# BOILER REPLACEMENT AT NEARY ELEMENTARY SCHOOL

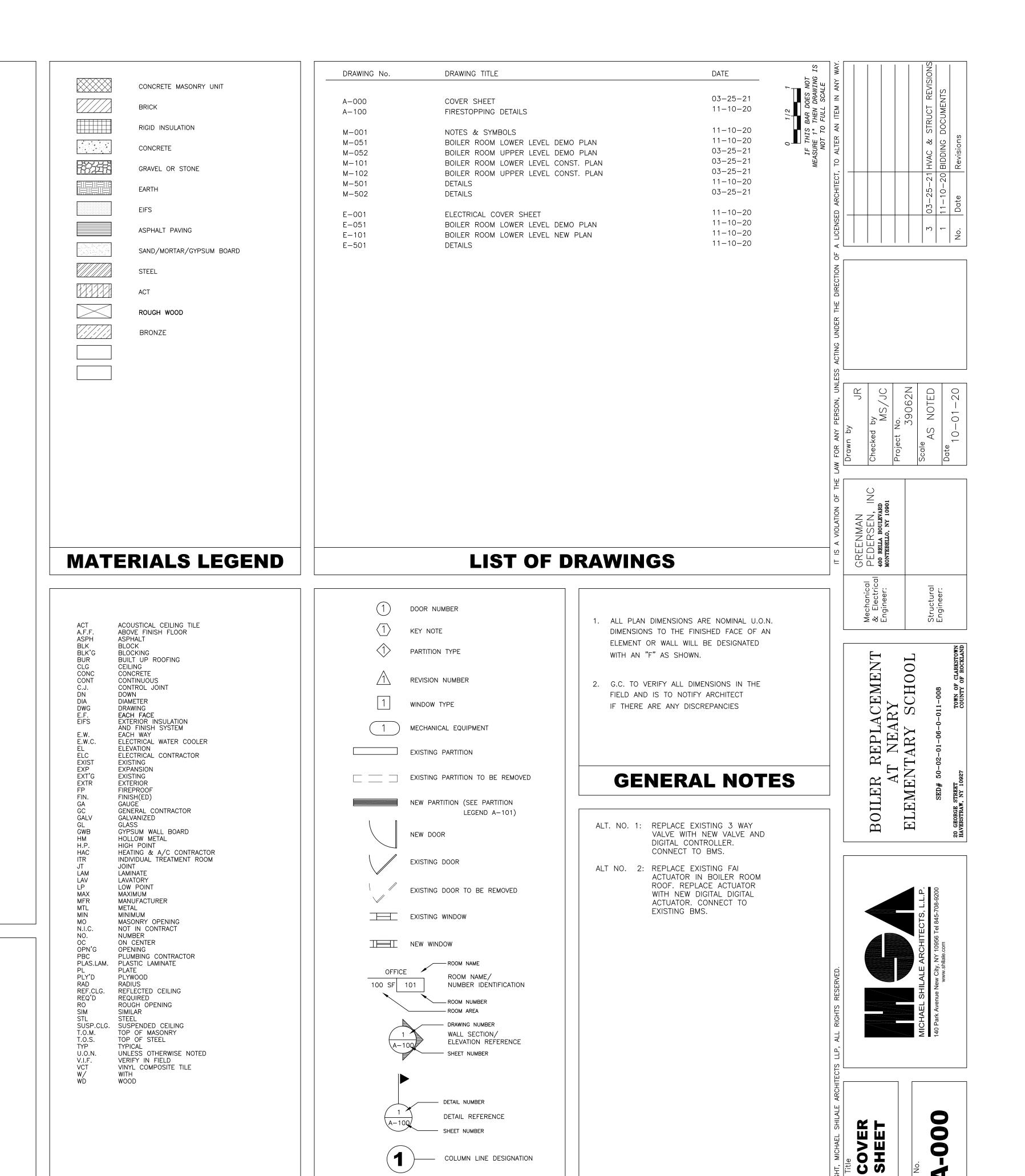
Gerald F. Neary Elementary School **20 GEORGE STREET** HAVERSTRAW, NY 10927 SED# 50-02-01-06-0-011-008

**OWNER:** 

**NORTH ROCKLAND CENTRAL** SCHOOL DISTRICT 65 Chapel Street Garnerville, NY 10923

**ARCHITECT:** MICHAEL SHILALE ARCHITECTS, LLP 140 Park Avenue New City, NY 10956

> **MEP ENGINEER:** GREENMAN-PEDERSEN, INC **400 Rella Boulevard** Montebello, NY 10901

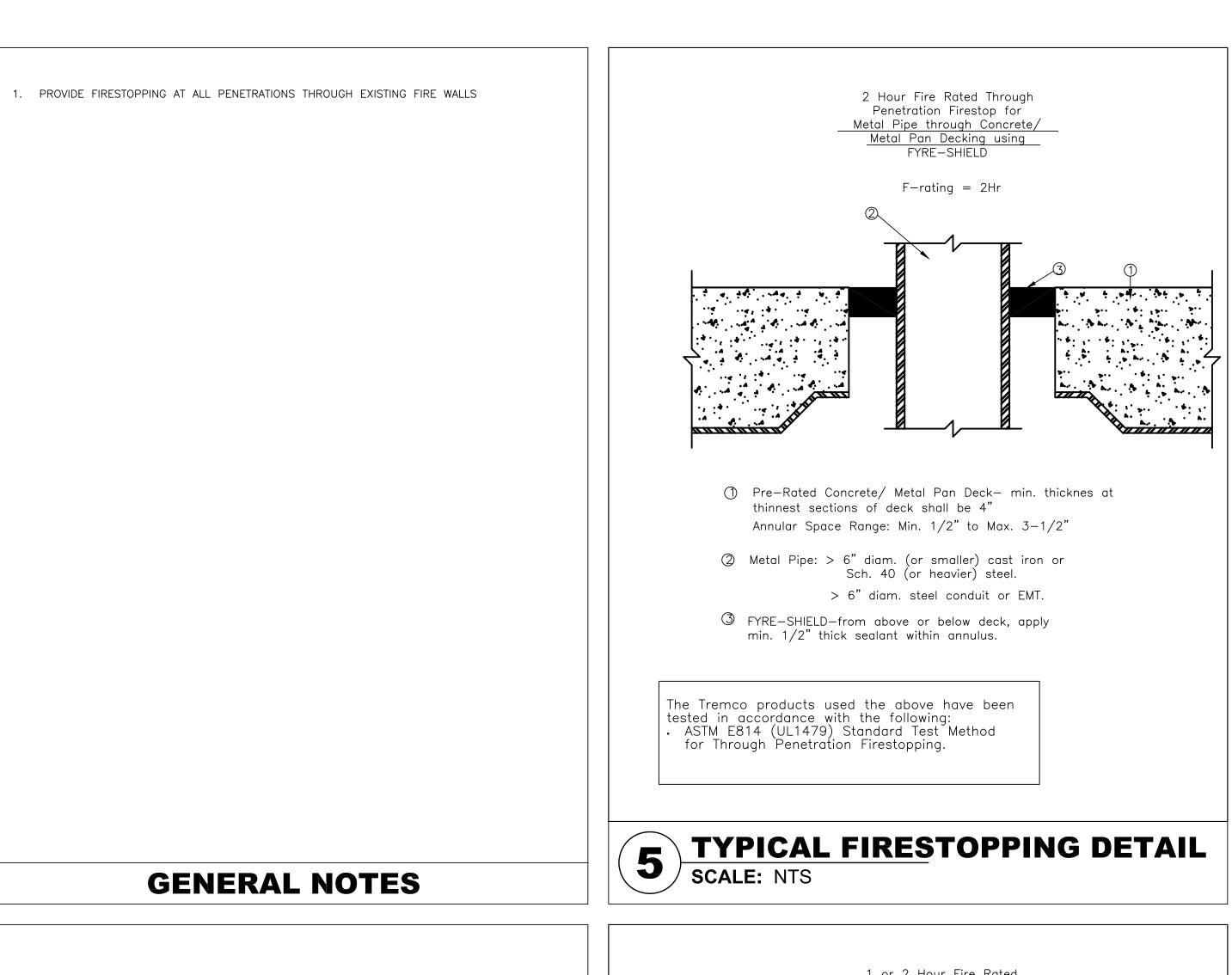


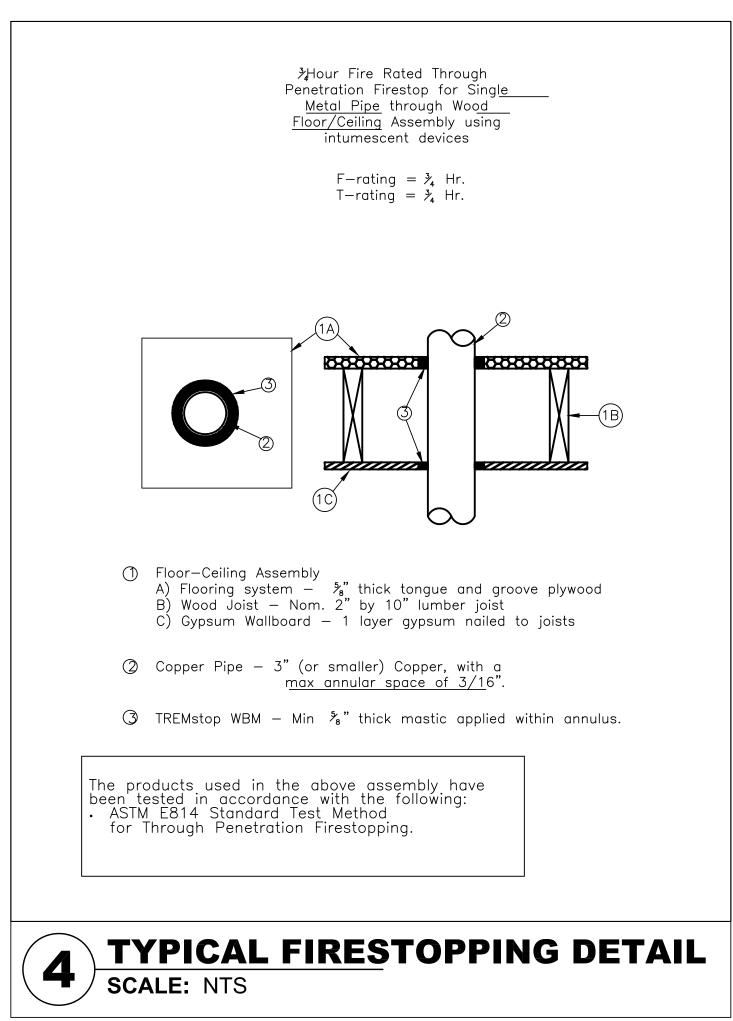
—— COLUMN LINE DESIGNATION

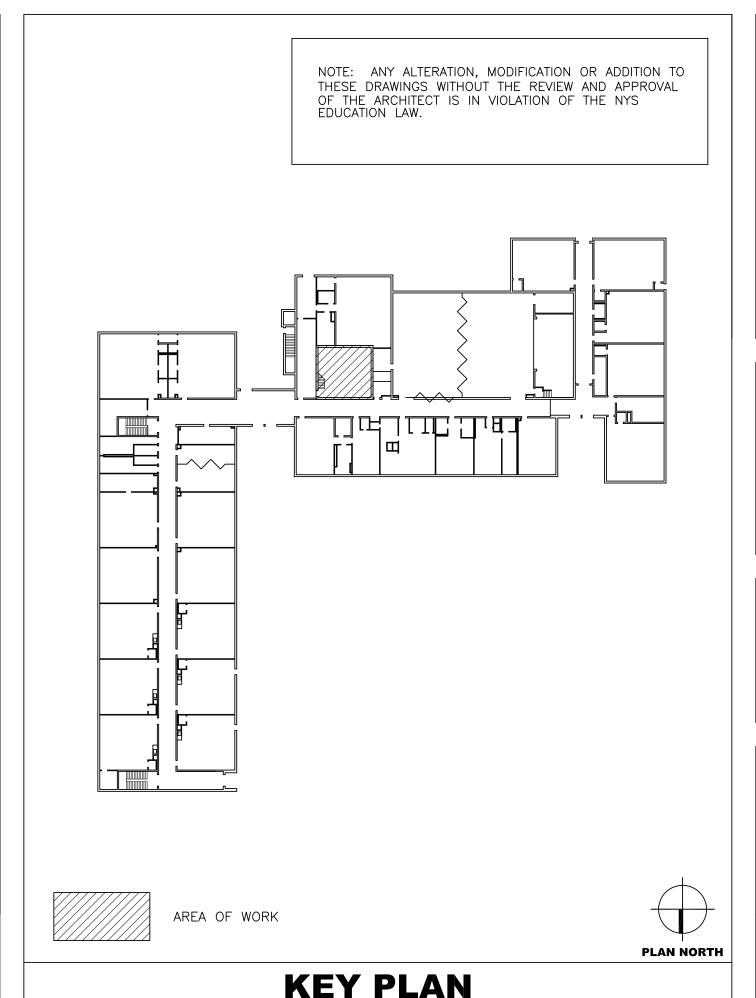
**ALTERNATES/ALLOWANCES** 

**SYMBOLS LEGEND** 

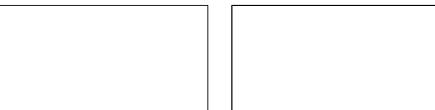
**ABBREVIATIONS** 





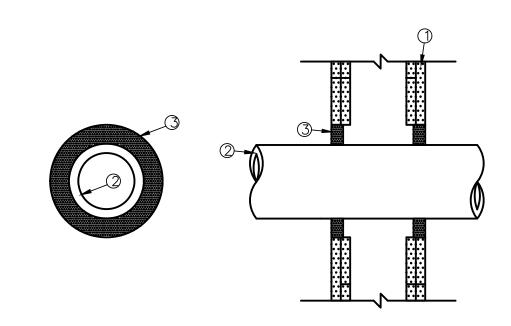






1 or 2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Gypsum walls using TREMstop WBM.

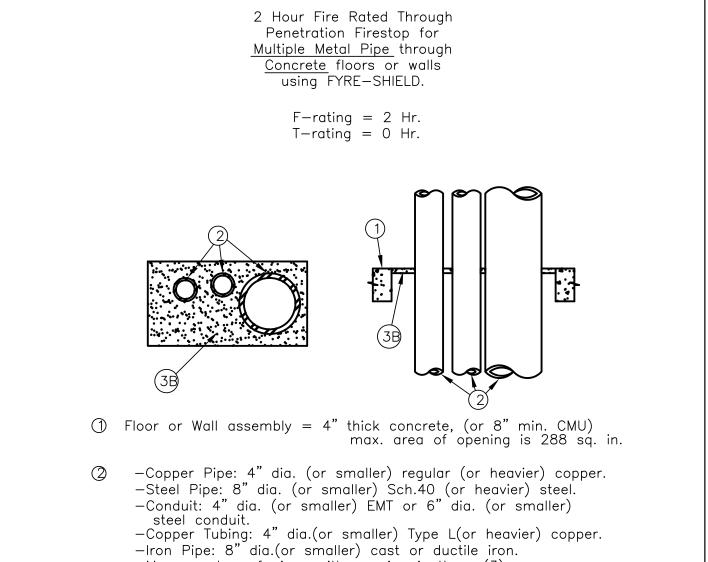
> F-rating = 1 and 2 Hr. T-rating = 0 and 1/2 Hr.



- ① 1 or 2 hour fire rated gypsum wallboard/stud assembly
- ② A) Steel Pipe 6" diam.(or smaller) Sch. 40 (or heavier) steel B) Conduit — 4" diam.(or smaller) EMT or rigid steel
- 3 TREMstopWBM fill Max. 3/4" annulus at a thickness of  $1\frac{1}{4}$ " (2 Hr. F-rating) or 3/4" (1 Hr. F-rating).

The products used in the above assembly have |been' tested in accordance with the following: ASTM E814 (UL1479) Standard Test Method for Through Penetration Firestopping. ASTM E119 (UL 263) Standard for Fire Tests of Building Construction and Materials.

TYPICAL FIRESTOPPING DETAIL 3 SCALE: NTS

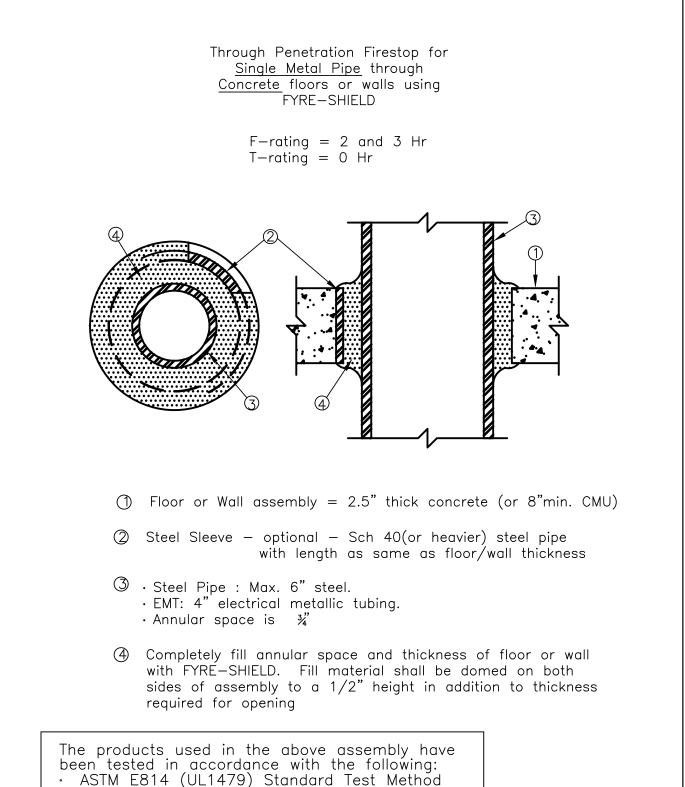


-Max. number of pipes with opening is three (3). ③ A) Forming Material — (Not shown) — Nom. 1" thick poly urethane backer rod friction fitted into opening.

B) Nom. 1/2 " FYRE-SHIELD thickness installed within opening. NOTE: For wall apply FYRE—SHIELD to both surfaces of wall.

The products used in the above assembly have been tested in accordance with the following: ASTM E814 (UL1479) Standard Test Method for Through Penetration Firestopping.

TYPICAL FIRESTOPPING DETAIL SCALE: NTS

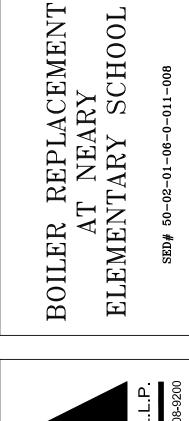


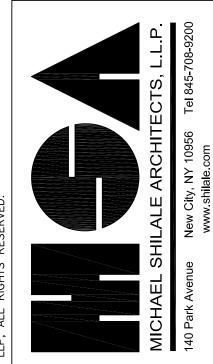


for Through Penetration Firestopping.

of Building Construction and Materials.

ASTM E119 (UL 263) Standard for Fire Tests





FIRESTOPPING DETAIL

## HVAC NOTES:

- . PROVIDE LABOR, MATERIALS, TOOLS, MACHINERY, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE THE HVAC WORK UNDER THIS CONTRACT. ALL SYSTEMS AND EQUIPMENT SHALL BE COMPLETE IN EVERY ASPECT AND ALL ITEMS OF MATERIAL, EQUIPMENT AND LABOR SHALL BE PROVIDED FOR A FULLY OPERATIONAL SYSTEM AND READY FOR USE. COORDINATE THE WORK WITH THE WORK OF THE OTHER SUBCONTRACTORS IN ORDER TO RESOLVE ALL CONFLICTS WITHOUT IMPEDING THE JOB PROGRESS.
- 2. EXAMINE THE ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS AND OTHER DIVISIONS, AND SECTIONS OF THE SPECIFICATIONS IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED UNDER THIS DIVISION. FAILURE TO EXAMINE ALL THE CONTRACT DOCUMENTS FOR THIS PROJECT WILL NOT RELIEVE THIS CONTRACTOR OF HIS RESPONSIBILITIES TO PERFORM THE WORK REQUIRED FOR A COMPLETE FULLY OPERATIONAL AND SATISFACTORY INSTALLATION.
- 3. THE WORK INCLUDES BUT IS NOT LIMITED TO THE DEPICTED SYSTEMS, EQUIPMENT AND SERVICES, AS SPECIFIED HEREIN.
- 4. START-UP SERVICES SHALL BE INCLUDED.
- 5. ALL SYSTEMS, EQUIPMENT AND SERVICES SPECIFIED HEREIN SHALL BE PROVIDED COMPLETE AND READY FOR USE. ALL EQUIPMENT, DUCTWORK, PIPING, DAMPERS, OUTLETS ARE NEW, FURNISHED AND INSTALLED BY THIS CONTRACTOR, UNLESS OTHERWISE NOTED.
- 6. DUCTWORK AND PIPING ARE SHOWN DIAGRAMMATICALLY AND DO NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ENGINEER. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER SUBCONTRACTORS IS REQUIRED. PROVIDE COORDINATION DRAWINGS SHOWING ALL TRADES WORK AND EXISTING CONDITION.
- . INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES INVOLVING EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- B. VERIFY FINAL LOCATIONS FOR ROUGH WORK WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT BEING CONNECTED.
- PROVIDE A COMPLETE SYSTEM OF VIBRATION ISOLATION FOR EACH ITEM OF HVAC EQUIPMENT AND APPARATUS AS SPECIFIED HEREIN, AS SHOWN ON THE DRAWINGS AND AS NEEDED FOR A COMPLETE AND PROPER INSTALLATION.
- 10. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACE AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER IN THE INTERIOR OR THE EXTERIOR.
- 1. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY NYPL, OR AS NOTED TO BE RELOCATED ON THE DRAWINGS, AND SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.
- 12. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
- 3. ALL CONTROL WIRING SHALL BE DONE BY MECHANICAL CONTRACTOR, IN ACCORDANCE WITH SEQUENCE OF OPERATION, AS SPECIFIED, AND IN ACCORDANCE WITH MANUFACTURER'S CONTROL DATA.
- 14. CONTRACTOR IS RESPONSIBLE TO ATTEND COORDINATION MEETING WITH ALL TRADES TO DETERMINE LOCATIONS OF DEVICES AND DISCOVER IF ANY CONFLICTS MAY EXIST.
- 15. ALL PIPING EXPOSED OR INSULATED, DUCTWORK, CONDUIT AND CONTROL WIRING SHALL BE CONCEALED IN CEILINGS, WALLS AND FLOORS OR CONCEALED IN NEW SOFFITS OR FRAMED ENCLOSURES.

### HEATING DESIGN CRITERIA

- A. SITE (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2017 HANDBOOK CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
- 1. 41.07°N, 73.71°W 2. ELEVATION: 397 FT 3. CLIMATE ZONE 5A.
- OUTSIDE DESIGN CONDITIONS (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2017 CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):

1. HEATING DB (99.6%): 9.2°F DB

INSIDE DESIGN CONDITIONS (PER NYSED MANUAL OF PLANNING STANDARDS S602-6 B. AND 2015 ASHRAE HANDBOOK CH 7 TABLE 6): 1. HEATING INDOOR SETPOINT: 72°F

### **GENERAL NOTES**

- 1. THE CONTRACTOR SHALL VERIFIED THE EXISTING CONDITIONS AND COORDINATE THE WORK WITH OTHER TRADES..
- 2. THE FULL DEMOLITION SCOPE IS NOT SPECIFICALLY SHOWN ON THE DRAWINGS. PROVIDE DEMOLITION WORK CONSIDERED NECESSARY FOR THE COMPLETION OF THE WORK. SURVEY THE PREMISES TO ACCURATELY DETERMINE THE FULL SCOPE OF THE REMOVAL AND DISPOSAL WORK. NO ADDITIONAL PAYMENTS WILL BE MADE DUE TO CONTRACTOR'S FAILURE TO ADEQUATELY SURVEY THE PREMISES.
- 3. CONTRACTOR TO REMOVE AND PROPERLY DISPOSE OF EQUIPMENT FROM SITE INDICATED FOR DEMOLITION, UNLESS OTHERWISE DIRECTED BY THE AUTHORITY.
- 4. THE MECHANICAL CONTRACTOR SHALL PROVIDE POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO PNEUMATIC DAMPER AND VALVE OPERATORS, THERMOSTATS, AUTOMATIC CONTROL INSTRUMENTATION. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
- 5. FOR POWERED EQUIPMENT INTENDED FOR DEMOLITION, THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR TO REQUEST THAT POWER SUPPLIES AND DISCONNECT SWITCHES ASSOCIATED WITH THE EQUIPMENT ARE SHUT-OFF AND DISCONNECTED.
- 6. TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, STEAM, HEATING, AIR CONDITIONING AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING. AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE PROJECT OFFICER.
- 7. PROVIDE MOTOR STARTERS AS REQUIRED FOR MECHANICAL EQUIPMENT.
- 8. CHIMNEY SHALL BE CLASSIFIED AS LOW TEMPERATURE, (DESIGN TEMPERATURE 300°F) AND SHALL COMPLY WITH NYSFGC AND NYSMC FOR HEIGHT OF CHIMNEY TERMINATION.
- 9. HEATING EQUIPMENT LOADS CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS, SPECIFICALLY ASHRAE HANDBOOK
- 10. PERFORM COMMISSIONING OF THE HEATING SYSTEM IN ACCORDANCE WITH 2020 NYS
- 11. HEATING SYSTEM THERMOSTATIC CONTROLS SHALL BE TESTED FOR FUNCTIONALITY AND PROPER OPERATION AS REQUIRED BY 2020 NYS ECC..
- 12. ELECTRIC MOTORS SHALL COMPLY WITH THE REQUIREMENTS OF THE 2020 NYS ECC
- 13. PROVIDE EQUIPMENT MAINTENANCE MANUALS AND REQUIRED EQUIPMENT LABELS FOR
- ALL NEW MECHANICAL, ELECTRICAL AND SERVICE HOT WATER HEATING EQUIPMENT.
- 14. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PROVIDE CONTROL WIRING. THE MECHANICAL CONTRACTOR SHALL ALSO PROVIDE ALL POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO ALL VALVE OPERATORS, THERMOSTATS AND AUTOMATIC CONTROL INSTRUMENTATION. ELECTRICAL CONTRACTOR TO INSTALL AND ROUTE POWER WIRING FOR EACH MECHANICAL SYSTEM.

#### **ABBREVIATIONS** GENERAL SYMBOLS

AD ACCESS DOOR DEMOLISH ABOVE FINISHED FLOOR POINT OF CONNECTION BHP BRAKE HORSEPOWER BTUH BRITISH THERMAL UNIT PER HOUR POINT OF DISCONNECT CFM CUBIC FEET PER MINUTE SECTION A-A CAST IRON CI CLEAN OUT

## PIPING SYMBOLS

DI	A, Ø	DIAMETER			
	ΝT	ENTERING WATER TEMPERATURE	 -HWS	_	HOT WATER SUPPLY
E>	Χ.	EXISTING	 -HWR	_	HOT WATER RETURN
F F0	)	FAHRENHEIT FLOOR DRAIN	 -G	_	NATURAL GAS
FT	Γ	FEET	 - FOS ———	_	FUEL OIL SUPPLY
G/ GF	A PM	GAUGE GALLONS PER MINUTE	 - FOR ———	_	FUEL OIL RETURN
Η[	D	HEAD	 	_	DOMESTIC COLD WATER
Н	OA	HAND/OFF/AUTOMATIC	 	_	DOMESTIC HOT WATER
H\ H\		HORSEPOWER HOT WATER	 	_	DOMESTIC HOT WATER RECIRCULATION
	WR WS Z	HEATING HOT WATER RETURN HEATING HOT WATER SUPPLY HERTZ		_	INDIRECT WASTE

## VALVE SYMBOLS

IN WG	INCH WATER GAUGE	$-\!$	ISOLATION VALVE
KW KWH	KILOWATT KILOWATT HOUR	<b>→</b>	01/50// 1/41//5
LF LWT	LINEAR FOOT (FEET) LEAVING WATER TEMPERATURE		CHECK VALVE

M MAX	METER MAXIMUM		THREE-WAY, TWO-POSITION CONTROL \
MBH	1000 BTU/H	*	
MD	MOTORIZED DAMPER	<b>→</b>	SAFETY OR PRESSURE RELIEF VALVE
MHP	MOTOR HORSEPOWER	$\Upsilon$	SALETT ON THESSONE NELLET VALVE
MIN	MINIMUM	l	
NA	NOT APPLICABLE	<b>₽</b>	MANUAL AIR VENT
NC	NORMALLY CLOSED	'	
NO	NORMALLY OPEN		

NOMINAL TEST PLUG (PRESSURE/TEMPERATURE) NOT TO SCALE OUTSIDE DIAMETER THERMOMETER

PRESSURE DROP PRESSURE GAGE POUNDS PER SQUARE INCH PIPE ANCHOR POUNDS PER SQUARE INCH - ABSOLUTE PSIG POUNDS PER SQUARE INCH - GAGE INLINE PUMP RPM REVOLUTIONS PER MINUTE

STATIC PRESSURE TEMPERATURE SENSOR/THERMOSTAT STAINLESS STEEL TESTING, ADJUSTING, BALANCE M MOTORIZED DAMPER

UON UNLESS OTHERWISE NOTED

TOTAL DYNAMIC HEAD

COLD WATER (POTABLE)

DRY-BULB TEMPERATURE

DDC DIRECT DIGITAL CONTROLS

DECIBELS

ID INSIDE DIAMETER

IN WC INCH WATER COLUMN

DEG DEGREE

VFD VARIABLE FREQUENCY DRIVE

W WASTE W/ WITH

WATER GAGE WPD WATER PRESSURE DROP

432

BELL & GOSSETT

#### AIR SEPARATOR SCHEDULE OPERATING BASIS OF DESIGN FLOW SIZE WEIGHT UNIT # SERVICE TYPE (IN) (GPM) (LBS) MODEL # MANUFACTURER

360

AIR SEPARATOR SCHEDULE NOTES:

PROVIDE A COALESCING REMOVAL AIR AND SEDIMENT SEPARATOR WITH A STAINLESS STEEL COALESCING MEDIUM AND REMOVABLE HEAD. PROVIDE CONNECTIONS FOR AN AIR VENT, SURFACE SKIM PORT, AND BOTTOM BLOWDOWN. INSTALL WITH CLEARANCES AS RECOMMENDED BY THE MANUFACTURER.

INSULATION SCHEDULE					
	NOMINAL PIPE DIAMETER				
FLUID	< 1 1/2"	>= 1 1/2"			
HOT WATER	1 1/2"	2"			
DOMESTIC CW	1/2"	1"			

HOT WATER | COALESCING AIR & DIRT

PIPE INSULATION SCHEDULE NOTES: PIPE INSULATION SHALL COMPLY WITH 2020 NYS ECC C403.11.3 2. INSULATION SHALL HAVE K=0.27 MINIMUM.

UNIT NO.			BOILER #1		
LOCATION			BASEMENT, BOILER ROOM		
TYPE			CAST IRON WATER TUBE		
	GROSS I.B	.R OUTPUT (BTU/H)	3,567,000		
RATING	MIN. OVER	ALL BOILER EFFICIENCY (%)	83.1		
		OUTPUT (WATER) @ 100% (BTU/H)	3,102,000		
DESIGN HOT WA	ATER SUPPL'	Y TEMPERATURE (°F)	180		
DESIGN HOT WA	ATER RETURI	N TEMPERATURE (°F)	160		
MAX ALLOWABLE	E OPERATING	PRESSURE (PSIG)	80		
MIN. HEATING S	SURFACE, FIF	RESIDE (SQ. FT.)	322.2		
			SMITH RTS/28HE-14		
FLUE OUTLET SIZE (INCHES)			16		
SUPPLY OUTLET SIZE (INCHES)			5		
RETURN INLET	SIZE (INCHE	S)	5		
BURNER MANUF	ACTURER &	MODEL NO.	POWERFLAME C3-G0-25		
	FUEL OIL FII	RING RATE (GPH)	29.5		
FUEL	FUEL TYPE		#2 FUEL OIL		
DATA	GAS FIRING	RATE (CFH)	4293		
	7.0 MIN/14.0 MAX				
		COMBUSTION AIR BURNER MOTOR (HP)	2		
ELECTRICAL DAT	ГА	METERING PUMP MOTOR (HP)	1/2		
		ATOMIZING AIR COMPRESSOR MOTOR (HP)	N/A		
		VOLT. PH. HZ.	208/3/60		
		COMBUSTION CONTROL	120/1/60 (SEE NOTE 5)		
		OPERATING AMPS	N/A		
OVERALL DIMEN	ISIONS OVER	CONTROLS (L X W X H) (INCHES)	162x42x66		
HOUSE KEEPING	G CONCRETE	PAD DIMENSIONS (INCHES)	126x54		

BOILER-BURNER UNIT SCHEDULE

12,467 OPERATING WEIGHT LBS. BOILER-BURNER UNIT SCHEDULE NOTES: 1. VERIFY IN FIELD CONNECTION LOCATIONS AND CLEARANCES FOR BOILERS, ESPECIALLY HEIGHT AND TUBE

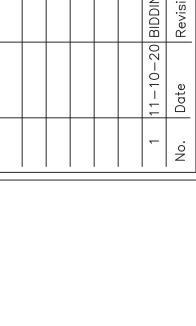
2. SHIP EQUIPMENT SPECIFIED HEREIN KNOCKED DOWN AS NECESSARY FOR DELIVERY AND INSTALLATION. VERIFY ALL DIMENSIONS IN THE FIELD AND WITH EQUIPMENT MANUFACTURERS. 3. PROVIDE CONTROL PANEL, LEAD-LAG PANEL, WIRING, AND OTHER EQUIPMENT AS NECESSARY TO SATISFY

PULL CLEARANCE. REFER TO MANUFACTURER'S DOCUMENTS.

THE SEQUENCE OF OPERATIONS. 4. PROVIDE (2) LOW WATER CUTOFF VALVES. 5. BURNER COMBUSTION CONTROL CIRCUIT SHALL BE POWERED FROM A SEPARATE 120V SINGLE PHASE GROUNDED CIRCUIT.

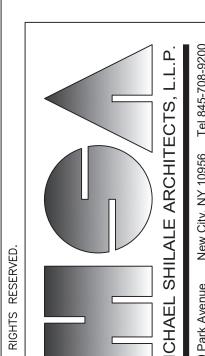


					11-10-20 BIDDING DOCUMENTS	Revisions
					11-10-20	Date
					_	No.
_						



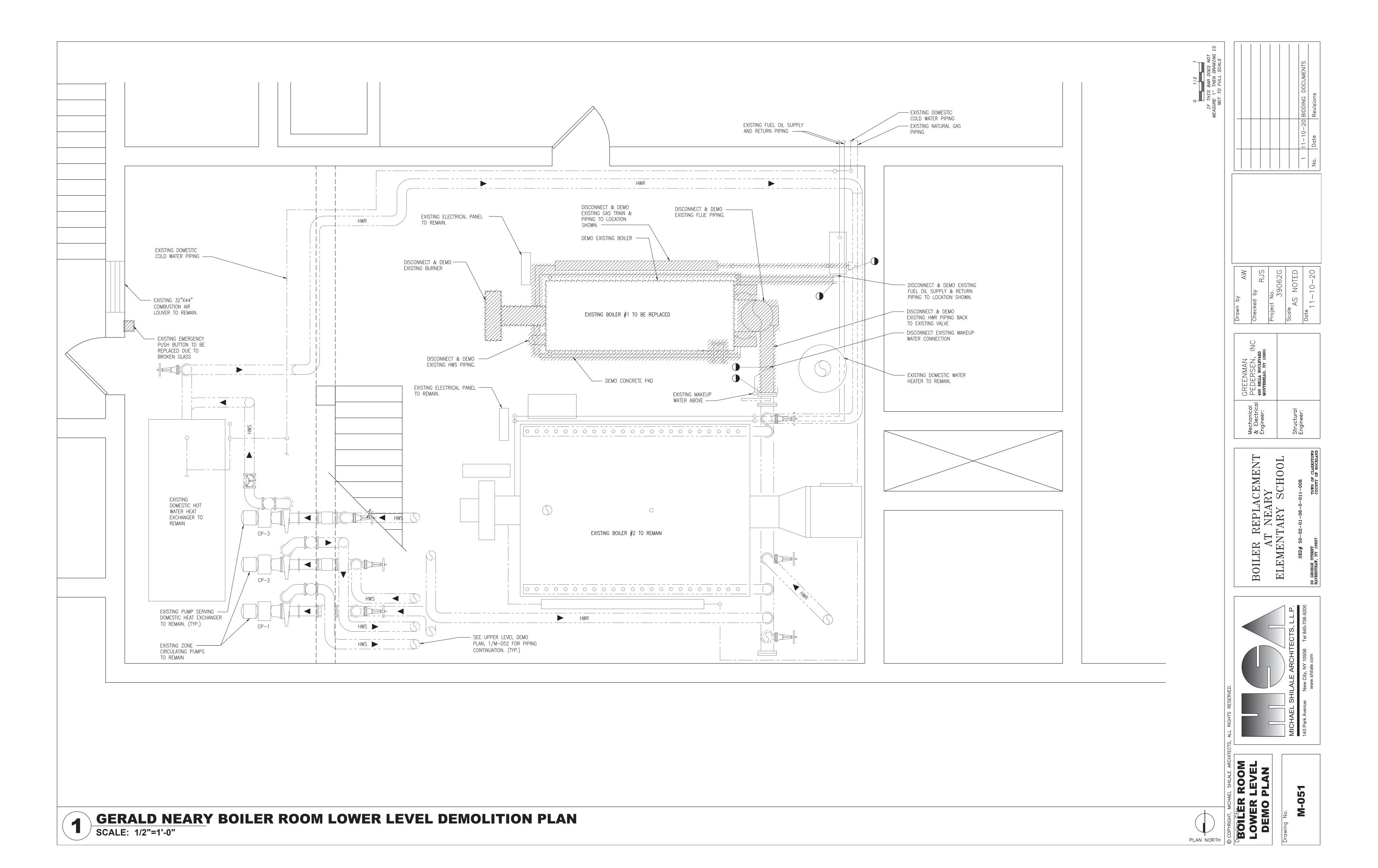
C C C C C C C C C C C C C C C C C C C	PEDERSEN, INC 400 rella boulevard Montebello, ny 10901			
	Mechanical & Electrical Engineer:		Structural	

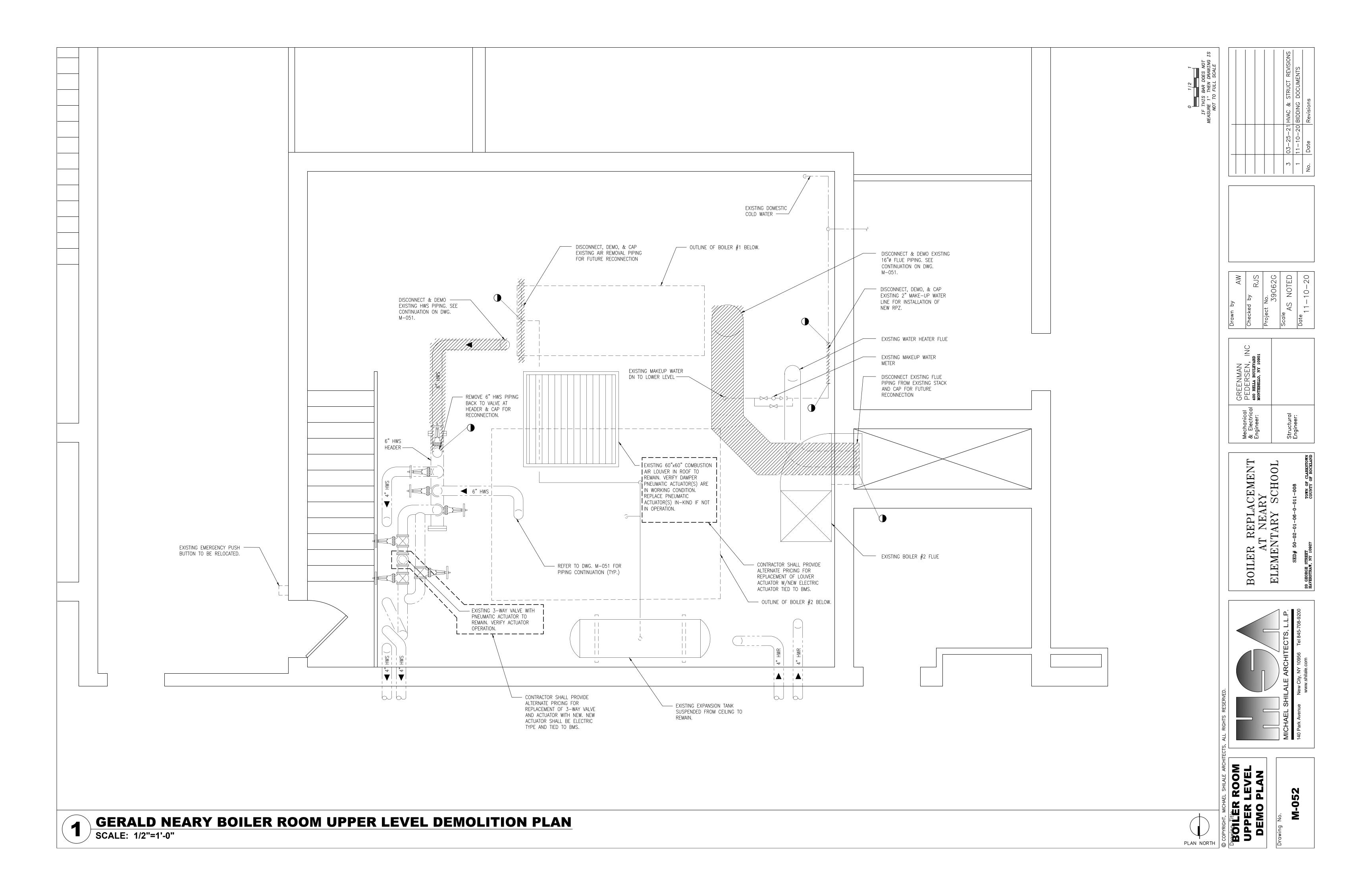
REPLACEMENT
AT NEARY
NTARY SCHOOL BOILER J AT ELEMEN

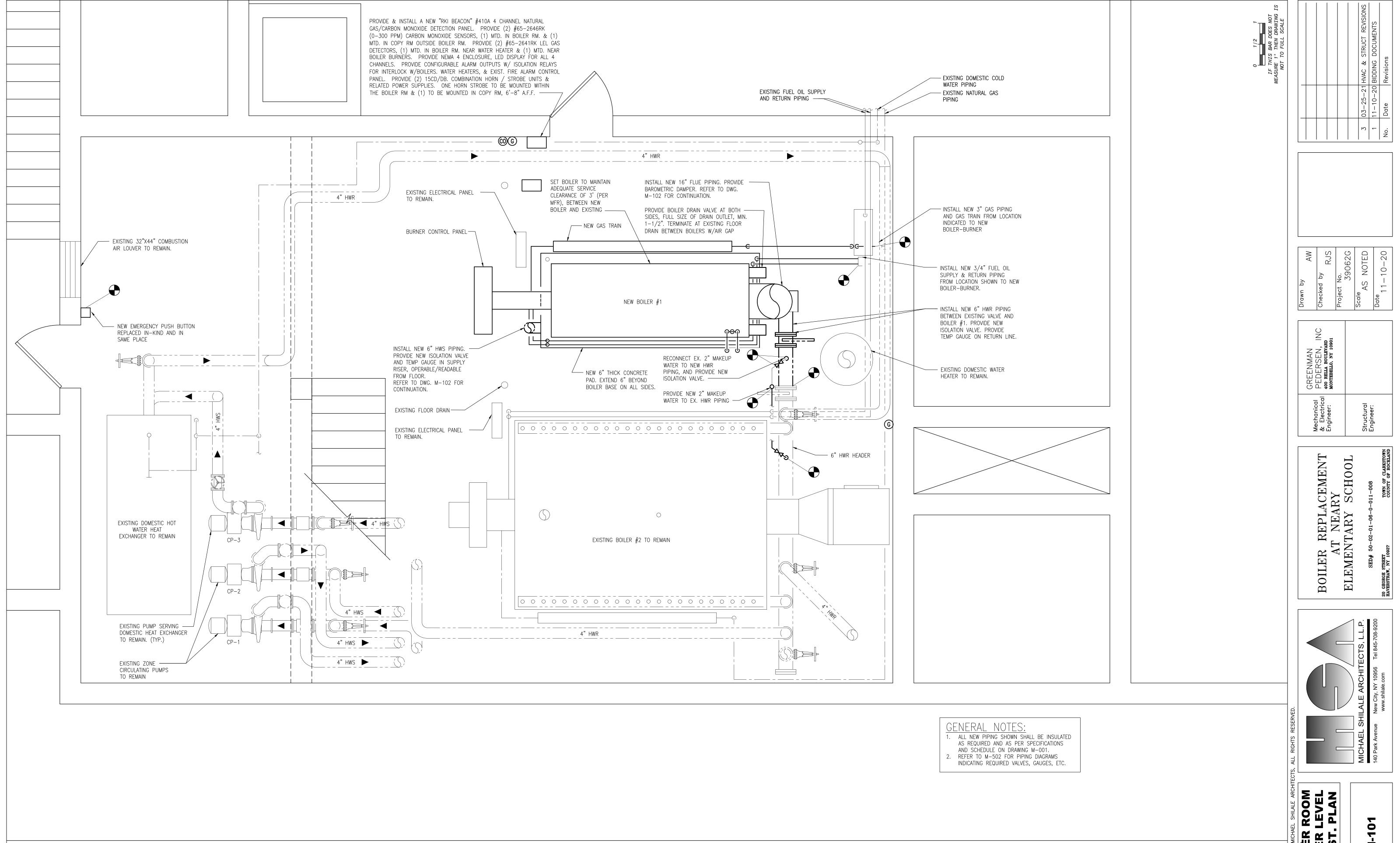


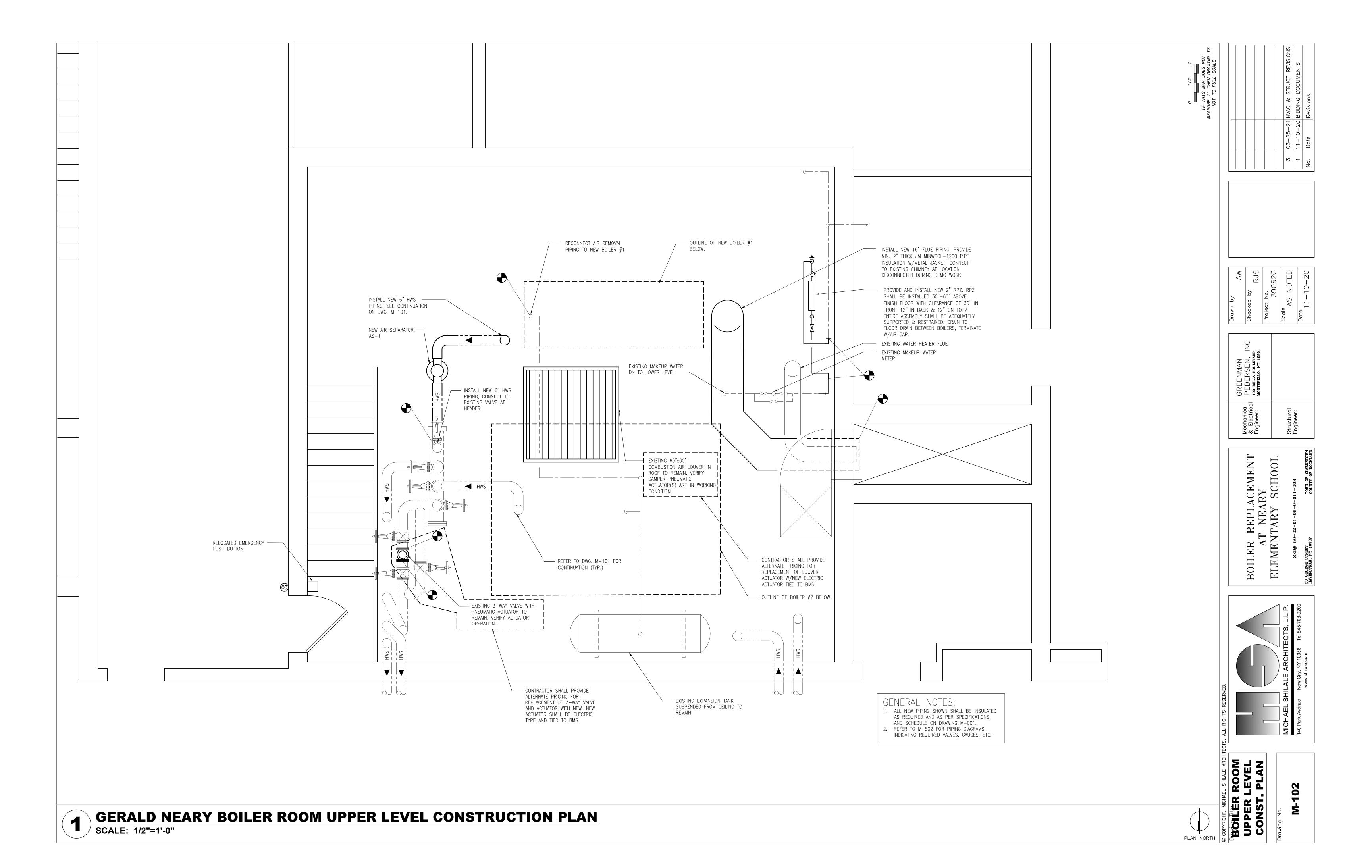


IOTE:

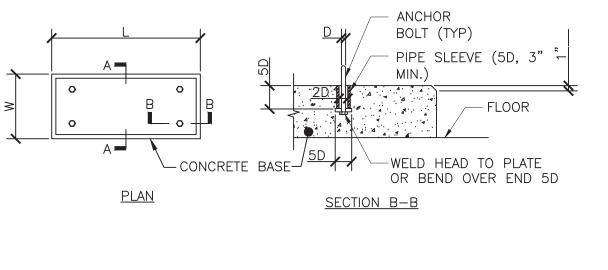


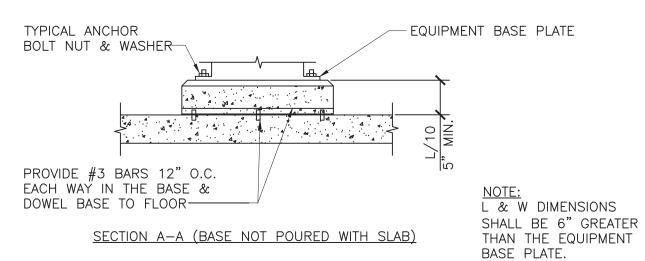




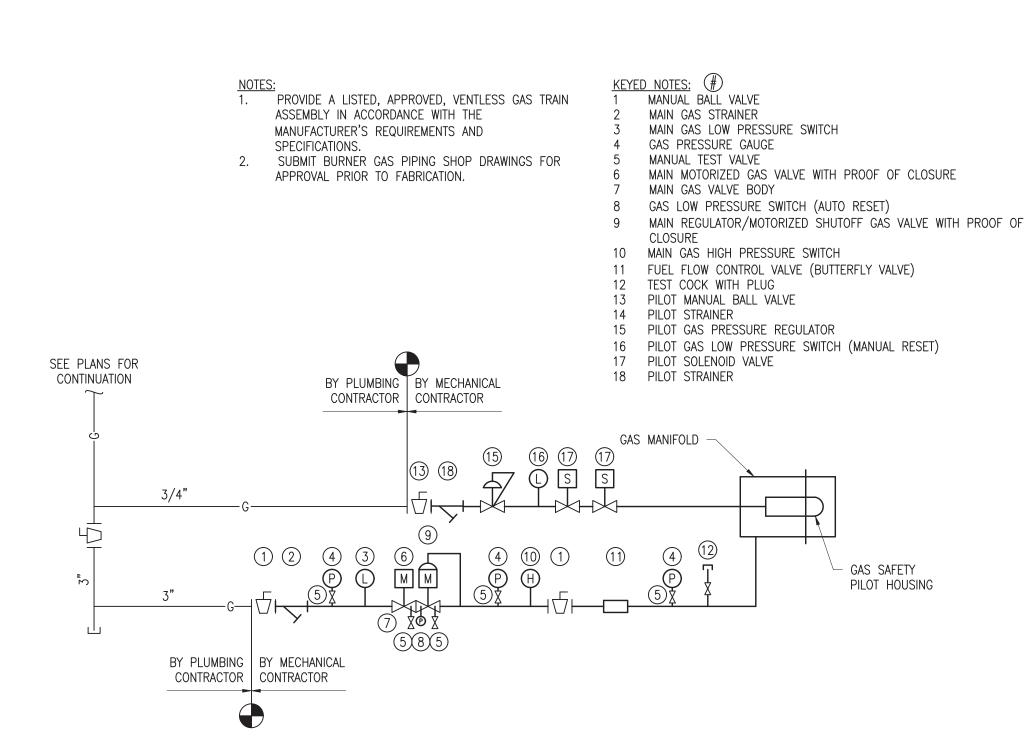




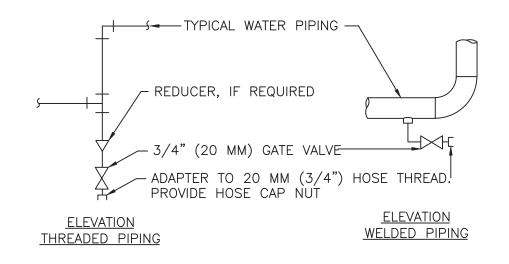




# 4 CONCRETE HOUSEKEEPING PAD SCALE: N.T.S.





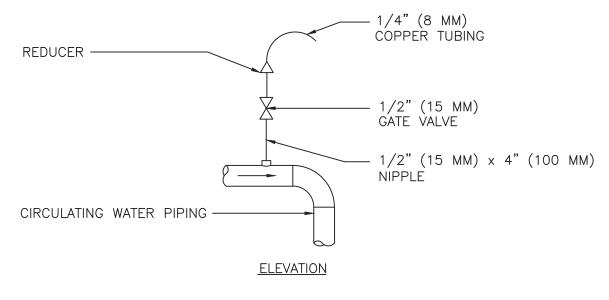


NOTES:

1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.

NOTES:

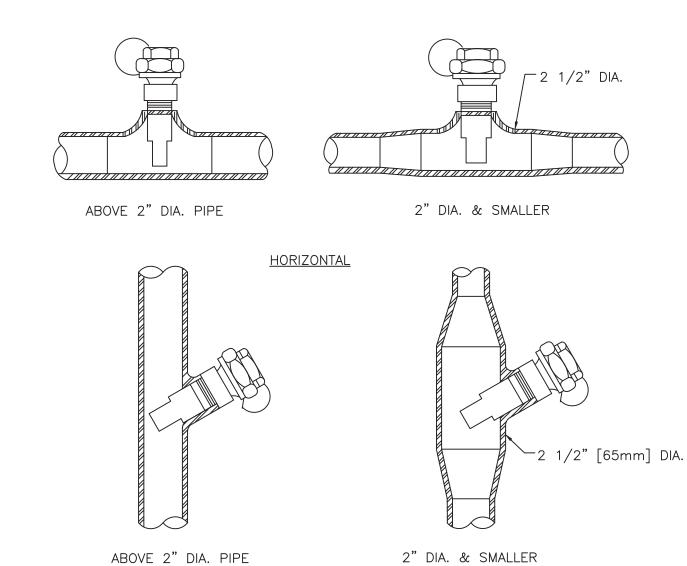
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

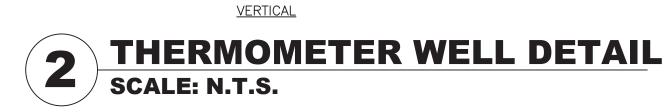


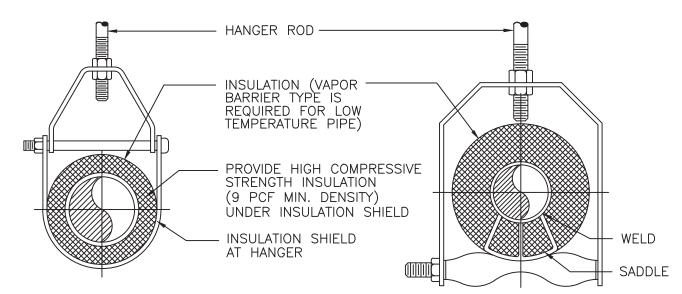
TYPICAL AIR VENT

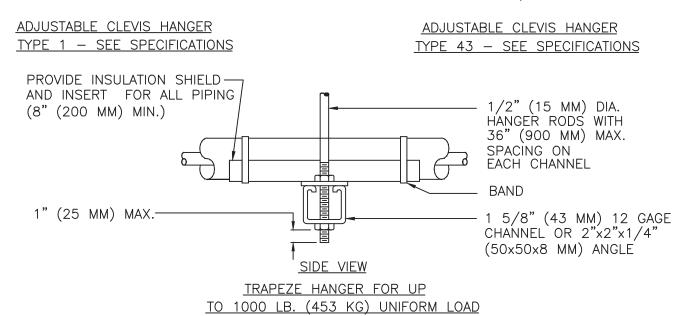
VENT ALL HIGH POINTS INDICATED ABOVE.
 IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN











TYPICAL PIPE HANGERS

PIPE HANGER DETAIL SCALE: N.T.S.

1 11-10-20 BIDDING DOCUMENTS
No. Date Revisions

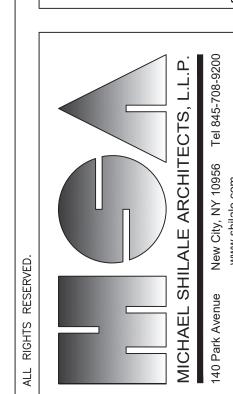
Checked by RJS
Project No. 39062G
Scale AS NOTED

Mechanical & Electrical PEDERSEN, INC & Electrical 400 RELLA BOULEVARD MONTEBELLO, NY 10901

Structural Engineer:

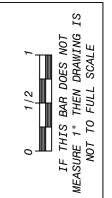
BOILER REPLACEMENT
AT NEARY
ELEMENTARY SCHOOL

SED# 50-02-01-008



DETAILS

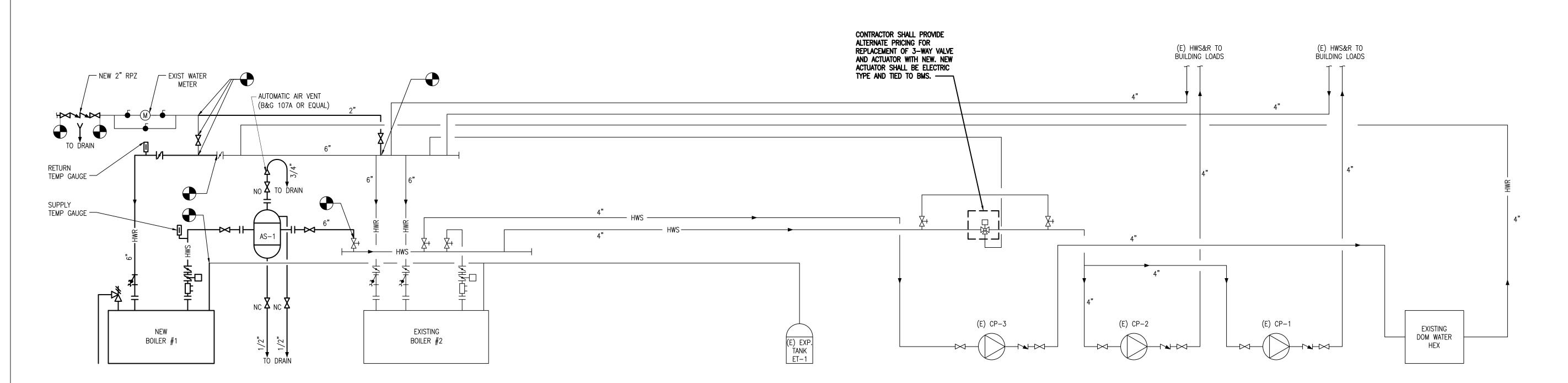
Drawing No.



### SEQUENCE OF OPERATIONS: A. GENERAL

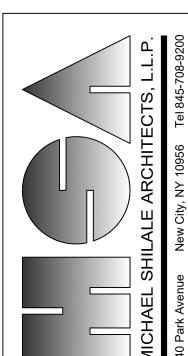
- 1. THE OCCUPANCY MODE (UNOCCUPIED OR OCCUPIED) SHALL BE DETERMINED THROUGH A USER-DEFINABLE TIME SCHEDULE. SUMMERTIME MODE SHALL INCLUDE TIMES DURING WHICH HEATING IS NOT REQUIRED.
- 2. ALL EXISTING BMS CONTROL POINTS SHALL BE REMOVED FROM EXISTING BOILER #1 AND REPLACED IN NEW BOILER #1. B. OCCUPIED MODE:
- 1. BOILER #1: BOILER #1 SHALL MODULATE TO MAINTAIN HOT WATER SUPPLY TEMPERATURE AT A SETPOINT OF 180°F
  - a. COMBUSTION AIR DAMPER: BOILER #1 SHALL BE INTERLOCKED WITH COMBUSTION AIR DAMPER. BOILER #1 SHALL NOT OPERATE UNLESS DAMPER IS PROVEN OPEN BY THE END SWITCH.
  - OPACITY CONTROLS: BOILER #1 SHALL BE EQUIPPED WITH CODE REQUIRED OPACITY CONTROLS. d. LOW RETURN WATER TEMPERATURE: WHENEVER THE HOT WATER RETURN TEMPERATURE FALLS BELOW 140°F (ADJ)
- AND BOILER BOILER #1 IS ENERGIZED, AN ALARM SHALL BE GENERATED. 2. EXISTING BOILER #2: BOILER #2 SHALL MODULATE TO MAINTAIN HOT WATER SUPPLY TEMPERATURE AT A SETPOINT OF
- a. COMBUSTION AIR DAMPER: BOILER #2 SHALL BE INTERLOCKED WITH COMBUSTION AIR DAMPER. BOILER #2 SHALL
- NOT OPERATE UNLESS DAMPER IS PROVEN OPEN BY THE END SWITCH.
- c. OPACITY CONTROLS: BOILER #2 SHALL BE EQUIPPED WITH CODE REQUIRED OPACITY CONTROLS. d. LOW RETURN WATER TEMPERATURE: WHENEVER THE HOT WATER RETURN TEMPERATURE FALLS BELOW 140°F (ADJ)
- AND BOILER BOILER #2 IS ENERGIZED, AN ALARM SHALL BE GENERATED. 3. FUEL SWITCHING/BOILER SELECTION:
- a. FUEL OIL MODE: WHEN #2 FUEL OIL IS THE DESIRED FUEL, THE FUEL OIL MODE SHALL BE USER SELECTED, AND THE DESIRED BOILER SHALL BE USER SELECTED TO OPERATE.
- b. NATURAL GAS MODE: WHEN NATURAL GAS IS THE DESIRED FUEL, THE NATURAL GAS MODE SHALL BE USER SELECTED, AND THE DESIRED BOILER SHALL BE USER SELECTED TO OPERATE.
- 4. OUTSIDE AIR TEMPERATURE RESET: a. HOT WATER SUPPLY TEMPERATURE SHALL BE AUTOMATICALLY RESET BASED ON THE OUTSIDE AIR TEMPERATURE.
- 1). HOT WATER SUPPLY TEMPERATURE MAY BE RESET TO 160°F (ADJ.). 2). OAT RESET MODE SHALL BE CANCELED IF THE PRIMARY HOT WATER RETURN TEMPERATURE DROPS TO 140°F
- WHENEVER BOILER #1 IS ENERGIZED. 5. BOILER LEAD-LAG CONTROL:
- a. PROVIDE NEW LEAD—LAG CONTROL SYSTEM TO ALTERNATE OPERATION OF BOILER #1 AND BOILER #2. b. THE LEAD-LAG SYSTEM SHALL BE CAPABLE OF AUTOMATICALLY ALTERNATING THE LEAD POSITION OF THE BOILERS.
- c. THE LEAD-LAG SYSTEM SHALL BE SETUP SUCH THAT NEW BOILER #1 IS THE LEAD BOILER FOR 80% OF RUNTIME HOURS AND THE LAG BOILER FOR THE REMAINING 20% OF RUNTIME. C. UNOCCUPIED MODE:
- 1. THE BOILERS SHALL MODULATE ACCORDING TO THE SAME SEQUENCES ABOVE. THE EXISTING PNEUMATIC TEMPERATURE CONTROL SYSTEM CONSISTS OF DUAL PRESSURE THERMOSTATS CAPABLE OF NIGHT SETBACK.
- 1. BOILER #1 AND BOILER #2 SHALL BE SHUTDOWN. DOMESTIC HOT WATER PROVIDED BY DOMESTIC WATER HEATER.

## SEQUENCE OF OPERATION SCALE: N.T.S.



HEATING HOT WATER PIPING SCHEMATIC SCALE: N.T.S.

BOILER REPLACEMENT AT NEARY ELEMENTARY SCHOOL



**DETAILS** 

## GENERAL NOTES

- 1. THE CONTRACTOR SHALL BE HELD TO HAVE VISITED THE PREMISES AND TO HAVE COMPARED THEIR OBSERVATIONS WITH THE DRAWINGS AND SPECIFICATIONS, AND TO HAVE VERIFIED THE EXISTING CONDITIONS THROUGHOUT THE BUILDING. LATER CLAIMS MADE BY THE CONTRACTOR FOR HAVING INCURRED EXTRA COSTS SHALL NOT BE CONSIDERED WITHOUT FIRST SECURING SUFFICIENT PROOF IN SUPPORT OF EVIDENCE OF SUCH EXTRA CLAIMS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY AREAS WHERE INSUFFICIENT INFORMATION IS AVAILABLE, OR WHERE IT CAN BE DOCUMENTED WITH PHOTOS, AND OTHER SUPPORTING INFORMATION THAT SUCH EVIDENCE WAS BEYOND THE MEANS OF THE CONTRACTOR AS JUDGED BY THE OWNER. FINAL JUDGMENT FOR SUCH CLAIMS SHALL BE BY THE OWNER.
- 2. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD, AND BE RESPONSIBLE FOR THE SAME PRIOR TO COMMENCING WORK. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER, THE ARCHITECT AND THE ENGINEER ON RECORD.
- 3. ALL ELECTRICAL WIRING SHALL ADHERE TO THE LATEST REVISION OF BOTH NATIONAL ELECTRICAL CODE AND THE NEW YORK STATE BUILDING CODES.
- 4. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE AND MOST RECENT EDITION OF THE STATE AND LOCAL CODES AND SHALL MEET THE REQUIREMENTS OF ALL OTHER AUTHORITIES, ORGANIZATIONS AND GOVERNMENT AGENCIES HAVING
- 5. THE WORK OF THIS CONTRACT IS TO BE PERFORMED WITH A HIGH LEVEL OF QUALITY. WORK WHICH IS, IN THE OPINION OF DESIGNATED REPRESENTATIVE NOT IN COMPLIANCE WITH THE HIGHEST RECOGNIZED INDUSTRY STANDARD FOR WORKMANSHIP OR WORK WHICH HAS BEEN DAMAGED BY FACILITY WORKMANSHIP, WILL BE REMOVED AND REPLACED, OR REPAIRED TO THE SATISFACTION OF THE OWNER.
- 6. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY TO COMPLETE THE WORK DESCRIBED HEREIN AND/OR AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER CONSTRUCTION SHALL BE INCLUDED AS IF THEY WERE ON THE DRAWINGS.
- 7. THE LOCATIONS SHOWN ON THE DRAWINGS INDICATE INTENT AND SHALL BE VERIFIED IN THE FIELD.
- 8. ALL HOLES MADE BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE PROPERLY PATCHED AND REPAIRED. ALL CONDUIT PENETRATIONS THROUGH FLOORS AND WALLS SHALL BE SEALED.
- 9. THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING AND REPAIRING AS REQUIRED TO PERFORM ALL WORK INDICATED ON THE DRAWINGS, AND ALL OTHER WORK THAT MAY BE REQUIRED TO COMPLETE THE JOB.
- 10. THE CONTRACTOR SHALL PROVIDE ALL PHYSICAL PROTECTION REQUIRED TO PROTECT ALL EQUIPMENT DURING CONSTRUCTION.
- 11. WHERE CONDUIT ROUTING HAS NOT BEEN SHOWN ON THE DRAWINGS, THE ROUTING OF POWER BRANCH CIRCUITS WILL BE AT THE CONTRACTOR'S DISCRETION AND THE OWNER APPROVAL IN ACCORDANCE WITH CODES AND SPECIFICATIONS.

## ELECTRICAL DEMOLITION NOTES:

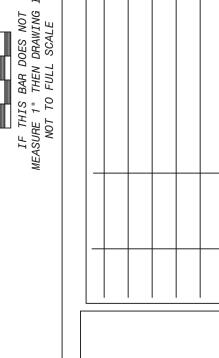
- 1. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF ELECTRICAL WORK AS DESCRIBED IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED. EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT.
- 2. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF POWER
- 3. THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE WITH FUNCTIONING ELECTRICAL SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
- 4. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL
- 5. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER DEVICES, COMPLETE WITH ASSOCIATED WIRING, CONDUITS, ETC., FROM PARTITIONS THAT ARE TO BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD.
- 6. ALL RACEWAYS WHICH BECOME EXPOSED DURING THE ALTERATION WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
- 7. ALL UNUSED OUTLET BOXES OR CAPPED FLOOR OUTLETS SHALL BE PROVIDED WITH MATCHING BLANK COVERS.
- 8. EXISTING PANEL DIRECTORIES AFFECTED BY THE ALTERATION WORK SHALL BE MODIFIED TO REFLECT THE BRANCH CIRCUIT WIRING CHANGES.
- 9. PORTIONS OF FEEDER RUNS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING ONES IN ALL RESPECTS, CABLE TYPE, CONDUCTOR AMPACITY, CONDUIT SIZES, ETC.
- 10. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW CLOSELY THE ARCHITECT'S DEMOLITION AND PHASING SCHEDULE AND PROCEED IN THE SPECIFIED SEQUENCE.
- 11. ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR, AS DIRECTED BY THE
- 12. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVER TIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
- 13. THE SHUTDOWN OF EXISTING BUILDING ELECTRICAL SERVICES SHALL BE COORDINATED WITH THE OWNER. MAKE ARRANGEMENTS AT LEAST 5 BUSINESS DAYS PRIOR TO A SHUTDOWN.

# ABBREVIATIONS

Α	AMPERE	LP	120/208V PANEL
AC	ALTERNATING CURRENT	LS	LOUDSPEAKER
ACS	ADMINISTRATIVE CONTROL STATION	LTG	LIGHTING
ADA	AMERICANS WITH DISABILITIES ACT	MATV	MASTER TELEVISION
AFF	ABOVE FINISHED FLOOR	MCC	MOTOR CONTROL CENTER
ARCH	ARCHITECTURAL	MECH	MECHANICAL
ATS	AUTOMATIC TRANSFER SWITCH	MER	MECHANICAL EQUIPMENT ROOM
A/C	AIR CONDITIONING	MIC	MICROPHONE
C	CONDUIT	MTD	MOUNTED
CAB	CABINET	N	NEUTRAL
CLG	CEILING	N.C.	NORMALLY CLOSED
CB	CIRCUIT BREAKER	N.O.	NORMALLY OPEN
CKT(S)	CIRCUIT(S)	0 & R	ORANGE AND ROCKLAND
COL	COLUMN	Р	POLE(S)
DWG	DRAWING	PB	PULL BOX
EC	EMPTY CONDUIT	PNL	PANEL
ELEC	ELECTRIC	PP	277/480V PANEL
EMR	ELEVATOR MECHANICAL ROOM	RC	REMOTE CONTROL
EMT	ELECTRIC METALLIC TUBING	SP	SPARE
EXH	EXHAUST	SSB	SOLID STATE BALLAST
EXIST	EXISTING	STD	STANDARD
FATB	FIRE ALARM TERMINAL BOX	SW	SWITCH
FL	FLOOR	SWBD	SWITCHBOARD
G	GUARD	TEL	TELEPHONE
GND	GROUND	TV	TELEVISION
GFI	GROUND FAULT INTERRUPTER	TYP	TYPICAL
GRC	GALVANIZED RIGID CONDUIT	V	VOLT
IG	ISOLATED GROUND	W	WATT
JB	JUNCTION BOX	WP	WEATHERPROOF
KVA	KILOVOLT AMPERE		
KW	KILOWATT		
KWH	KILOWATT HOUR		

## INSTALLATION NOTES

- CONTRACTOR SHALL PERMANENTLY FASTEN ALL THE EQUIPMENT AS INDICATED ON THE DRAWINGS IN AN APPROVED MANNER, WITH ALL NECESSARY HARDWARE.
- CONTRACTOR SHALL PROVIDE ALL CONDUITS, WIRING, OUTLET BOXES AND ALL ACCESSORIES NECESSARY TO COMPLETE THE WIRING TO ALL COMPONENTS OF THE SYSTEM. ALL CONNECTIONS SHALL BE MADE COMPLETE AND TESTED.

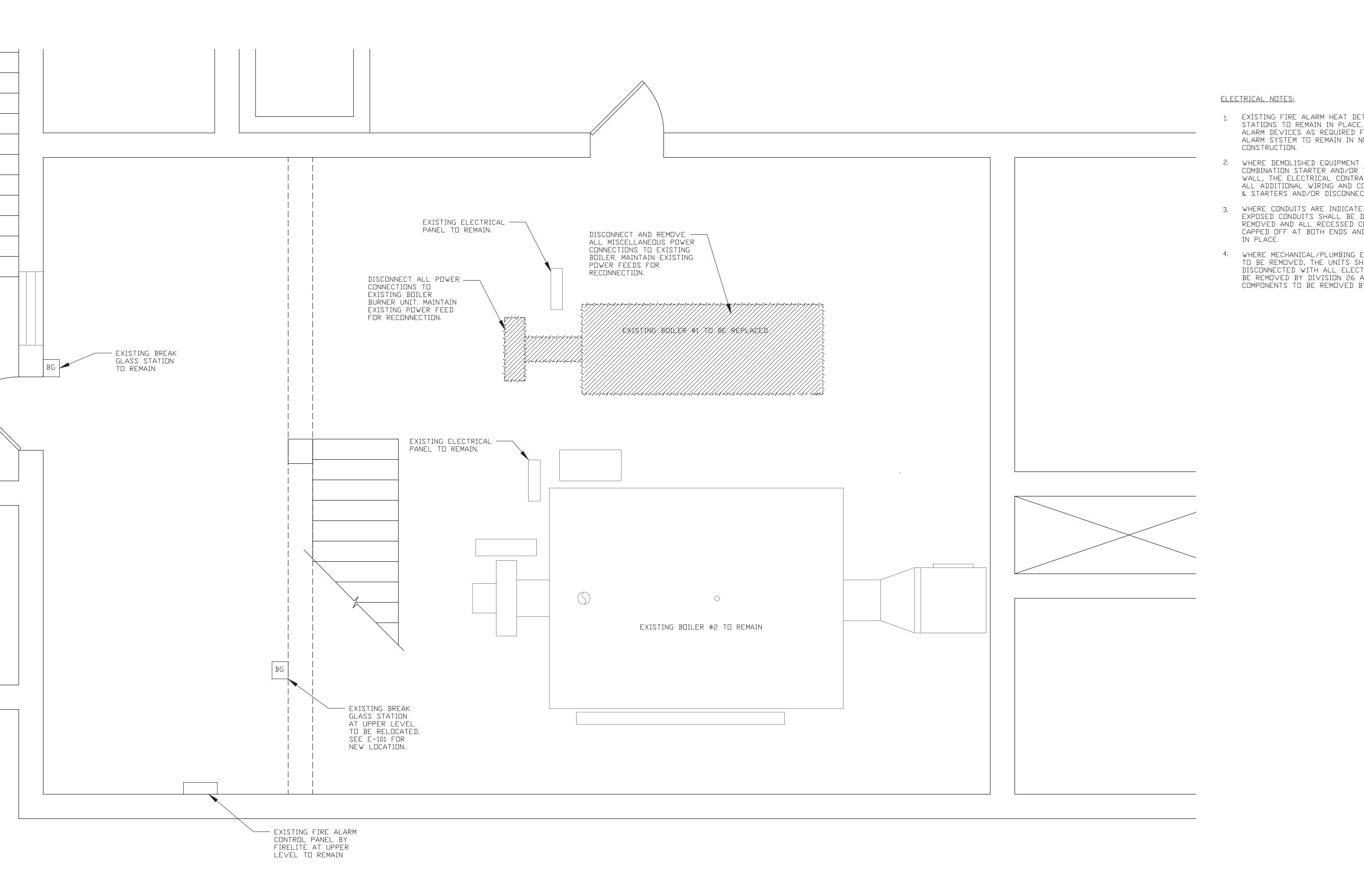


BOILER REPLACEMENT AT NEARY ELEMENTARY SCHOOL



NOTES SYMBOI

	SYMBOL LIST				
	NON-FUSED DISCONNECT SWITCH				
<u> </u>	WALL MOUNTED JUNCTION BOX				
J	CEILING MOUNTED JUNCTION BOX				
BGS	BREAK GLASS STATION				
Р	FIRE ALARM PULL STATION				
HSK	FIRE ALARM COMBINATION HORN/STROBE				
H	CEILING MOUNTED HEAT DETECTOR				
	HOMERUN				
	POWER PANELBOARD				
ТТ	GROUND BUS BAR				
	EMERGENCY BATTERY BACKUP UNIT				
⊗	WALL MOUNTED EXIT LIGHT FIXTURE				
	1x4 LED LUMINARIE				
\$	SINGLE POLE LIGHTING SWITCH				



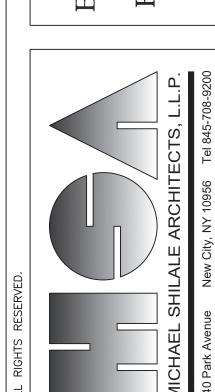
- 1. EXISTING FIRE ALARM HEAT DETECTORS / PULL STATIONS TO REMAIN IN PLACE. PROTECT ALL FIRE ALARM DEVICES AS REQUIRED FOR THE BUILDING FIRE ALARM SYSTEM TO REMAIN IN NORMAL SERVICE DURING
- 2. WHERE DEMOLISHED EQUIPMENT UTILIZING AN EXISTING COMBINATION STARTER AND/OR DISCONNECT FROM WALL, THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL ADDITIONAL WIRING AND CONDUIT BETWEEN PUMPS & STARTERS AND/OR DISCONNECTS.
- 3. WHERE CONDUITS ARE INDICATED TO BE REMOVED, ALL EXPOSED CONDUITS SHALL BE DISCONNECTED AND REMOVED AND ALL RECESSED CONDUITS SHALL BE CAPPED OFF AT BOTH ENDS AND SHALL BE ABANDONED
- 4. WHERE MECHANICAL/PLUMBING EQUIPMENT IS INDICATED TO BE REMOVED, THE UNITS SHALL BE ELECTRICALLY DISCONNECTED WITH ALL ELECTRICAL COMPONENTS TO BE REMOVED BY DIVISION 26 AND ALL MECHANICAL COMPONENTS TO BE REMOVED BY DIVISION 23.

				11-10-20 BIDDING DOCUMENTS	Revisions
				11-10-20	Date
				1	S C

) -	Checked by RJS	Project No. 39062G	Scale AS NOTED	Date

GREENMAN PEDERSEN, INC 400 rella boulevard Montebello, ny 10901	
Mechanical & Electrical Engineer:	Structural Engineer:

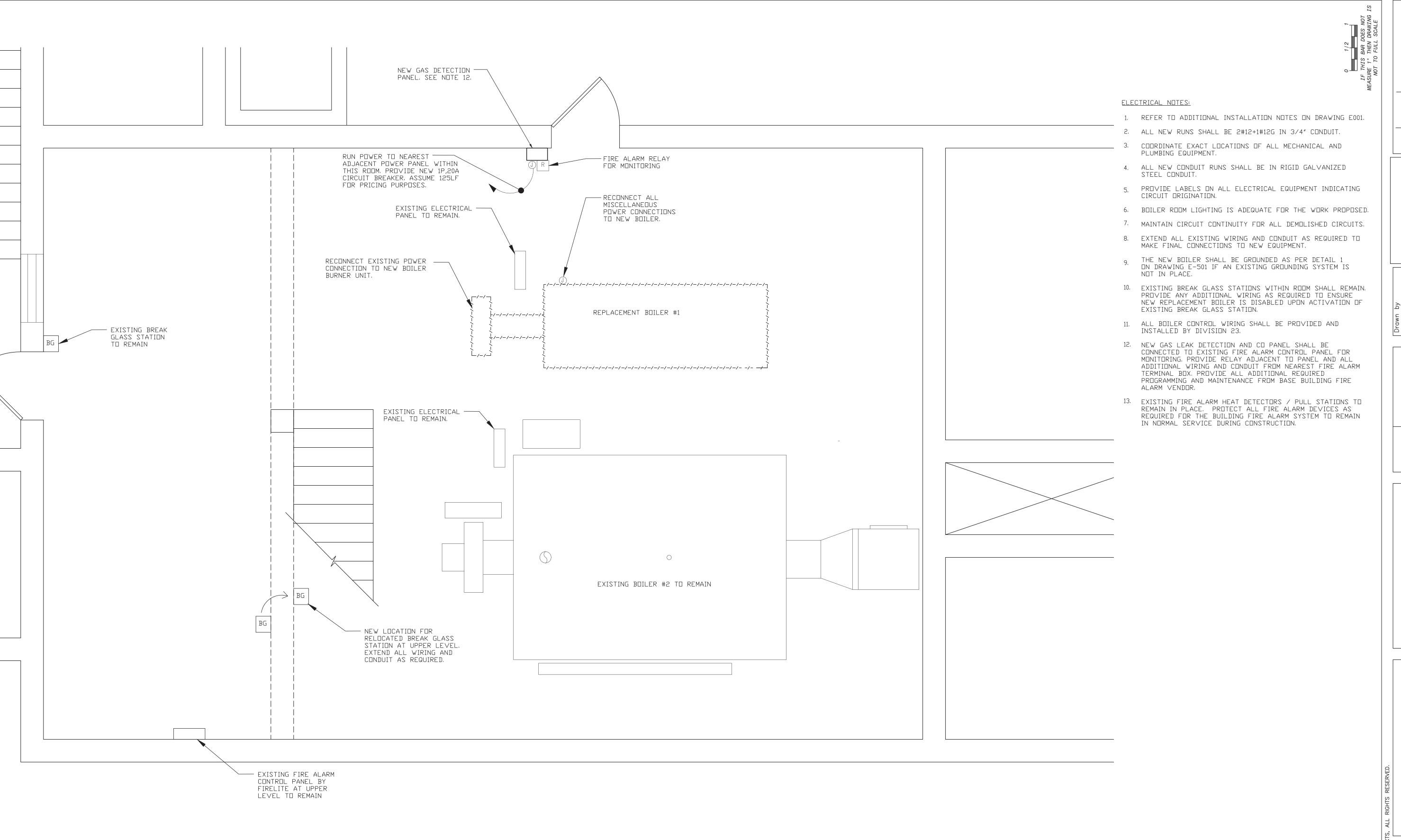
BOILER REPLACEMENT AT NEARY ELEMENTARY SCHOOL



BOTER ROOM
LOWER LEVEL
DEMO PLAN

GERALD NEARY BOILER ROOM LOWER LEVEL DEMOLITION PLAN

SCALE: 1/2"=1'-0"

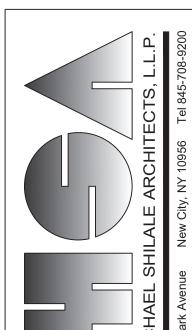


11-10-20 BIDDING DOCUMENT

recked by
RJS
oject No.
39062G
ale
AS NOTED

chanical PEDERSEN, INC 400 RELLA BOULEVARD 400 RELLA BOULEVARD 400 NT 10901 400 TEBELLO, NY 10901 400 TEBELLO,

BOILER REPLACEMENT
AT NEARY
ELEMENTARY SCHOOL



SHILALE ARCHITECTS, ALL RIGHTS RESERVED.

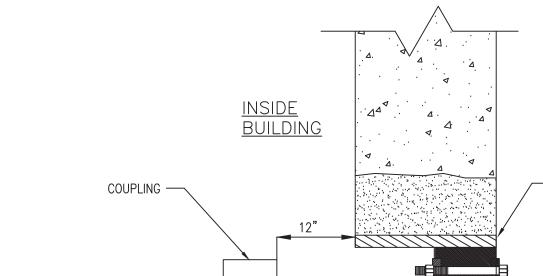
SOOM
LAN
MICHAEL SHILA

LOWER LEV
NEW PLAN

GERALD NEARY BOILER ROOM LOWER LEVEL NEW PLAN

SCALE: 1/2"=1'-0"



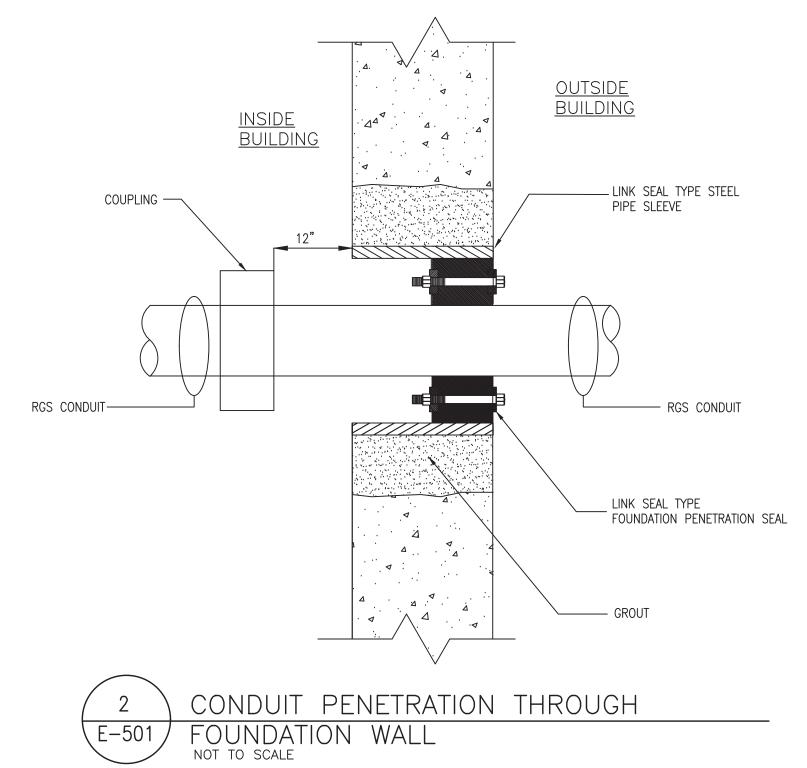


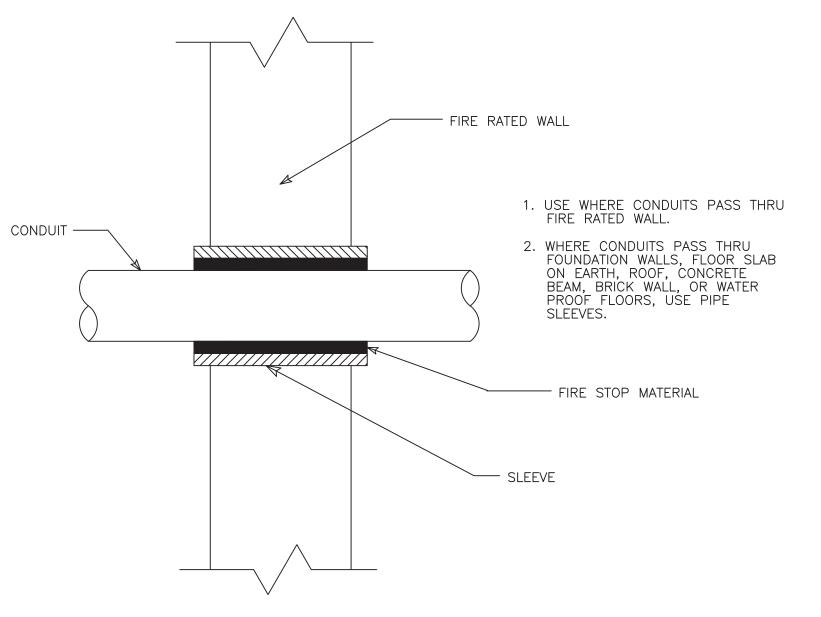


- 1. #2 COPPER CONDUCTOR SHALL BE CONNECTED TO THE STUDS PROVIDED BY THE BOILER VENDOR. (SEE CONTRACTOR'S SHOP DRAWINGS FOR EXACT LOCATION). BOILERS SHALL BE PROVIDED WITH GROUNDING STEEL STUDS FITTED WITH TWO NUTS WELDED TO THE FRONT AND REAR OF BOILERS.
- 2. NEW #2 COPPER CONDUCTOR IN 3/4" CONDUIT.
- 3. NEW #2 COPPER CONDUCTOR SHALL BE RUN TO EXISTING GROUND BUS BAR WITHIN NEAREST PANELBOARD (APPROXIMATELY 125LF)

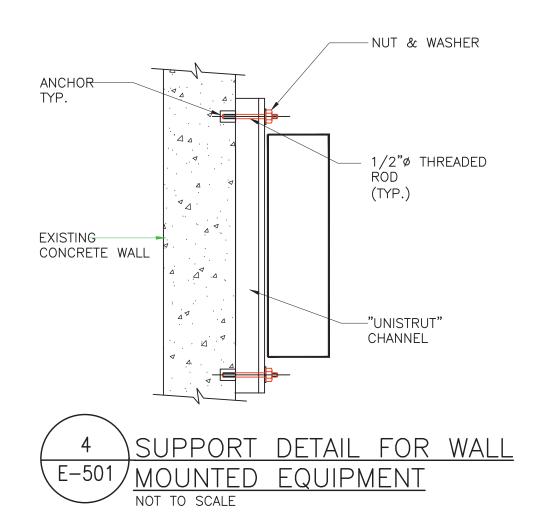


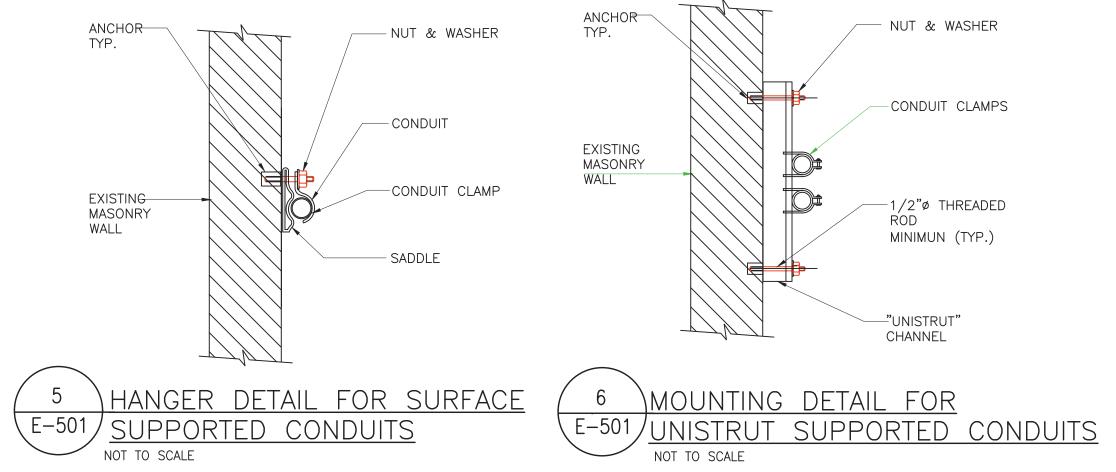
BOILER #1

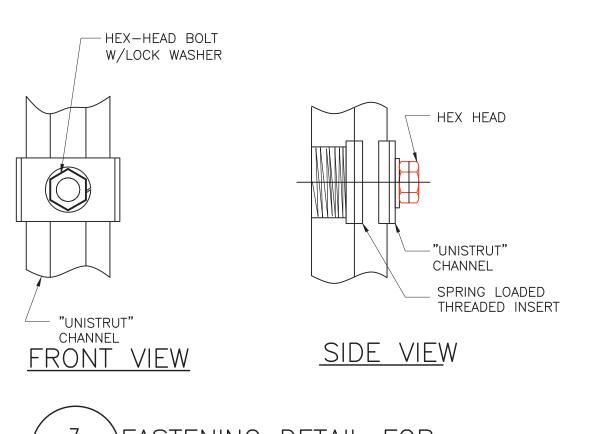




CONDUIT PENETRATION THROUGH FIRE RATED WALL NOT TO SCALE







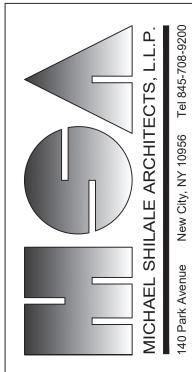
FASTENING DETAIL FOR E-501 UNISTRUT INSTALLATION

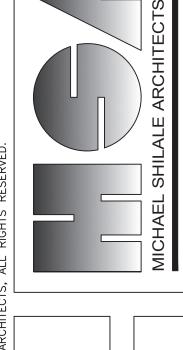
				10	
_				11-10-20 BIDDING DOCUMENTS	
				OOCUMENTS	

Checked by	RJS	Project No.	390626	Scale AS NOTED	Date 11 10 20

	Ö	۵	Ň	۵
GREENMAN	PEDERSEN, INC 400 relia boulevard Montebello, ny 10901			
	Mechanical & Electrical Engineer:		Structural	

BOILER REPLACEMENT AT NEARY ELEMENTARY SCHOOL





DETAILS