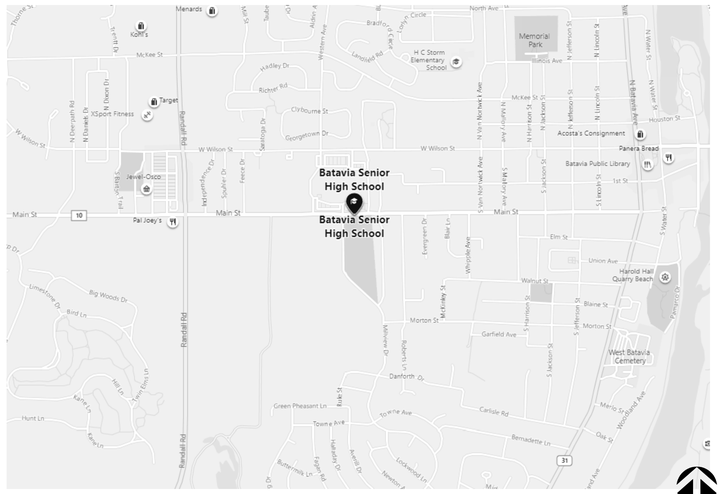
Batavia High School
Condensing Boiler Replacement

1201 Main St
Batavia, IL 60510

VICINITY MAP



APPLICABLE CODES

MECHANICAL CODE:	IMC 2018 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2018 EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

DRAWING INDEX

SHEET NUMBER	SHEET TITLE
G0.0	PROJECT COVERSHEET
M0.0	MECHANICAL COVERSHEET
MD1.0	MECHANICAL - DEMOLITION
M1.0	MECHANICAL - NEW WORK
M2.0	MECHANICAL DETAILS AND SCHEDULES

PROJECT DIRECTORY

CLIENT: BATAVIA SCHOOL DISTIRCT 101
MARK ANDERSON
630 937 8831
MARK.ANDERSON@BPS101.NET

MECHANICAL ENGINEER: IMEG ENGINEERING
RYAN SPAULDING
(630) 717 2446
RYAN.D.SPAULDING@IMEGCORP.COM

ELECTRICAL ENGINEER: IMEG ENGINEERING
PAULIUS SILIUNAS
(630) 318 0464
PAULIUS.A.SILIUNAS@IMEGCORP.COM

Batavia High School
Condensing Boiler Replacement
1201 Main St
Batavia, IL 60510

IMEG

1100 WARRENVILLE RD
SUITE 400W
NAPERVILLE, IL
60563

PH: 630.527.2320
FAX: 630.527.2321
www.imegcorp.com

PROFESSIONAL SEAL

CONSULTANT
(MAY BE USED FOR ANY OTHER REQUIREMENT IF THERE IS NO CONSULTANT)

KEY PLAN

AGENCY APPROVAL

DISCLAIMER

REFERENCE SCALE IN INCHES

0 1 2

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**ISSUED FOR BID**
Date	**05/16/19**
Job Number	**19000864.00**
Drawn	**PVP**
Checked	**RDS**
Approved	**JMO**

SHEET TITLE

PROJECT COVER SHEET

SCALE

Scale:

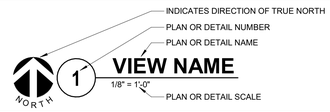
SHEET NUMBER

G0.0

19000864.00 5/16/2019 3:22:51 PM Condensing Boiler Replacement

VIEW KEY

(1) — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL



LINE TYPE KEY:

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK SHORT DASHED LINE)

ELECTRICAL SYMBOL LIST

SYMBOL:	DESCRIPTION:
E	ELECTRICAL CONNECTION - CEILING / SURFACE
DS-#	DISCONNECT. REFER TO DISCONNECT/STARTER SCHEDULE.
CO	CARBON MONOXIDE (CO) DETECTION - CEILING MOUNTED, MANUFACTURER: SIMPLEX. CARBON MONOXIDE ELECTROLYTIC SENSING MODULE SHALL PROVIDE TOXIC GAS SENSING TO UL2034 AND UL2075 STANDARDS. CO MODULE SHALL HAVE SELECTABLE MODES OF OPERATION FOR OSHA COMPLIANT TOXIC GAS SENSING. CO SENSOR CARTRIDGE ELEMENT SHALL BE FIELD REPLACEABLE.

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
G	NATURAL GAS
GRV	GAS REGULATOR VENT
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	DIRECTION OF FLOW IN PIPE
	NEW CONNECTION
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	BALANCING VALVE
	CONTROL VALVE (THREE-WAY)
	CONTROL VALVE (TWO-WAY)
	PRESSURE REGULATOR
	TRIPLE DUTY VALVE (IN-LINE TYPE)
	WYE STRAINER
	OPPOSED BLADE DAMPER
E	EXISTING
MOD	MOTOR OPERATED DAMPER
UH	UNIT HEATER
WH	WATER HEATER
	MANUAL AIR VENT
	DRAIN VALVE WITH HOSE CONNECTION AND CAP
	RELIEF VALVE
	PRESSURE/TEMPERATURE TEST PLUG

DISCONNECT AND STARTER SCHEDULE

NOTE: ALL DISCONNECTS (EXCEPT MANUAL STARTERS) SHALL BE HEAVY DUTY TYPE.

DISCONNECT TYPE:	REMARKS:	
FU - FUSED	SA - STANDARD ACCESSORIES (INCLUDES * ITEMS)	PF - PHASE LOSS PROTECTION (5 HP OR GREATER...
NF - NON-FUSED	*CT - CONTROL TRANSFORMER, FUSED 120V	TO - MELTING THERMAL OVERLOADS (1 PHASE)
CB - CIRCUIT BREAKER	*EO - ELECTRONIC OVERLOAD (3 PHASE MOTORS)	TS - 2 SPEED SELECTOR SWITCH IN DOOR
	*HA - HAND-OFF-AUTO IN DOOR	GP - GREEN (OFF) PILOT LIGHT IN DOOR
STARTER TYPE:	*RP - RED (RUN) PILOT LIGHT IN DOOR	FA - 4-CONVERTIBLE AUXILIARY CONTACTS
FV - FULL VOLTAGE	*TA - TWO CONVERTIBLE AUXILIARY CONTACTS	EI - ELECTRICAL INTERLOCK (2)-N.O. & (2)-N.C.
YD - WYE - DELTA	S/N - INSULATED NEUTRAL ASSEMBLY	SS - START-STOP PUSHBUTTON IN DOOR
RE - REVERSING		HL - HANDLE PADLOCK HASP
TW - 2 SPEED, 2 WINDING		
SW - 2 SPEED, 1 WINDING		
RV - REDUCED VOLTAGE AUTOXFMR		
SS - SOLID STATE		
MS - MANUAL STARTER		
MX - MANUAL SWITCH		
FS - FUSED SWITCH		

ITEM	DISCONNECT TYPE & RATING: TYPE	RATING	CIRCUIT VOLTAGE	POLES	STARTER: NEMA SIZE	TYPE	NEMA ENCLOSURE	REMARKS	APPROVED MANUFACTURERS
DS-30A	NF	30 A	600 V	3			1		SQUARE D 3110 HU361 EATON TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HNF

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL SHEETS.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM SUBMITTALS AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS AND ROOFS. THE CONTRACTOR IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
8. SEAL ALL PENETRATIONS AIRTIGHT WHERE PIPING AND DUCTS PENETRATE. PENETRATIONS THROUGH ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
9. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
10. DO NOT BLOCK EQUIPMENT SERVICE CLEARANCES.
11. MAINTAIN MINIMUM 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES, AND DISCONNECTS.
12. DO NOT SUPPORT EQUIPMENT OR PIPING FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.
13. CONTRACTOR SHALL COORDINATE TIMES FOR ALL REMOVAL AND INSTALLATION OF EQUIPMENT, PIPING, CONDUIT ETC WITH OWNER AS NOT TO DISRUPT THE SCHOOL DURING OCCUPIED HOURS.
14. EXISTING BUILDING HAS TRANE BAS. COORDINATE ALL CONTROL CHANGES WITH TRANE. CONTACT : AUSTIN FIEGEL (312-833-7968) (AUSTIN.FIEGEL@TRANE.COM)

MECHANICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL SHEETS.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING EQUIPMENT, CONDUIT, DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR CONDUITS, DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
4. CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK AND SHALL NOTIFY PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO HIS/HER AREA OF WORK.
5. WHERE EXISTING MECHANICAL AND ELECTRICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, CONDUIT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL AND ELECTRICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.
6. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLATIONS THAT REMAIN ACTIVE.
7. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE INSTALLED.
8. MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR TIE IN AND SWITCHOVER. DRAIN SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER BEFORE PARTIALLY OR COMPLETELY DRAINING SYSTEM. MAKE CHANGEOVER TO NEW SYSTEMS WITH MINIMUM OUTAGE.
9. DISCONNECT AND REMOVE MECHANICAL DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.
10. EACH CONTRACTOR SHALL CUT AND PATCH ROOFS, WALLS, AND FLOORS ASSOCIATED WITH HIS WORK.

ELECTRICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL SHEETS.

1. ELECTRICAL IDENTIFICATION. PROVIDE IDENTIFICATION FOR HARD WIRED ELECTRICAL CONNECTIONS TO EQUIPMENT SUCH AS DISCONNECTS SWITCHES, ETC.
2. ADHESIVE MARKINGS AND FIELD LABELS. PROVIDE WIRE/CABLE DESIGNATION TAPE MARKERS: VINYL OR VINYL-CLOTH, SELF-ADHESIVE, WRAPAROUND, CABLE/CONDUCTOR MARKERS WITH PREPRINTED NUMBERS AND LETTER.
3. CONDUIT FITTINGS: COMPRESSION TYPE.
4. PANELBOARDS/MCC SHALL BE PROVIDED WITH UPDATED PANEL SCHEDULES AND CIRCUIT IDENTIFICATION UPON COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
6. CONTRACTOR SHALL REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF ELECTRICAL WORK. CONTRACTOR SHALL REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.

Batavia High School Condensing Boiler Replacement

1201 Main St
Batavia, IL 60510

IMEG

1100 WARRENVILLE RD
SUITE 400W
NAPERVILLE, IL
60563

PH: 630.527.2320
FAX: 630.527.2321
www.imegcorp.com

PROFESSIONAL SEAL

AGENCY APPROVAL

DISCLAIMER

REFERENCE SCALE IN INCHES

0 1 2

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue: **ISSUED FOR BID**
Date: **05/16/19**
Job Number: **19000864.00**
Drawn: **PVP/PAS**
Checked: **RDS**
Approved: **JMO**

SHEET TITLE

MECHANICAL COVERSHEET

SCALE

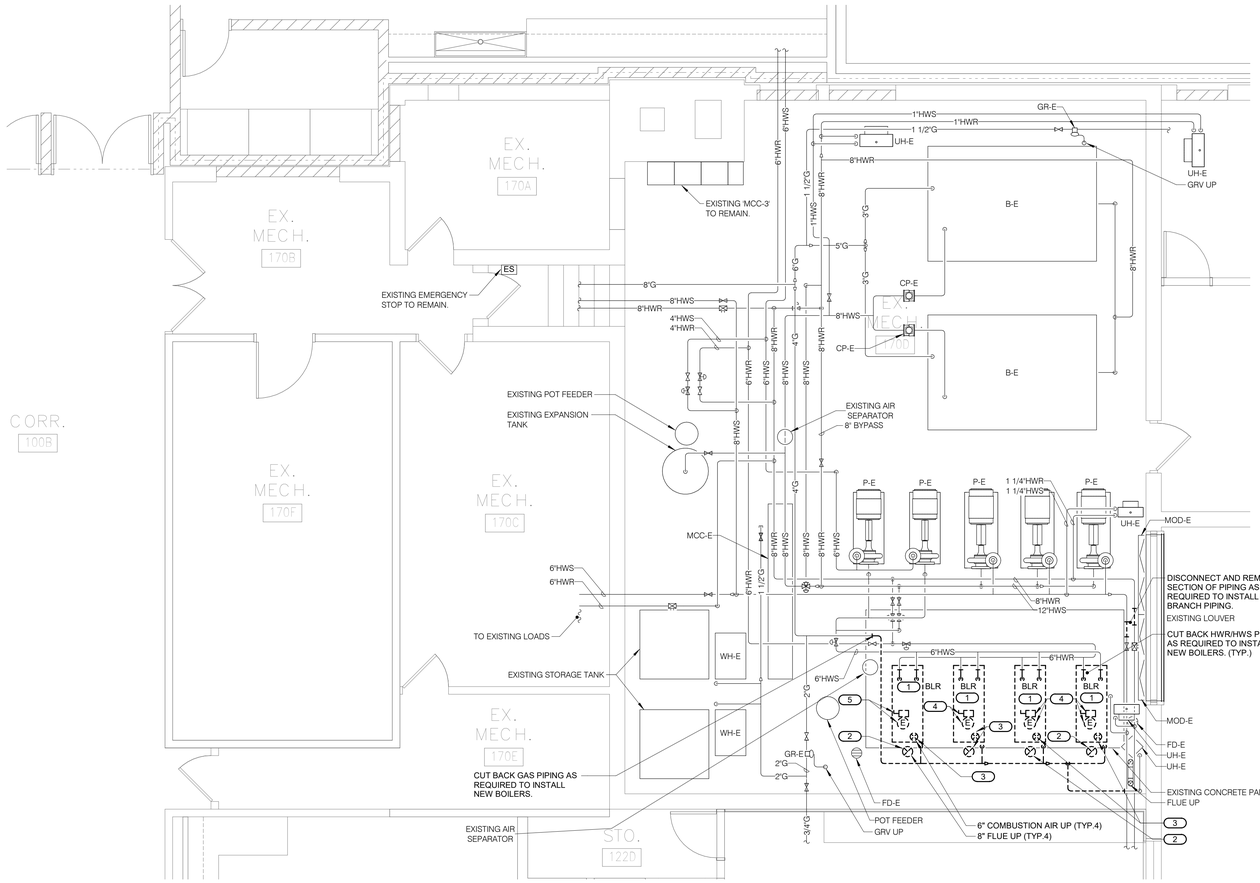
Scale: **As indicated**

SHEET NUMBER

M0.0

KEYNOTES: (#)

1. DISCONNECT AND REMOVE EXISTING BOILER, ASSOCIATED INTAKE, FLUE, DRAIN PIPING AND CONTROLS. CUT BACK HWR, HWS AND GAS PIPING AS REQUIRED FOR CONNECTION TO NEW BOILER. REMOVE ALL EXISTING VALVES, GAUGES ETC. FOR EACH BOILER. ALL BOILER TRIM SHALL BE NEW.
2. EXISTING ROOF OPENING TO REMAIN AND BE MODIFIED FOR NEW FLUE OPENING. COORDINATE ALL ROOFING WORK WITH VINCE FREY WITH OLSSON ROOFING (CONTACT - (630) 892 0449 & "VFREY@OLSSONROOFING.COM").
3. CAP EXISTING INTAKE/FLUE OPENING. SEAL WATER TIGHT.
4. EXISTING BOILER AND ASSOCIATED DISCONNECT TO BE REMOVED. EXISTING CIRCUIT, FED THROUGH EMERGENCY STOP CONTACTOR, TO REMAIN FOR RECONNECTION TO NEW BOILER.
5. EXISTING BOILER, DISCONNECT, AND ASSOCIATED BRANCH WIRING TO BE REMOVED. REMOVE WIRING BACK TO EXISTING MOTOR CONTROL CENTER, 'MCC-3'. EXISTING 15A/3P CIRCUIT BREAKER TO REMAIN AS SPARE.



NORTH

1 LEVEL 01 - MECHANICAL DEMOLITION

1/4" = 1'-0"

Batavia High School Condensing Boiler Replacement

1201 Main St
Batavia, IL 60510

IMEG

1100 WARRENVILLE RD
SUITE 400W
NAPERVILLE, IL
60563

PH: 630.527.2320
FAX: 630.527.2321
www.imegcorp.com

PROFESSIONAL SEAL

AGENCY APPROVAL

DISCLAIMER

REFERENCE SCALE IN INCHES

0 1 2

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**ISSUED FOR BID**
Date	**05/16/19**
Job Number	**19000864.00**
Drawn	**PVP/PAS**
Checked	**RDS**
Approved	**JMO**

SHEET TITLE

MECHANICAL - DEMOLITION

SCALE

Scale: **1/4" = 1'-0"**

SHEET NUMBER

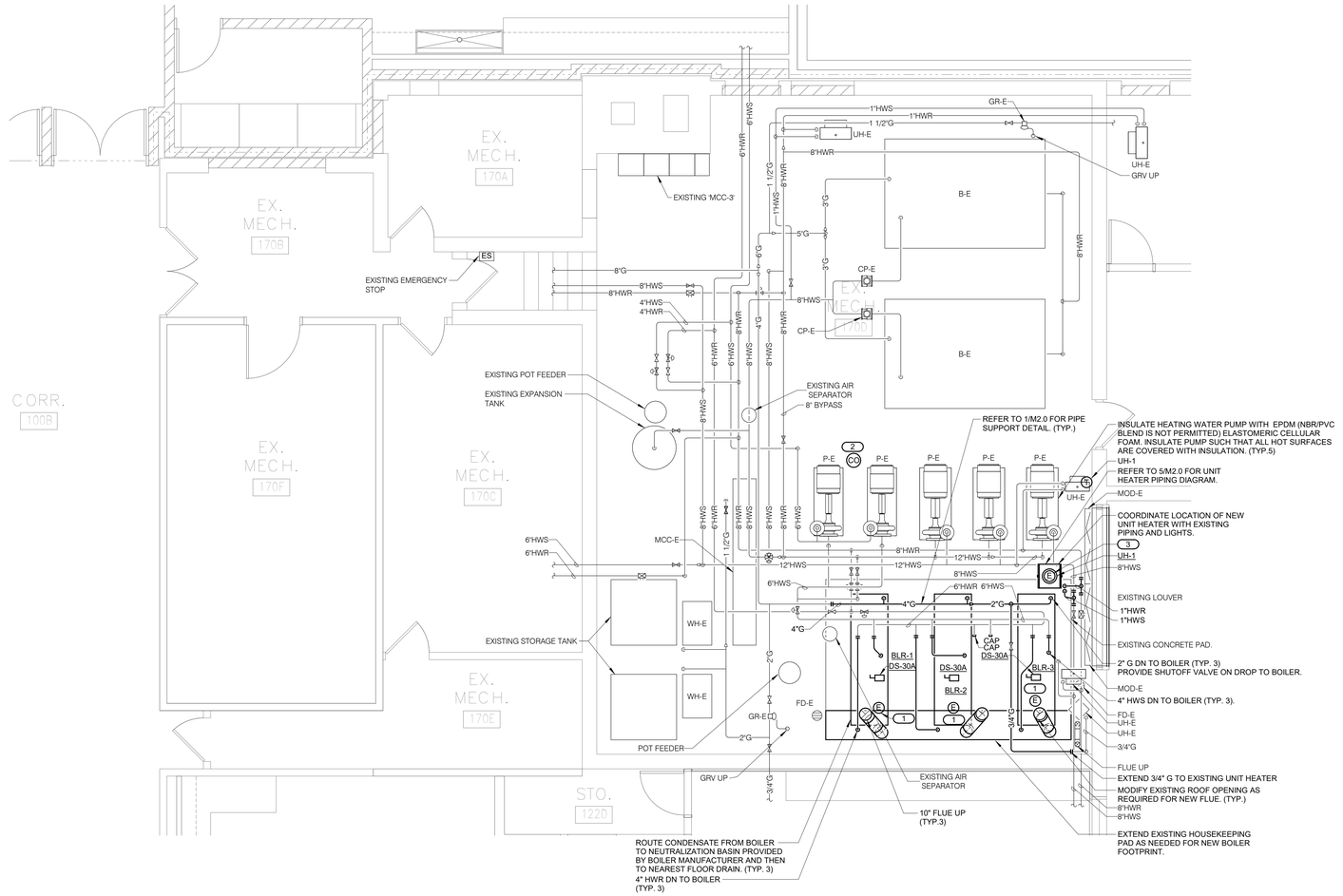
MD1.0

GENERAL SHEET NOTES :

1. CONTRACTOR SHALL VERIFY EXISTING FIELD CONDITIONS AS REQUIRED TO INSTALL NEW BOILERS. ENGINEER HAS REVIEWED SIZE/CLEARANCE REQUIREMENTS FOR BASIS OF DESIGN FULTON BOILERS. CONTRACTOR SHALL INCLUDE COST IN BID TO ALLOW FOR REMOVAL AND REINSTALLATION OF PIPING OF EQUIPMENT AS REQUIRED TO INSTALL NEW BOILERS.
2. CONTRACTOR SHALL COORDINATE LOCATION OF HWR, HWS AND GAS PIPING CONNECTIONS WITH MANUFACTURER.
3. CONTRACTOR SHALL REBALANCE EXISTING GAS REGULATOR/SPRING SERVING BOILERS FOR NEW GAS LOAD.
4. CONTRACTOR SHALL COORDINATE CHANGE IN GAS REQUIREMENT WITH UTILITY COMPANY.
5. REFER TO 4/M2.0 FOR HEATING WATER FLOW DIAGRAM - NEW WORK.

KEYNOTES: (#)

1. RECONNECT EXISTING CIRCUIT TO NEW BOILER. EXTEND AS NECESSARY. NEW CONDUIT AND CONDUCTORS SHALL MATCH EXISTING, MINIMUM OF 3#12 & 1#12 GND THHN/THWN IN 3/4" EMT CONDUIT. RECONNECT TO EXISTING EMERGENCY STOP.
2. PROVIDE CEILING MOUNTED CARBON MONOXIDE DETECTION LOCATED WITHIN 20 FEET OF NEW INSTALLED BOILERS. CONNECT CARBON MONOXIDE DETECTOR TO CLOSEST EXISTING FIRE ALARM SIGNALING LINE CIRCUIT. EXTEND AS NECESSARY. NEW CONDUIT AND CONDUCTORS SHALL MATCH EXISTING. REPROGRAM FIRE ALARM SYSTEM AS NECESSARY.
3. NEW UNIT HEATER. ROUTE 2#12 & 1#12 GND THHN/THWN IN 3/4" EMT CONDUIT TO NEW 15A/3P CIRCUIT BREAKER IN EXISTING PANEL 'NP10' (208/120V) LOCATED APPROXIMATELY 50-FEET IN ART STO. 118A. FIELD VERIFY SPACE IN EXISTING PANEL. CONNECT TO MANUFACTURER PROVIDED DISCONNECT/CONTROLLER/STARTER.



NORTH

1 LEVEL 01 - MECHANICAL

1/4" = 1'-0"

Batavia High School Condensing Boiler Replacement

1201 Main St
Batavia, IL 60510

IMEG

1100 WARRENVILLE RD
SUITE 400W
NAPERVILLE, IL
60563

PH: 630.527.2320
FAX: 630.527.2321
www.imegcorp.com

PROFESSIONAL SEAL

AGENCY APPROVAL

DISCLAIMER

REFERENCE SCALE IN INCHES

0 2

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**ISSUED FOR BID**
Date	**05/16/19**
Job Number	**19000864.00**
Drawn	**PVP/PAS**
Checked	**RDS**
Approved	**JMO**

SHEET TITLE

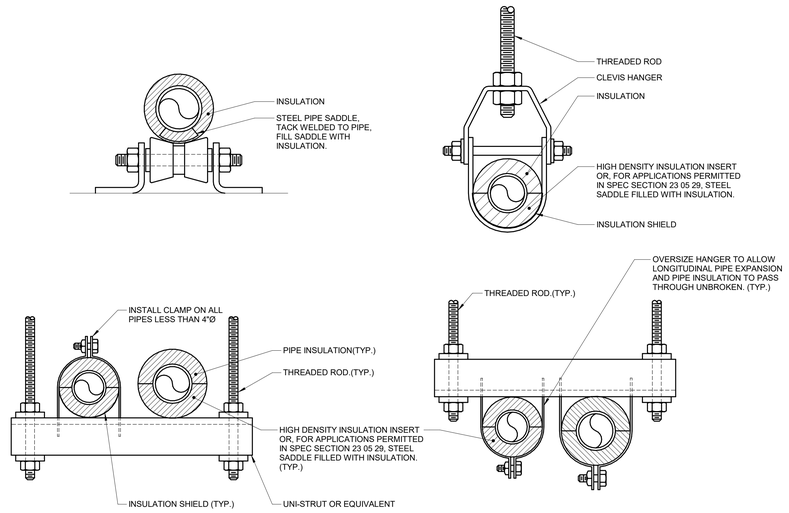
MECHANICAL - NEW WORK

SCALE

Scale: **1/4" = 1'-0"**

SHEET NUMBER

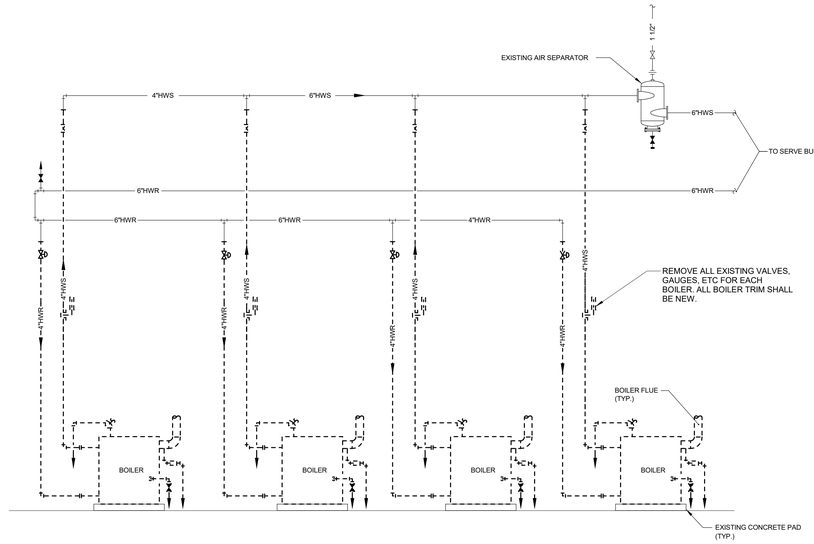
M1.0



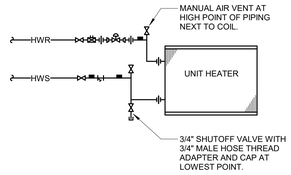
1 PIPE SUPPORT DETAIL
NO SCALE

NOTES:

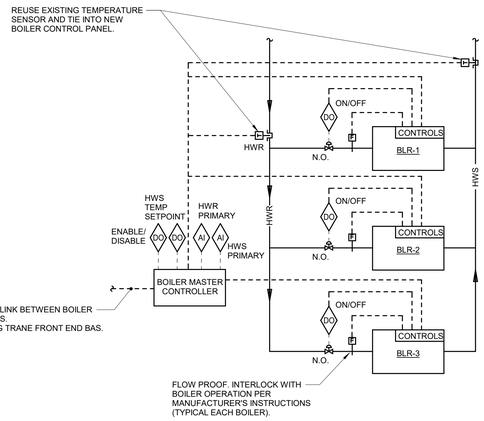
1. REFER TO SPECIFICATION SECTIONS 23 05 29 & 23 07 19.



2 HEATING WATER FLOW DIAGRAM - DEMOLITION
NO SCALE



5 UNIT HEATER PIPING DIAGRAM
NO SCALE



COMBUSTION AIR DAMPER TABLE		
BOILER(S) RUNNING	MOD OPEN	MOD CLOSE
EXISTING BRYAN BOILER (BLR-1) AND ANY NEW CONDENSING BOILER	MOD-1	MOD-2
EXISTING BRYAN BOILER (BLR-2) AND ANY NEW CONDENSING BOILER	MOD-2	MOD-1
BOTH EXISTING BRYAN BOILERS AND ANY NEW CONDENSING BOILER	MOD-1 & MOD-2	NONE
ANY NEW CONDENSING BOILER	MOD-1	MOD-2

SEQUENCE OF OPERATION:
HEATING WATER BOILERS SHALL HAVE UNIT MOUNTED CONTROLS AND A BOILER MANAGEMENT CONTROL PANEL PROVIDED BY THE BOILER MANUFACTURER. TRANE CONTROLS SHALL INTERFACE WITH BOILER MANUFACTURER CONTROLS AS DESCRIBED IN THIS SEQUENCE OF OPERATION. BOILER MANUFACTURER SHALL PROVIDE A GATEWAY INTERFACE CARD THAT IS COMPATIBLE WITH THE COMMUNICATION PROTOCOL OF THE TRANE CONTROLS NETWORK. SEQUENCES OF OPERATION FOR BOTH BOILER CONTROL SYSTEM AND TRANE CONTROLS SHALL BE AS FOLLOWS [COORDINATE ALL CONTROL CHANGES WITH TRANE. CONTACT : AUSTIN FIEGEL (312-833-7968) (AUSTIN.FIEGEL@TRANE.COM)]:

BOILER CONTROL PANEL SEQUENCE OF OPERATION:
WHEN THE FMCS ENABLES THE BOILER MASTER CONTROLLER TO RUN, THE BOILER MASTER CONTROLLER SHALL ENABLE THE LEAD BOILER, OPEN THE ASSOCIATED TWO-POSITION ISOLATION VALVE, AND ENERGIZE THE LEAD PUMP.

THE BOILER MANAGEMENT CONTROL SYSTEM SHALL MODULATE BURNER FIRING RATE AS REQUIRED TO MAINTAIN THE SYSTEM HEATING WATER SUPPLY TEMPERATURE. THE BOILER MANAGEMENT CONTROL PANEL SHALL MAINTAIN THE TEMPERATURE WITHIN +/- 5°F (ADJ.) OF THE TEMPERATURE IN THE SCHEDULE. BOILER MANAGEMENT CONTROL PANEL SHALL START/STOP BOILERS ON A FIRST ON/FIRST OFF BASIS TO EQUALIZE RUN TIME BETWEEN BOILERS. TWO-POSITION ISOLATION VALVE OPERATION SHALL BE CONTROLLED BY THE BOILER CONTROL PANEL OF THE RESPECTIVE BOILER THEY SERVE. IF THE OA TEMPERATURE IS BELOW 40F (ADJ.) THE BOILER MANAGEMENT CONTROL PANEL SHALL ENABLE ALL THREE (3) BOILERS AND OPEN THE ASSOCIATED CONTROL VALVES TO ALLOW FLOW THROUGH EACH BOILER. ALL 3 BOILERS SHALL MODULATE THE FIRING RATE TOGETHER TO MAINTAIN SETPOINT.

ONE COMBUSTION AIR DAMPER SHALL BE INTERLOCKED TO THE BOILER CONTROL CIRCUITS. IF ANY OF THE NEW BOILERS ARE RUNNING A MINIMUM OF 1 CONTROL DAMPER SHALL BE OPEN. REFER TO COMBUSTION AIR DAMPER SCHEDULE.

THE FOLLOWING BOILER CONTROL PANEL POINTS (TO INCLUDE BUT NOT LIMITED TO) SHALL BE CONTROLLED BY THE FMCS AND DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN:
- BOILER SYSTEM STATUS: ENABLE/DISABLE
- BOILER OUTLET WATER TEMP SETPOINT: [°F]

THE FOLLOWING BOILER CONTROL PANEL POINTS (TO INCLUDE BUT NOT LIMITED TO) SHALL BE MONITORED BY THE FMCS AND DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN:
- BOILER STATUS: DISABLED/STANDBY/MANUAL OPERATION/REMOTE OPERATION/AUTO/FAULT
- FIRING RATE INPUT: [0 - 100%]
- FIRING RATE OUTPUT: [0 - 100%]
- ACTIVE SETPOINT: [°F]
- SYSTEM HWR TEMP: [°F]
- SYSTEM HWS TEMP: [°F]
- FAULT MESSAGE DISPLAY CODE: [NUMERICAL]
- RUN CYCLES: [NUMERICAL]
- RUN HOURS: [NUMERICAL]

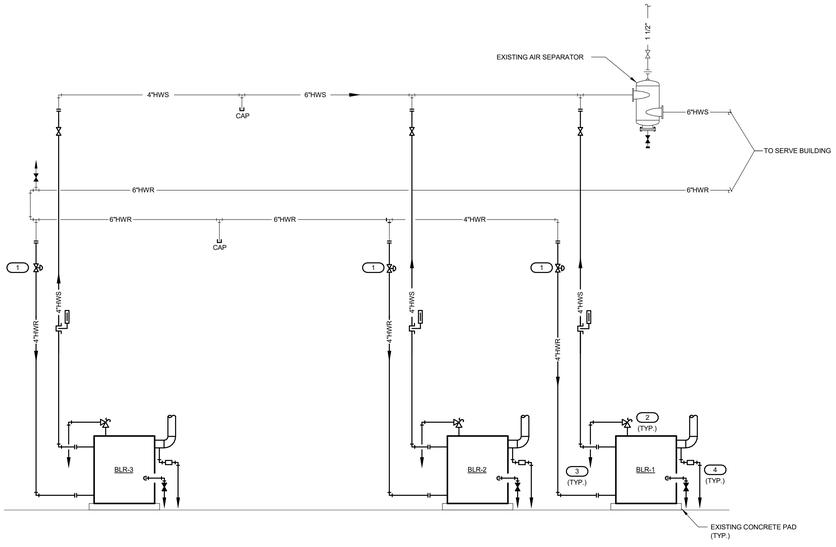
ALARMS, INTERLOCKS & SAFETIES:
BOILER CONTROLS SHALL BE PROGRAMMED TO MAINTAIN CONSTANT SETPOINT (LAST KNOWN VALUE) IN THE EVENT THE FMCS NETWORK COMMUNICATION SIGNAL IS LOST.

FMCS SEQUENCE OF OPERATION:
ALL OTHER EXISTING HEATING WATER SEQUENCE OF OPERATION SHALL REMAIN THE SAME.

ALARMS, INTERLOCKS & SAFETIES:
TCC SHALL COORDINATE ALL SAFETY AND INTERLOCK REQUIREMENTS WITH BOILER MANUFACTURER. TCC SHALL COORDINATE AND PROVIDE THE INSTALLATION AND WIRING OF BOILER WATER DIFFERENTIAL PRESSURE/FLOW SWITCHES AND OTHER COMPONENTS PROVIDED WITH THE BOILER AS REQUIRED FOR PROPER OPERATION. TCC SHALL PROVIDE AND TERMINATE ALL SAFETY AND INTERLOCK WIRING WITH BOILER CONTROL PANELS AS REQUIRED.

AN ALARM SHALL BE INDICATED TO THE FMCS OPERATOR WORKSTATION IN THE EVENT ANY OF THE FOLLOWING OCCUR:
- AN ALARM IS INDICATED AT ANY BOILER ALARM PANEL.
- ALL EXISTING ALARMS SHALL REMAIN.

3 HEATING WATER CONTROL DIAGRAM
NO SCALE



KEYNOTES (#)

1. BOILER AUTOMATIC SHUT OFF VALVE TO CLOSE WHEN BOILER IS OFF.
2. INSTALL SAFETY RELIEF VALVE PROVIDED BY BOILER MANUFACTURER. PIPE TO DRAIN PER MANUFACTURER'S INSTRUCTIONS. SUPPORT SOLIDLY TO AVOID STRAIN ON THE RELIEF VALVE.
3. ALL PIPING CONNECTIONS TO BOILER SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. REFER TO M5.3 FOR GAS FLOW DIAGRAM.
4. PIPE BOILER FLUE CONDENSATE TO NEUTRALIZATION TRAY AND TO DRAIN.

4 HEATING WATER FLOW DIAGRAM - NEW WORK
NO SCALE

SCHEDULE GENERAL NOTES:

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND INSTALLED BY:
MFR = MANUFACTURER

B. DISCONNECT TYPE:
NF = NON-FUSED

C. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

UNIT HEATER SCHEDULE - HOT WATER

SYMBOL	SERVICE	TYPE	CFM	MBH	GPM	EWT °F	LWT °F	W.P.D. FT. HEAD	ELECTRICAL HP	RPM	VOLT-PHASE	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)	MANUFACTURER	MODEL	REMARKS
UH-1	MECH 170D	VERTICAL	2,620	70	4.9	160	120	5.0	1/6	1,100	120-1	MFR	NF	MFR	TRANE	MODEL P	NOTE 1

NOTES:
1. MOUNT TIGHT TO STRUCTURE.
2. PROVIDE UNIT WITH ADJUSTABLE TEMPERATURE SENSOR AND STAND ALONE CONTROLS.

HOT WATER BOILER SCHEDULE

SYMBOL	FUEL	INLET FUEL PRESSURE (IN WC)	AHRI THERMAL EFFICIENCY	TURNDOWN RATIO	INPUT MBH	OUTPUT MBH	EWT °F	LWT °F	ELECTRICAL HP	FLA	VOLT-PHASE	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/STARTER BY (NOTE A)	CONTROL DIAGRAM	MANUFACTURER	MODEL	REMARKS
BLR-1	NATURAL GAS	14-42	95.7	5:1	2,000	1,918	120	160	2	5	480-3	EC	FV	MFR	3/M2.0	FULTON	VTG-2000	NOTE 1, 2
BLR-2	NATURAL GAS	14-42	95.7	5:1	2,000	1,918	120	160	2	5	480-3	EC	FV	MFR	3/M2.0	FULTON	VTG-2000	NOTE 1, 2
BLR-3	NATURAL GAS	14-42	95.7	5:1	2,000	1,918	120	160	2	5	480-3	EC	FV	MFR	3/M2.0	FULTON	VTG-2000	NOTE 1, 2

NOTES:
1. PROVIDE WITH NEUTRALIZATION CONDENSATE TRAY.
2. PROVIDE WITH IN-BUILT GAS REGULATOR. REGULATOR TO MODULATE 2 PSI INLET GAS TO 23" WC. COORDINATE FINAL GAS PRESSURE WITH MANUFACTURER.

Batavia High School
Condensing Boiler Replacement
1201 Main St
Batavia, IL 60510

IMEG
1100 WARRENVILLE RD
SUITE 400W
NAPERVILLE, IL
60563
PH: 630.527.2320
FAX: 630.527.2321
www.imegcorp.com

PROFESSIONAL SEAL

AGENCY APPROVAL

REFERENCE SCALE IN INCHES
0 1 2

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	ISSUED FOR BID
Date	05/16/19
Job Number	19000864.00
Drawn	PVP/PAS
Checked	RDS
Approved	JMO

SHEET TITLE
MECHANICAL DETAILS AND SCHEDULES

SCALE
Scale: 12" = 1'-0"

SHEET NUMBER
M2.0