

ST. JOSEPH (TILBURY)

BOILER REPLACEMENT

TILBURY

ONTARIO

C&B PROJECT NO. 6759

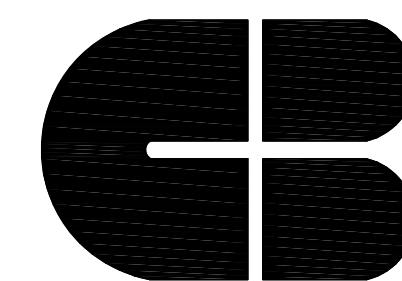
MARCH 14, 2011

ISSUED FOR TENDER



ST. CLAIR CATHOLIC
DISTRICT SCHOOL BOARD

Lighting the Way ~ Rejoicing in Our Journey



Chorley + Bisset

CONSULTING ENGINEERS

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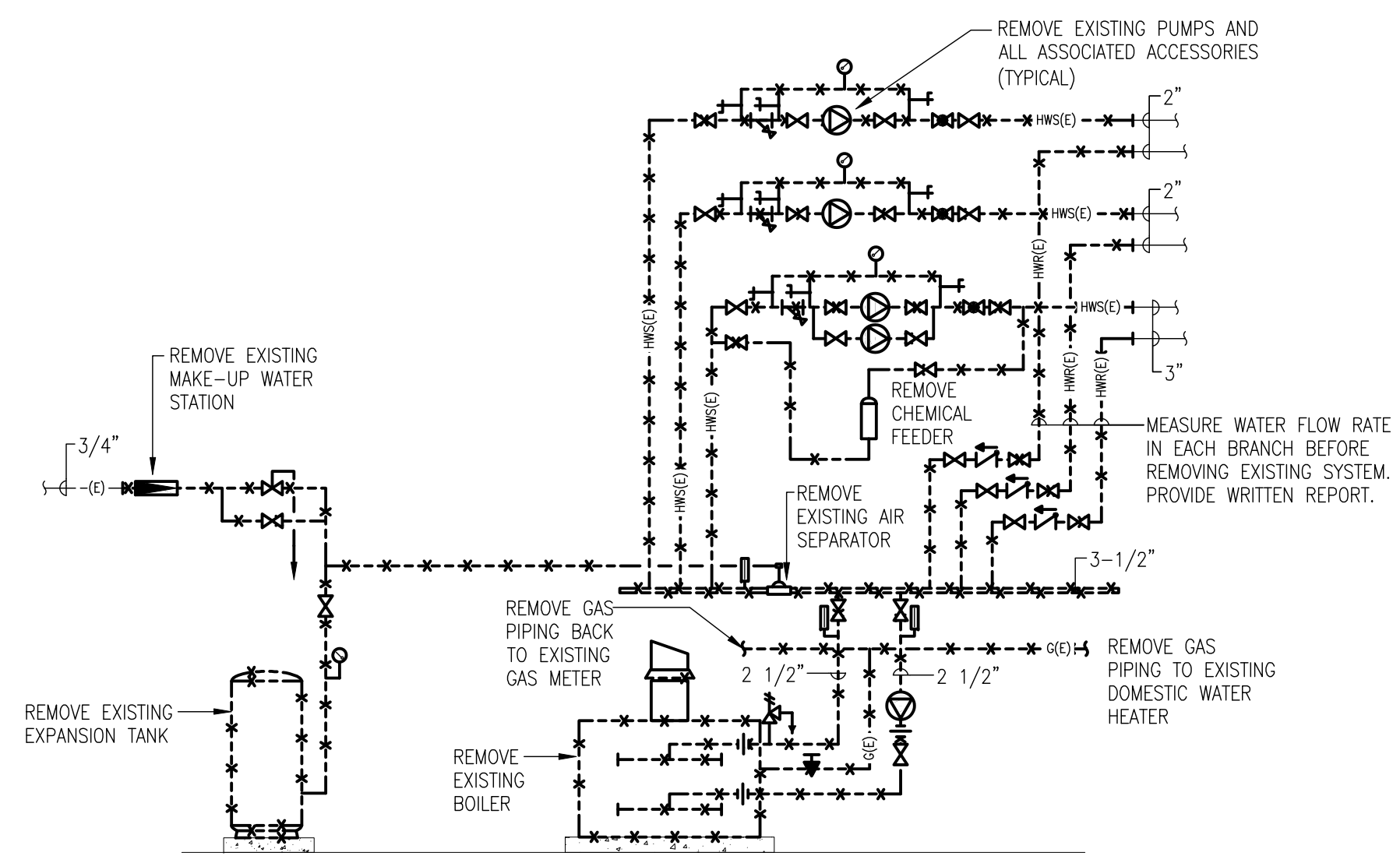
MECHANICAL

ELECTRICAL

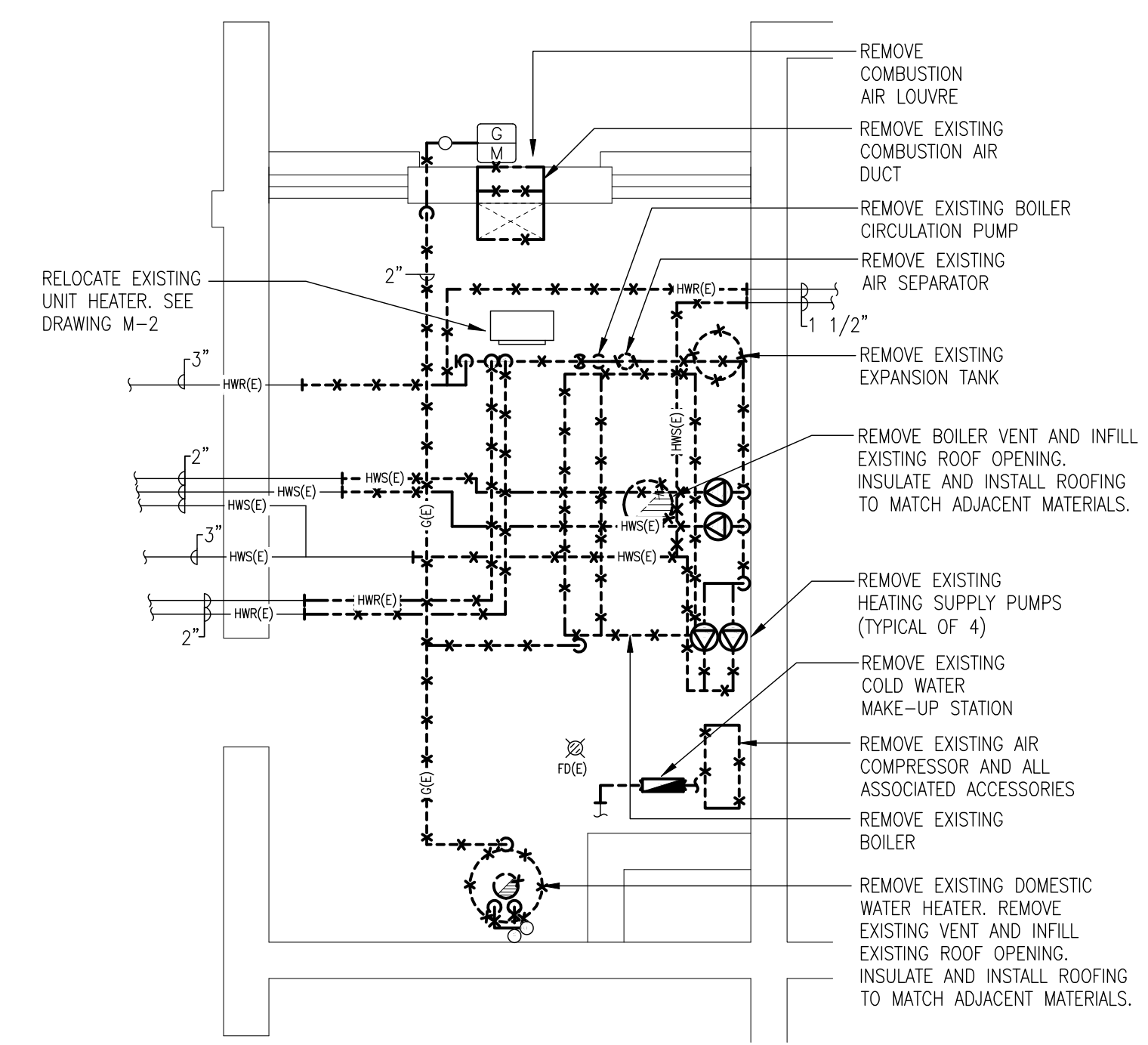
M-1 LEGEND, DRAWING LIST, SCHEDULES & BOILER ROOM DEMOLITION E-1 LEGEND, SCHEDULES & BOILER ROOM PLANS

M-2 BOILER ROOM PLAN & SCHEMATICS

M-3 DETAILS



BOILER ROOM SCHEMATIC - DEMOLITION
N.T.S.



BOILER ROOM PLAN - DEMOLITION
SCALE: 1/4"=1'-0"

- NOTES:
1. REMOVE ALL REDUNDANT EQUIPMENT ASSOCIATED WITH EXISTING BOILER.
 2. RESTORE ALL SURFACES WHERE SERVICES ARE REMOVED. REPAIR ALL WALL AND ROOF OPENINGS TO MATCH EXISTING.
 3. CUT BACK AND CAP ALL REDUNDANT PIPING IN BOILER ROOM.
 4. REMOVE REDUNDANT HOUSEKEEPING PADS.
 5. DISCONNECT AND REMOVE EXISTING CONDUITS, CABLES AND DISCONNECT FEEDING EXISTING BOILER BEING REMOVED. PULL CABLES BACK TO SOURCE.
 6. SEE HEATING SYSTEM SCHEMATIC FOR PIPE SIZES.
 7. REINSTALL ALL CONTROL SENSORS IN EXISTING PIPING BEING REMOVED. RECONNECT ALL WIRING TO EXISTING CONTROL PANEL.

PLOT DATE: 14-MAR-2011 8:17 PM
 PLOT TIME: 12:29 AM
 PLOT NAME: 14-MAR-2011 8:17 PM

MECHANICAL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DOMESTIC COLD WATER		STRAINER WITH 3/4" BALL VALVE, HOSE CONNECTION AND BRASS CAP AND CHAIN CAP
	DOMESTIC HOT WATER		AUTOMATIC AIR VENT
	HOT WATER HEATING SUPPLY		FLOOR DRAIN
	HOT WATER HEATING RETURN		COLD WATER MAKE-UP STATION
	NATURAL GAS		FLANGES
	CONDENSATE DRAIN		PUMP
	CONNECT TO EXISTING		PUMP SUCTION DIFFUSER
	EXISTING PIPING TO REMAIN		THERMOMETER
	EXISTING PIPING TO BE REMOVED		PRESSURE GAUGE
	SHUT OFF VALVE		THERMOSTAT
	CHECK VALVE		THERMOWELL
	CONCENTRIC REDUCER		GAS METER
	PRESSURE RELIEF VALVE		EXISTING DUCTWORK TO BE REMOVED
	BALL VALVE		NEW DUCTWORK
	COMBINATION SHUT-OFF & BALANCING VALVE		
	PRESSURE GAUGE COCK		
	DRAIN WITH HOSE CONNECTION		
	UNION		

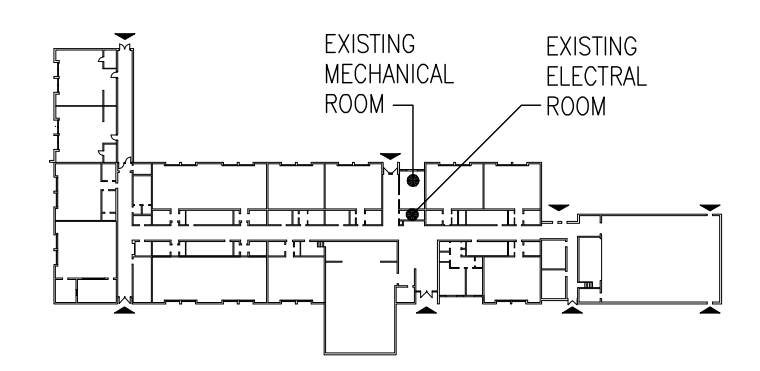
DRAWING LIST	
M-1	LEGEND, DRAWING LIST, SCHEDULES & BOILER ROOM DEMOLITION
M-2	BOILER ROOM PLAN & SCHEMATIC
M-3	DETAILS

BOILER SCHEDULE										
DRAWING REFERENCE	SERVICE	MANUFACTURER	MODEL	INPUT [MBH]	OUTPUT [MBH]	CONNECTIONS			VOLTAGE	REMARKS
						WATER	GAS	VENT		
BLR-501 A/B/C/D	HEATING SYSTEM	LOCHINVAR	KBN701	700	660	2"	1"	6"	120/1/60	LOW NOx BURNER - MODULATING

PUMP SCHEDULE										
DRAWING REFERENCE	SERVICE	MANUFACTURER	MODEL	FLOW [GPM]	HEAD [FT]	RPM	MOTOR [HP]	ELECTRICAL		
								VOLTAGE	PHASE	
CP-301 A/B/C/D	BOILER	ITT	60 - 2x5-1/4	65	15	1750	3/4	240	1	
CP-302 A/B	HEATING SYSTEM	ITT	1510 2-1/2AB	215	38	1750	5	208	3	

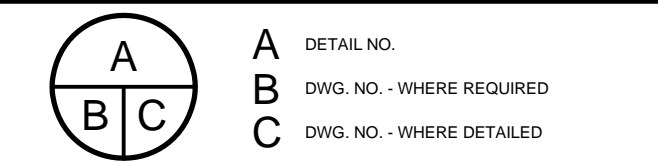
EXPANSION TANK SCHEDULE							
DRAWING REFERENCE	SERVICE	MANUFACTURER	MODEL	TOTAL VOLUME [GAL]	ACCEPTANCE VOLUME [GAL]	FILL PRESSURE [psi]	
ET-1	DOMESTIC HOT WATER	AMTROL	ST-5-C	2.1	0.9	60	
ET-2	HEATING SYSTEM	AMTROL	AX-100(V)	55.7	22.6	12	

DOMESTIC HOT WATER HEATER SCHEDULE								
DRAWING REFERENCE	MANUFACTURER	MODEL	CAPACITY [GAL]	GAL/h @ 100°F RISE	INPUT [BTU/h]	ELECTRICAL	EFFICIENCY [%]	REMARKS
DWH-401	BRADFORD WHITE	EF-60T-125E-3NA	60	145	125,000	FHP	96	UNIT TO BE EQUIPPED WITH SAFETY CONTROLS AND SHUT OFF. PROVIDE FACTORY INSTALLED RELIEF VALVE. PROVIDE CONCENTRIC VENT KIT TERMINATION FITTING.

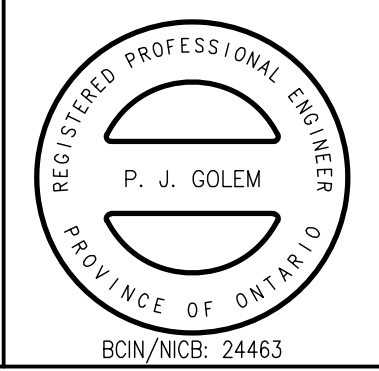


KEY PLAN
N.T.S.

No.	By	Revisions	Date
1	PJG	ISSUED FOR BOARD REVIEW	FEB. 16, 2011
2	PJG	ISSUED FOR BOARD REVIEW	FEB. 25, 2011
3	PJG	ISSUED FOR TENDER	MAR. 14, 2011



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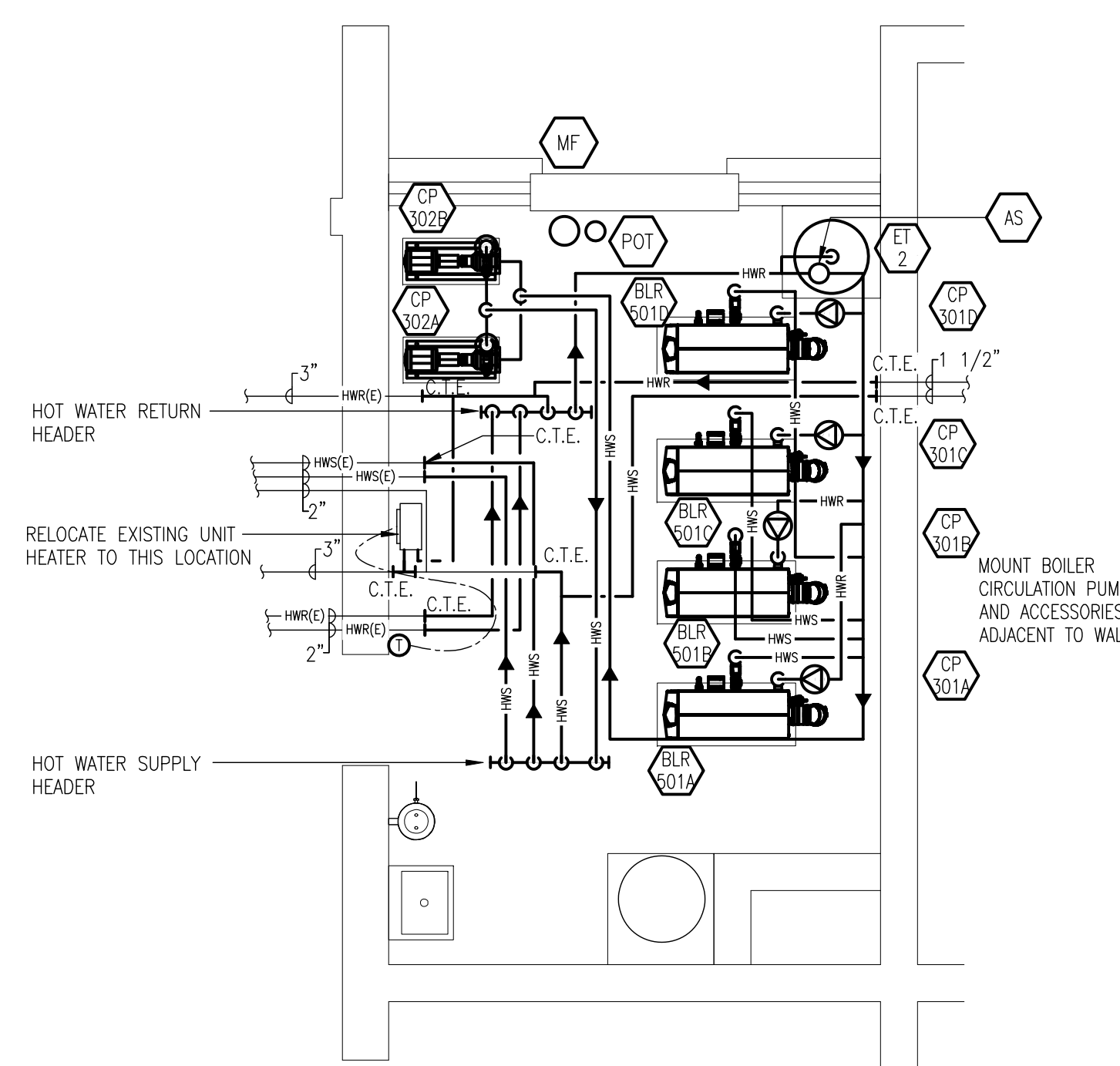


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**BOILER REPLACEMENT
 ST. JOSEPH (TILBURY)
 CATHOLIC SCHOOL**
**ST. CLAIR CATHOLIC
 DISTRICT SCHOOL BOARD**
 TILBURY, ONTARIO

Drawing Title
**LEGEND, DRAWING LIST,
 SCHEDULES & BOILER ROOM
 DEMOLITION**

Drawn	Checked	Approved	Drawing No.
JMJ	JDF	PJG	M-1
Scale	Date	Project No.	Rev. No.
AS NOTED	MAR. 11, 2011	6759	

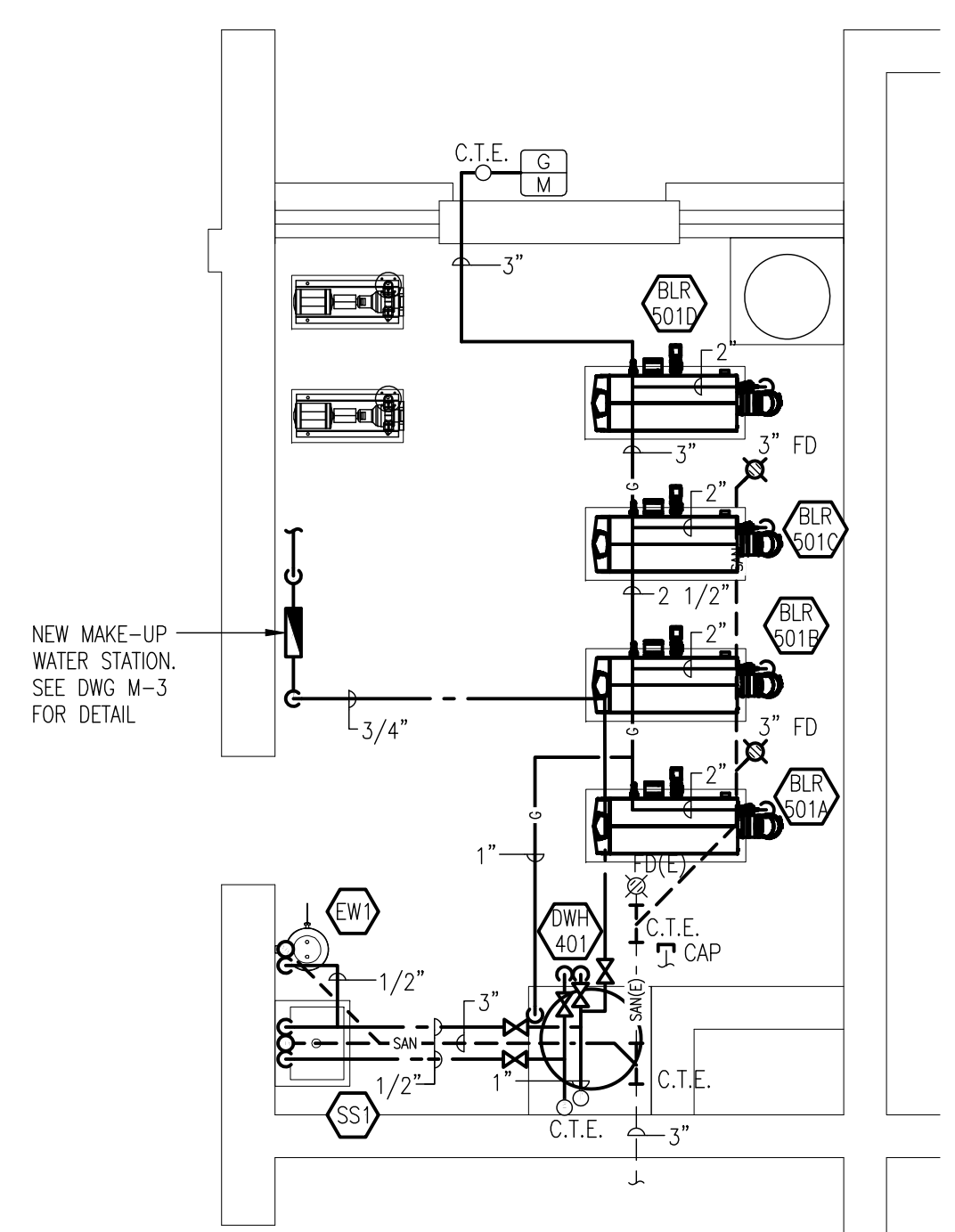


BOILER ROOM PLAN - HEATING

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

NOTES:

1. PROVIDE FEEDERS TO NEW BOILERS AND PUMPS. CONNECT TO NEW DISCONNECTS AND STARTERS AS SHOWN. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR WIRE, CONDUIT AND DISCONNECT SIZES.
2. BOILER RELIEF VALVE SUPPLIED BY BOILER MANUFACTURER.
3. ALL BOILER DRAINAGE PIPING TO BE COPPER.
4. THERMOWELLS SUPPLIED AND INSTALLED BY DIVISION 15.
5. SHUT OFF VALVES MAY BE BALL STYLE FOR PIPES 2" AND SMALLER OR BUTTERFLY STYLE FOR PIPES OVER 2". DO NOT USE GATE VALVES.
6. PROVIDE AUTOMATIC AIR VENTS AT ALL HIGH POINTS IN PIPING.

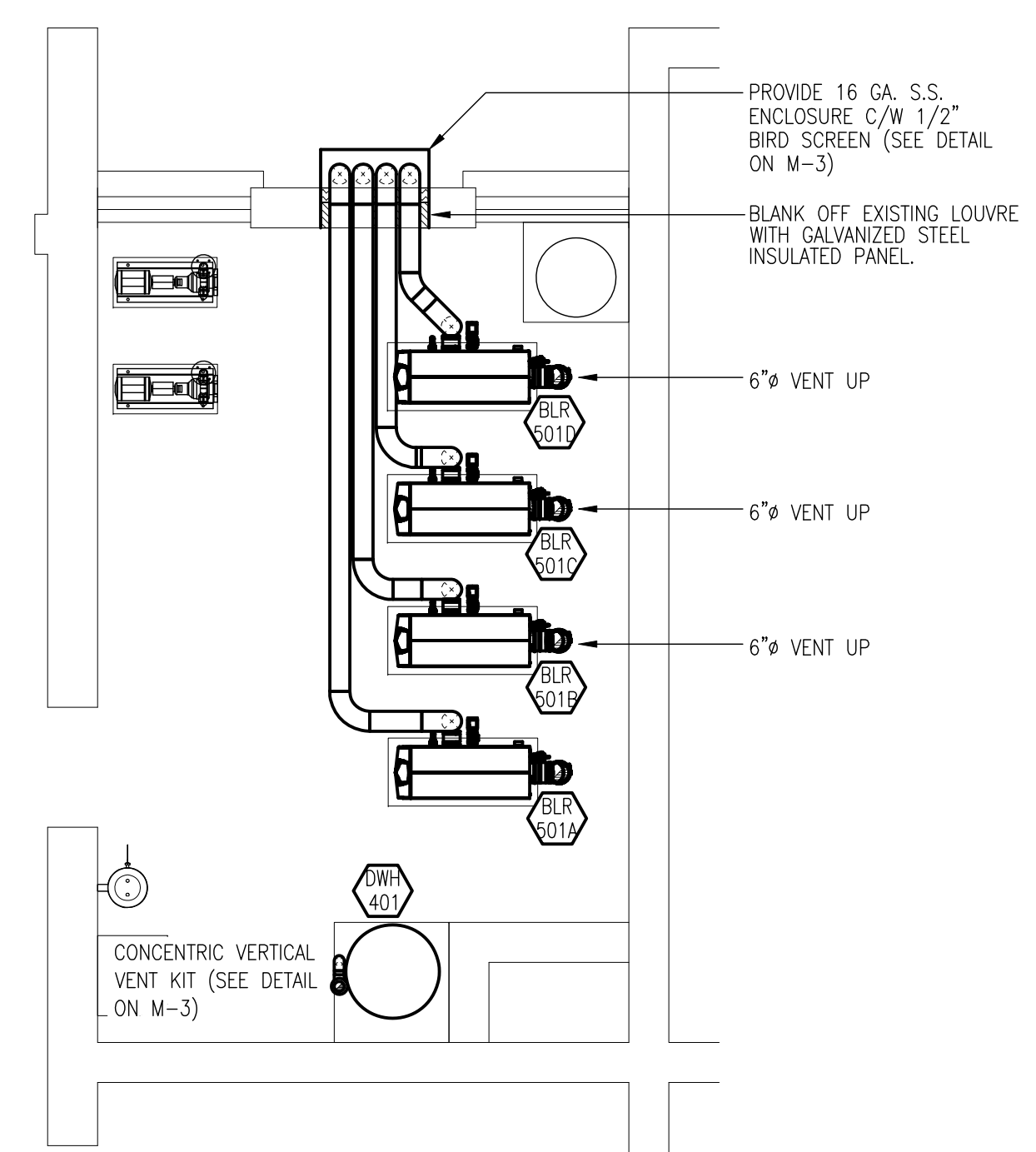


BOILER ROOM PLAN - PLUMBING

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

NOTES:

1. MINIMUM BELOW GRADE SANITARY PIPE SIZE IS 3".

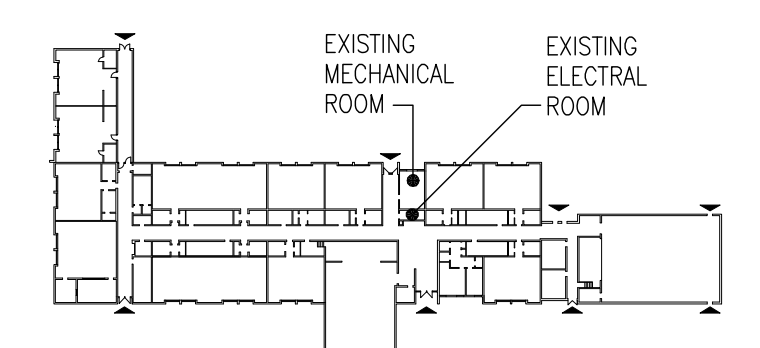


BOILER ROOM PLAN - VENTILATION

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

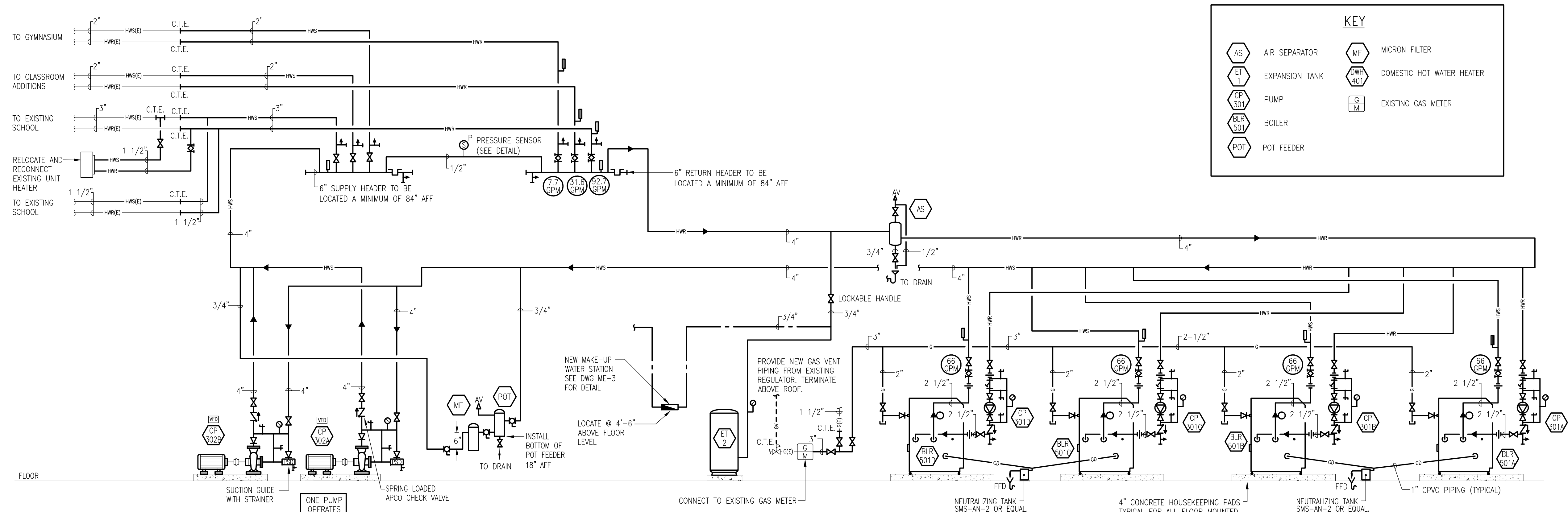
NOTES:

1. SEE M-3 FOR BOILER GAS FLUE AND COMBUSTION AIR DUCT DETAIL.



KEY PLAN
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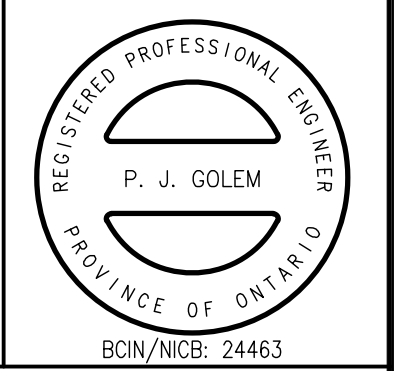
KEY

AS	AIR SEPARATOR	MF	MICRON FILTER
ET 1	EXPANSION TANK	DWH 401	DOMESTIC HOT WATER HEATER
CP 301	PUMP	G M	EXISTING GAS METER
BLR 301	BOILER		
POT	POT FEEDER		

A	DETAIL NO.
B	DWG. NO. - WHERE REQUIRED
C	DWG. NO. - WHERE DETAILED

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CATHOLIC SCHOOL**

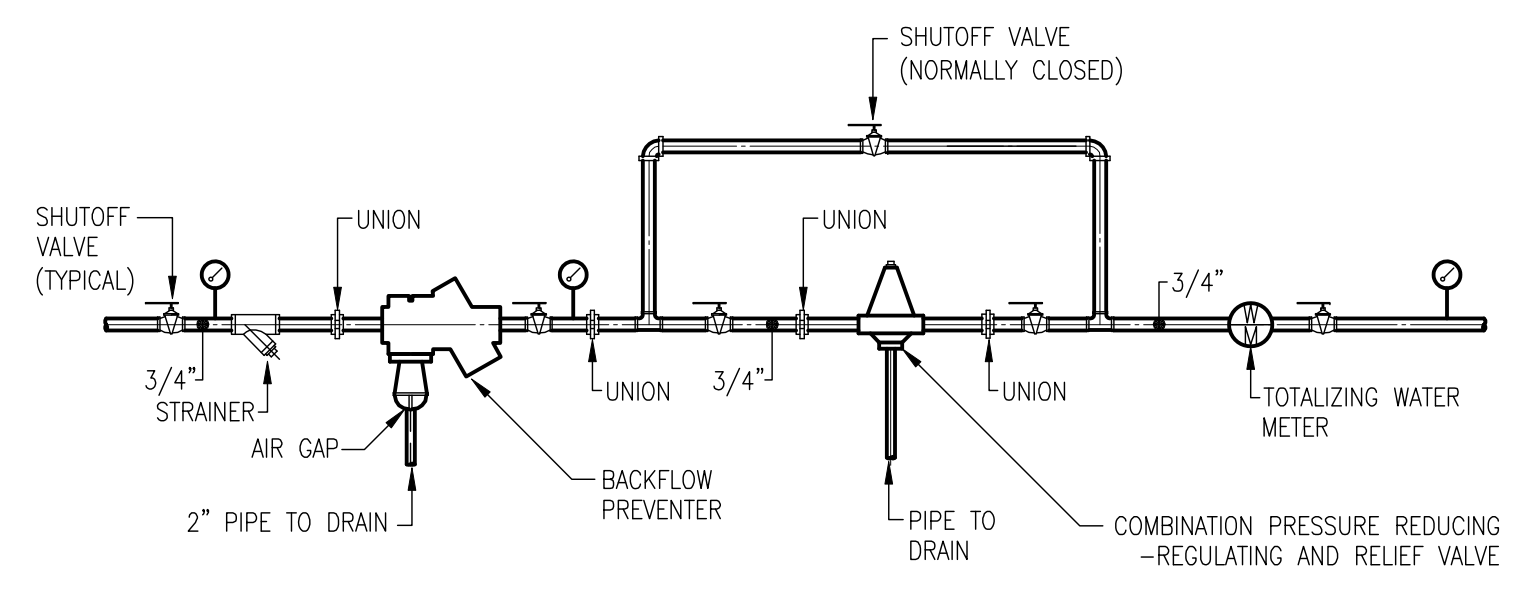
**ST. CLAIR CATHOLIC
DISTRICT SCHOOL BOARD**
TILBURY, ONTARIO

Drawing Title
**BOILER ROOM PLAN
& SCHEMATICS**

Drawn JMJ	Checked JDF	Approved PJG	Drawing No. M-2
Scale AS NOTED	Date MAR. 11, 2011	Project No. 6759	Rev. No.

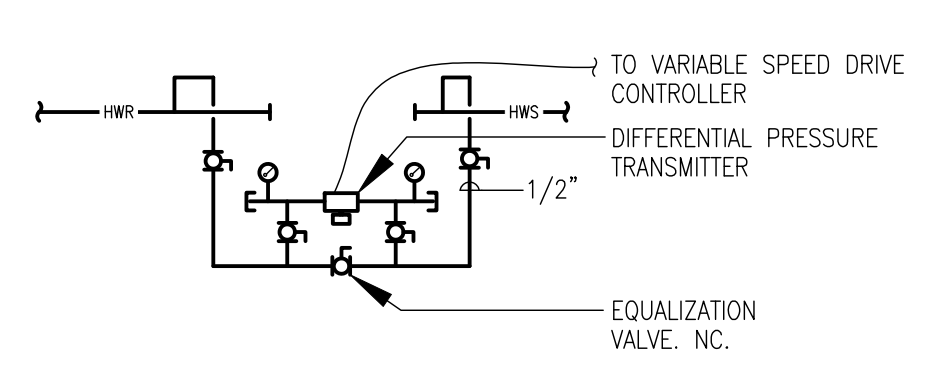
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 DATE PLOTTED: 14-MAR-2011 4:51 PM
 PLOTTER: HP DesignJet 500

BOILER ROOM SCHEMATIC - NEW
N.T.S.

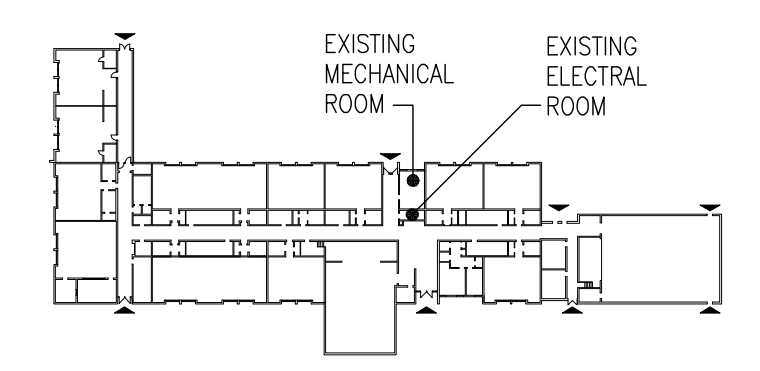


MAKE-UP WATER CONNECTION DETAIL
N.T.S.

NOTE:
INSTALL 4'-6" ABOVE FINISHED FLOOR.

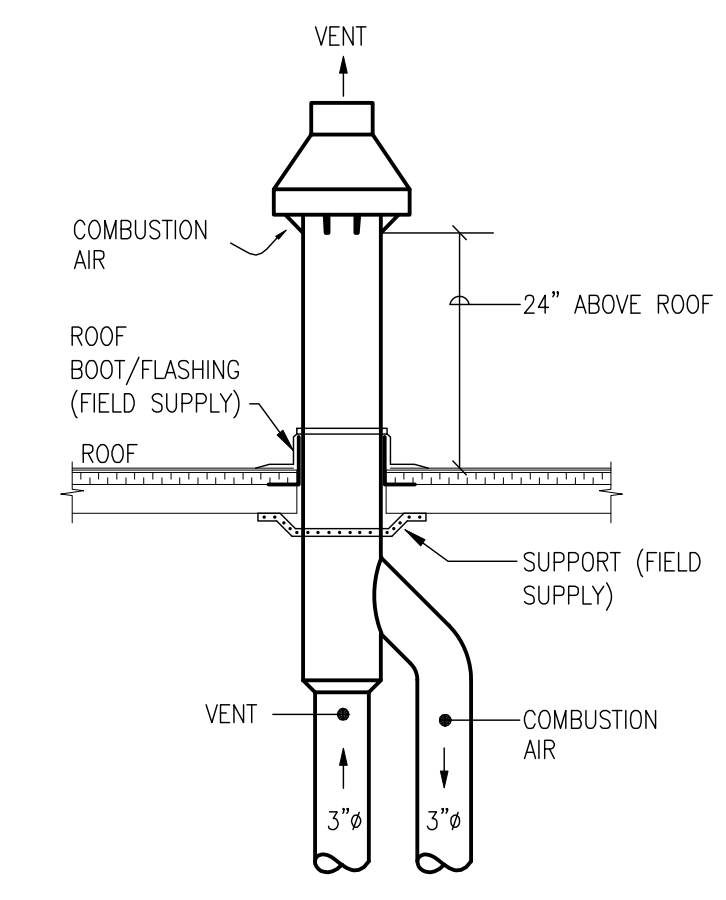


DIFFERENTIAL PRESSURE SENSOR INSTALLATION DETAIL
N.T.S.

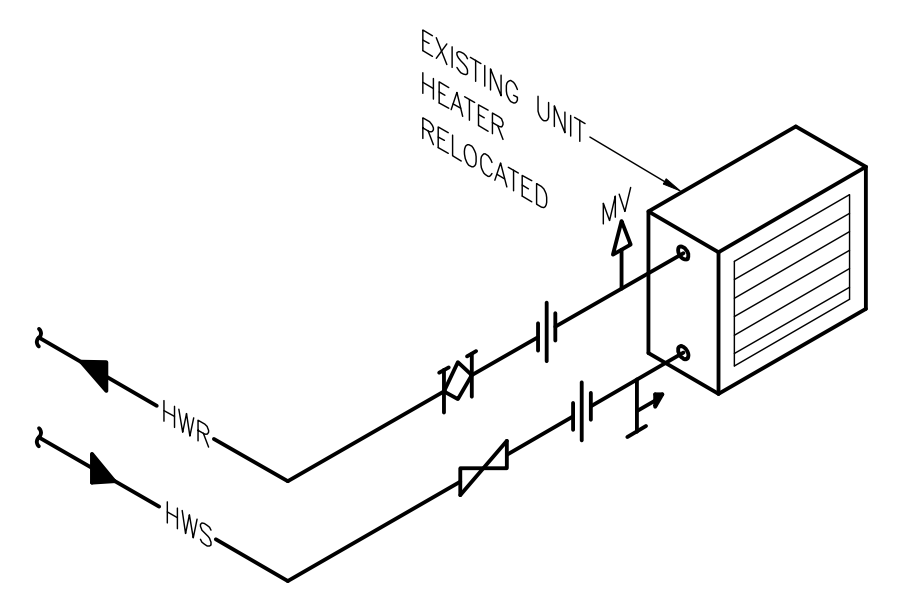


KEY PLAN
N.T.S.

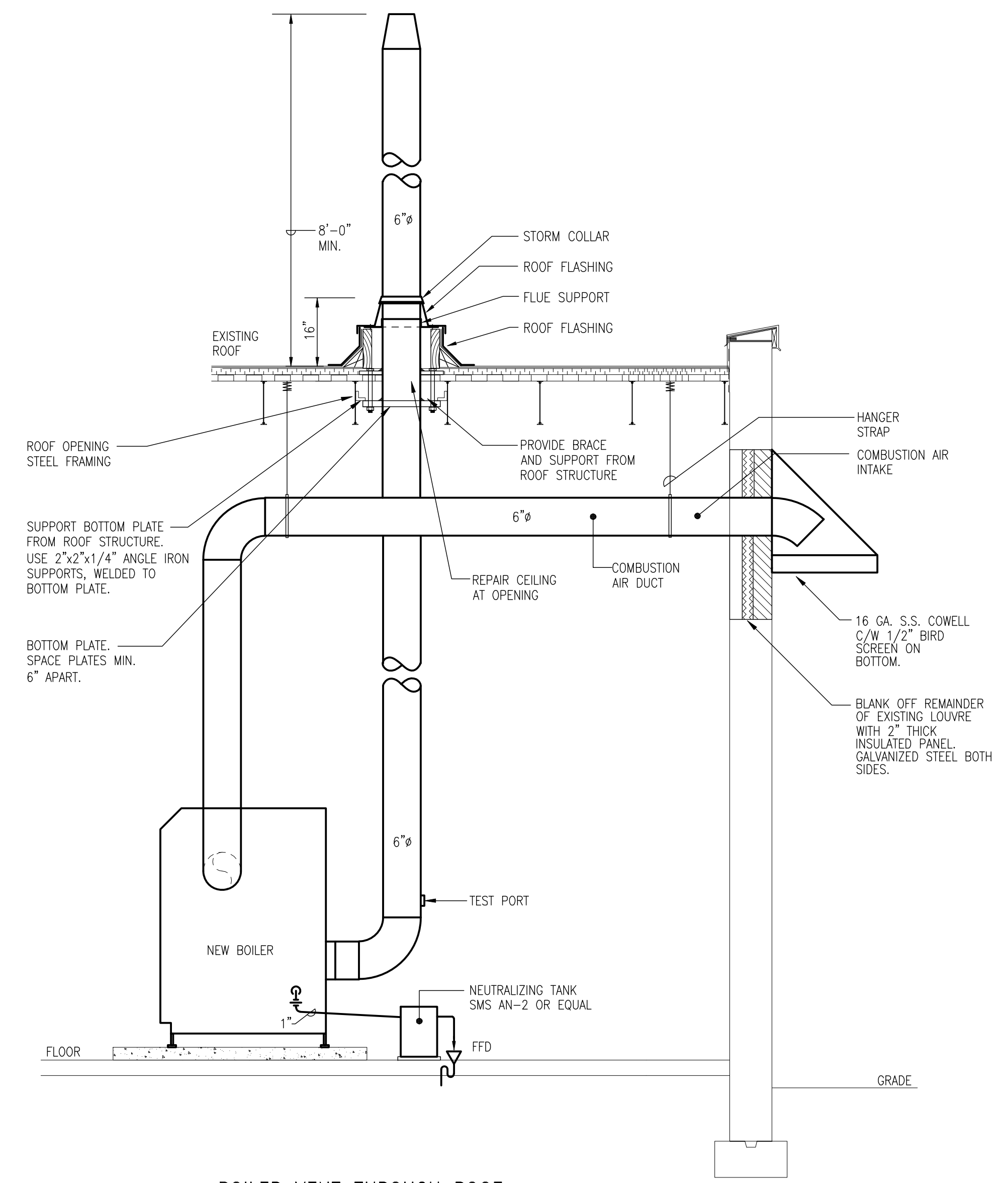
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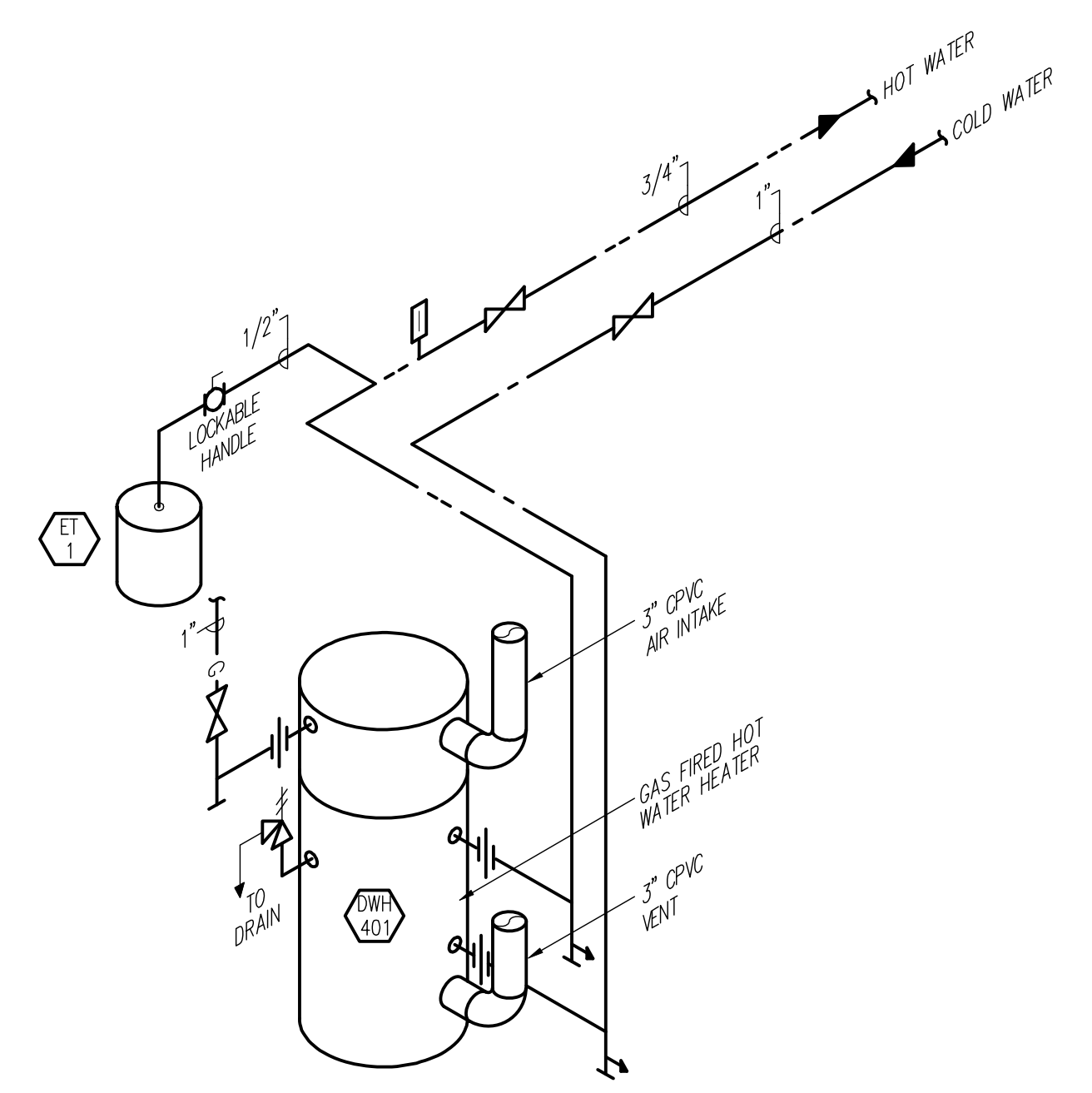
CONCENTRIC VENT KIT DETAIL THROUGH ROOF FOR DWH
N.T.S.



TYPICAL PIPING ARRANGEMENT FOR HORIZONTAL UNIT HEATER
N.T.S.



BOILER VENT THROUGH ROOF AND COMBUSTION AIR DUCT DETAIL
N.T.S.

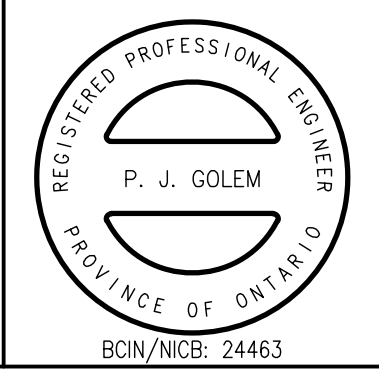


DOMESTIC HOT WATER SYSTEM SCHEMATIC
N.T.S.

NOTE:
1. USE ULC S636 CPVC PIPING FOR VENTS.

A	DETAIL NO.
B	DWG. NO. - WHERE REQUIRED
C	DWG. NO. - WHERE DETAILED

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DETAILS

Drawn JM	Checked JDF	Approved PJG	Drawing No. M-3
Scale AS NOTED	Date MAR. 11, 2011	Project No. 6759	Rev. No.

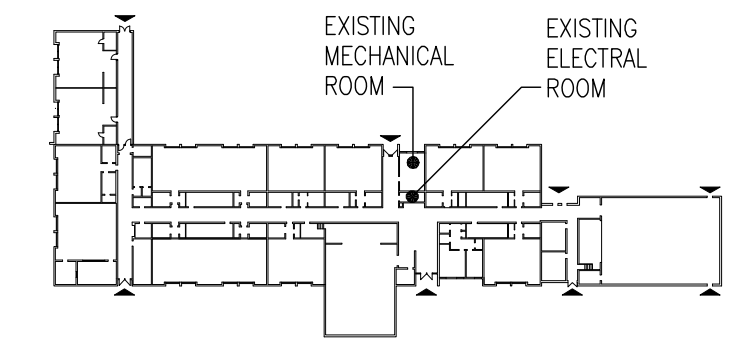
ELECTRICAL LEGEND			
	DESCRIPTION	SYMBOL	DESCRIPTION
☒	MAGNETIC STARTER		ELECTRICAL PANEL
☒	COMBINATION STARTER		VARIABLE FREQUENCY DRIVE
☐	NON-FUSED DISCONNECT SWITCH	EX	EXISTING DEVICE TO REMAIN
☐	MANUAL STARTER	REM	EXISTING DEVICE TO BE REMOVED
	MOTOR		

MECHANICAL EQUIPMENT SCHEDULE													
ITEM	DESCRIPTION	LOCATION	hp	MCA	PHASE	VOLTS	STARTER/CONTROL TYPE	FEED FROM	EQUIPMENT SUPPLIED AND INSTALLED BY OTHERS WIRED BY DIV. 16			REMARKS/NOTES	
									BREAKER SIZE	FUSE SIZE	CONDUIT SIZE		
BLR-501 A,B,C,D	BOILER	BOILER ROOM	FHP		1	120	MAN	PANEL 'M'	15	1	2#12	3/4	
CP-301 A,B,C,D	RECIRCULATION PUMPS	BOILER ROOM	3/4		1	240	FVNR	PANEL 'M'	15	2	2#12	3/4	
CP-302 A,B	HEATING SUPPLY PUMPS	BOILER ROOM	5		1	240	VFD	PANEL 'M'	40	3	3#8	3/4	PROVIDE 1 PH INPUT VFD TO SERVE 3 PH, 5 hp MOTORS.
DWH-401	DOMESTIC WATER HEATER	BOILER ROOM	FHP		1	120	RECEPTACLE	PANEL 'M'	15	1	2#12	3/4	

- NOTES:
- DIVISION 16 TO OBTAIN COPIES OF MECHANICAL EQUIPMENT SHOP DRAWINGS AND COORDINATE ELECTRICAL SERVICES.
 - PROVIDE LOCAL NON-FUSED DISCONNECT SWITCHES AT MOTORS IN ACCORDANCE WITH SECTION 28-604 OF THE ONTARIO ELECTRICAL SAFETY CODE.
 - UNLESS INDICATED OTHERWISE ALL CONTROL WIRING IS BY DIVISION 15.
 - ALL VFD'S SHALL BE INSTALLED NEAR THE MOTORS CONTROLLED ON INDEPENDENT UNISTRUT SUPPORT AND OUTSIDE OF MCC'S UNLESS OTHERWISE NOTED.

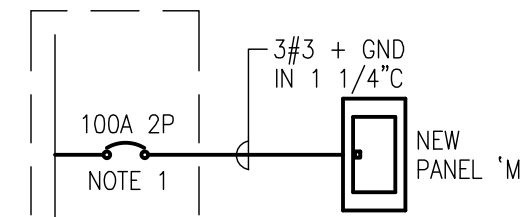
MOTOR CONTROL ABBREVIATIONS

COMB	COMBINATION DISCONNECT SWITCH & STARTER ON WALL ADJACENT MOTOR	HOA	HAND-OFF-AUTO SELECTOR SWITCH
CON	CONTACTOR	MAN	MANUAL STARTER
DS	UN-FUSED DISCONNECT SWITCH	MCA	MINIMUM CIRCUIT AMPACITY
FDS	FUSED DISCONNECT SWITCH	PL	PILOT LIGHT
		VFD	VARIABLE FREQUENCY DRIVE



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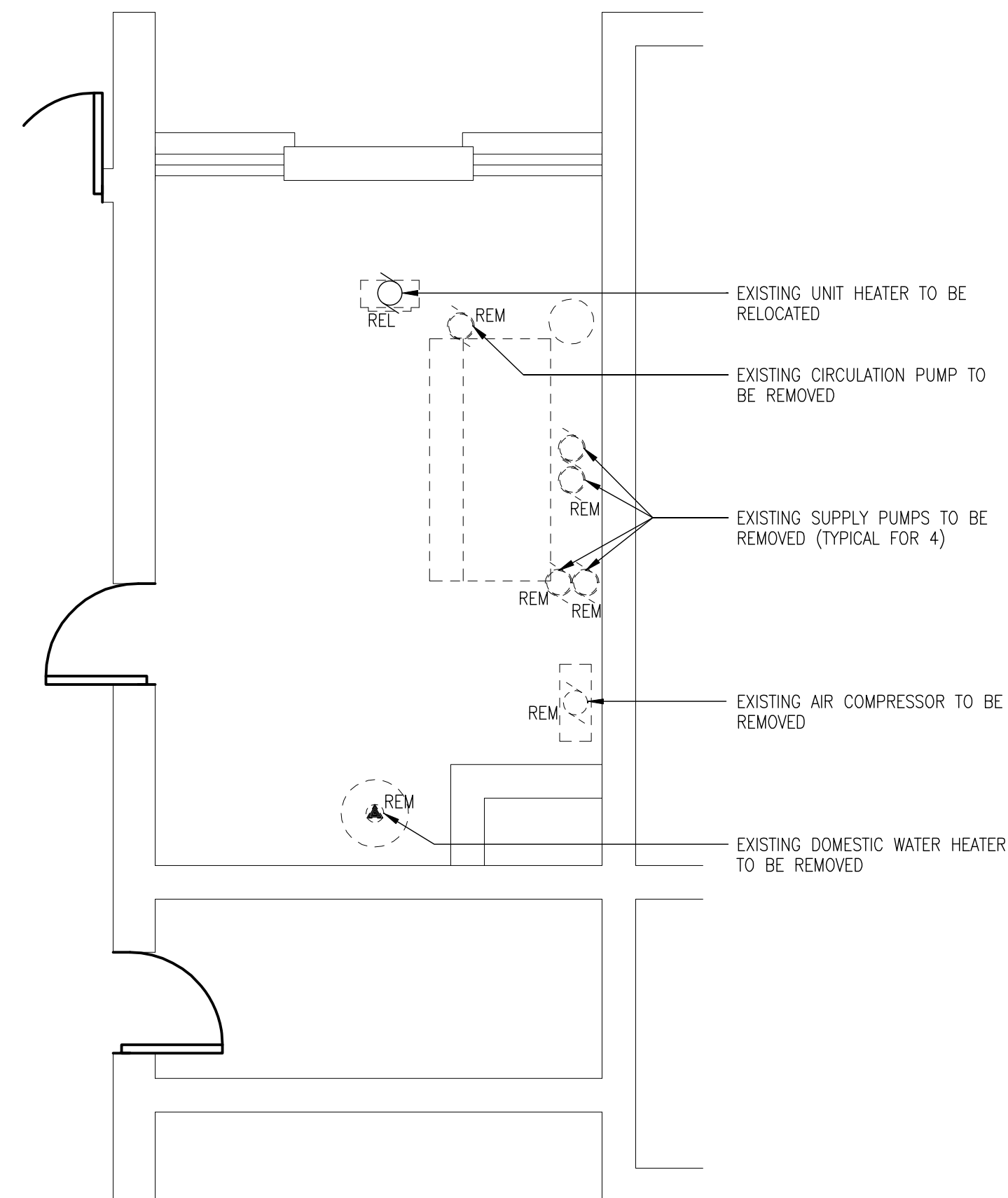
EXISTING MAIN DISTRIBUTION PANEL - SQUARE D TYPE ML 120/240V 1PH 3W 400A

PART DISTRIBUTION DIAGRAM

N.T.S.

NOTES:

- PROVIDE A NEW BREAKER TO SUIT EXISTING PANEL.
- SEE PANEL 'M' SCHEDULE FOR CIRCUITS AND DETAILS.

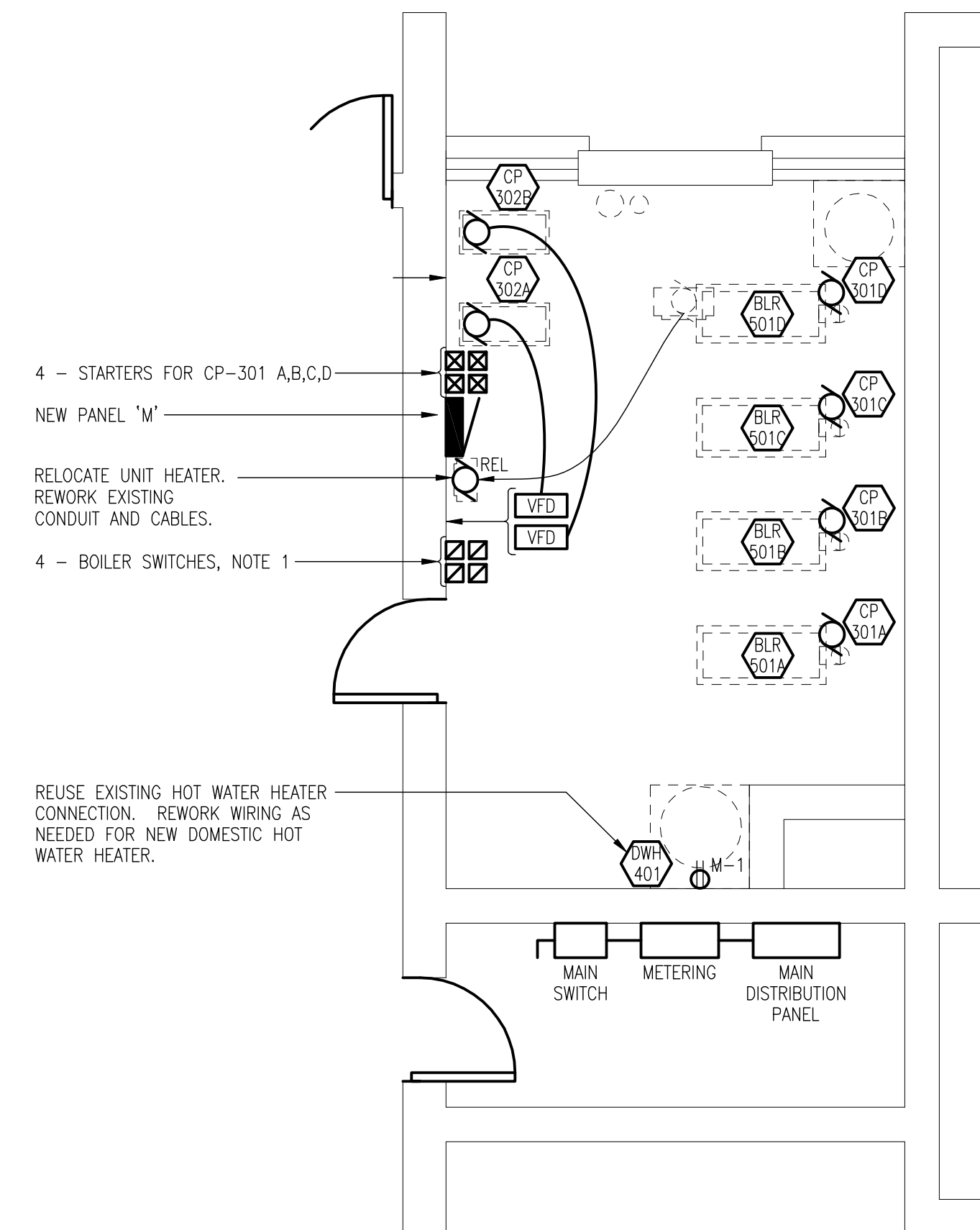


BOILER ROOM PLAN - DEMOLITION

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

NOTES:

- DISCONNECT AND REMOVE EXISTING CONDUITS, CABLES AND DISCONNECT FEEDING EXISTING BOILER AND FOUR HEATING PUMPS BEING REMOVED. PULL CABLES BACK TO SOURCE.

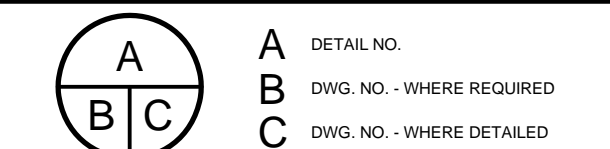


BOILER ROOM PLAN - NEW

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

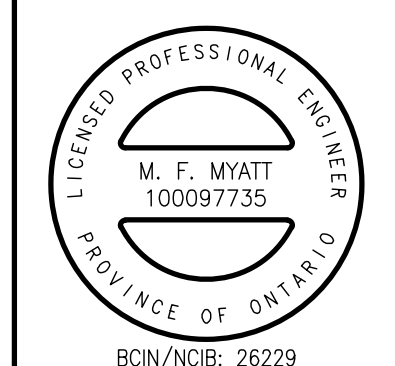
NOTES:

- PROVIDE A SINGLE PHASE MANUAL STARTER C/W LOCKABLE TOGGLE SWITCH ATTACHMENT AND PILOT LIGHT TO BE ALLEN-BRADLEY CAT# 600-TAX216/600-W1 OR APPROVED EQUAL. PROVIDE A SUITABLE ENCLOSURE. PROVIDE ONE FOR EACH BOILER.



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BCIN/NCIB: 26229



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TILBURY, ONTARIO

Drawing Title
**LEGEND, SCHEDULES &
BOILER ROOM PLANS**

Drawn	Checked	Approved	Drawing No.
LFK	MFM	MFM	E-1
Scale	Date	Project No.	Rev. No.
AS NOTED	MAR. 11, 2011	6759	