites where conditions exist that could jeopardize their health and safety.

The following are examples of conditions which may jeopardize the health and safety of inspectors:
1. Guards are missing,
2. Ladders do not meet regulations,
3. Temporary or permanent stairs, above or below grade, to all floor levels are not provided as required.
4. Access to the site has impediments or hazards, or
5. Trenches or excavations lack required shoring or slope of bank.

Prior to calling for an inspection the appropriate safety measures shall be in place as a site inadequately provided with these measures is not ready for inspection. The City of Toronto Building Inspectors will cooperate with builders regarding the timing of making provision for these safety measures. However, if the measures are not provided, an Order Not To Cover could be issued and the Ministry of Labour informed.

We look forward to working with you toward the goal of a safe environment for all workers.

Notice of Project - Please be advised that the Ministry of Labour requires a Notice of Project be filed with them before starting any project costing $50,000 or more.

For more information about the Notice of Project form, please contact your local Ministry of Labour regional office at 416-314-5421 or 1-800-991-7454. Ministry of Labour construction information is available on their website at: **http://www.labour.gov.on.ca/english/site/construction_info.html**

Construction of the work approved in this building permit must be carried out with reasonable care to ensure protection for everyone on the construction site from the hazards associated with all overhead and underground power lines. Obtain further information at: **http://www.torontohydro.com/powerlinesafety**

MECHANICAL LEGEND

PLUMBING

SYMBOL	DESCRIPTION
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATION
	EXISTING DOMESTIC COLD WATER
	EXISTING DOMESTIC HOT WATER
	EXISTING DOMESTIC HOT WATER RECIRCULATION
V	SANITARY VENT LINE
V	EXISTING SANITARY VENT LINE
SANB	BURIED SANITARY DRAIN
SAN	SUSPENDED SANITARY DRAIN
SAN	SANITARY DRAIN IN CEILING SPACE OF FLOOR BELOW
PSAN	SANITARY PUMPED DISCHARGE
SANB	EXISTING BURIED SANITARY DRAIN
SAN	EXISTING SUSPENDED SANITARY DRAIN
SAN	EXISTING SANIT. DRAIN IN CEILING SPACE OF FLOOR BELOW
PSAN	EXISTING SANITARY PUMPED DISCHARGE
STMB	BURIED STORM DRAIN
STM	SUSPENDED STORM DRAIN
STM	STORM DRAIN IN CEILING SPACE OF FLOOR BELOW
PSTM	STORM PUMPED DISCHARGE
STMB	EXISTING BURIED STORM DRAIN
STM	EXISTING SUSPENDED STORM DRAIN
STM	EXIS. STORM DRAIN IN CEILING SPACE OF FLOOR BELOW
PSTM	EXISTING STORM PUMPED DISCHARGE
CO	CLEANOUT PLUG
CO	FLOOR CLEANOUT
C	CONDENSATE DRAIN
C	EXISTING CONDENSATE DRAIN
G	NATURAL GAS LINE
G	EXISTING NATURAL GAS LINE
	ELBOW, TURNED DOWN AND TURNED UP
	BRANCH – TOP CONNECTION
	BRANCH – BOTTOM CONNECTION
WH	INTERIOR WALL HYDRANT
NFWH	EXTERIOR NON FREEZE WALL HYDRANT
HB	INTERIOR HOSE BIB
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
HD	HUB DRAIN
RD	ROOF DRAIN

HVAC (PIPING)

SYMBOL	DESCRIPTION
RS	REFRIGERANT SUCTION
RL	REFRIGERANT LIQUID
RS	EXISTING REFRIGERANT SUCTION
RL	EXISTING REFRIGERANT LIQUID

VALVES & PIPING FITTINGS

SYMBOL	DESCRIPTION
M	DOMESTIC COLD WATER METER
M R	DOMESTIC COLD WATER METER WITH REMOTE READOUT
	GATE VALVE
	GLOBE VALVE
	PRESSURE REDUCING VALVE (PRV)
	CHECK VALVE
	RELIEF VALVE
	STRAINER
	DRAIN COCK
	SOLENOID VALVE
	BUTTERFLY VALVE
	GRISWOLD VALVE
	BALL VALVE
	TWO-WAY AUTOMATIC CONTROL VALVE
	CIRCUIT BALANCING VALVE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	BACKFLOW PREVENTER (DOUBLE CHECK VALVE)
	PLUG VALVE
P	PRESSURE GAUGE WITH GAUGE COCK AND SNUBBER
	PUMP
	HOSE END
	BLIND FLANGED CONNECTION
	CAPPED CONNECTION
	FLANGED CONNECTION
	UNION
CTE	CONNECT NEW SERVICES TO EXISTING
P	PRESSURE GAUGE WITH GAUGE COCK AND SNUBBER
	THERMOMETER WITH THERMOMETER WELL
	BACKFLOW PREVENTER (B.F.P.) (SUPPLIED WITHOUT SHUT-OFF VALVES)
	BACKFLOW PREVENTER (B.F.P.) (SUPPLIED WITH SHUT-OFF VALVES)
	BACKWATER VALVE (B.W.V.)
	CHECK VALVE
	ELECTRIC PIPE HEATING (HEAT TRACING)
	EYE WASH
	HOSE BIB

VENTILATION

	DUCTWORK (DOUBLE LINE)
	EXISTING DUCTWORK (DOUBLE LINE)
	DUCTWORK (SINGLE LINE)
	EXISTING DUCTWORK (SINGLE LINE)
	ACOUSTICALLY LINED DUCTWORK (DOUBLE LINE)
	ACOUSTICALLY LINED DUCTWORK (SINGLE LINE)
	FLEXIBLE DUCT
	EXISTING FLEXIBLE DUCT
	SUPPLY DUCT UP (RECTANGULAR)
	ROUND DUCT UP
	RETURN DUCT UP
	SUPPLY DUCT DOWN
	ROUND DUCT DOWN
	RETURN DUCT DOWN
	CHANGE IN DUCT ELEVATION
	DUCT MOUNTED EQUIPMENT WITH FLEXIBLE CONNECTORS
	SPIN ON FITTING WITH FLEXIBLE DUCT
	EXISTING SPIN ON FITTING WITH FLEXIBLE DUCT
DG	DOOR GRILLE
U/C	DOOR UNDERCUT
BD	MANUAL BALANCING DAMPER
FD	FIRE DAMPER
MD	AUTOMATIC (MOTORIZED) DAMPER
SD	SMOKE (MOTORIZED) DAMPER
BDD	BACKDRAFT DAMPER
	RETURN OR EXHAUST AIR GRILLE
	EXISTING RETURN OR EXHAUST AIR GRILLE
	SQUARE SUPPLY AIR DIFFUSER
	EXISTING SQUARE SUPPLY AIR DIFFUSER
	ROUND SUPPLY AIR DIFFUSER
	EXISTING ROUND SUPPLY AIR DIFFUSER
	SIDEWALL GRILLE
	EQUIPMENT
	EXISTING EQUIPMENT
T	THERMOSTAT
T	EXISTING THERMOSTAT
T	TEMPERATURE SENSOR
T	EXISTING TEMPERATURE SENSOR
V	EXISTING CENTRAL VACUUM SYSTEM OUTLET
	EXISTING SERVICES OR EQUIPMENT TO BE REMOVED

ABBREVIATIONS

SYMBOL	DESCRIPTION
P	PUMP
HWH	HOT WATER HEATER
EHC	ELECTRIC DUCT HEATING COIL
UH	UNIT HEATER
FFH	FORCED FLOW HEATER
BBH	BASEBOARD HEATER
ET	EXPANSION TANK
DHWH	DOMESTIC HOT WATER HEATER
AFF	ABOVE FINISHED FLOOR
N	NEW
ER	DENOTES EXISTING TO BE RELOCATED
RTU	ROOF TOP UNIT
CC	COOLING COIL
HC	HEATING COIL
HRC	HEAT RECOVERY COIL
RF	RETURN FAN
SF	SUPPLY FAN
EF	EXHAUST FAN
S/A	SUPPLY AIR DUCTWORK
R/A	RETURN AIR DUCTWORK
E/A	EXHAUST AIR DUCTWORK
CTE	CONNECT TO EXISTING
	EXISTING SERVICES / EQUIPMENT TO BE REMOVED
N	NEW
EX	EXISTING TO REMAIN
ER	EXISTING TO BE RELOCATED REMAIN
RP	EXISTING IN RELOCATED POSITION

FIRE PROTECTION

SYMBOL	DESCRIPTION
SP	SPRINKLER LINE
SPD	SPRINKLER DRAIN
F	FIRE LINE
SP	EXISTING SPRINKLER LINE
SPD	EXISTING SPRINKLER DRAIN
F	EXISTING FIRE LINE
	PENDANT SPRINKLER HEAD
	UPRIGHT SPRINKLER HEAD
	SIDEWALL SPRINKLER HEAD
	CONCEALED TYPE SPRINKLER HEAD
	EXISTING SPRINKLER HEAD
	EXISTING SPRINKLER HEAD
	SPRINKLER ZONE BORDER LINE
FDC	FIRE DEPARTMENT CONNECTION
SVC	SPRINKLER ZONE VALVE CABINET (RECESSED TYPE)
FHC	FIRE HOSE CABINET (SURFACE MOUNTED)
FHC	FIRE HOSE CABINET (RECESSED)
	SPRINKLER DRY PIPE VALVE
	SPRINKLER WET PIPE ALARM CHECK VALVE
	PREACTION SPRINKLER VALVE
	TEST DRAIN MODULE
P.I.V.	POST INDICATOR VALVE
	OUTSIDE FIRE HYDRANT WITH VALVE
F.E.	FIRE EXTINGUISHER
	FIRE DEPARTMENT TEST CONNECTION
PS	ALARM PRESSURE SWITCH
SV	SUPERVISED OS AND Y VALVE
SV	INDICATIVE TYPE SUPERVISED BUTTERFLY VALVE
FS	ALARM FLOW SWITCH
EP	EXCESS PRESSURE PUMP
FP	FIRE PUMP
JP	JOCKEY PUMP
SP	SPRINKLER PUMP

GENERAL

SYMBOL	DESCRIPTION
X / M-XXX	SECTION No. DRAWING No.
X / M-XX	DETAIL No. DRAWING No. } FOR CONTINUATION, SEE DETAIL No. /DRAWING No.
X / XXX	EQUIPMENT NUMBER EQUIPMENT DESIGNATION
N-X	REFER TO NOTE "X" ON THIS DRAWING
X,XX / XXX	TYPE OF GRILLE OR DIFFUSER AIR QUANTITY (L/S) GRILLE / DIFFUSER FACE SIZE OR NECK SIZE
X,XX / XXX	TYPE OF GRILLE OR DIFFUSER AIR QUANTITY (L/S) GRILLE / DIFFUSER FACE SIZE OR NECK SIZE

ELECTRICAL DRAWING LIST

NUMBER	DESCRIPTION
M-1	MECHANICAL LEGEND, DRAWING LIST AND SCHEDULES
M-2	BASEMENT 1 & 2 AND LEVEL 1 – PLUMBING DEMOLITION
M-3	LEVEL 2, 3 AND 4 – PLUMBING DEMOLITION
M-4	BASEMENT 1 & 2 AND LEVEL 1 – HVAC DEMOLITION
M-5	LEVEL 2, 3 AND 4 – HVAC DEMOLITION
M-6	BASEMENT 1 & 2 AND LEVEL 1 – FIRE PROTECTION DEMOLITION
M-7	LEVEL 2, 3 AND 4 – FIRE PROTECTION DEMOLITION
M-8	BASEMENT 1 & 2 AND LEVEL 1 – PLUMBING NEW LAYOUT
M-9	LEVEL 2, 3 AND 4 – PLUMBING NEW LAYOUT
M-10	BASEMENT 1 & 2 AND LEVEL 1 – HVAC NEW LAYOUT
M-11	LEVEL 2, 3 AND 4 – HVAC NEW LAYOUT
M-12	BASEMENT 1 & 2 AND LEVEL 1 – FIRE PROTECTION NEW LAYOUT
M-13	LEVEL 2, 3 AND 4 – FIRE PROTECTION NEW LAYOUT
M-14	MECHANICAL DETAILS
M-15	MECHANICAL SPECIFICATION

PLUMBING FIXTURE SCHEDULE

WATER CLOSET TYPE "WC" (FLOOR MOUNTED)

.1 AMERICAN STANDARD WATER CLOSET "MADERA FLOWISE" 15" HEIGHT, ELONGATED, SIPHON ACTION WITH DIRECT-FED JET, ELONGATED BOWL, BACK SPUD, HIGH-EFFICIENCY TOILET, LOW CONSUMPTION (1.1 GPF TO 1.6 GPF (4.2 LPF TO 6.0 LPF). MODEL #3453.001

.2 SEAT: AMERICAN STANDARD #5901.100 HEAVY DUTY OPEN FRONT, FOR ELONGATED BOWL, WITH SLOW CLOSE SNAP-OFF HINGE LESS COVER.

.3 FLUSH VALVE: AMERICAN STANDARD MODEL 6068.322.007, SELECTRONIC FLOWISE, SENSOR OPERATED, CONCEALED TOILET FLUSH VALVE WITH WALL BOX WITH 1-1/2" BACK SPUD. INLET TO INCLUDE 1" ANGLE STOP WITH INTEGRAL BACKFLOW PREVENTER AND WHEEL HANDLE. OUTLET TO INCLUDE 1-1/2" VACUUM BREAKER AND ADJUSTABLE TAIL PIECE. PROVIDE S.S. RECESSED BACK BOX TO HOUSE ALL COMPONENTS. NO EXPOSED DEVICES WILL BE PERMITTED. PROVIDE S.S. ACCESS PANEL WITH TEMPER PROOF SCREWS

BARRIER FREE WATER CLOSET TYPE "WC-1" (FLOOR MOUNTED)

.1 AMERICAN STANDARD WATER CLOSET "MADERA FLOWISE" 16-1/2" HEIGHT, ELONGATED, SIPHON ACTION WITH DIRECT-FED JET, ELONGATED BOWL, BACK SPUD, HIGH-EFFICIENCY TOILET, LOW CONSUMPTION (1.1 GPF TO 1.6 GPF (4.2 LPF TO 6.0 LPF). MODEL #3463.001

.2 SEAT: AMERICAN STANDARD #5901.100 HEAVY DUTY OPEN FRONT, FOR ELONGATED BOWL, WITH SLOW CLOSE SNAP-OFF HINGE WITH COVER.

.3 FLUSH VALVE: AMERICAN STANDARD MODEL 6068.322.007, SELECTRONIC FLOWISE, SENSOR OPERATED, CONCEALED TOILET FLUSH VALVE WITH WALL BOX WITH 1-1/2" BACK SPUD. INLET TO INCLUDE 1" ANGLE STOP WITH INTEGRAL BACKFLOW PREVENTER AND WHEEL HANDLE. OUTLET TO INCLUDE 1-1/2" VACUUM BREAKER AND ADJUSTABLE TAIL PIECE. PROVIDE S.S. RECESSED BACK BOX TO HOUSE ALL COMPONENTS. NO EXPOSED DEVICES WILL BE PERMITTED. PROVIDE S.S. ACCESS PANEL WITH TEMPER PROOF SCREWS

LAVATORY TYPE "LAV"

1. KINDRED, MODEL KSOV1821/7, DROP IN STAINLESS STEEL VANITY BASIN, 18 GAUGE STAINLESS STEEL, 3 HOLES 4" CENTERSET, 1 ⅜" Ø32 MM) DIAMETER WASTE OUTLET. OVERALL SIZE: 18" X 21" X 7" (460MM X 530MM X 180MM)

.2 FAUCET: DELTA, MODEL 21C424, 4" (100MM) CENTER, TWO 100MM BLADE HANDLES, SANITARY HOODS, POLISH CHROME FINISH, 1.5 GPM (5.7 L/MIN) VANDAL RESISTANT AERATOR.

.3 SUPPLIES: POLISHED CHROME PLATED SUPPLIES: 10MM (3/8") SUPPLIES WITH BALL TYPE VALVE, 305MM (12") LONG STAINLESS STEEL CLAD RUBBER FLEXIBLE RISERS.

.4 TRAP: 38MM (1-1/4") ROUGH CAST BRASS "P" TRAP WITH CLEANOUT.

SINK TYPE "S"

1. KINDRED, MODEL QSL1718/8, SINGLE BOWL, LEDGEBACK STAINLESS STEEL SINK, 18 GAUGE STAINLESS STEEL, 3 HOLES 4" CENTER-TO-CENTER, 1 1/2" (38 MM) DIAMETER WASTE OUTLET. COMPARTMENT SIZE: 12" X 17" X 8" (300MM X 430MM X 200MM) OVERALL SIZE: 17" X 19-1/8" X 8" (430MM X 490MM X 200MM)

.2 MOEN COMMERCIAL 8289. SOLID BRASS CONSTRUCTION, CHROME PLATED 8"(203MM) C.C. WITH ½"IPS CONNECTIONS. 4"WRIST BLADE HANDLES WITH HOT AND COLD COLOUR INDICATORS; ¼ TURN CERAMIC DISC CARTRIDGES WITH FREE SPINNING HANDLE HUBS. 1.5GPM [5.7L/MIN] AERATOR WITH AN 8" GOOSENECK SPOUT, (OPTIONAL 2.0GPM [7.6L/MIN] LAMINAR FLOW CONVERSION KIT INCLUDED).

.3 SUPPLIES: POLISHED CHROME PLATED SUPPLIES: 10MM (3/8") SUPPLIES WITH BALL TYPE VALVE, 305MM (12") LONG STAINLESS STEEL CLAD RUBBER FLEXIBLE RISERS.

.4 TRAP: 38MM (1-1/2") ROUGH CAST BRASS "P" TRAP WITH CLEANOUT.

SINK TYPE "S-1"

1. FRANKE COMMERCIAL DROP-IN, MODEL LBS5810-1/3, SINGLE COMPARTMENT SINK WITH FAUCET LEDGE, 18 GAUGE STAINLESS STEEL, 3 HOLES 4" CENTER-TO-CENTRE SET, 1 ½" DIAMETER. COMPARTMENT SIZE: 18" X 16" X 10" (457MM X 406MM X 254MM), OVERALL SIZE: 20 1/8" X 20 9/16" (511MM X 522MM)

.2 MOEN COMMERCIAL 8289. SOLID BRASS CONSTRUCTION, CHROME PLATED 8"(203MM) C.C. WITH ½"IPS CONNECTIONS. 4"WRIST BLADE HANDLES WITH HOT AND COLD COLOUR INDICATORS; ¼ TURN CERAMIC DISC CARTRIDGES WITH FREE SPINNING HANDLE HUBS. 1.5GPM [5.7L/MIN] AERATOR WITH AN 8" GOOSENECK SPOUT, (OPTIONAL 2.0GPM [7.6L/MIN] LAMINAR FLOW CONVERSION KIT INCLUDED).

.3 SUPPLIES: POLISHED CHROME PLATED SUPPLIES: 10MM (3/8") SUPPLIES WITH BALL TYPE VALVE, 305MM (12") LONG STAINLESS STEEL CLAD RUBBER FLEXIBLE RISERS.

.4 TRAP: 38MM (1-1/2") ROUGH CAST BRASS "P" TRAP WITH CLEANOUT.

SHOWER TYPE "SH"

.1 SHOWER ENCLOSURE: PROVIDED BY ARCHITECTURAL TRADES, INCLUDING WATERPROOF MEMBRANE. CO-ORDINATE WITH OTHER DIVISIONS.

.2 LIGATURE RESISTANT WALL SHOWER UNIT LR1748ADA SERIES BY ACORN. ADA COMPLIANT. PROVIDE S.S. ACCESS PANEL ON BACK OF UNIT. PROVIDE TEMPER-PROOF SCREWS. PROVIDE WALL SLEEVE. SHOWER UNIT TO BE 14 GAUGE, TYPE 304 S.S. WITH SATIN FINISH. CONICAL SHOWER HEAD

.3 SHOWER VALVE: ASSA 1016 T/P TEMPERATURE AND PRESSURE BALANCING 1.6 GPM FLOW, WITH VANDAL AND LIGATURE RESISTANT TRI-LEVER HANDLE

.4 PROVIDE NECESSARY FASTENERS

.5 50MM FLOOR DRAIN WITH S.S. STRAINER WITH PERFORATED OPENINGS (NO SLOP TYPE OPENINGS) ALL WASHROOMS HAVE EPOXY FLOORING THROUGHOUT, DRAINS TO SUIT

SHOWER TYPE "SH-1"(BARRIER FREE)

.1 SHOWER ENCLOSURE: PROVIDED BY ARCHITECTURAL TRADES, INCLUDING WATERPROOF MEMBRANE. CO-ORDINATE WITH OTHER DIVISIONS.

.2 SHOWER VALVE AND SPRAY HEAD DELTA T13H252: POLISHED CHROME FINISH, PRESSURE AND TEMPERATURE BALANCING CONTROLLER WITH METAL LEVER ADA COMPLIANT HANDLE

3. HAND SHOWER HEAD, 1.5 GPM FLOW, WITH 24" LONG SLIDING BAR

4. SPOUT WITH PULL-UP DIVERTER

.5 50MM FLOOR DRAIN WITH S.S. STRAINER WITH PERFORATED OPENINGS (NO SLOP TYPE OPENINGS) ALL WASHROOMS HAVE EPOXY FLOORING THROUGHOUT, DRAINS TO SUIT

JANITOR SINK TYPE "JS"

.1 STERN WILLIAMS MOP SINK MODEL SB802: 24" X 24" X 12" (610MM X 610MM X 305MM DEEP) RECEPTOR COMPOSED OF PEARL GREY MARBLE CHIPS AND WHITE PORTLAND CEMENT, WITH NPS 3 DRAIN WITH S.S. STRAINER.

.2 FAUCET: T-10-WB MOP SERVICE SINK FAUCET WITH VACUUM BREAKER, ADJUSTABLE TOP BRACE, ¾" HOSE THREAD ON SPOUT WITH BRACKET HOOK INLET 8" ON CENTRE, CHROME FINISH

.3 HOSE AND WALL HOOK: T-35, 36" LONG HOSE, WITH ¾" CHROME COUPLING. S.S. WALL BRACKET

.4 MOP HANGER: T-40, S.S. MOP HANGER, 24" LONG WITH 3 RUBBER SPRING LOADED GRIPS.

.5 PROVIDE SPLASH CATCHER PANELS ON TWO CORNER WALLS. PANELS TO BE 20 GA, TYPE 304 STAINLESS STEEL. PANELS TO BE 5FT HIGH.

EYE WASH STATION TYPE "EW"

.1 MODEL7360BT-7460BT WALL MOUNTED EYE/FACE WASH WITH STAINLESS STEEL 11"(27.9CM) ROUND BOWL, NAXION®SR EYE/FACE WASH HEAD WITH INVERTED DIRECTIONAL LAMINAR FLOW AT 3.7 GPM FLOW CONTROL, UNIVERSAL SIGN, 12MM INLET, 38MM OUTLET

.2 THERMOSTATIC MIXING VALVE: MODEL 9201EW AXION®EMERGENCY TEMPERING VALVE THERMOSTATICALLY MIXES HOT AND COLD WATER TO PROVIDE SAFE FLUID SUPPLY FOR SINGLE EMERGENCY EYE/FACE WASH, WITH FLOW RATE OF 10GPM (38.8 L). PROVIDE S.S. BACK BOX RECESSES IN WALL TO HOUSE MIXING VALVE AND CONTROLS. PROVIDE S.S. ACCESS PANEL.

.3 TRAP: 38MM (1-1/2") ROUGH CAST BRASS "P" TRAP WITH CLEANOUT.

EYE WASH STATION TYPE "EW"

.1 MODEL7360BT-7460BT WALL MOUNTED EYE/FACE WASH WITH STAINLESS STEEL 11"(27.9CM) ROUND BOWL, NAXION®SR EYE/FACE WASH HEAD WITH INVERTED DIRECTIONAL LAMINAR FLOW AT 3.7 GPM FLOW CONTROL, UNIVERSAL SIGN, 12MM INLET, 38MM OUTLET

.2 THERMOSTATIC MIXING VALVE: MODEL 9201EW AXION®EMERGENCY TEMPERING VALVE THERMOSTATICALLY MIXES HOT AND COLD WATER TO PROVIDE SAFE FLUID SUPPLY FOR SINGLE EMERGENCY EYE/FACE WASH, WITH FLOW RATE OF 10GPM (38.8 L). PROVIDE S.S. BACK BOX RECESSES IN WALL TO HOUSE MIXING VALVE AND CONTROLS. PROVIDE S.S. ACCESS PANEL.

.3 TRAP: 38MM (1-1/2") ROUGH CAST BRASS "P" TRAP WITH CLEANOUT.

BOTTLE FILLER / WATER FOUNTAIN STATION "WF"

.1 ELKAY EZH20 BOTTLE FILLER STATION, SURFACE MOUNTED (NON-FILTERED, REFRIGERATED) STAINLESS STEEL, MODEL EZWSSM.

.2 UNIT TO BE LEAD FREE, LAMINAR FLOW, ANTIMICROBIAL, REAR DRAIN.

3. UNIT TO COMPLETE WITH ELECTRONIC BOTTLE FILLER SENSOR ACTIVATION.

4. UNIT DIMENSION: 17-15/16"(L) x 8-3/16"(W) x 25-7/16"(H)

5. POWER: 120V-1PH-60HZ, FLA 1 AMP

6. FOLLOW MANUFACTURE INSTALLATION INSTRUCTIONS

PLUMBING FIXTURE SERVICE REQUIREMENTS

No.	DESIGNATION	MINIMUM SERVICE CONNECTION SIZE			
		DRAIN	COLD WATER	HOT WATER	VENT
"WC"&"WC-1"	WATER CLOSET	75	25	–	AS PER CODE
"LAV"	LAVATORY	32	12	12	AS PER CODE
"SH"	SHOWER	50	12	12	AS PER CODE
"S"	SINK	38	12	12	AS PER CODE
"JS"	JANITOR'S MOP RECEPTOR	50	12	12	AS PER CODE
"SS"	UTILITY SINK	38	12	12	AS PER CODE
"EW"	EMERG. EYE WASH	38	12	12	AS PER CODE
"FD"	FLOOR DRAIN	75	–	–	VENT & PRIME AS PER CODE
"WF"	WATER COOLER	32	12	–	AS PER CODE

Rev	Description	Date
1	Final Review	16 July '18
1	Issued for Permit & Tender	16 July '18

TORONTO Building
PERMIT REVIEWED FOR COMPLIANCE WITH THE ONTARIO BUILDING CODE
18 197188 PLB 00

ZONING		
O.B.C.		
FIRE SERVICES		
O.B.C. (S)		

SHARMA & PARTNERS INC.
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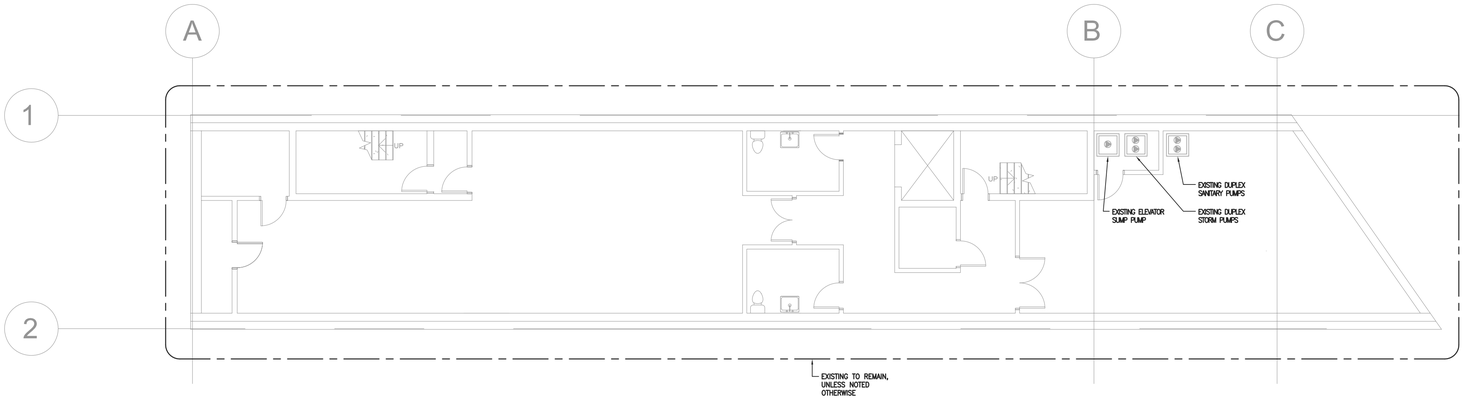
PROJECT CODE:	SCALE:
18_22	N.T.S.
DATE:	STATUS:
16 July 2018	**Permit / Tender**

Mechanical Legend, Drawing List and Schedules

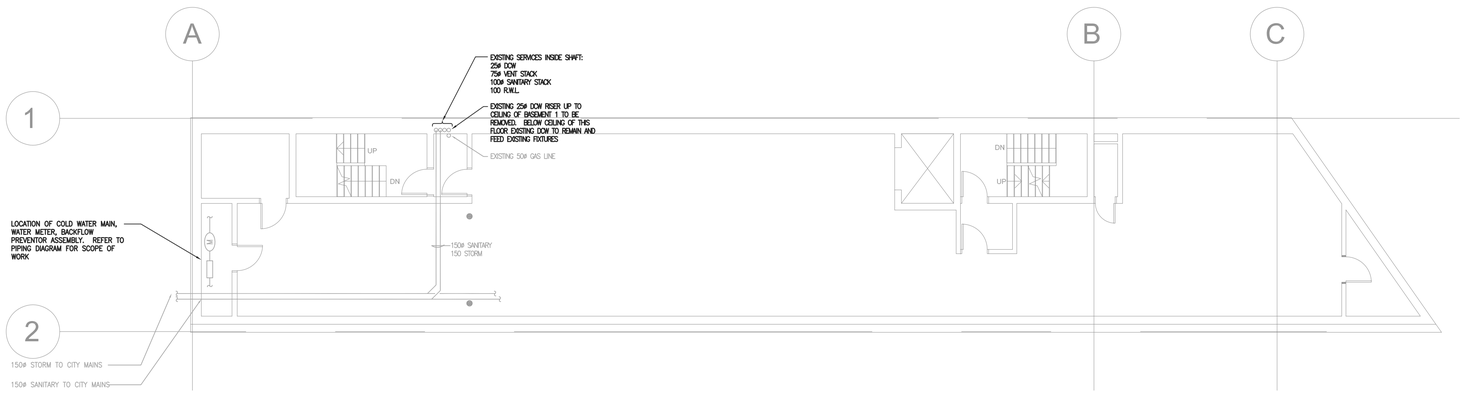
Project North

drawing number **M-1**

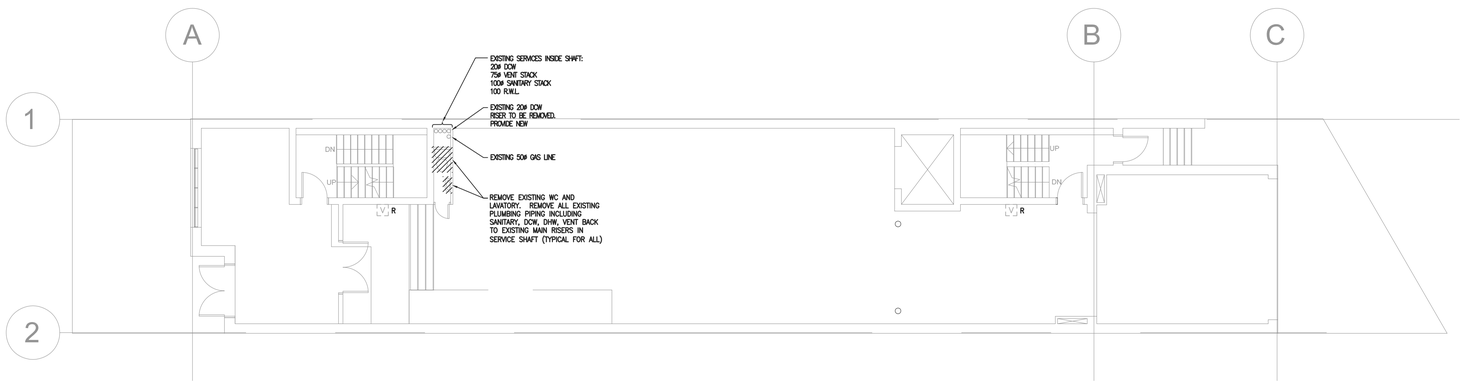
TORONTO Building RECEIVED 24/Jul/2018



1 / M-2 BASEMENT 2 – PLUMBING DEMOLITION
SCALE: 1:100



2 / M-2 BASEMENT 1 – PLUMBING DEMOLITION
SCALE: 1:100



3 / M-2 LEVEL 1 – PLUMBING DEMOLITION
SCALE: 1:100

Rev	Description	Date
1	Final Review	16 July '18
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TORONTO Building
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PROJECT CODE:	SCALE:
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16 July 2018	**Permit / Tender**

Basement 1 & 2 and Level 1
Plumbing Demolition

Project North

drawing number
M-2

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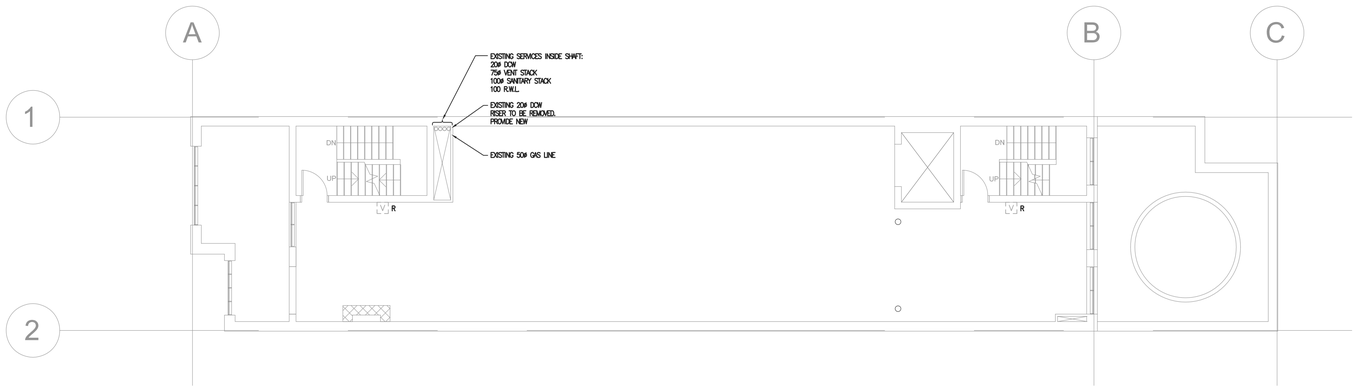
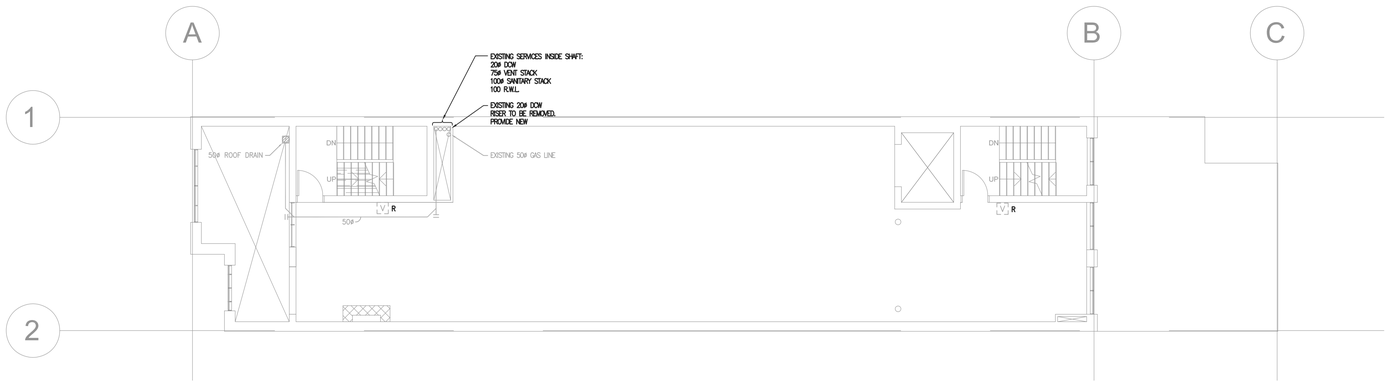


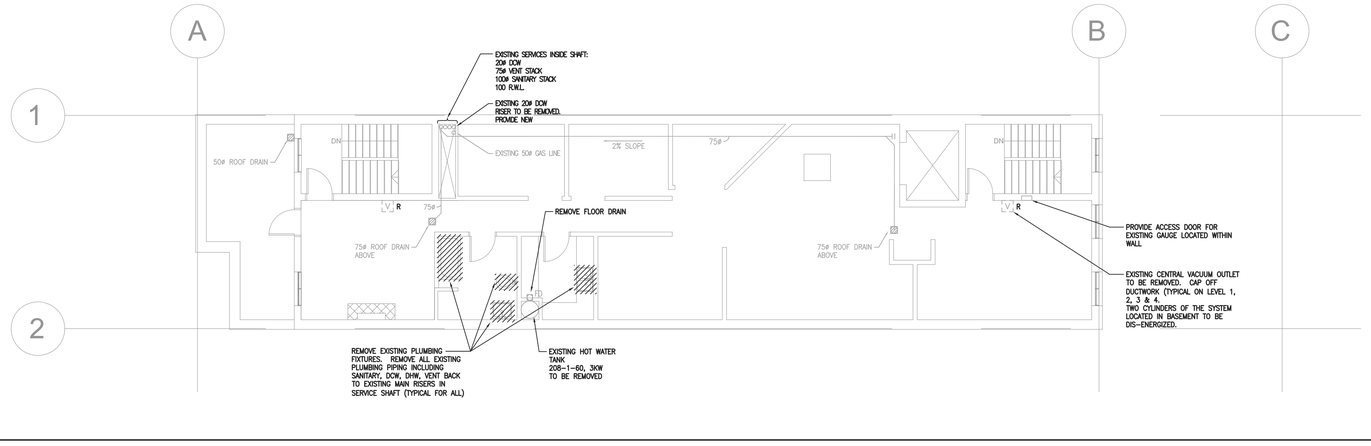
1 M-3 LEVEL 2 – PLUMBING DEMOLITION

SCALE: 1:100



2 M-3 LEVEL 3 – PLUMBING DEMOLITION

SCALE: 1:100



3 M-3 LEVEL 4 – PLUMBING DEMOLITION

SCALE: 1:100

Rev	Description	Date
1	Final Review	16 July '18
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TORONTO Building

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PROJECT CODE:	SCALE:
18_22	As indicated
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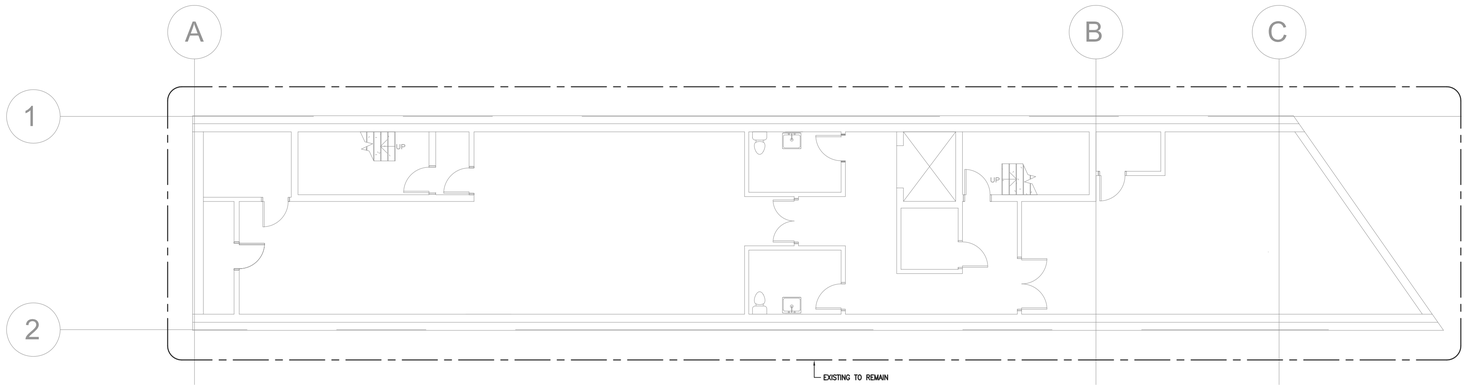
16 July 2018	**Permit / Tender**

Level 2, 3 & 4
Plumbing Demolition

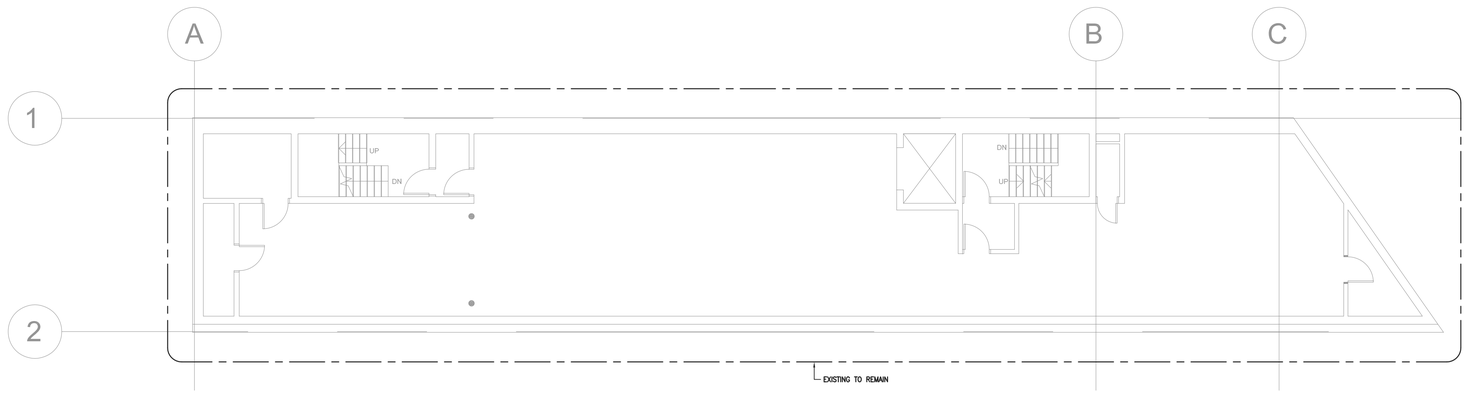
Project North

drawing number

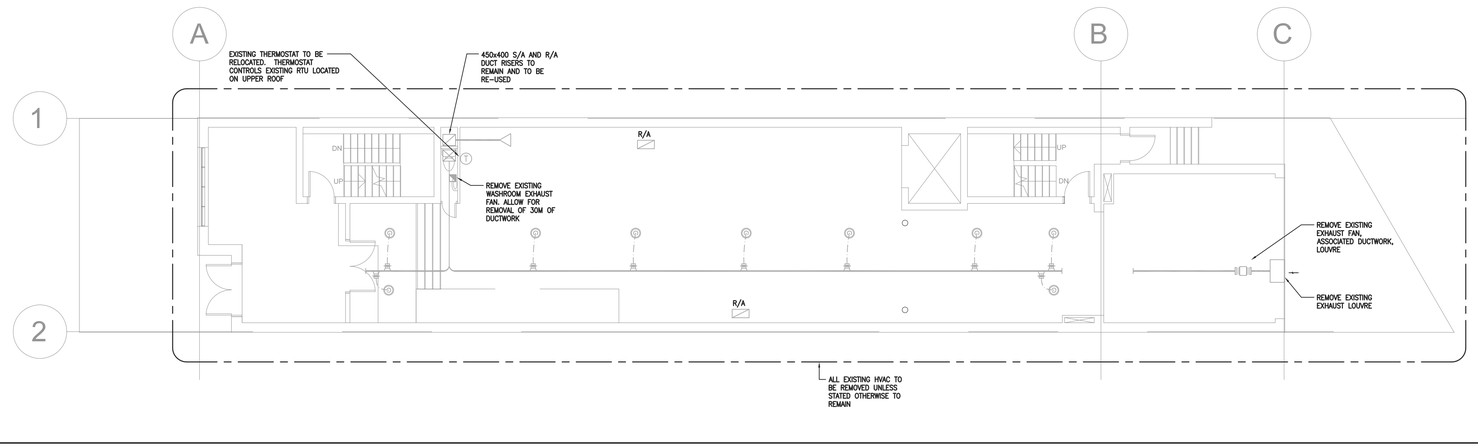
M-3



1 / M-4 BASEMENT 2 – HVAC DEMOLITION
SCALE: 1:100



2 / M-4 BASEMENT 1 – HVAC DEMOLITION
SCALE: 1:100



3 / M-4 LEVEL 1 – HVAC DEMOLITION
SCALE: 1:100

DEMOLITION NOTES:

1. REMOVE ALL EXISTING DUCTWORK, FITTINGS, DIFFUSERS AND GRILLES UP TO MAINS BELOW ROOF FROM RTU.
2. EXISTING DUCTWORK LAYOUT IS SHOWN FOR REFERENCE ONLY. VERIFY ON SITE AS REQUIRED.
3. IN ADDITION TO SHOWN, ALLOW IN CONTRACT FOR REPLACEMENT OF 5 EXISTING FIRE DAMPERS WITH NEW ONES. (400x300 DUCT SIZE)

Rev	Description	Date
1	Final Review	16 July '18
1	Issued for Permit & Tender	16 July '18

TORONTO Building
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PROJECT CODE:	SCALE:
18_22	As indicated
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16 July 2018	**Permit / Tender**

Basement 1 & 2 and Level 1
HVAC Demolition

Project North

drawing number **M-4**

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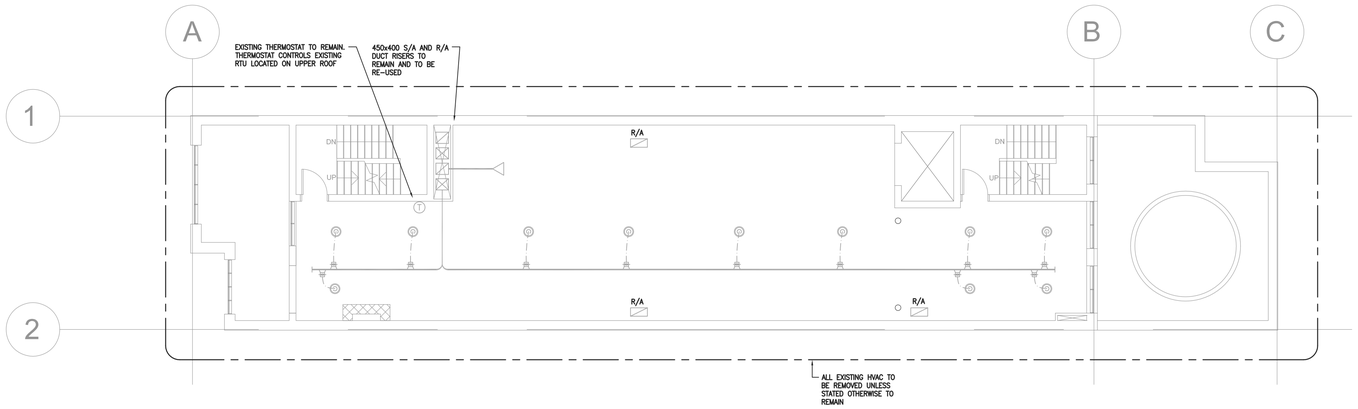
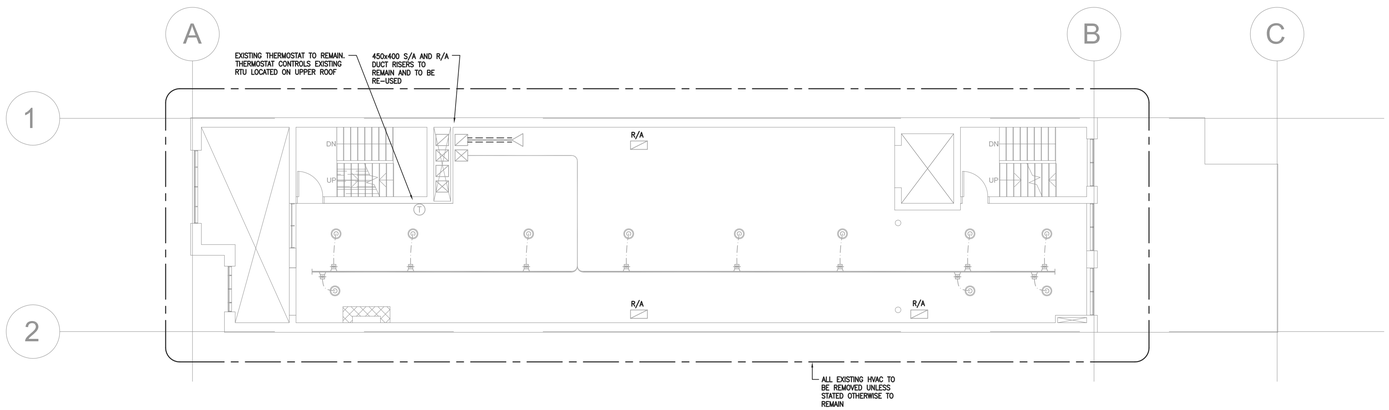


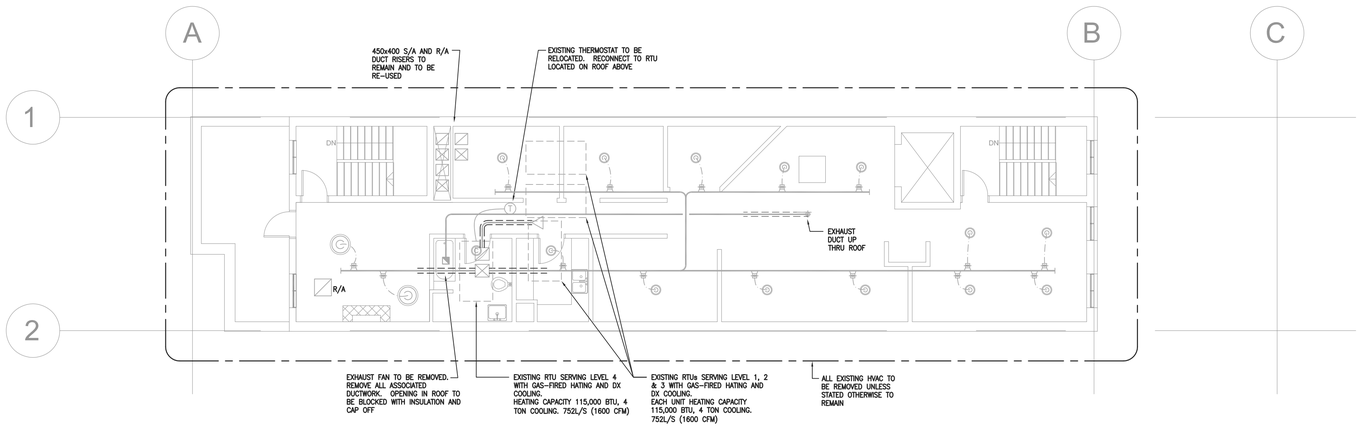
1 M-5 LEVEL 2 – HVAC DEMOLITION

SCALE: 1:100



2 M-5 LEVEL 3 – HVAC DEMOLITION

SCALE: 1:100



3 M-5 LEVEL 4 – HVAC DEMOLITION

SCALE: 1:100

DEMOLITION NOTES:

1. REMOVE ALL EXISTING DUCTWORK, FITTINGS, DIFFUSERS AND GRILLES UP TO MAINS BELOW ROOF FROM RTU.
2. EXISTING DUCTWORK LAYOUT IS SHOWN FOR REFERENCE ONLY. VERIFY ON SITE AS REQUIRED.
3. IN ADDITION TO SHOWN, ALLOW IN CONTRACT FOR REPLACEMENT OF 5 EXISTING FIRE DAMPERS WITH NEW ONES. (400x300 DUCT SIZE)

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TORONTO Building

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FIRE SERVICES		

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PROJECT CODE:	SCALE:
18_22	As indicated
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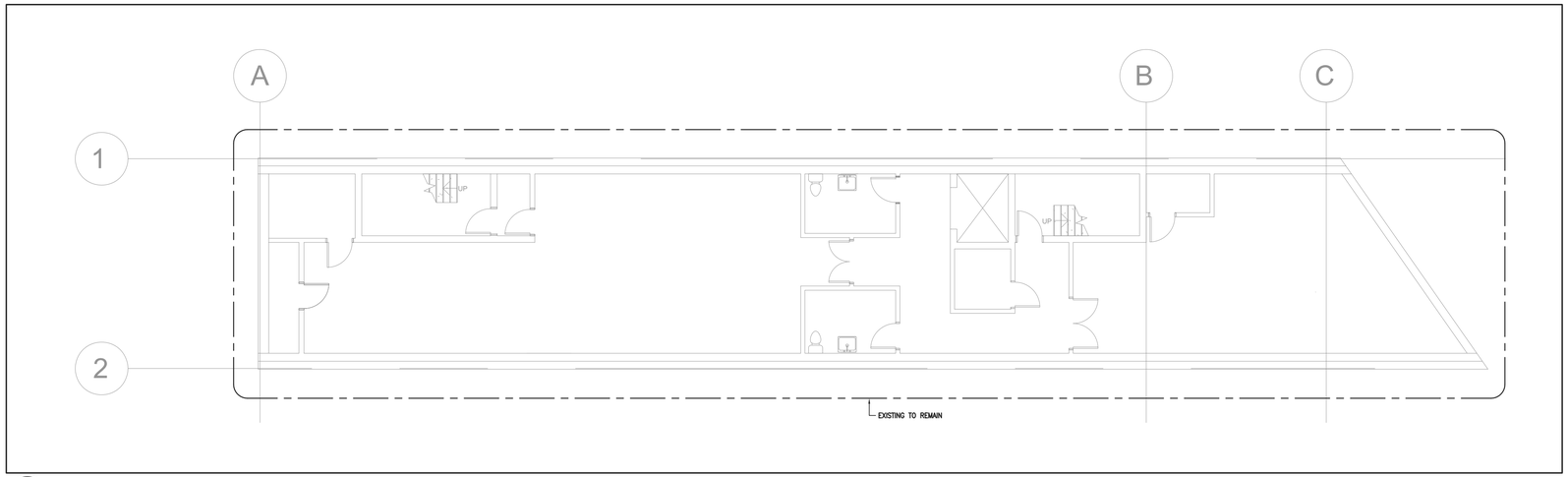
16 July 2018	**Permit / Tender**

Level 2, 3 & 4
HVAC Demolition

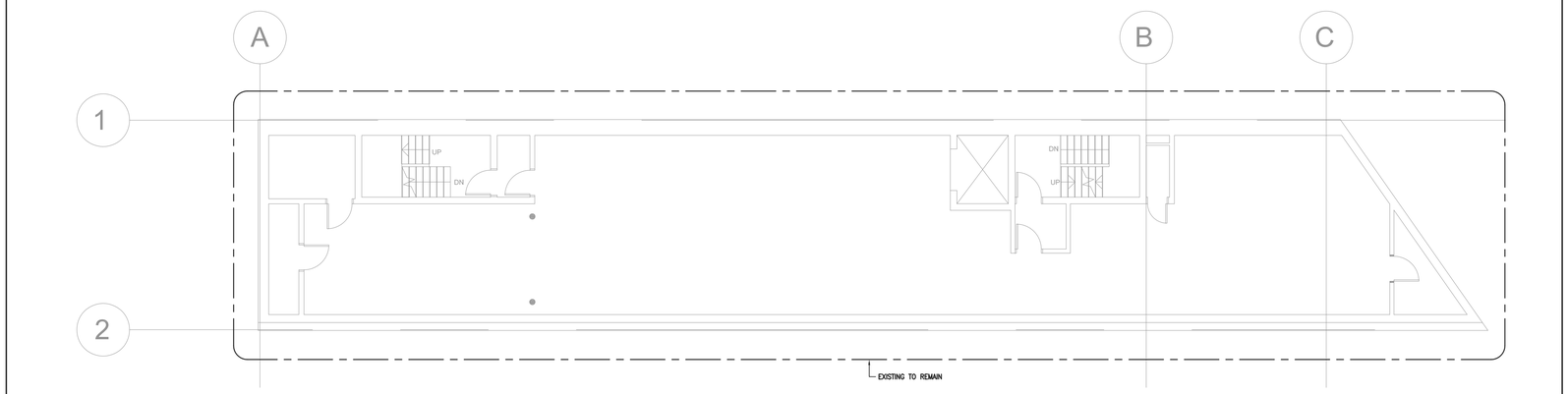
Project North

drawing number
M-5

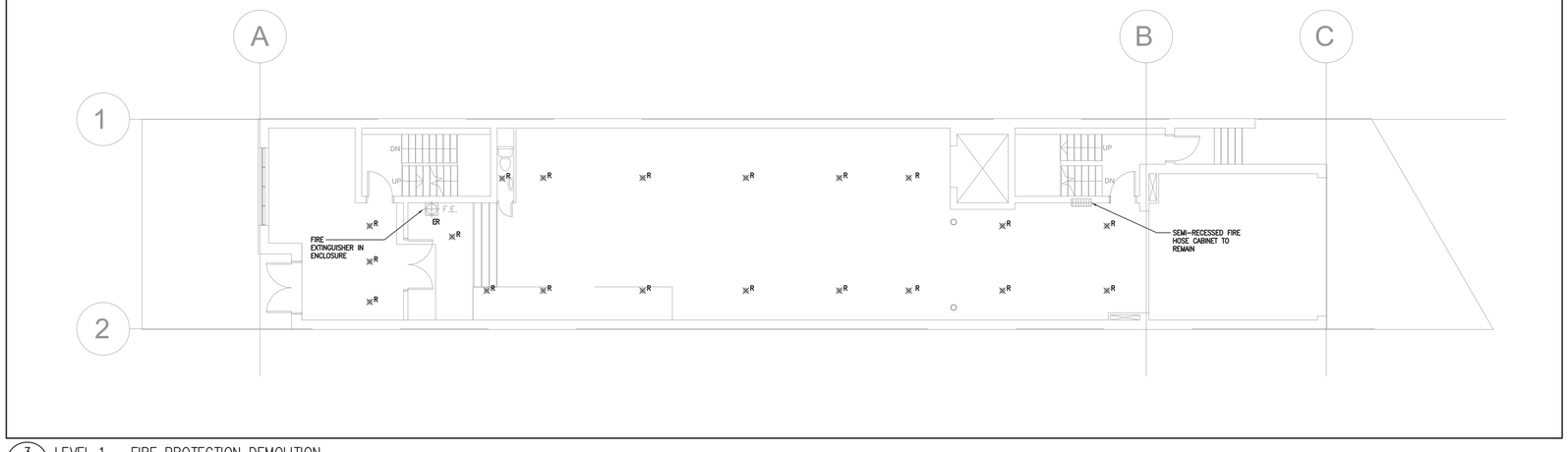
TORONTO Building **RECEIVED** 24/Jul/2018



1 M-6 BASEMENT 2 – FIRE PROTECTION DEMOLITION
SCALE: 1:100



2 M-6 BASEMENT 1 – FIRE PROTECTION DEMOLITION
SCALE: 1:100



3 M-6 LEVEL 1 – FIRE PROTECTION DEMOLITION
SCALE: 1:100

DEMOLITION NOTES:

1. REMOVE SPRINKLER HEADS IN RENOVATED AREAS WHERE SHOWN AND WHERE CEILING IS TO BE REPLACED.
2. REVISE SPRINKLER PIPING TO SUIT NEW CEILING HEIGHT AND LOCATION OF NEW SPRINKLER HEADS. REFER TO ARCHITECTURAL DRAWINGS FOR NEW CEILING HEIGHTS AND CEILING TYPE
3. IN ADDITION TO PIPE REVISIONS ASSOCIATED WITH NEW SPRINKLER HEADS LAYOUT AND NEW CEILING HEIGHTS, ALLOW IN CONTRACT FOR REPLACEMENT OF 50 FT OF 50# & 50 FT OF 38# SPRINKLER LINE (FOR UNFORESEEN SITE CONDITIONS AND SERVICES INTERFERENCE.
4. FOR EXISTING AND NEW CEILING HEIGHTS – REFER TO ARCHITECTURAL DRAWINGS. REVISE SPRINKLER PIPING TO SUIT NEW CEILING HEIGHTS.

LEGEND:

EX	DENOTES EXISTING TO REMAIN
ER	EXISTING TO BE RELOCATED (PROVIDE NEW SPRINKLER HEAD IN NEW LOCATION)
R	EXISTING TO BE REMOVED
RP	RELOCATED POSITION

Rev	Description	Date
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TORONTO Building
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18 197188 PLB 00

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PROJECT CODE:	SCALE:
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16 July 2018	**Permit / Tender**

Basement 1 & 2 and Level 1
Fire Protection Demolition

Project North

drawing number
M-6

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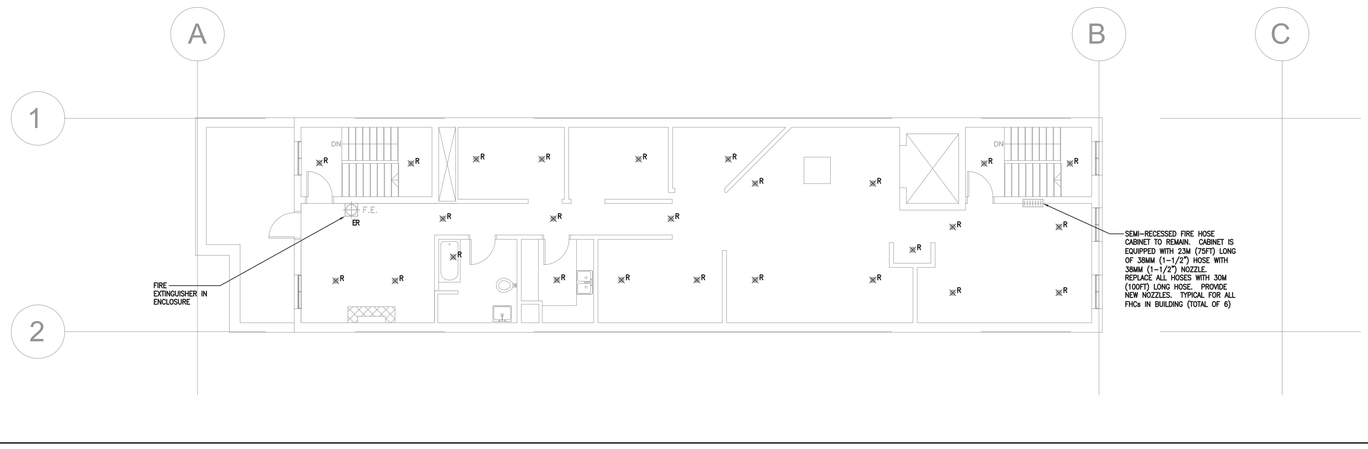
1 / M-7 LEVEL 2 – FIRE PROTECTION DEMOLITION

SCALE: 1:100

2 / M-7 LEVEL 3 – FIRE PROTECTION DEMOLITION

SCALE: 1:100



3 / M-7 LEVEL 4 – FIRE PROTECTION DEMOLITION

SCALE: 1:100

DEMOLITION NOTES:

1. REMOVE SPRINKLER HEADS IN RENOVATED AREAS WHERE SHOWN AND WHERE CEILING IS TO BE REPLACED.
2. REVISE SPRINKLER PIPING TO SUIT NEW CEILING HEIGHT AND LOCATION OF NEW SPRINKLER HEADS. REFER TO ARCHITECTURAL DRAWINGS FOR NEW CEILING HEIGHTS AND CEILING TYPE
3. IN ADDITION TO PIPE REVISIONS ASSOCIATED WITH NEW SPRINKLER HEADS LAYOUT AND NEW CEILING HEIGHTS, ALLOW IN CONTRACT FOR REPLACEMENT OF 50 FT OF 50Ø & 50 FT OF 38Ø SPRINKLER LINE (FOR UNFORESEEN SITE CONDITIONS AND SERVICES INTERFERENCE.
4. FOR EXISTING AND NEW CEILING HEIGHTS – REFER TO ARCHITECTURAL DRAWINGS. REVISE SPRINKLER PIPING TO SUIT NEW CEILING HEIGHTS.

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18_22	As indicated
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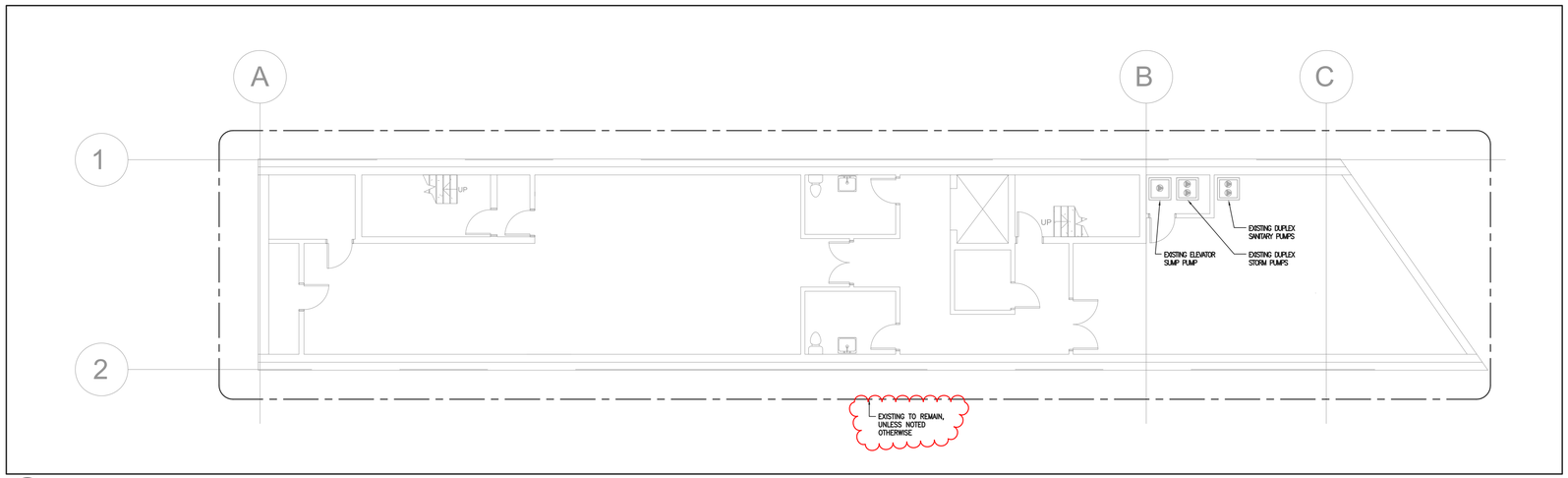
16 July 2018	**Permit / Tender**

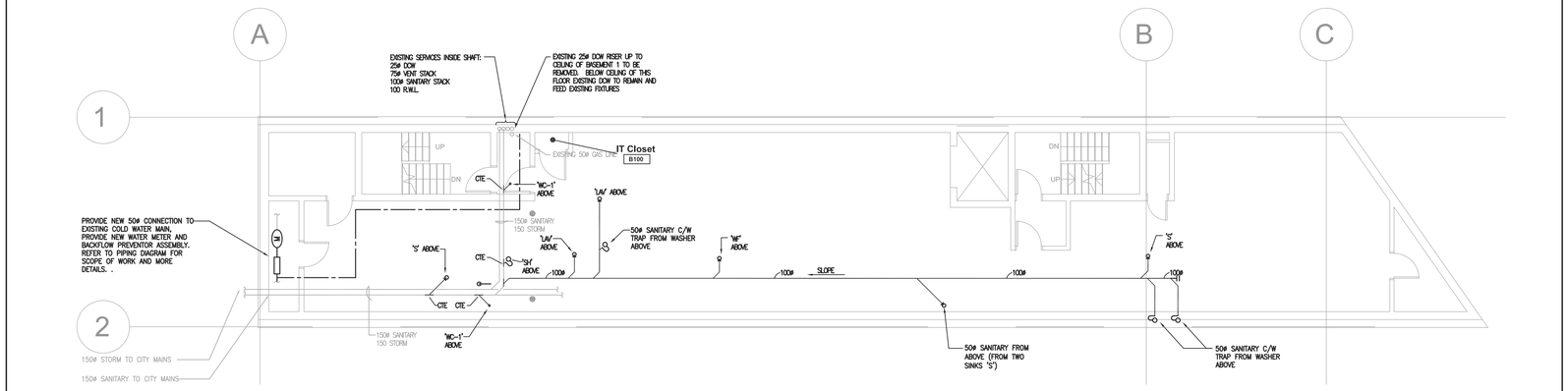
Level 2, 3 & 4
Fire Protection Demolition

Project North

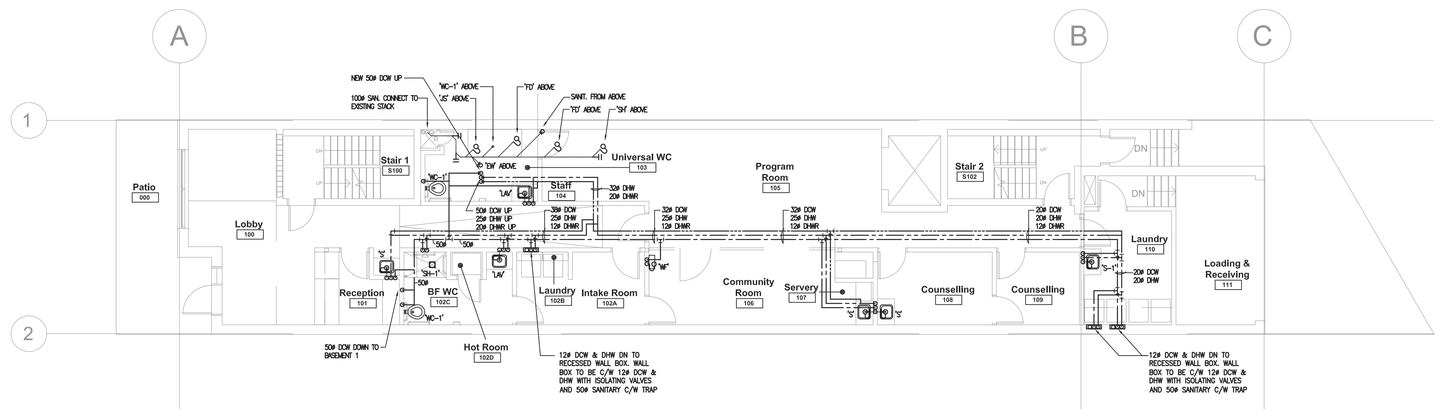
drawing number **M-7**



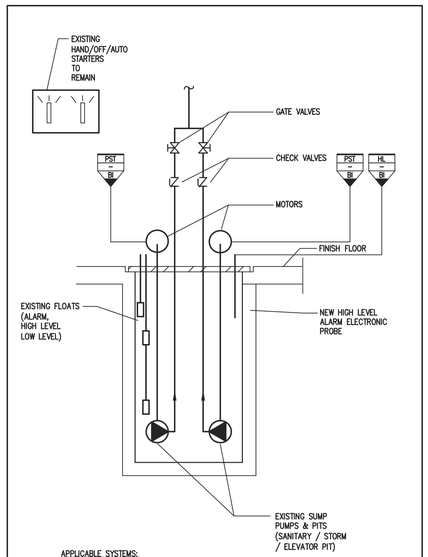
1 M-8 BASEMENT 2 – PLUMBING NEW LAYOUT
SCALE: 1:100



2 M-8 BASEMENT 1 – PLUMBING NEW LAYOUT
SCALE: 1:100



3 M-8 LEVEL 1 – PLUMBING NEW LAYOUT
SCALE: 1:100



APPLICABLE SYSTEMS:

- DUPLEX SANITARY PUMPS LOCATED IN BASEMENT 2 LEVEL
- DUPLEX SUMP PUMPS LOCATED IN BASEMENT 2 LEVEL
- ELEVATOR PIT SUMP PUMP LOCATED IN BASEMENT 2 LEVEL

NOTES:

1. PROVIDE NEW ELECTRONIC WATER LEVEL CONTROL FOR HIGH LEVEL ALARM.
2. CONNECT HIGH LEVEL ALARM TO REMOTE BAS
3. PROVIDE CURRENT SENSOR AT EACH PUMP
4. PROVIDE STATUS OF EACH PUMP AT BAS FROM NEW CURRENT SENSOR
5. EXISTING SEQUENCE OF PUMP OPERATION TO REMAIN

4 M-8 TYP. SUMP PUMP SYSTEM CONTROL, MONITORING & ALARM
N.T.S.

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O.B.C.	Chan, Kin-Wah	22/Aug/2018
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Basement 1 & 2 and Level 1
Plumbing New Layout

Project North

drawing number
M-8

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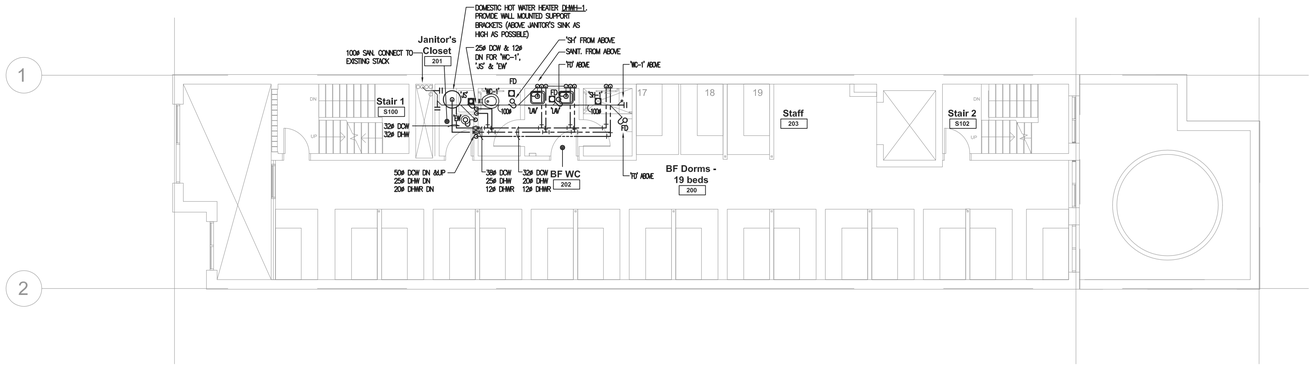
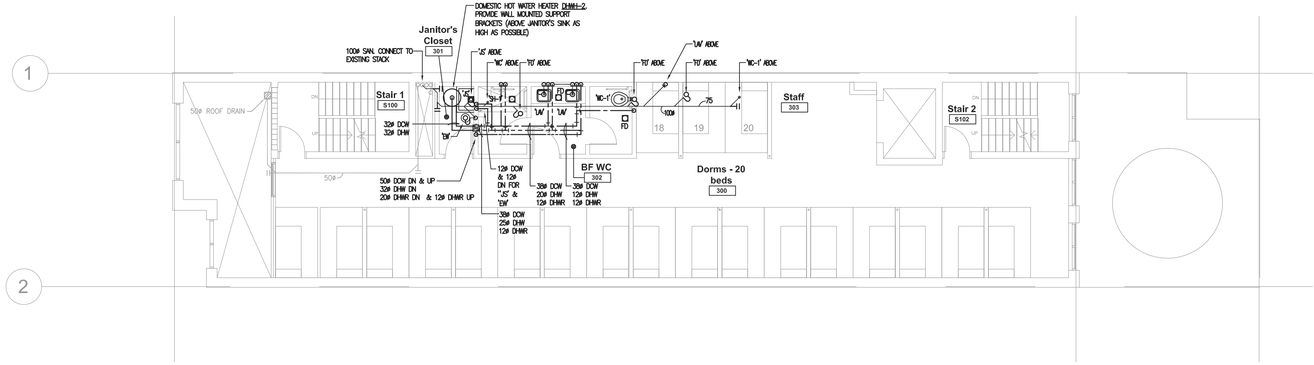
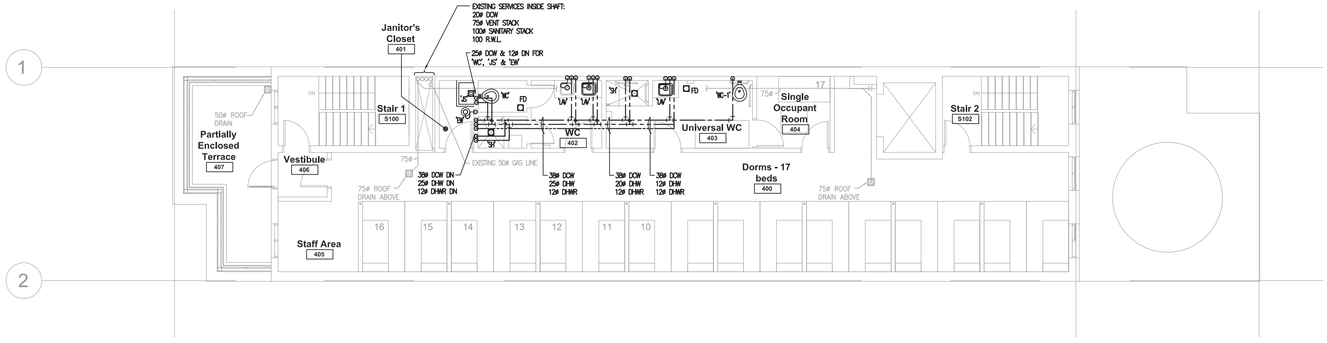


1 LEVEL 2 – PLUMBING NEW LAYOUT
M-9 SCALE: 1:100



2 LEVEL 3 – PLUMBING NEW LAYOUT
M-9 SCALE: 1:100



3 LEVEL 4 – PLUMBING NEW LAYOUT
M-9 SCALE: 1:100

TORONTO Building
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ZONING		
O.B.C.	Chan, Kin-Wah	22/Aug/2018
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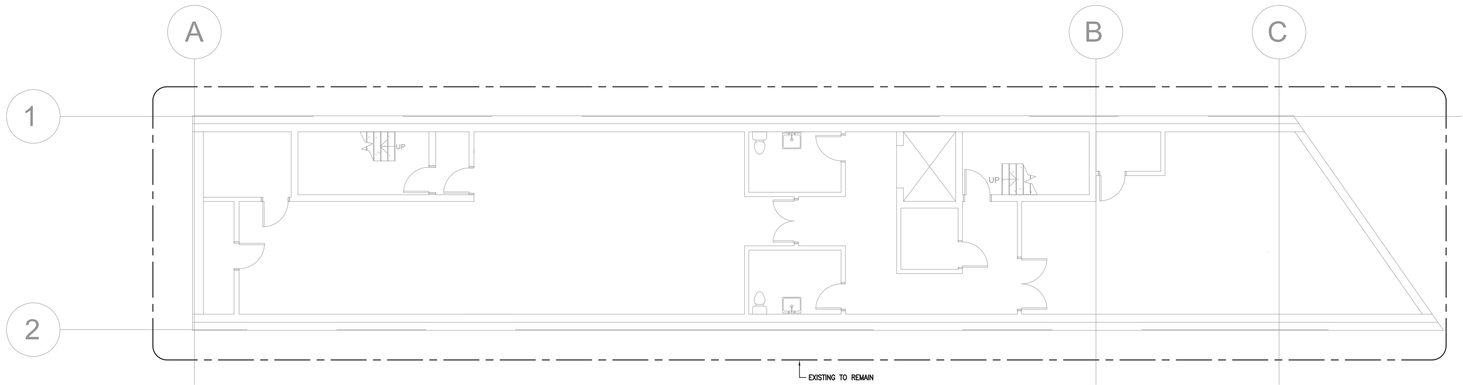
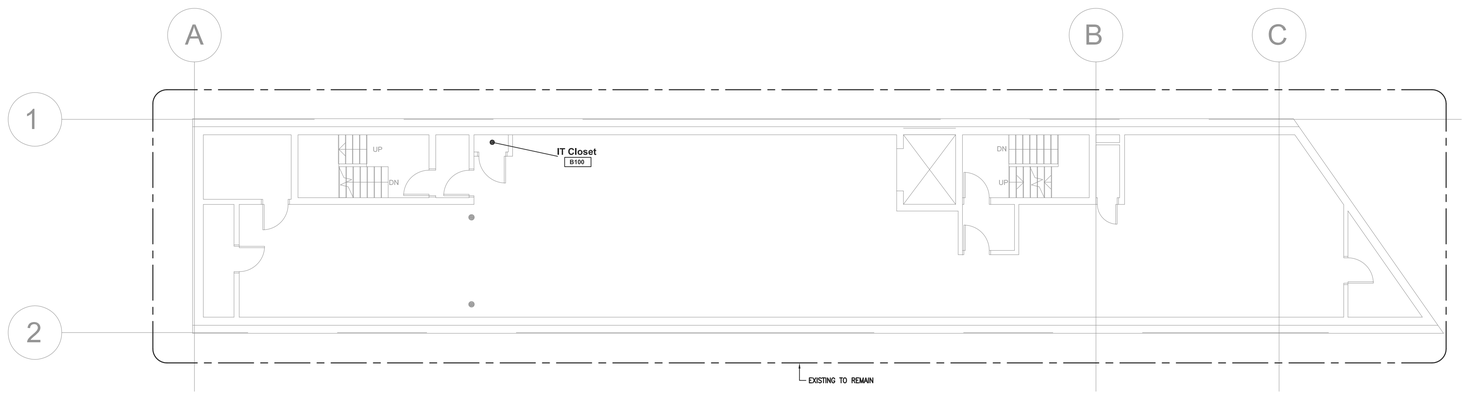
Level 2, 3 & 4
Plumbing New Layout

Project North

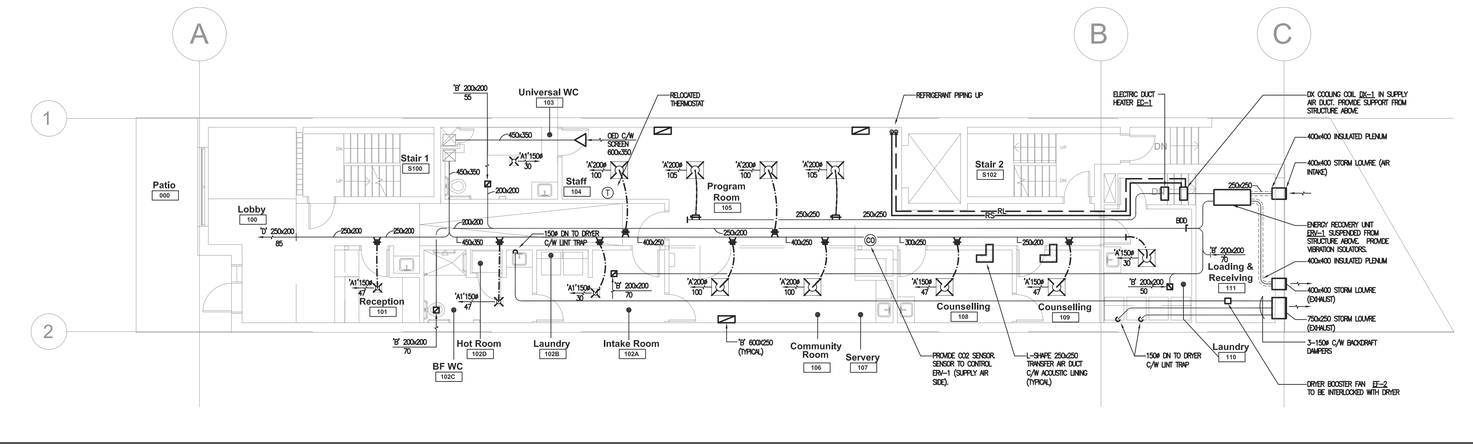
drawing number
M-9



1 M-10 BASEMENT 2 – HVAC NEW LAYOUT
SCALE: 1:100



2 M-10 BASEMENT 1 – HVAC NEW LAYOUT
SCALE: 1:100



3 M-10 LEVEL 1 – HVAC NEW LAYOUT
SCALE: 1:100

Rev	Description	Date
1	Final Review	16 July '18
1	Issued for Permit & Tender	16 July '18

TORONTO Building
PERMIT REVIEWED FOR COMPLIANCE WITH THE ONTARIO BUILDING CODE
18 197188 PLB 00

ZONING		
O.B.C.		
FIRE SERVICES		
O.B.C. (S)		

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SPI PROJECT #: 2018-1039

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Davenport Shelter

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PROJECT CODE:	SCALE:
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16 July 2018	**Permit / Tender**

Basement 1 & 2 and Level 1
HVAC New Layout

Project North

drawing number
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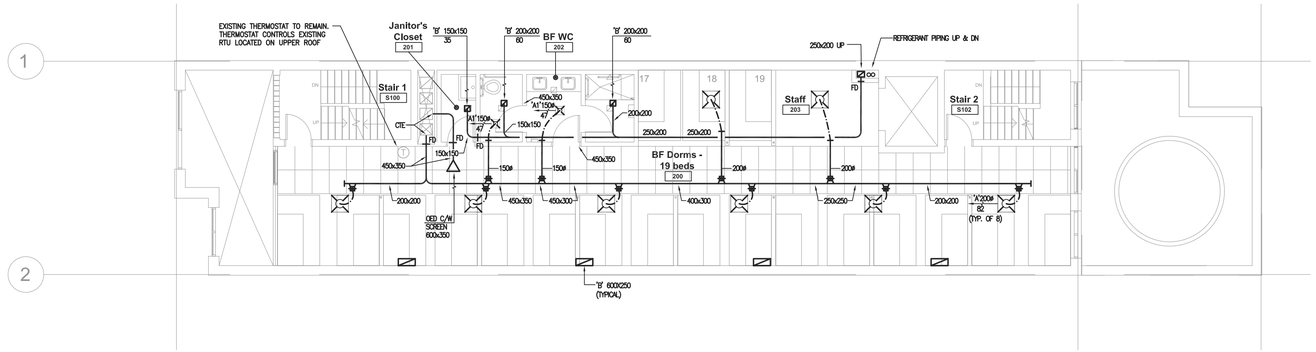
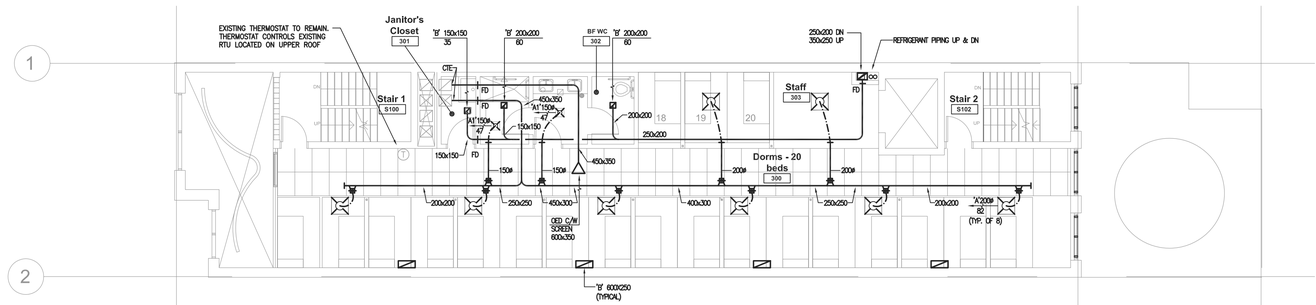
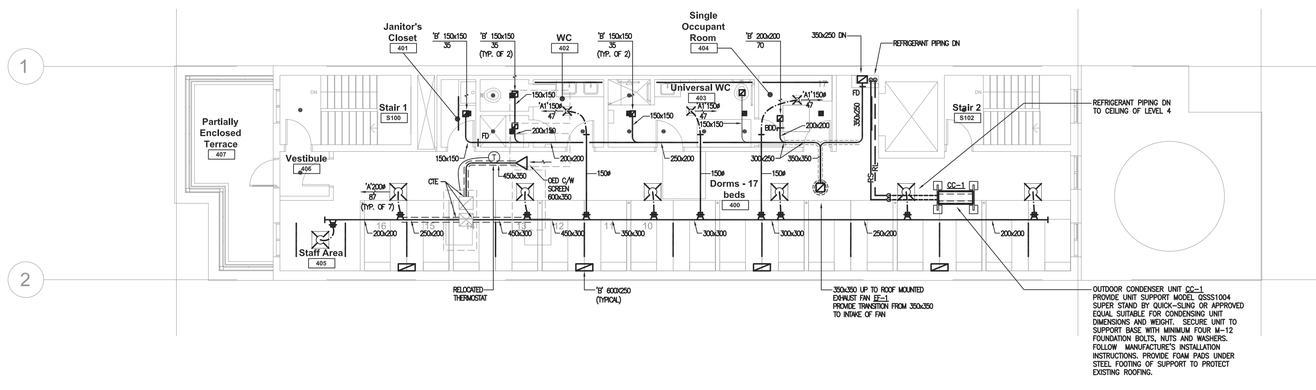


1 LEVEL 2 – HVAC NEW LAYOUT
M-11 SCALE: 1:100



2 LEVEL 3 – HVAC NEW LAYOUT
M-11 SCALE: 1:100



3 LEVEL 4 – HVAC NEW LAYOUT
M-11 SCALE: 1:100

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Level 2, 3 & 4
HVAC New Layout

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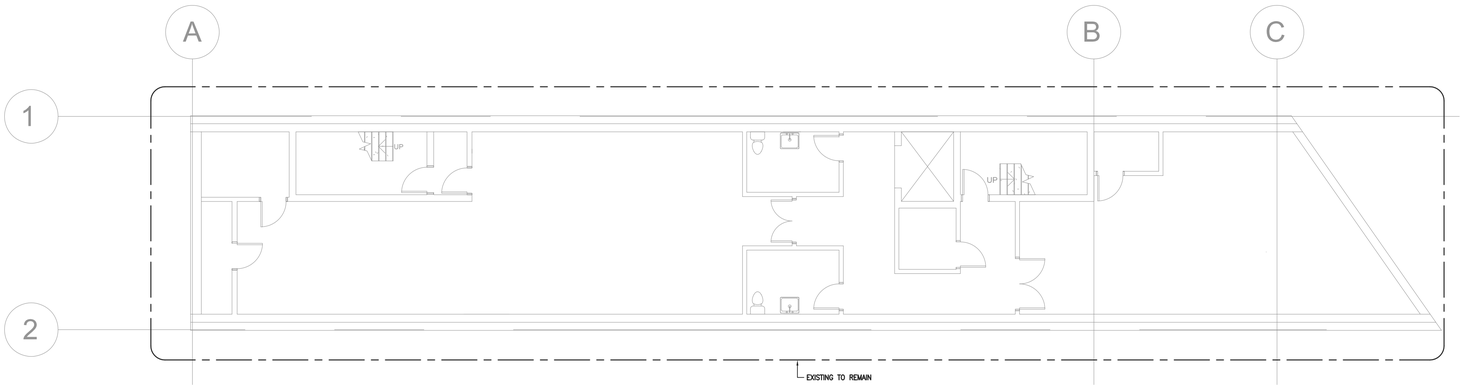
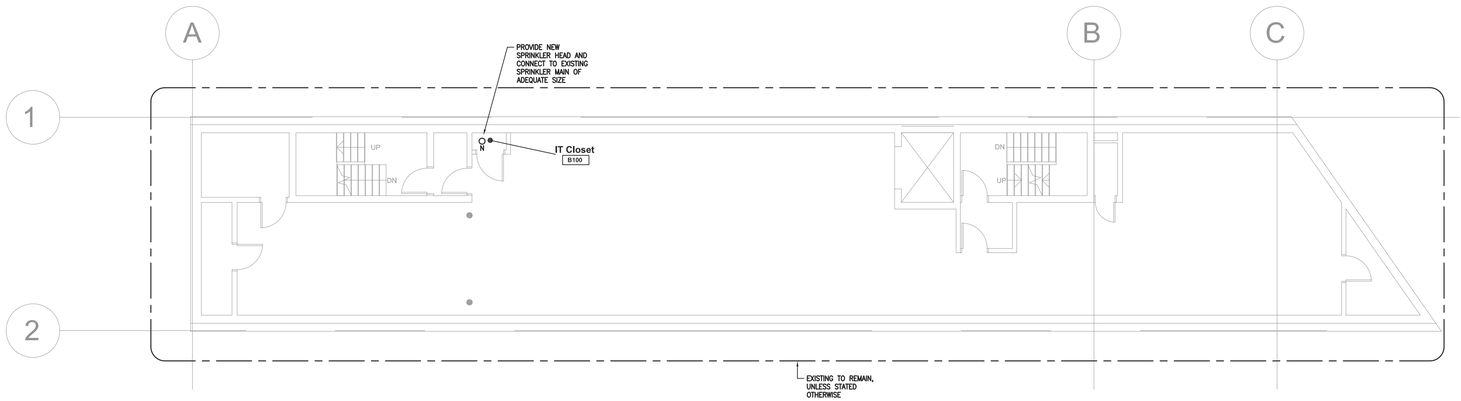
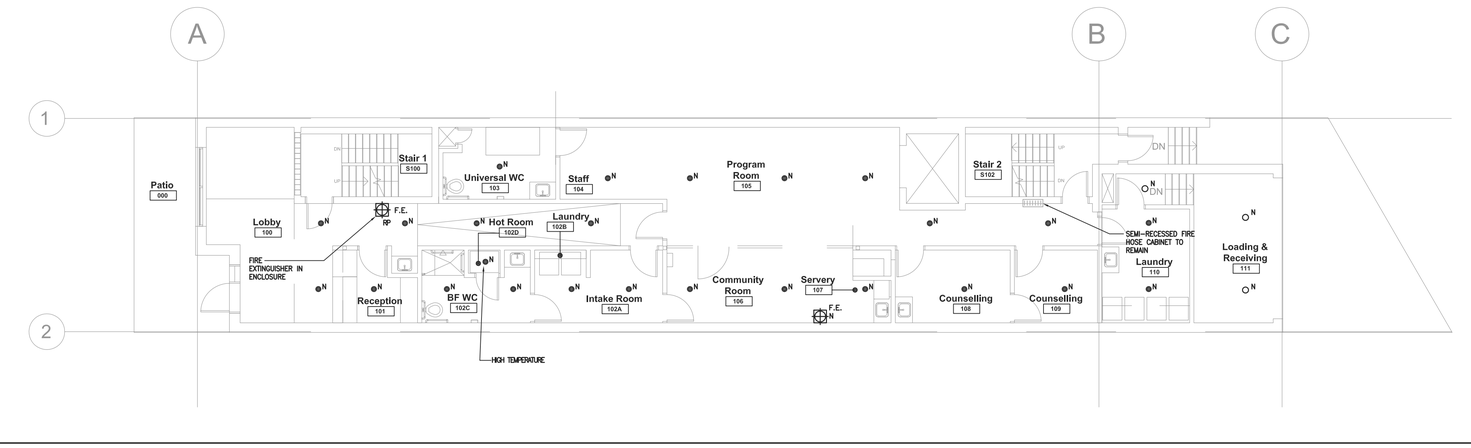


1 M-12 BASEMENT 2 – FIRE PROTECTION NEW LAYOUT
SCALE: 1:100



2 M-12 BASEMENT 1 – FIRE PROTECTION NEW LAYOUT
SCALE: 1:100



3 M-12 LEVEL 1 – FIRE PROTECTION NEW LAYOUT
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Basement 1 & 2 and Level 1
Fire Protection New Layout

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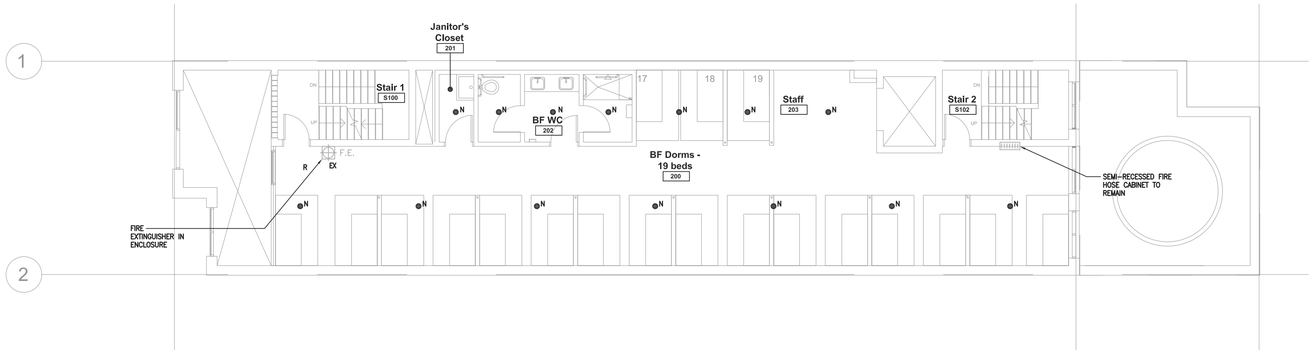

1 LEVEL 2 – FIRE PROTECTION DEMOLITION
M-7 SCALE: 1:100

2 LEVEL 3 – FIRE PROTECTION DEMOLITION
M-7 SCALE: 1:100

3 LEVEL 4 – FIRE PROTECTION DEMOLITION
M-7 SCALE: 1:100

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Level 2, 3 & 4
Fire Protection New Layout

Project North

drawing number
M-13

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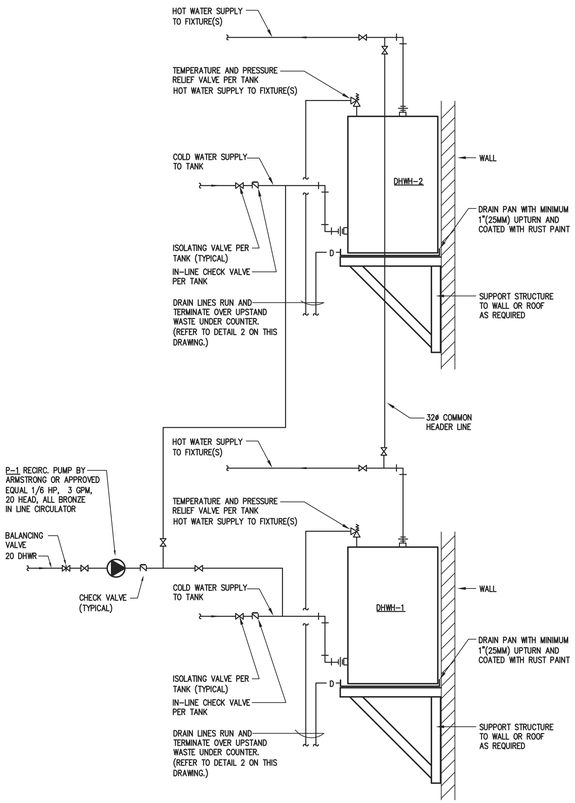
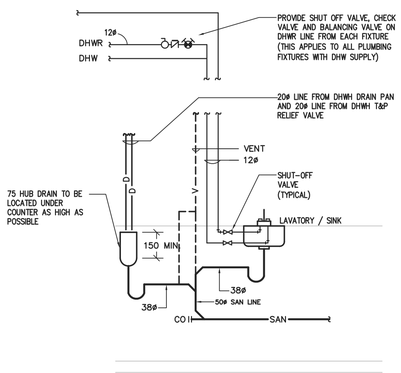
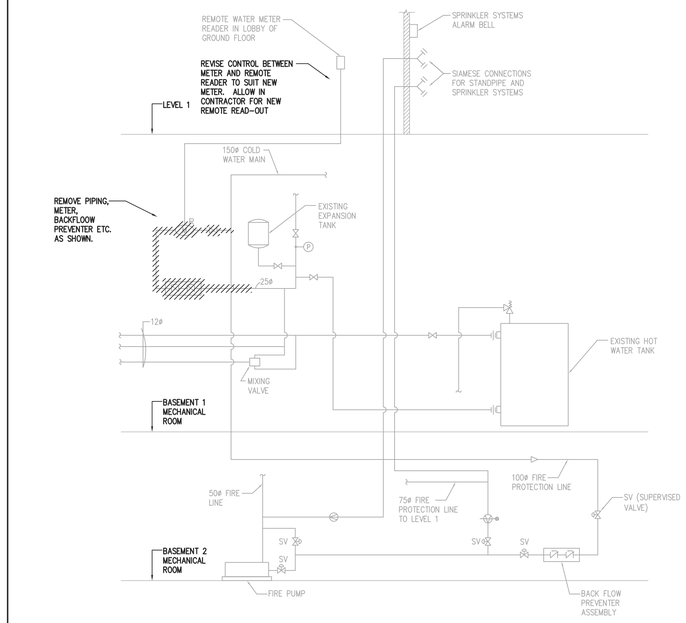


DHWH-1 & DHWH-2:
DOMESTIC HOT WATER HEATERS TO BE ELECTRIC, MODEL DEN-80 BY AO SMITH OR APPROVED EQUAL.
TANK CAPACITY 75 USG (284 L), 5000 WATT, 208-3-60

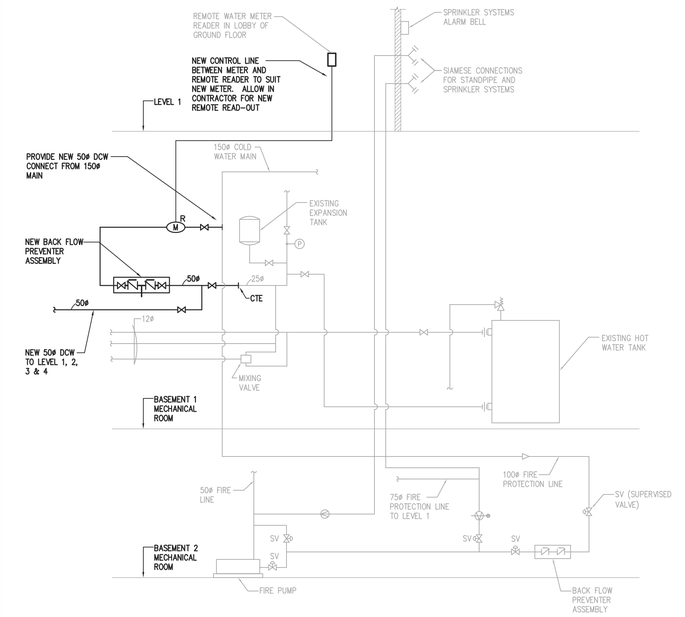
1 / M-14 DHWH -1 & DHWH-2 INSTALLATION
SCALE: N.T.S.



2 / M-14 DETAIL OF LAVATORY / SINK PIPING WITH DRAIN FROM DHWH
SCALE: N.T.S.



EXISTING



NEW LAYUOT

3 / M-14 COLD WATER AND FIRE PROTECTION PIPING DIAGRAM
SCALED:NOT.S.

FAN SCHEDULE

REF. LETTER	AREA SERVED / DESIGNATION	MANUFACTURE	MODEL	CAPACITY L/S (CFM)	E.S.P. PA ("W.G.)	ELECTRIC V-PH-HZ	ELECTRIC HP	DRIVE	FAN RPM	REMARKS
EF-1	GENERAL EXHAUST	GREENHECK	G-123-VG	565 (1200)	150 (0.6)	120-1-60	1/2	DIRECT	1318	CENTRIFUGAL ROOF EXHAUST FAN C/W BACKDRAFT DAMPER, SPEED CONTROLLER (POTENTIOMETR DIAL MOUNTED ON MOTOR), 350MM ROOF CURB WITH ALUMINUM CURB CAP, BIRD SCREEN, DISCONNECT
EF-2	DRYER BOOSTER FAN	REVERSOMATIC	RI-150	AS DRYER	62 (0.25)	120-1-60	85W	DIRECT	2550	C/W BACKDRAFT DAMPER, DISCONNECT, WEATHERPROOF WALL BOX, SPEED CONTROLLER, FAN TO BE INTERLOCKED WITH DRYER

HEAT RECOVERY WHEELS

TAG	AHU No.	DESIGNATION	SEASON	SUPPLY AIR FLOW (L/S)	PRESSURE DROP (Pa)	ENTERING AIR DB °C (°F)	ENTERING AIR WB °C (°F)	LEAVING AIR DB °C (°F)	LEAVING AIR WB °C (°F)	EXHAUST AIRFLOW (L/S)	PRESSURE DROP (Pa)	ENTERING AIR DB °C (°F)	ENTERING AIR WB °C (°F)	LEAVING AIR DB °C (°F)	LEAVING AIR WB °C (°F)	MOTOR (HP)	SELECTION	REMARKS
HRW-1	HRU-1	BASEMENT	SUMMER	385	225	32.2 (90)	23.9 (75)	24.9 (76.9)	17.9 (64.3)	480	225	23.9 (75)	16.8 (62.2)	29.7 (85.5)	21.9 971.4)	0.37	COOK ERV WHEEL	HEAT RECOVERY WHEEL IS PART OF HEAT RECOVERY UNIT HRU-1, FACTORY INSTALLED AND WIRED
			WINTER	385	225	-13.6 (8.5)	-14.6 (5.6)	17.8 (64)	9.56 (49.2)	480	225	22.2 (72)	12.8 (53.9)	-2.5 (27.5)	-4.4 (24.1)	0.37		

NOTES: WINTER OUTDOOR AIR TEMPERATURE IS ADJUSTED TO FROST PREVENTION CONDITIONS FOR WHEEL.

AIR COOLED CONDENSING UNITS

NO.	AREA SERVED	MAKER	REFRIGERANT	COOLING CAPACITY RATED BTU/H	COOLING CAPACITY RANGE TON	ELECTRICAL DATA V-PH-HZ	ELECTRICAL DATA MAX. BREAKER SIZE	ELECTRICAL DATA MCA AMP	REMARKS
CC-1	LEVEL 1	MITSUBISHI	R-410A	12,000	1.0	208-1-60	20	15	C/W INDOOR DX COIL, REFRIGERANT PIPING, WIRING, CONTROLS & ROOF SUPPORT.

REGISTERS, GRILLES & DIFFUSERS SCHEDULE

REF. LETTER	APPLICATION	MANUFACTURER DATA SELECTION MFG.	MANUFACTURER DATA MODEL DESCRIPTION AND SIZE (in x in)	OPPOSED BLADE DAMPER	FINISH	REMARKS
A	SQUARE PLAQUE SUPPLY AIR DIFFUSER	EH PRICE	SPD -600x600" ROUND NECK NECK SIZE AS SHOWN ON DWGS	NO	WHITE	FRAME & BORDER TO SUIT APPLICATION
A1	SQUARE PLAQUE SUPPLY AIR DIFFUSER	EH PRICE	SPD -300x300" ROUND NECK NECK SIZE AS SHOWN ON DWGS	NO	WHITE	FRAME & BORDER TO SUIT APPLICATION
B	EGGCRATE RETURN GRILLE	EH PRICE	50R 12x12x12 ALUMINUM CORE, SIZE AS SHOWN	NO	WHITE	FRAME & BORDER TO SUIT APPLICATION
C	RETURN / EXHAUST GRILLE	EH PRICE	535 STEEL SIZE AS SHOWN ON DWGS 20 MM SPACING 35° DEFLECTION	NO	WHITE	FRAME & BORDER TO SUIT APPLICATION
D	SUPPLY AIR GRILLE	EH PRICE	520 LOUVERED, STEEL SIZE AS SHOWN ON DWGS 20MM SPACING DOUBLE DEFLECTION	NO	WHITE	FRAME & BORDER TO SUIT APPLICATION

NOTES:
PROVIDE BALANCING DAMPERS AT GRILLE / DIFFUSER FOR DRYWALL APPLICATIONS
FOR RETURN / EXHAUST GRILLES PROVIDE PLENUM BOX FOR DUCT CONNECTION (WHERE SUITABLE)

HEAT RECOVERY AIR HANDLING UNIT SCHEDULE

TAG	AREA SERVED	UNIT MODEL NO	FANS FUNCTION	AIR FLOW (l/s)	MIN. OUTSIDE AIR (%)	E.S.P. (PA)	FAN RPM	V-PH-HZ	MOTOR HP	UNIT ELECTRIC DATA V-PH-HZ	FLA	MOCP	REMARKS
ERV-1	LEVEL 1	COOK ERV-500	SUPPLY	210	100	275	1600	120-1-60	0.5	120-1-60		20	HEAT RECOVERY UNIT TO BE C/W TEMPERATURE SENSOR, MERV 13 SUPPLY AIR FILTER, CONTROLS
			EXHAUST	315	–	150	1750	120-1-60	0.5				

DX COIL

TAG	FUNCTION	AIR FLOW L/S	FIN PER IN	FACE AREA (FT²)	FACE VELOCITY (FPM)	FLUID TYPE	CAPACITY (MBT) SENSIBLE	CAPACITY (MBT) TOTAL	AIR E.A.T.(°F) Db	AIR E.A.T.(°F) Wb	AIR L.A.T.(°F) Db	AIR L.A.T.(°F) Wb	AIR A.P.D. (IN.W.G.)	REMARKS
DX-1	COOLING	210	12	1.2	261	261	–	1TON	76.9	64.3	62.6	59.4	0.2	

ELECTRIC DUCT HEATER SCHEDULE

TAG	AIR FLOW CAPACITY (L/S)	HEATING CAPACITY (WATT)	DUCT SIZE (mm X mm)	POWER V-PH-HZ	REMARKS
EC-1	210	5,000	250 x 250	208-1-60	PROVIDE AIR FLOW SWITCH, CONTACTORS, SAFETY CUTOUTS, CONTROL TRANSFORMER, SCR CONTROLLER ETC.

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Mechanical Details

Project North

drawing number M-14

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MECHANICAL SPECIFICATION

GENERAL MECHANICAL CONDITIONS – SECTION 15050

1. CONFORM TO INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS AND GENERAL REQUIREMENTS.
2. THIS SECTION 15050 SHALL APPLY TO ALL DIVISION 15 SECTIONS.
3. BEFORE SUBMITTING TENDERS, EXAMINE SITE, EXISTING SERVICES AND ALL DRAWINGS. EXTRAS WILL NOT BE ALLOWED FOR FAILURE TO DO SO.
4. PROVIDE ALL LABOUR, MATERIALS AND EQUIPMENT NECESSARY TO EXECUTE THE WORK SHOWN AND DESCRIBED. INSTALLATION OF MATERIALS SHALL MEET ALL APPLICABLE PROVINCIAL, FEDERAL AND MUNICIPAL REQUIREMENTS.
5. OBTAIN PERMITS AND PAY ALL FEES FOR WORK AND REQUIRED INSPECTIONS.
6. MAINTAIN LIABILITY INSURANCE TO PROTECT OWNER AND THE CONTRACTOR FROM ANY AND ALL CLAIMS UNDER THE WORKER'S COMPENSATION ACT.
7. THE DRAWINGS SHALL BE CONSIDERED DIAGRAMMATIC ONLY. ALL MEASUREMENTS SHALL BE TAKEN FROM BUILDING SITE AND ARCHITECT'S DRAWINGS.
8. ALL MATERIALS SHALL CONFORM TO CSA, HEPC AND CEC REQUIREMENTS AND SHALL BEAR CSA LABEL. GAS FIRED EQUIPMENT SHALL BEAR CGA LABEL.
9. ALL EXISTING SERVICES MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THIS CONTRACTOR TO PROVIDE ALL NECESSARY TEMPORARY LINES, ETC. SO AS TO CARRY OUT THE ABOVE.
10. TEMPORARY LIGHT, POWER AND WATER BY GENERAL CONTRACTOR.
11. ALL CUTTING AND PATCHING FOR MECHANICAL WORK WILL BE THE RESPONSIBILITY OF THIS SUB-CONTRACTOR. HIRE SPECIALIZED TRADES TO DO THIS WORK. X-RAY FLOORS PRIOR TO CUTTING AND COORDINATE FOR AFTER HOUR X -RAY OF THE FLOOR.
12. PROVIDE TEMPORARY BUILDINGS AND MATERIAL STORAGE AS REQUIRED AND BE RESPONSIBLE FOR ANY LOSS OR DAMAGE THERETO.
13. SUBMIT SAMPLES OF MATERIALS WHEN REQUIRED.
14. SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS FOR REVIEW COVERING MAJOR MANUFACTURED ITEMS, I.E. FANS, PLUMBING FIXTURES, DX COIL, CONDENSING UNIT, HOT WATER TANK, GRILLES AND DIFFUSERS, CONTROLS ETC.
15. WHERE SUBSTITUTIONS ARE MADE FOR EQUIPMENT SPECIFIED BY NAME OR MODEL NUMBER, BE FULLY RESPONSIBLE FOR CAPACITIES AS WELL AS PHYSICAL FIT OF SUBSTITUTED MATERIALS.
16. SUPPLY AND LOCATE ALL BASES, SUPPORTS, SLEEVES, CURBS, ETC. REQUIRED FOR THIS WORK. FLASHING BY ROOF TRADES. COUNTERFLASHING BY THIS CONTRACTOR.
17. UNLESS OTHERWISE NOTED, ALL MOTORS 1/2 HP AND UNDER SHALL BE 115/1/60, MOTORS OVER 1/2 HP SHALL BE OF 3 PHASE VOLTAGE AVAILABLE ON PROJECT.
18. SUPPLY PROPER STARTERS WITH OVERLOAD PROTECTION AND DISCONNECT SWITCHES FOR POWERED MECHANICAL EQUIPMENT AND HAND OVER TO ELECTRICAL CONTRACTOR FOR INSTALLATION. THIS DOES NOT INCLUDE ISOLATION SWITCHES, UNLESS STATED SPECIFICALLY.
19. ALL POWER WIRING BY ELECTRICAL CONTRACTOR, CONTROL AND INTERLOCK WIRING BY MECHANICAL CONTRACTOR. CONTROL WIRING IN RETURN AIR CEILING SPACES SHALL BE FT-6 OR INSTALLED IN CONDUIT.
    A. UNLESS SPECIFICALLY NOTED, OTHERWISE ALL WIRING BY THIS CONTRACTOR.
20. SUPPLY AND INSTALL ALL NECESSARY ACCESS DOORS FOR MECHANICAL EQUIPMENT INCLUDING ENTERING AND LEAVING SIDES OF ALL COILS, FIRE DAMPERS ETC.. WHERE NECESSARY, DOORS SHALL BE RATED TO SUIT FIRE ASSEMBLY RATING.
21. PIPE HANGERS SHALL BE CLEVIS SPLIT TYPE WITH MILD STEEL RODS. FOR COPPER PIPE USE PLASTIC INSERTS. USE OVERSIZED HANGERS AND SADDLES FOR C.W. PIPING. DO NOT SUPPORT EQUIPMENT, DUCTS OR PIPING FROM ROOF DECK WITHOUT PERMISSION FROM ARCHITECTS. SUPPLY AND INSTALL NECESSARY STEEL TO TRANSFER LOAD TO STRUCTURAL MEMBERS.
22. PROVIDE CONCRETE OR METAL CURBS OR SLEEVES AROUND ALL MECHANICAL ROOM FLOOR PENETRATIONS WHERE ROOM IS NOT LOCATED ON GRADE. SEAL ALL OPENINGS WATERTIGHT.
23. ALL DISSIMILAR METAL (STEEL-COPPER, ETC.) SHALL BE SEPARATED USING GASKETS AND INSULATING WASHERS OR WATTS "DI-ELECTRIC" FITTINGS.
24. INSTALL CHROME-PLATED ESCUTCHEONS WHERE BRANCH PIPES PASS THROUGH FINISHED SURFACE.
25. KEEP ACCURATE RECORD OF "AS-BUILT" DRAWINGS AND SUBMIT THESE BEFORE FINAL CERTIFICATE OF COMPLETION. BURIED SERVICES MUST BE DIMENSIONED. PROVIDE A CAD DISK OF THE AS_BUILT DRAWINGS TO CONSULTANT FOR REVIEW AND VERIFICATION.
26. ALL SURFACES MUST BE LEFT CLEAN AND SMOOTH, READY FOR PAINTING BY GENERAL TRADES.
27. IDENTIFY ALL PIPING. USE STENCILS OR COLOUR CODES AND DIRECTIONAL ARROWS.
28. IDENTIFY ALL FANS, STARTERS, REMOTE CONTROL AND ALL OTHER EQUIPMENT AS TO SERVICE BY A BLACK LAMACOID ENGRAVED NAMEPLATE WITH WHITE CORE, FIRMLY AFFIXED WITH SCREWS TO EACH UNIT.
29. PROVIDE FIRE STOPPING AND SMOKE SEALS.
    A. PRIMERS TO MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC MATERIAL, SUBSTRATE, AND END USE.
    B. DAMMING AND BACKUP MATERIALS, SUPPORTS AND ANCHORING DEVICES TO BE TO MANUFACTURER'S RECOMMENDATIONS; AND IN ACCORDANCE WITH TESTED ASSEMBLY BEING INSTALLED AS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
    C. SEALANTS FOR VERTICAL JOINTS TO BE NON-SAGGING.
    D. FIRESTOP AND SMOKE SEAL AROUND MECHANICAL AND ELECTRICAL ASSEMBLIES PENETRATING NON-RATED FIRE SEPARATIONS.
    E. RIGID DUCTS WITH DIMENSIONS GREATER THAN 1300 MM TO BE FIRE STOPPED BY BEAD OF FIRE STOPPING MATERIAL BETWEEN RETAINING ANGLE AND FIRE SEPARATION, AND BETWEEN RETAINING ANGLE AND DUCT, ON EACH SIDE OF FIRE SEPARATION.
    F. REMOVE EXCESS MATERIALS AND DEBRIS AND CLEAN ADJACENT SURFACES IMMEDIATELY AFTER APPLICATION.
    G. REMOVE TEMPORARY DAMS AFTER INITIAL SET OF FIRE STOPPING AND SMOKE SEAL MATERIALS
30. ON COMPLETION OF THE WORK, REMOVE FROM THE PREMISES ALL TOOLS, DEBRIS, SURPLUS AND WASTE MATERIALS RESULTING FROM OPERATIONS UNDER THIS SECTION. CLEAN ALL EQUIPMENT AND LEAVE ALL ITEMS IN PERFECT ORDER READY FOR OPERATION.
31. AFTER ACCEPTANCE, INSTRUCT OWNER IN EQUIPMENT OPERATION AND PROVIDE HIM WITH OPERATING AND MAINTENANCE MANUALS STANDARDS AND EXTENDED WARRANTY DOCUMENTS, INSPECTION CERTIFICATES AND COPIES OF SHOP DRAWINGS OF INSTALLED EQUIPMENT.
32. THE CONTRACTOR SHALL, BEFORE FINAL PAYMENT IS MADE, GUARANTEE ALL MATERIALS AND WORKMANSHIP SUPPLIED BY HIM IN THE PERFORMANCE OF THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE AND SHALL, WHEN CALLED UPON, MAKE GOOD WITHOUT FURTHER COST TO THE OWNER SUCH DEFECTS AS MAY APPEAR WITHIN THIS PERIOD.
33. SHOULD ANY DISCREPANCY APPEAR BETWEEN THESE SPECIFICATIONS AND THE DRAWINGS TO CAUSE DOUBT AS TO THE TRUE MEANING AND INTENT OF THE DRAWINGS AND SPECIFICATIONS, A RULING SHALL BE OBTAINED FROM THE ARCHITECT CONSULTANT BEFORE SUBMITTING THE TENDER. IF THIS IS NOT DONE IT WILL BE ASSUMED THAT THE MORE EXPENSIVE ALTERNATIVE HAS BEEN INCLUDED IN THE CONTRACT.
34. ANY ERROR OR INCONSISTENCY IN THE DRAWINGS OR SPECIFICATIONS NOTED AFTER AWARD OF CONTRACT MUST BE REPORTED TO THE ARCHITECT CONSULTANT BEFORE COMMENCING WORK.
35. THE OMISSION OR INCORRECT MENTION OF WORK, MATERIALS, ETC. THAT ARE INDISPENSABLE TO THE COMPLETED WORK, IS NOT TO BE INTERPRETED AS RELIEVING OF THE NECESSITY OF PROVIDING SUCH WORK, MATERIALS, ETC. AT NO EXPENSE TO THE OWNER.
36. ALLOW FOR CONNECTIONS TO EXISTING SYSTEMS DURING AFTER HOURS OR WEEKENDS, INCLUDING BUT NOT LIMITED TO PLUMBING AND DRAINAGE, WATER PIPING, HEATING SYSTEMS, ELECTRICAL AND CONTROL CONNECTIONS.

SPRINKLERS – SECTION 15330

1. ALTER THE EXISTING SPRINKLER SYSTEM TO SUIT REVISED LAYOUT.
2. THIS IS PERFORMANCE SPECIFICATION ONLY. PREPARE SPRINKLER SHOP DRAWINGS FOR SUBMISSION TO ENGINEER, UNDERWRITERS AND BUILDING DEPARTMENT FOR APPROVAL PRIOR TO INSTALLATION. ENGINEERS DRAWINGS INDICATE GENERAL AREAS TO BE SPRINKLERED ONLY. THIS CONTRACTOR TO PROVIDE HYDRAULIC CALCULATIONS PREPARED AND STAMPED BY PROFESSIONAL ENGINEER ON ONTARIO.
3. SPRINKLER WORK SHALL BEGIN INSIDE BUILDING AT MAINS ON EACH FLOOR OR WHERE INDICATED ON DRAWINGS.
4. SYSTEM SHALL BE COMPLETE WITH ALL NECESSARY PIPING, HANGERS, HEADS, DRIPS, DRAINS, SPARE SPRINKLERS AND CABINETS, ETC., ALL IN STRICT ACCORDANCE WITH STANDARDS AS STIPULATED IN THE NATIONAL FIRE PREVENTION ASSOCIATION NFPA 13 AS REVISED TO DATE AND/OR AS APPROVED BY THE LOCAL FIRE DEPARTMENT AND BUILDING DEPARTMENT.
5. ALL SHUT OFF VALVES AND ISOLATING VALVES SHALL BE SUPPLIED WITH ULC LISTED MONITOR SWITCHES FOR ELECTRICAL SUPERVISION OF VALVE.
6. IN GENERAL, SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH "LIGHT HAZARD OCCUPANCY" STANDARDS.

   ALL WIRING NECESSARY FOR SPRINKLER ALARMS AND ELECTRICAL SUPERVISION WILL BE DONE BY ELECTRICAL CONTRACTOR.
7. ALL HEADS UNLESS NOTED OTHERWISE SHALL BE EQUAL TO GRINNELL "DURO SPEED". LOW HEADS SHALL BE EQUIPPED WITH GUARDS.
8. WHERE SUSPENDED CEILINGS OCCUR, PIPING SHALL BE CONCEALED ABOVE CEILINGS, HEADS SHALL BE CHROME PLATED RECESSED PENDANT TYPE. IN AREAS WHERE THERE ARE NO SUSPENDED CEILINGS, HEADS SHALL BE UPRIGHT TYPE WITH PLAIN BRONZE FINISH. SUBMIT SAMPLES TO ARCHITECT FOR APPROVAL BEFORE INSTALLATION.
9. IN HIGH TEMPERATURE LOCATIONS I.E. ADJACENT TO UNIT HEATERS ETC., PROVIDE HEADS WITH HIGHER TEMPERATURE RATINGS. VERIFY LOCATIONS AND RATINGS WITH CONSULTANTS.
10. CONTRACTOR SHALL PAY ALL NECESSARY CHARGES HE INCURS FROM UNDERWRITERS FOR THEIR REVIEW OF THESE DRAWINGS.
11. WHERE CEILINGS ARE RAISED OR LOWERED, ADJUST HEADS TO SUIT NEW CEILING HEIGHTS.
12. WHERE CEILINGS ARE REMOVED AND REPLACED, REMOVE AND REPLACE HEADS AS REQUIRED TO PERMIT EXECUTION OF NECESSARY WORK.

PLUMBING & DRAINAGE INSIDE THE BUILDING – SECTION 15400

1. ALL WORK SHALL BE EXECUTED BY LICENSED PLUMBERS.
2. ALL PLUMBING AND DRAINAGE WORK SHALL BE INSTALLED AS REQUIRED BY ONTARIO BUILDING CODE, REVISED TO DATE, AND SHALL MEET THE REQUIREMENTS OF ALL PROVINCIAL AND MUNICIPAL AUTHORITIES HAVING JURISDICTION.
3. INCLUDE ALL PIPING, FITTINGS AND EQUIPMENT SHOWN ON DRAWINGS OR DESCRIBED IN SPECIFICATIONS. ALL ITEMS NOT MENTIONED BUT UNDERSTOOD TO BE NECESSARY TO COMPLETE THE PLUMBING SYSTEM SHALL BE INCLUDED.
4. CONTRACT EXTENDS AS SHOWN OR/AND DESCRIBED ON THE DRAWINGS.
5. MAKE ALL NECESSARY CONNECTIONS TO EXISTING SERVICES.
6. ALL ABOVE GROUND SANITARY AND STORM DRAINAGE PIPING SHALL BE IPEX SYSTEM 15 PVC- DWV WITH ONE STEP CEMENT. (CAST IRON MECHANICAL JOINT OR DWV COPPER). PVC PIPING IS NOT PERMITTED IN RETURN AIR CEILING SPACES OR RETURN AIR SHAFTS.
7. ABOVE GROUND WATER PIPING SHALL BE TYPE L" COPPER C/W 95/5 SOLDER JOINTS. FOR 2" (50MM) AND OVER, VITAULIC ROLL-GROOVED JOINTING WILL BE ACCEPTED.
8. BURIED DOMESTIC WATER PIPING SHALL BE COPPER TYPE "K" OR CEMENT LINED DUCTILE IRON. PVC APPROVED FOR MUNICIPAL POTABLE WATER. BURIED INCOMING FIRE LINE SHALL BE CEMENT LINED DUCTILE IRON.
9. ALL ABOVE GROUND VENT PIPING SHALL BE IPEX SYSTEM 15 PVC-DWV WITH ONE STEP CEMENT (CAST IRON WITH MECHANICAL JOINT OR DWV COPPER).
10. BURIED VENT PIPING MAY BE ABS PLASTIC SOLVENT WELD.
11. ALL FIRE PROTECTION PIPING TO BE "THINWALL" PIPE WITH GROOVED FITTINGS.
12. VALVES UP TO 2" (50MM) SHALL BE FULL THROAT BRONZE BALL VALVES. 2 1/2" (65MM) AND OVER SHALL BE BUTTERFLY VALVES.
13. VISIBLE SINK DRAINAGE TRAPS AND SUPPLY PIPING SHALL BE CHROME PLATED.
14. CLEANOUTS SHALL BE INSTALLED AS REQUIRED BY CODE AND WHERE SHOWN AND SHALL SUIT FLOORING MATERIAL.
15. PROVIDE ELECTRONIC OR PRESSURE ACTIVATED TRAP SEAL PRIMERS FOR ALL FLOOR DRAINS.
16. PROVIDE HAMMER ARRESTORS ON DCW AND DHW SUPPLIES TO FIXTURE (OR GROUP OF FIXTURES) AND WHERE REQUIRED.
17. EXISTING FIRE HOSE CABINETS TO REMAIN. PROVIDE NEW 38MM DIAM. 30M (100 FT) LONG HOSES WITH NEW NOZZLES FOR ALL FHCS IN THE BUILDING.
18. SUPPLY AND INSTALL ALL HOT AND COLD WATER, WASTE AND VENT CONNECTIONS REQUIRED FOR ALL PLUMBING FIXTURES
19. SUPPLY AND INSTALL ALL NECESSARY GAS PRESSURE AND WATER PRESSURE REGULATORS WHERE REQUIRED BY INDIVIDUAL APPARATUS AND EQUIPMENT. RUN NECESSARY VENTS TO ATMOSPHERE.
20. PROVIDE APPROVED BACKFLOW PREVENTORS ON ALL INSIDE AND OUTSIDE HOSE BIBBS. ON MECHANICAL EQUIPMENT CONNECTIONS, USE REDUCED PRESSURE TYPE BACKFLOW PREVENTORS.
21. ALL SPRINKLER INSTALLATIONS SHALL BE INSTALLED AS STIPULATED IN NFPA 13.
22. DOMESTIC COLD AND HOT WATER PIPING SHALL BE INSULATED WITH 1" (25MM) THICK FIBREGLAS PIPE INSULATION WITH ASJ. USE 1 1/2" (40MM) MATERIAL FOR PIPING 2" AND OVER. HORIZONTAL RUNS OF SANITARY AND STORM DRAINS SHALL BE INSULATED IN A SIMILAR MANNER. IN EXPOSED AREAS FINISH WITH CANVAS OR P.V.C. JACKETTING. INSULATE ALSO COLD WATER METERS. PVC DRAINAGE PIPING NEED NOT BE INSULATED.
23. ROOF DRAIN BODIES TO BE INSULATED, AND AREAS EXPOSED TO BE FINISHED WITH CANVAS OR PVC JACKETTING.
24. REMOVE OLD INSULATION AND PROVIDE NEW ON ALL STORM WATER LINES.
25. SUPPLY ALL HOT WATER TANKS AS SHOWN ON DRAWINGS.
26. SUPPLY AND INSTALL ALL FIRE EXTINGUISHERS AS REQUIRED BY CODE.
27. SUPPLY AND INSTALL AND PAY ALL CHARGES FOR INSTALLATION OF WATER METER C/W 3 VALVE BYPASS. ENTIRE INSTALLATION TO LOCAL STANDARDS.
28. SEE FIXTURE SCHEDULE FOR PLUMBING FIXTURE TYPES.
29. SUPPLY AND INSTALL WHEEL HANDLE OR SCREW FIXTURES STOP VALVE ON THE HOT AND COLD WATER SUPPLY TO EVERY FIXTURE ON THE JOB, IN ADDITION TO THE VALVE OR FAUCET ON THE FIXTURE ITSELF.
30. PROTECT ALL FIXTURES UNTIL HANDED OVER TO THE OWNER. ALL FIXTURES SHALL BE C/W NECESSARY TRIM, TRAP SUPPLIES, STOPS, TAIL PIECES, TRAPS, GASKETS, ETC.
31. ALL EXISTING DRAIN LINES TO BE PRESSURE WASHED AND VIDEO INSPECTED BY PLUMBING CONTRACTOR, PRIOR TO COMMENCEMENT OF WORK.

WARM AIR HEATING, VENTILATING & AIR CONDITIONING – SECTION 15850

1. SUPPLY AND INSTALL ALL HEATING, VENTILATION AND AIR HANDLING EQUIPMENT AS SHOWN ON DRAWINGS.
2. SUPPLY AND INSTALL DUCTWORK AS INDICATED ON DRAWING. DUCTWORK SHALL BE FABRICATED AND INSTALLED IN STRICT ACCORDANCE WITH LATEST SMACNA STANDARDS AND SHALL BE MANUFACTURED OF GALVANIZED STEEL UNLESS SPECIFICALLY NOTED OTHERWISE.
3. INSTALL MANUAL BALANCING DAMPERS AT ALL BRANCH TAKEOFFS AND IN OTHER LOCATIONS WHERE NECESSARY FOR SYSTEM BALANCING.
4. FLEXIBLE DUCTS SHALL BE ALUMINUM HELICALLY WOUND SPIRAL DUCT, EQUAL TO FLEXMASTER T/L, MAXIMUM 10 FT. LENGTH. PROVIDE ACOUSTIC FLEX EQUAL TO FLEXMASTER MODEL T/L-A, WHERE DUCTS ARE TO BE INTERNALLY INSULATED.
5. INSTALL UL LABELLED FIRE DAMPERS AND FIRE STOP FLAPS WHERE SHOWN AND WHERE REQUIRED. THESE SHALL BE INSTALLED IN ACCORDANCE WITH ULC APPROVED METHODS. FOR DUCTS UNDER 12" (300MM), USE 100% FREE AIR DAMPERS. DAMPERS IN ALUMINUM AND STAINLESS STEEL DUCT SHALL BE MANUFACTURED OF STAINLESS STEEL. ADVISE DRYWALL TRADES OF APPROVED INSTALLATION METHODS IN DRYWALL PARTITIONS.
6. INSTALL 6" (150MM) APPROVED FLEXIBLE CONNECTOR ON DUCT CONNECTIONS TO RESILIENTLY MOUNTED FANS.
7. WHERE SHOWN, DUCTWORK SHALL BE LINED INTERNALLY WITH (1/2") (1") (12MM) (25MM) FACED FLEXIBLE DUCT LINER. SHOWN SIZES ARE CLEAR INSIDE DIMENSIONS, INCREASE DUCT SIZE ACCORDINGLY.

   SIMILARLY LINE SUPPLY AND RETURN DUCTS 10 FT (3M) FROM ALL ROOFTOP AC UNITS AND INDOOR AIR HANDLER/AND HEAT PUMPS.
8. SUPPLY ALL GRILLES AND DIFFUSERS WHERE SHOWN ON DRAWINGS. FINISH SHALL BE OFF-WHITE BAKED ENAMEL.
9. THE REFRIGERANT LINES SHALL BE SIZED FOR A PRESSURE DROP OF NOT MORE THAN 14 KPA (2 PSI). REFRIGERANT PIPE SHALL BE TYPE L NITROGEN CHARGED ACR GRADE COPPER WITH FORGED BRASS OR WROUGHT COPPER REFRIGERATION FITTINGS. ALL JOINTS SHALL BE BRAZED. SAE FLARED FITTINGS ARE NOT ACCEPTED.
10. PROVIDE SIGHT GLASSES FOR ALL LIQUID LINES AND SPORLAN LIQUID LINE DRIERS AHEAD OF EACH THERMO EXPANSION VALVE. PROVIDE SOLENOID VALVE AHEAD OF EACH EXPANSION VALVE. SUCTION LINES SHALL BE PROPERLY LOOPED IN ORDER TO ALLOW THE RETURN OF OIL TO RETURN TO THE COMPRESSOR. PROVIDE NECESSARY WIRING TO OPERATE CONDENSER AND DX SOLENOID.
11. REFRIGERANT SUCTION LINES SHALL BE INSULATED WITH 3/4" (19MM) THICK ARMAFLEX INSULATION, WITH CEMENTED JOINTS. LIQUID LINES OUTDOORS EXPOSED TO SUNLIGHT SHALL ALSO BE SIMILARLY INSULATED. COVER EXTERIOR INSULATION WITH ALUMINUM JACKETTING.
12. INCLUDE FOR STARTUP OF ALL NEW EQUIPMENT.
13. CENTRIFUGAL FANS SHALL BE COMPLETE WITH BELT GUARDS WITH TACHOMETER OPENINGS.
14. ALL BACKDRAFT AND ELECTRIC MOTORIZED DAMPERS SHALL BE LOW LEAKAGE TYPE.
15. ALL EXTERIOR DUCTWORK SHALL BE INTERNALLY INSULATED WITH 1/2" (12MM) OF COATED FIBREGLAS DUCT INSULATION. INSULATE THE EXTERIOR WITH 2" (50MM) OF RIGID INSULATION AND FINISH WITH ALUMINUM JACKETTING, BANDED ON AND SEALED WITH SILICONE OR SIMILAR SEALER. (TOTAL INSULATION VALUE R-12). DUCTWORK IN UNHEATED SPACES SHALL ALSO BE INSULATED TO R-12.
16. EXHAUST AIR DUCTWORK WITHIN 5 FT. (1500MM) OF A WALL OR ROOF, AND ALL OUTSIDE AIR INTAKE DUCTWORK, SHALL BE EXTERNALLY INSULATED WITH 2 1/2" (38MM) THICK FOIL FACED FLEXIBLE FIBREGLAS DUCT INSULATION (R-10). APPLY USING RECOMMENDED ADHESIVE AND TAPE ALL JOINTS USING VAPOUR BARRIER TAPE. ALL AIR CONDITIONED AIR SUPPLY DUCTWORK, UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE INSULATED IN A SIMILAR MANNER USING 1" MATERIAL.
17. SUPPLY AND INSTALL ELECTRIC DUCT HEATERS OF SIZE AND TYPE AS SHOWN ON DRAWINGS. INCLUDE AIR FLOW SWITCH, CONTACTORS, SAFETY CUTOUTS, CONTROL TRANSFORMER, SCR CONTROLLER ETC.
18. ENERGY RECOVERY UNIT
    A. PROVIDE ENERGY RECOVERY VENTILATOR AS SHOWN.
    B. FANS
       TWO (2) FACTORY-BALANCED FANS WITH BACKWARD CURVED BLADES. MOTORS TO BE WITH PERMANENTLY LUBRICATED, SEALED BALL-BEARINGS TO GUARANTEE LONG LIFE AND MAINTENANCE-FREE OPERATION.
    C. ENERGY RECOVERY CORE
       AHRI CERTIFIED CORE MADE FROM WATER VAPOR TRANSPORT DURABLE POLYMER MEMBRANE THAT IS HIGHLY PERMEABLE TO HUMIDITY. THE ERV CORE IS FREEZE TOLERANT AND WATER WASHABLE.
    D. FROST PREVENTION
       A PRESET FROST PREVENTION SEQUENCE IS ACTIVATED AT AN OUTDOOR AIR TEMPERATURE OF 14°F (-10°C) AND LOWER. DURING THE FROST PREVENTION SEQUENCE, THE SUPPLY BLOWER SHUTS DOWN AND THE EXHAUST BLOWER SWITCHES INTO HIGH SPEED TO MAXIMIZE THE EFFECTIVENESS OF THE FROST PREVENTION STRATEGY. THE UNIT THEN RETURNS TO NORMAL OPERATION, AND CONTINUES CYCLE.
       SERVICEABILITY
    E. CORE, FILTERS, FANS AND ELECTRICAL PANEL TO BE EASILY ACCESSED FROM THE ACCESS PANEL.
    F. CABINET
       24 GAUGE G90 GALVANIZED STEEL.
    G. INSULATION
       INSULATED WITH 1 IN. (25 MM) OF FOIL-FACED HIGH DENSITY POLYSTYRENE FOAM AN 0.25 IN. (6 MM) OF CLOSED-CELL FOAM ON THE TOP OF THE UNIT.
    H. FILTERS
       TWO (2) WASHABLE ELECTROSTATIC PANEL TYPE OR REPLACEABLE AIR FILTERS.
    I. INSTALLATION
       PROVIDE UNIT SUPPORT AND HUNG FROM STRUCTURE ABOVE. PROVIDE VIBRATION ISOLATORS.
       PROVIDE FLEXIBLE CONNECTORS ON ALL DUCT CONNECTIONS TO THE UNIT.
    J. WARRANTY
       5 YEARS ON ENERGY RECOVERY CORE, 7 YEAR ON MOTORS, AND 5 YEAR ON PARTS.
    K. REQUIREMENTS AND STANDARDS
       I. COMPLIES WITH THE UL 1812 REQUIREMENTS REGULATING THE CONSTRUCTION AND INSTALLATION OF HEAT RECOVERY VENTILATORS
    II. COMPLIES WITH THE CSA C22.2 NO. 113 STANDARD APPLICABLE TO VENTILATORS
    III. COMPLIES WITH THE CSA F326 REQUIREMENTS REGULATING THE INSTALLATION OF HEAT RECOVERY VENTILATORS
    IV. TECHNICAL DATA WAS OBTAINED FROM PUBLISHED RESULTS OF TEST RELATING TO CSA C439 STANDARDS
    V. ERV CORE ISO 846 CERTIFIED FOR MOLD AND BACTERIA RESISTANCE
    VI. HVI CERTIFIED
19. PROVIDE ALL MOTORIZED DAMPERS TO OPEN AND CLOSE AS RESPECTIVE FANS START AND STOP.
20. SUPPLY AND INSTALL ALUMINUM WEATHER LOUVRES WHERE SHOWN. 4" (100MM) [6" (150MM)] STORMPROOF BLADE C/W BIRDSCREEN, LOUVRE COLOUR TO ARCHITECT'S APPROVAL. BLANK OFF ALL UNUSED SECTIONS WITH INSULATED SHEETMETAL.
21. ADJUST ALL FAN SPEEDS TO DELIVER SHOWN AIR QUANTITIES. BALANCE ALL AIR SYSTEMS AND SUPPLY WRITTEN AIR BALANCING REPORT. INCLUDE NECESSARY SPARE BELTS PULLEYS FOR FIELD ADJUSTMENT AND REPLACEMENT OF FILTERS. SET AIR SYSTEMS CONTROLS AND DEMONSTRATE OPERATION TO OWNER'S REPRESENTATIVE.

IN RENOVATION WORK, VERIFY EXISTING AIR QUANTITIES BEFORE PROCEEDING WITH MODIFICATIONS

CONTROLS – SECTION 15950

1. ALL CONTROL WIRING SHALL BE CARRIED BY DIV.15; POWER WIRING SHALL BE BY DIV.16. THE CONTROL SYSTEM SHALL BE SUPPLIED AND INSTALLED COMPLETE IN ALL RESPECT AND FULLY FUNCTIONAL. DEMONSTRATE TO THE MECHANICAL CONSULTANT ON COMPLETION OF WORK.
2. THIS MECHANICAL CONTRACTOR TO HIRE AND PAY FOR APPROVED CONTROL CONTRACTOR.
3. PROVIDE ALL CONTROLS AND WIRING INCLUDING APPURTENANCES NECESSARY FOR COMPLETE AND OPERATING SYSTEMS.
4. NEW THERMOSTATS SHALL MATCH BASE BUILDING (WITH LOCKABLE VENTILATED TAMPER-PROF COVER)
5. CLEAN AND RECALIBRATE ALL EXISTING THERMOSTATS UPON COMPLETION OF CONSTRUCTION. SUBMIT REPORT THAT THIS WORK HAS BEEN COMPLETED. RELOCATE EXISTING THERMOSTATS AS SHOWN AND RE-WIRED TO SUIT NEW LOCATION.
6. PROVIDE ALL NECESSARY EMT CONDUIT, FITTINGS AND WIRE TO PROVIDE A COMPLETE AND OPERATING CONTROL SYSTEM. HARD WIRE ALL ELECTRICAL CONTROL DEVICES INTO THE ASSOCIATED SYSTEM MAGNETIC STARTER. PROVIDE POWER TO CONTROL PANEL FROM THE NEAREST NORMAL POWER ELECTRICAL DISTRIBUTION PANEL.
7. ENERGY RECOVERY SYSTEM SEQUENCE OF OPERATION:
   A. ENERGY RECOVERY SYSTEM CONSISTS OF ENERGY RECOVERY VENTILATOR ERV, DX COOLING COIL AND ELECTRIC HEATING COIL.
   B. IN ADDITIONAL TO BUILT-IN CONTROLS FOR ERV UNIT PROVIDE ALL REQUIRED CONTROLS (CONTROLLERS, WIRING ETC.) TO ACHIEVE SPECIFIED SEQUENCE OF OPERATION.
   C. ERV UNIT TO OPERATE ON EXHAUST MODE (EXHAUST FAN ON) AT ALL TIMES.
   D. WHENEVER SPACE CO2 SENSOR READINGS ARE ABOVE SET POINT (ABOVE 700PPM – ADJUSTABLE) THE SYSTEM TO OPERATE AT FULL' MODE AS FOLLOWING:
      ERV SUPPLY AND RETURN FANS ARE ON, HEAT WHEEL IS OPERATIONAL.
      DX COOLING COIL AND ELECTRICAL HEATING COIL MODULATE IN SEQUENCE TO MAINTAIN SUPPLY AIR TEMPERATURE AT 55F/54F IN SUMMER AND 65F IN WINTER (DUCT MOUNTED TEMPERATURE SENSOR). SUPPLY TEMPERATURE SETPOINTS TO BE ADJUSTABLE.
      AVOID SIMULTANEOUS HEATING AND COOLING
      PROVIDE DUCT MOUNTED TEMPERATURE SENSOR DOWNSTREAM OF DX AND HEATING COILS
8. PROVIDE CONTROLS SYSTEMS TRAINING FOR CLIENT'S REPRESENTATIVES WHEN SYSTEM HAS BEEN COMPLETED AND VERIFIED AS PER SPECIFICATIONS. PROVIDE FOUR HOURS MINIMUM FOR NEW HVAC CONTROL SYSTEMS.

Rev	Description	Date
1	Final Review	16 July '18
1	Issued for Permit & Tender	16 July '18

TORONTO Building
PERMIT REVIEWED FOR COMPLIANCE WITH THE ONTARIO BUILDING CODE
18 197188 PLB 00

ZONING		
O.B.C.		
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Mechanical Specification

Project North

drawing number **M-15**