TOWN OF WEST HARTFORD

KING PHILIP MIDDLE SCHOOL

100 KING PHILIP DRIVE
WEST HARTFORD, CONNECTICUT 06119

HOT WATER CONVERSION

M/E/P ENGINEER
BEMIS ASSOCIATES LLC
185 MAIN STREET
FARMINGTON,CONNECTICUT
Phone: 860-667-3233
Fax: 860-321-7070

LIST OF DRAWINGS

COVER

MECHANICAL

M.0.0 MECHANICAL SYMBOL LIST, GENERAL NOTES, AND KEYED NOTES
M.0.1 MECHANICAL SCHEDULES

MD.0.1A TUNNEL PART PLAN WING A MECHANICAL DEMOLITION
MD.0.2A TUNNEL PART PLAN WING A AND CORE AREA MECHANICAL DEMOLITION

MD.1.1A BASEMENT PART PLAN WING A MECHANICAL DEMOLITION
MD.1.2A BASEMENT PART PLAN WING A MECHANICAL DEMOLITION
MD.1.1C BASEMENT PART PLAN CORE AREA MECHANICAL DEMOLITION
MD.1.2C BASEMENT PART PLAN CORE AREA MECHANICAL DEMOLITION
MD.1.3C FAN ROOMS PART PLANS CORE AREA MECHANICAL DEMOLITION
MD.1.1B BASEMENT PART PLAN WING B MECHANICAL DEMOLITION

MD.2.1A FIRST FLOOR PART PLAN WING A MECHANICAL DEMOLITION
MD.2.2A FIRST FLOOR PART PLAN WING A MECHANICAL DEMOLITION
MD.2.1C FIRST FLOOR PART PLAN CORE AREA MECHANICAL DEMOLITION
MD.2.2C FIRST FLOOR PART PLAN CORE AREA MECHANICAL DEMOLITION
MD.2.1B FIRST FLOOR PART PLAN WING B MECHANICAL DEMOLITION

M.0.1A TUNNEL PART PLAN WING A MECHANICAL
M.0.2A TUNNEL PART PLAN WING A AND CORE AREA MECHANICAL

M.1.1A BASEMENT PART PLAN WING A MECHANICAL
M.1.2A BASEMENT PART PLAN WING A MECHANICAL
M.1.1C BASEMENT PART PLAN CORE AREA MECHANICAL
M.1.2C BASEMENT PART PLAN CORE AREA MECHANICAL
M.1.3C BASEMENT, FIRST FLOOR AND FAN ROOMS PART PLANS CORE AREA MECHANICAL
M.1.1B BASEMENT PART PLAN WING B MECHANICAL

M.2.1A FIRST FLOOR PART PLAN WING A MECHANICAL
M.2.2A FIRST FLOOR PART PLAN WING A MECHANICAL
M.2.1C FIRST FLOOR PART PLAN CORE AREA MECHANICAL
M.2.2C FIRST FLOOR PART PLAN CORE AREA MECHANICAL
M.2.1B FIRST FLOOR PART PLAN WING B MECHANICAL

M.3.1 BOILER ROOM DEMOLITION AND NEW WORK PH1 MECHANICAL
M.3.2 BOILER ROOM DEMOLITION AND NEW WORK PH2 MECHANICAL

M.4.1 BOILER ROOM PIPING DIAGRAM DEMOLITION AND NEW WORK PH1 & PH2

M.5.1 MECHANICAL CONTROLS DIAGRAMS

M.6.1 MECHANICAL DETAILS
M.6.2 MECHANICAL DETAILS

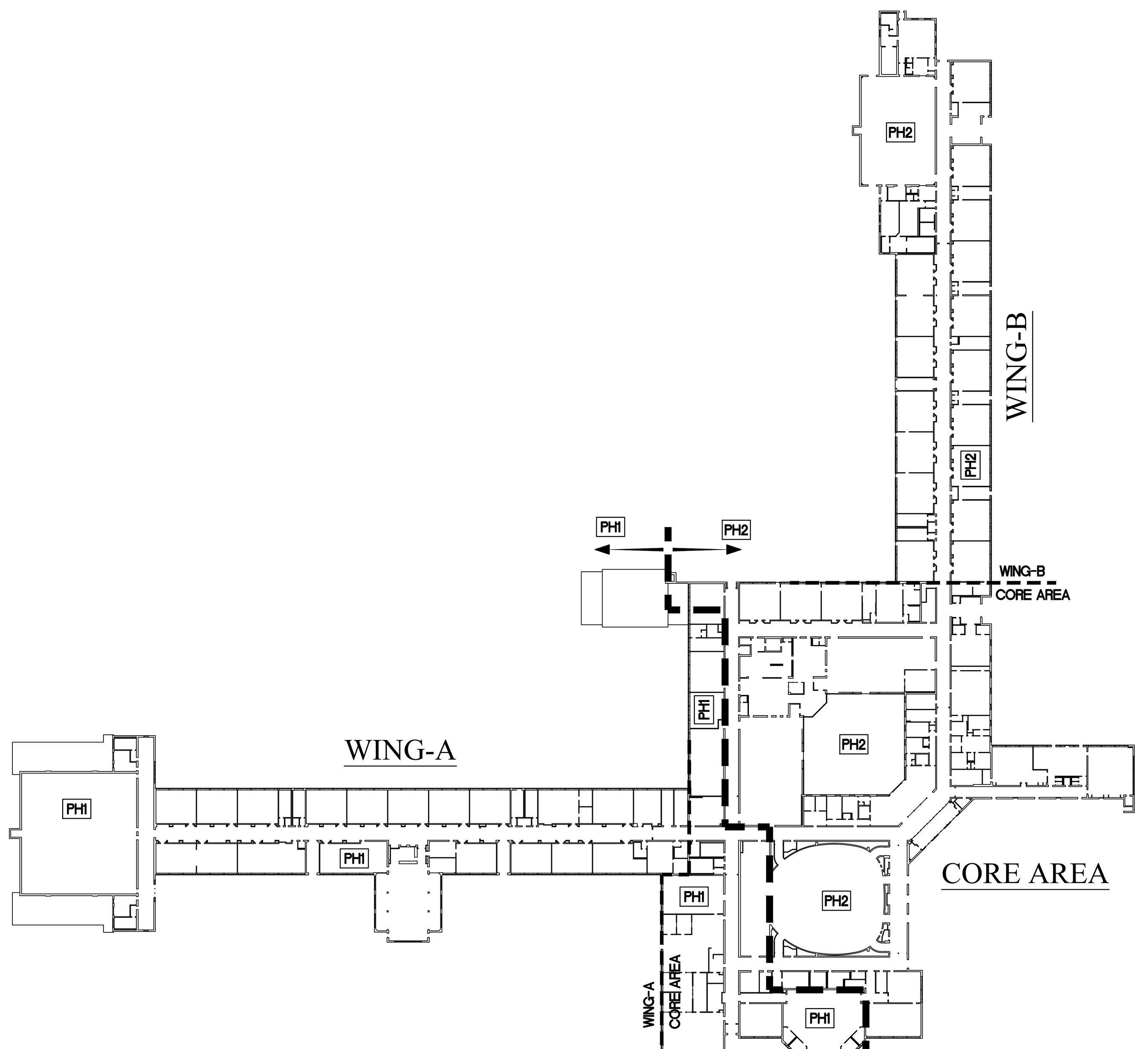
ELECTRICAL

E.0.0 ELECTRICAL GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS
E.0.1 ELECTRICAL RISER DIAGRAM
E.0.2 ELECTRICAL DETAILS

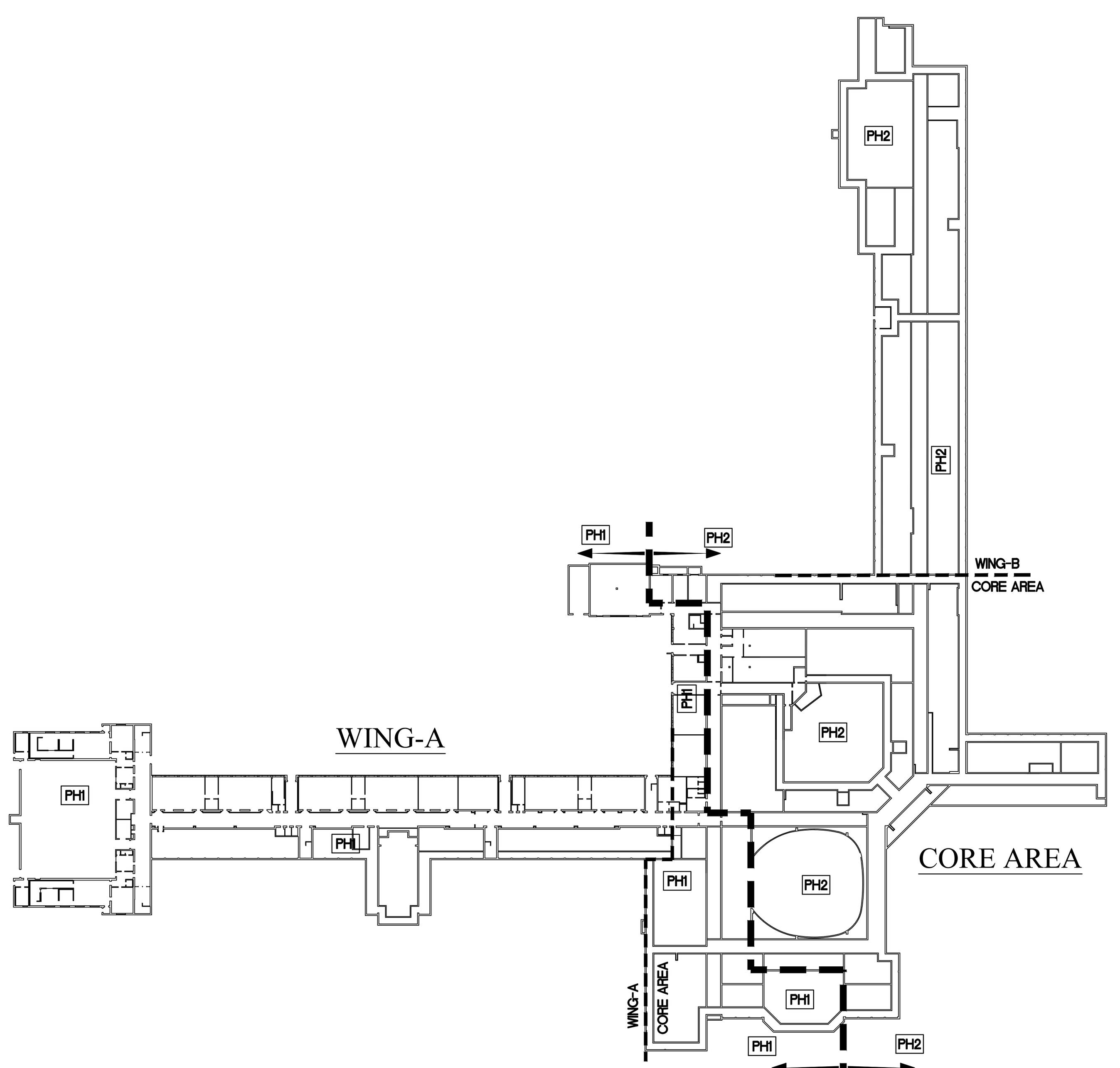
E.1.1 BASEMENT PART PLAN ELECTRICAL NEW AND DEMOLITION WORK
E.1.2 FIRST FLOOR PART PLANS ELECTRICAL NEW AND DEMOLITION WORK
E.1.3 PENTHOUSE PARTIAL FLOOR PLANS ELECTRICAL NEW WORK

E.2.1 ELECTRICAL BOILER ROOM DEMOLITION AND NEW WORK PH1
E.2.2 ELECTRICAL BOILER ROOM DEMOLITION AND NEW WORK PH2

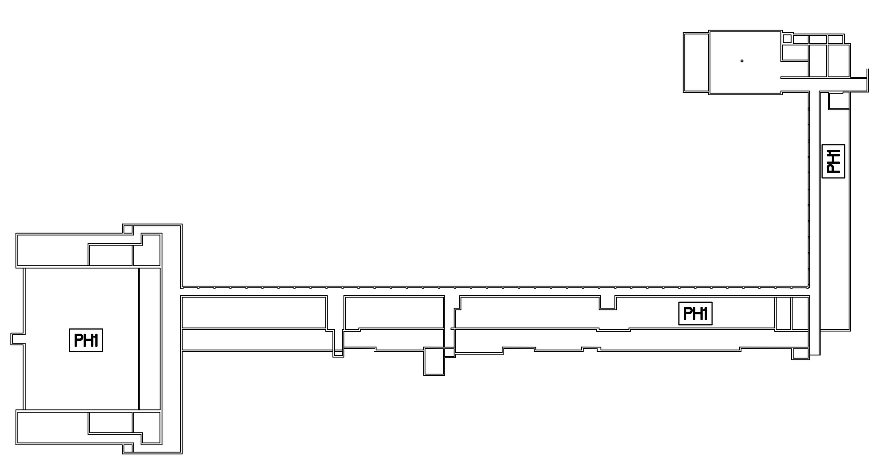
02/14/2020



FIRST FLOOR KEY PLAN



BASEMENT KEY PLAN



TUNNEL KEY PLAN

DEMOLITION WORK BOILER ROOM KEYED NOTES.

KEY NOTES DESCRIBE IN GENERAL THE SCOPE OF EQUIPMENT REMOVED. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH NEW WORK PLANS PRIOR TO REMOVING THE ITEM.

(1) EXISTING CONDENSING WATER HEATER AND ACCESSORIES SHALL REMAIN.
(2) EXISTING THERMOSTATIC MIXING VALVE SHALL REMAIN.
(3) REMOVE STEAM AND CONDENSATE PIPING.
(4) EXISTING DOMESTIC WATER CIRCULATING PUMP SHALL REMAIN.
(5) EXISTING HOT WATER STORAGE TANK AND ASSOCIATED PIPING SHALL BE REMOVED. CAP REMAINING PIPING AT MAIN AND MAKE SAFE.
(6) EXISTING DOMESTIC WATER STORAGE TANK STAND SHALL BE REMOVED.
(7) EXISTING OIL TRANSFER PUMP AND ASSOCIATED OIL PUMP CONTROLS AND ACCESSORIES SHALL BE REMOVED.
(8) REMOVE EXISTING OIL PIPING IN THE TRENCH AND TO THE WALL DISPOSE OF EXISTING OIL IN THE PIPES IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
(9) REMOVE TRENCH COVER PLATE. REMOVE FLOOR DRAIN INSIDE THE PIPE TRENCH EXTEND PIPE ASSOCIATED WITH THE FLOOR DRAIN LOCATED INSIDE THE TRENCH AND PROVIDE NEW FLOOR DRAIN FLUSH WITH THE FLOOR (CONTRACTOR SHALL FIELD VERIFY LOCATION AND SIZE). FILL TRENCH DRAIN WITH CONCRETE AND MAKE FLUSH WITH FLOOR (PH2).
(10) REMOVE EXISTING GAS PIPE. CAP REMAINING FOR FUTURE CONNECTION. PROVIDE NEW HANGERS TO SUPPORT REMAINING PIPE.
(11) EXISTING LOUVER SHALL REMAIN. PROVIDE NEW INSULATED COMBUSTION AIR PLENUM WITH DIVIDERS FOR EACH BOILER.
(12) EXISTING COMBUSTION AIR LOUVER DAMPERS AND PLENUM SHALL BE TEMPORARILY REMOVED TO ALLOW FOR REMOVAL OF EXISTING BOILER AND STORAGE TANK. PROVIDE TEMPORARY OPENING PROTECTION. STORE, LOUVER AND PLENUM AT A SAFE LOCATION. REINSTALL LOUVER AND PLENUM IN THE SAME LOCATION. RECONNECT POWER AND CONTROLS.
(13) EXISTING HEAT TRANSFER PACKAGE AND ASSOCIATED STEAM PIPING AND CONTROLS SHALL BE REMOVED. CAP REMAINING STEAM PIPING AT MAIN AND MAKE SAFE. CAP HOT WATER PIPING FOR FUTURE CONNECTION.
(14) EXISTING BASE MOUNTED PUMP SHALL REMAIN. MEASURE AND RECORD WATER FLOWS AND PUMP HEAD PRIOR TO ANY DEMOLITION WORK PERFORMED IN THIS SPACE.
(15) EXISTING AIR SEPARATOR, SHOT FEEDER AND EXPANSION TANK SHALL REMAIN.
(16) EXISTING VARIABLE FREQUENCY DRIVE ASSOCIATED WITH THE HOT/CHILLED WATER PUMP SHALL REMAIN.
(17) EXISTING AIR COMPRESSOR SHALL REMAIN.
(18) EXISTING STEAM BOILER AND ASSOCIATED PIPES AND ACCESSORIES SHALL BE REMOVED. CAP REMAINING REGULATOR VENT PIPES AT CEILING FOR FUTURE CONNECTION.
(19) REMOVE BREACHING. CAP REMAINING.
(20) REMOVE CONCRETE PAD. REPAIR FLOOR.
(21) EXISTING 3-WAY VALVE SHALL BE REMOVED.
(22) EXISTING SUMP PUMP AND CONTROLS SHALL REMAIN.
(23) EXISTING CONDENSATE RECEIVER ASSOCIATED PIPING AND ACCESSORIES SHALL BE REMOVED. (PH2)
(24) EXISTING CONDENSATE PUMP, ASSOCIATED PIPING AND ACCESSORIES SHALL BE REMOVED. (PH2)
(25) EXISTING CHEMICAL FEEDER SHALL BE REMOVED.
(26) EXISTING STEAM HEADER SHALL REMAIN. CAP THE BRANCHES.
(27) EXISTING CONDENSATE PIPING AND TRAPS SHALL BE REMOVED.
(28) REMOVE EXISTING STEAM AND CONDENSATE PIPING. (PH1)
(29) EXISTING FLASH TANK AND ASSOCIATED PIPING SHALL BE REMOVED PATCH TO MATCH ROOF OPENING.
(30) EXISTING CHIMNEY SHALL BE REMOVED DOWN TO 3'-0"(+/_) ABOVE EXISTING ROOF. PROVIDE REINFORCED, INSULATION, DOUBLE PITCHED STAINLESS STEEL CAP. SEAL AND SECURE CAP TO REMAINING CHIMNEY.
(31) CLEAN INSIDE THE CHIMNEY.
(32) REMOVE COMBUSTION AIR LOUVER PLENUM. PROVIDE INSULATED PANEL TO COVER REMAINING LOUVER.
(33) EXISTING CHILLER SHALL REMAIN.
(34) REMOVE AND REPLACE AN EXISTING PIPE INSULATION ON PIPING THAT REMAINS (DOMESTIC COLD, HOT, RECIRC. HOT WATER, HOT/CHILLED WATER) AND EQUIPMENT.

DEMOLITION WORK MECHANICAL DRAWING KEYED NOTES.

KEY NOTES DESCRIBE IN GENERAL THE SCOPE OF EQUIPMENT REMOVED. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH NEW WORK PLANS PRIOR TO REMOVING THE ITEM.

1. EXISTING PNEUMATIC THERMOSTAT SHALL BE REMOVED. CAP/SEAL TIGHT REMAINING AIR PIPE. PROVIDE BACK PLATE TO COVER REMAINING THERMOSTAT LOCATION.
2. EXISTING A/C UNIT AND CONTROLS SHALL REMAIN.
3. EXISTING STEAM FIN-TUBE RADIATION AND ACCESSORIES (VALVES, STEAM TRAPS) SHALL BE REMOVED AND REPLACED. EXISTING RADIATION COVER AND BRACKETS SHALL REMAIN AND SHALL BE REUSED. REMOVE EXISTING CRADELS. TEMPORARILY STORE RADIATION COVER AT A SAFE LOCATION. PROVIDE NEW BRACKETS AND CRADES WITH PLASTIC INSERT.
4. EXISTING STEAM FIN-TUBE RADIATION SHALL BE ABANDONED IN PLACE.
5. EXISTING STEAM CABINET UNIT HEATER AND ACCESSORIES (VALVES, STEAM TRAPS) SHALL BE REMOVED AND REPLACED. MAKE SAFE ELECTRICAL CONNECTIONS. PATCH AND PAINT TO MATCH WALL.
6. EXISTING STEAM CONVECTOR ELEMENT AND ACCESSORIES (VALVES AND STEAM TRAPS) SHALL BE REMOVED AND REPLACED. EXISTING CONVECTOR COVER AND BRACKETS SHALL REMAIN AND SHALL BE REUSED. REMOVE EXISTING CRADELS. TEMPORARILY STORE CONVECTOR COVER AT A SAFE LOCATION. PROVIDE NEW BRACKETS AND CRADELS.
7. EXISTING STEAM UNIT HEATER AND ACCESSORIES (VALVES, STEAM TRAPS) SHALL BE REMOVED AND REPLACED. MAKE SAFE ELECTRICAL CONNECTIONS.
8. EXISTING STEAM UNIT VENTILATOR AND ACCESSORIES (VALVES, STEAM TRAPS) SHALL BE REMOVED AND REPLACED. EXISTING WALL LOUVER SHALL REMAIN. PROVIDE SHEET METAL PLENUM TO CONNECT UNIT VENTILATOR FRESH AIR INTAKE TO EXISTING OUTDOOR LOUVER. MAKE SAFE ELECTRICAL CONNECTIONS. PATCH AND PAINT TO MATCH WALL
9. EXISTING STEAM COIL AND ACCESSORIES (VALVES, STEAM TRAPS) ASSOCIATED WITH EXISTING AIR HANDLING UNIT SHALL BE REMOVED AND REPLACED.
10. EXISTING AIR HANDLING UNIT SHALL REMAIN. MEASURE AND RECORD EXISTING AIR FLOW AND PRESSURE DROP PRIOR TO ANY DEMOLITION WORK. REPLACE FILTERS, LUBRICATE MOTOR, REPLACE BELTS, REBALANCE.
11. EXISTING STEAM PIPE, PIPE INSULATION AND HANGERS SHALL BE REMOVED. PATCH PAINT TO MATCH REMAINING.
12. EXISTING CONDENSATE PIPING, PIPE INSULATION, TRAPS AND HANGERS SHALL BE REMOVED. PATCH PAINT TO MATCH REMAINING.
13. EXISTING SPLINE CEILING SHALL BE REMOVED TO ALLOW ACCESS TO PIPING THAT NEEDS TO BE ABATED. REMOVE AND REPLACE LIGHTS FIXTURES. TEMPORARILY REMOVE AND REINSTALL SPEAKERS AND FIRE ALARM DEVICES. STORE EQUIPMENT THAT WAS TEMPORARILY REMOVED, AT A SAFE LOCATION. PROVIDE NEW 2x2 CEILING.
14. EXISTING SPLINE CEILING SHALL BE REMOVED. PROVIDE NEW 2x2 LAY-IN CEILING
15. REMOVE DUCTWORK TO ALLOW FOR INSTALLATION OF NEW REHEAT COIL. MEASURE AND RECORD AIR FLOW PRIOR TO ANY DEMOLITION. REPLACE FILTERS, LUBRICATE MOTOR, REPLACE BELTS, REBALANCE.
16. EXISTING SPLINE CEILING AND LIGHT FIXTURE IN THIS AREA SHALL BE REMOVED. TEMPORARILY REMOVE AND REINSTALL SPEAKERS AND FIRE ALARM DEVICES. STORE EQUIPMENT THAT WAS TEMPORARILY REMOVED AT A SAFE LOCATION. PROVIDE NEW 2x2 LAY IN CEILING
17. EXISTING STEAM FIN-TUBE RADIATION AND ACCESSORIES (VALVES, STEAM TRAP COVER AND BRACKETS) SHALL BE REMOVED AND REPLACED. PATCH AND PAINT TO MATCH WALL.
18. EXISTING STEAM AND CONDENSATE PIPE CONCEALED IN CHASE/WALL SHALL BE ABANDONED IN PLACE.
19. EXISTING STEAM, CONDENSATE AND STEAM TRAPS PIPING, INCLUDING SUPPORTS (IN TUNNELS) SHALL BE REMOVED AND DISPOSED BY THE HAZARDOUS MATERIALS ABATEMENT CONTRACTOR. HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL CUT PIPES AT TUNNEL CEILING.
20. REMOVE ONE LOCKER IN THE CORNER. PROVIDE METAL PIPE ENCLOSURE TO REPLACE LOCKER.
21. REMOVE SANITARY LINE AT THE CEILING (6'-0"+/-) CAP AND SEAL REMAINING PIPE. PATCH TO MATCH. PROVIDE SPLINE TILE TO MATCH EXISTING.
22. HAZARDOUS MATERIALS ABATEMENT CONTRACTOR SHALL REMOVE EXISTING STEAM AND CONDENSATE RISERS, PIPE INSULATION AND PIPE ENCLOSURE AND CUT PIPES AT FLOOR ABOVE PENETRATION.
23. CUT EXISTING RADIATION ENCLOSURE AT WALL PENETRATION. PROVIDE TRIM PIECE TO MATCH EXISTING RADIATION ENCLOSURE
24. EXISTING STEAM FAN COIL UNIT AND ACCESSORIES (VALVES, STEAM TRAPS) SHALL BE REMOVED AND REPLACED. MAKE SAFE ELECTRICAL CONNECTIONS. MATCH AND PAINT TO MATCH WALL.
25. EXISTING STEAM FIN-TUBE RADIATION AND ACCESSORIES SHALL BE REMOVED. PATCH TO MATCH WALL, PAINT.

PIPING GENERAL NOTES

1. INSTALL PIPES IN SUCH A WAY THAT WILL ALLOW EASY ACCESS TO VALVES. IN GENERAL, PIPES SHALL RUN BELOW DUCTS.
2. PROVIDE AIR VENTS AT ALL HIGH POINTS.
3. INSTALL DRAIN VALVES WITH HOSE CONNECTION AT ALL LOW POINTS.
4. PROVIDE HOSE END CAPS WITH CHAIN ON ALL DRAIN VALVES AND AIR VENTS.
5. DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES BEFORE WORK BEGINS.
6. ALL TESTS SHALL BE COMPLETED BEFOR ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED
7. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE AND DOWNSTREAM AS RECOMMENDED BY MANUFACTURER FOR GOOD ACCURACY.
8. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOP)
9. PROVIDE CHAINWHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOM MOUNTED GREATER THAN 7'-0" ABOVE FLOOR LEVEL; CHAIN SHALL EXTEND TO 7'-0" ABOVE FLOOR LEVEL.
10. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
11. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
12. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS, CHILLERS, COOLING TOWERS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION, FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE, OR AS INDICATED ON THE DRAWINGS.
13. CONNECTION TO MAIN SHALL BE FROM THE BOTTOM OF SIDE OF THE MAINS
14. PILOT OPERATED DIFFERENTIAL PRESSURE CONTROLLER VALVE ASSEMBLY SHALL BE PROVIDED WITH ALL REQUIRED ACCESSORIES IN ACCORDENACE WITH MANUFACTURER RECOMMENDATIONS.

DEMOLITION WORK - GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITY LINES INCLUDING ELECTRICAL, SEWER, WATER, GAS, TELEPHONE, ETC.
2. THE DRAWINGS SHOW DIAGRAMMATICALLY THE APPROXIMATE LOCATION OF UTILITIES WHERE INFORMATION IS AVAILABLE, BUT THE DRAWINGS ARE NOT EXACT AS TO THE QUANTITY, EXTENT OR LOCATION. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL PHASES OF THE WORK TO LOCATE, IDENTIFY, AND PROTECT EXISTING UTILITIES. THE CONTRACTOR SHALL RECORD LOCATION OF AND REPAIR DAMAGE TO EXISTING UTILITIES WHICH ARE ENCOUNTERED AS A RESULT OF WORK UNDER THIS CONTRACT.
3. ANY EQUIPMENT REMOVED DURING DEMOLITION WORK MAY BE RETAINED BY THE OWNER AT HIS OPTION. ANY SUCH MATERIAL SHALL BE STORED IN THE BUILDING AT A LOCATION DESIGNATED BY THE OWNER. REMOVAL OF SUCH MATERIAL FROM THE JOB SITE SHALL BE THE OWNER'S RESPONSIBILITY.
4. COORDINATE ALL DEMOLITION WORK WITH THE REQUIREMENTS OF THE NEW SCOPE OF WORK.
5. PRIOR TO SUBMITTING HIS BID, CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. CONTRACTOR SHALL MEASURE, RECORD AND SUBMIT EXISTING AHU'S AIR AND EXISTING PUMPS WATER FLOWS PRIOR TO COMMENCING ANY DEMOLITION WORK. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
6. AFTER THE PROJECT IS COMPLETED, THE CONTRACTOR SHALL RE-BALANCE THE UNITS FOR THE ORIGINAL AIR FLOWS, UNLESS NOTED OTHERWISE
7. THE DEMOLITION DRAWINGS ARE INTENDED ONLY TO DEFINE THE GENERAL SCOPE OF DEMOLITION WORK AND TO ASSIST THE CONTRACTOR DURING BIDDING. THE DEMOLITION DRAWINGS MAY NOT SHOW EVERY ITEM WHICH MUST BE DISCONNECTED, REMOVED, OR RELOCATED IN ORDER TO FACILITATE NEW WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION WORK REQUIRED WHETHER OR NOT SHOWN ON THE PLANS.
8. COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER TO MINIMIZE INCONVENIENCE TO THE BUILDING OCCUPANTS. ALL SERVICES AND SYSTEMS SERVING OCCUPIED AREAS OF THE BUILDING SHALL BE MAINTAINED IN OPERATION DURING WORKING SHIFTS.
9. CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY WORK REQUIRED TO KEEP THE BUILDING OCCUPIED DURING CONSTRUCTION.
10. REMOVE AND/OR RELOCATE ALL EXISTING MECHANICAL EQUIP. AS NECESSARY FOR THE PERFORMANCE OF THE WORK OF THIS CONTRACT.
11. REMOVE ALL DEMOLITION MATERIAL FROM THE JOB SITE UNLESS NOTED DIFFERENTLY.
12. CONTRACTOR SHALL FIELD VERIFY LOCATION AND SIZE OF EXISTING MECHANICAL EQUIPMENT.
13. REFER TO SPECIFICATIONS FOR ADDITIONAL DEMOLITION NOTES.
14. CONTRACTOR SHALL MEASURE AND RECORD WATER AND AIR FLOWS FOR ALL AIR HANDLING EQUIPMENT AND PUMPS PRIOR TO DEMOLITION
15. REMOVE AND REPLACE ALL EXISTING PIPE INSULATION. PROVIDE NEW PIPE HANGERS TO MATCH NEW INSULATION IN THE BOILER ROOM.
16. THIS CONTRACTOR IS RESPONSIBLE FOR PROTECTION EXISTING FINISHES, FURNITURE AND EQUIPMENT DURING CONSTRUCTION.
17. THIS CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF EXISTING CEILING TILES TO PERFORM WORK UNDER THIS CONTRACT. THIS CONTRACTOR SHALL REPLACE ANY TILES DAMAGED AS A RESULT OF WORK UNDER THIS CONTRACT. CONTRACTOR SHALL RECORD AND GIVE NOTICE OF ANY DAMAGED CEILING TILES PRIOR TO STARTING THE DEMOLITION.

NEW WORK MECHANICAL DRAWING KEYED NOTES

[1] HWS&R PIPING, PROVIDE VERTICAL METAL CHASE BY 'HVAC CUSTOM ENCLOSURE CO.' COLOR SHALL MATCH EXISTING.
[2] HWS&R PIPING, CUT FINNED TUBE ENCLOSURE AND PROVIDE END TRIM, PROVIDE VERTICAL METAL CHASE BY 'HVAC CUSTOM ENCLOSURE CO.' COLOR SHALL MATCH EXISTING. (TYPICAL)
[3] CUT THE WALL INSTALL HYDRONIC PIPING, PATCH TO MATCH.
[4] CUT FINNED TUBE ENCLOSURE PROVIDE END TREM. PATCH THE WALL TO MATCH EXISTING.
[5] PROVIDE ECLOSURE MODEL 'GSPS18' BY 'STERLING', PROVIDE ALL NECESSARY ACCESSORIES TO SUPPORT. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
[6] CUT THE WALL TO FIT THE NEW CUH, PATCH TO MATCH EXISTING, PROVIDE PERIMETER TRIMS.
[7] PROVIDE HORIZONTAL CHASE, AVOID RECEPTACLES.
[8] CUT FINNED TUBE ENCLOSURE PROVIDE TRIM.
[9] CUT COUNTERTOP AND MAKE SECURE, PROVIDE VERTICAL METAL CHASE BY 'HVAC CUSTOM ENCLOSURE CO.' COLOR SHALL MATCH EXISTING.
[10] REMOVE THE CEILING IN THIS AREA, PROVIDE NEW CEILING AND REINSTALL ALL EXISTING LIGHTS, SENSORS, SPRINKLERS IF APPLICABLE.
[11] PROVIDE INTERNALLY INSULATED SHEET METAL ENCLOSURE FOR THE NEW HOT WATER COIL 'HWC-1'. PROVIDE DUCTWORK TO CONNECT TO EXISTING DUCTWORK. REFER TO SHEET M6.1 FOR MORE DETAILS.
[12] PROVIDE ø3" HWS&R BUTTERFLY VALVES, AND INSULATED PIPING CAPS.

GENERAL SYMBOLS

THICK, DARK SOLID LINES INDICATE NEW OR RELOCATED ITEMS.	
THIN, LIGHT SOLID LINES INDICATE EXISTING ITEMS TO REMAIN IN PLACE AND REUSE.	
POINT OF NEW TO EXISTING CONNECTION, INCLUDE TRANSITION.	
SUB LETTER 'EX' INDICATES EXISTING EQUIPMENT.	EX
LETTER INDICATES PIPING CONTINUATION	X
PH1 INDICATES PIPING AND ALL ASSOCIATED WORK TO BE DONE IN PHASE-1	PH1
PH2 INDICATES PIPING AND ALL ASSOCIATED WORK TO BE DONE IN PHASE-2	PH2

ABBRIVIATIONS

HOT WATER SUPPLY	HWS
HOT WATER RETURN	HWR
PUMP	P
BOILER	B
EXPANSION TANK	ET
BUTTERFLY VALVE	BV
MOTOR OPERATED VALVE	MOV
TRIPLE DUTY VALVE	TDV
VARIABLE FREQUENCY DRIVE	VFD
US GALLON PER MINUTE	GPM
RADIANT CEILING PANEL	RCP
UNIT HEATER	UH
HOT WATER COIL	HWC
UNIT VENTILATOR	UV
CABINET UNIT HEATER	CUH
AIR SEPARATOR	AS
HEAT EXCHANGER	HX
CHILLER	CH
STEAM	STM
CONDENSATE	C
CHILLED WATER SUPPLY	CHWS
CHILLED WATER RETURN	CHWR
AIR VENT	AV
PILOT OPERATOR DIFFERENTIAL PRESSURE CONTROLLER VALVE ASSEMBLY	DPC

FINNED TUBE AND CONVECTOR ELEMENT TAG

TYPE: — FINNED TUBE ELEMENT TYPE: A, A1, B, B1, B2 OR C
0'-0" — FINNED TUBE ELEMENT LENGTH
MBH — HEATING CAPACITY
GPM — HOT WATER FLOW

TYPE: — CONVECTOR ELEMENT TYPE D, D1, E, OR E1
000-00 — CONVECTOR ELEMENT MODEL
MBH — HEATING CAPACITY
GPM — HOT WATER FLOW

000-00 — CONVECTOR ELEMENT MODEL
ENCLOSURE HIGHT (IN)
ELEMENT LENGTH (IN)
ELEMENT WIDTH (IN)

SYMBOLS

- STRAINER
- NORMALLY OPEN BALL VALVE
- NORMALLY CLOSE BALL VALVE
- GAS SHUT-OFF VALVE
- CHECK VALVE
- END CAP OR CAPPED END OF PIPE
- FLOW DIRECTION
- NORMALLY OPEN BUTTERFLY VALVE
- NORMALLY CLOSE BUTTERFLY VALVE
- BALANCE VALVE
- TRIPLE DUTY VALVE
- PIPE ELBOW UP
- PIPE ELBOW DOWN
- PIPE UP
- THERMOSTAT
- THERMOSTAT WITH GUARD
- PIPE ANCHOR
- PIPE GUIDE
- PIPING UNION
- PRESSURE GAUGE
- THERMOMETER WITH SEPARABLE SOCKET IN IMMERSIBLE WELL
- MOTORIZED 3-WAY VALVE
- MOTORIZED VALVE.
- PRESSURE REDUCER VALVE
- P — PRESSURE TRANSDUCER
- T — TEMPERATURE TRANSDUCER
- F — FLOW SWITCH.
- DP — DIFFERENTIAL PRESSURE SENSOR.
- FINNED TUBE OR CONVECTOR ELEMENT
- PUMP

GENERAL NOTES

1. CONTRACTORS SHALL BE RESPONSIBLE TO VERIFY AND FAMILIARIZE THEMSELVES WITH ACTUAL FIELD CONDITIONS ASSOCIATED WITH WORK UNDER THIS CONTRACT. A VISIT TO THE SITE AND EXAMINATION OF THE OTHER MECHANICAL TRADES SHOWING ALL DETAILS OF CONSTRUCTION IS REQUIREMENT PRIOR TO SUBMITTING THEIR BID.
2. IT IS THE INTENT THAT ALL WORK SHALL BE COMPLETED IN EVERY RESPECT AND THAT MATERIAL OR WORK SPECIFICALLY NOT INDICATED ON THE DRAWINGS, BUT NECESSARY TO COMPLETE THE WORK SHALL BE PROVIDED.
3. THE DRAWING ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, NOT EXACT EQUIPMENT AND PIPING LOCATIONS, ALL OFFSETS, FITTINGS, TRANSITIONS AND ACCESSORIES ARE NOT NECESSARY SHOWN. COORDINATE THE INSTALLATION OF ALL PIPING, EQUIPMENT AND OTHER WORK WITH ALL TRADES IN ORDER TO AVOID CONFLICT.
4. MAINTAIN MINIMUM 80" CLEARANCE HEIGHT UNDER ALL THE EQUIPMENTS, PIPING AND DUCTWORK (EXCEPT TUNNELS
5. PIPING SERVES WING-A AND PART OF CORE AREA IS PART OF PHASE-1, AND PIPING SERVES WING-B AND PART OF CORE AREA IS PART OF PHASE-1.

MECHANICAL - CONTROL - GENERAL NOTES

1. ALL ELECTRIC WIRING, CONNECTIONS, DEVICES, RACEWAY AND HARDWARE REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM AS SPECIFIED AND SHOWN ON THE DRAWINGS SHALL BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR (TCC).
2. ALL CONTROL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTROL SYSTEM MANUFACTURER'S REQUIREMENTS AND CURRENT CODE.
3. ALL LOW VOLTAGE CONTROL WIRING SHALL BE PLENUM RATED CABLE OF TYPES AND SIZES REQUIRED BY THE CONTROL SYSTEM MANUFACTURER.
4. PROVIDE MINIMUM OF 3/4" EMT CONDUIT FOR ALL WIRING EXPOSED TO VIEW AND FOR WIRING DROPS AND RUNS WITHIN NEW WALLS.ALL CONDUITS SHALL TERMINATE WITH JUNCTION BOXES OR OUTLET BOXES. PROVIDE BUSHINGS FOR ALL WIRING ENTERIES INTO THE CONDUIT SYSTEM.
5. ALL CONTROL WIRING SHALL BE NEATLY INSTALLED WITH CABLE RUNS INSTALLED PARALLEL TO OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. ALL WIRING IN NORMALLY OCCUPIED AREAS OF THE BUILDING SHALL BE CONCEALED FROM VIEW. OPEN CABLE RUNS ABOVE CEILINGS SHALL BE BUNDLE TIED WITH PLASTIC CABLE TIES AND SHALL BE SUPPORTED FREE FROM THE CEILING AND MECHANICAL/ELECTRICAL EQUIPMENT USING APPROVED CABLE HANGERS AND CABLE CLIPS.
6. THE CONTROL CONTRACTOR SHALL COORDINATE POWER SUPPLY REQUIREMENTS OF THE CONTROL SYSTEM WITH DIVISION 26.
7. REFER TO SPECIFICATION FOR ADDITIONAL CONTROLS REQUIREMENTS.
8. ALL CONTROLS DEVICES AND ELECTRONICS SHALL BE INSTALLED WITHIN A NEMA-1 ENCLOSURE LOCATED WITHIN PROXIMITY TO THE EQUIPMENT SERVED.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC, whether the project for which it is intended is constructed or not. This drawing, and the concepts and ideas contained herein, shall not be used, copied or retained without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE - West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 667-3233
Fax: (860) 321-7070
w.w.w.bemisassociates.com

TITLE
MECHANICAL SYMBOL LIST, GENERAL NOTES, AND KEYED NOTES

DATE 02/07/2020

DWG. NO.
M0.0

BOILER SCHEDULE

TAG	MANUFACTURER	MODEL	INPUT CFH	OUTPUT MBH	THERMAL EFFICIENCY	EWT °F	LWT °F	MIN. MAX. WATER FLOW GPM	PRESSURE DROP	MIN. MAX. GAS PRESSURE	VOLT/PH/HZ	FLA	BURNER MOTOR HP	REMARKS
B-1, B-2 & B-3	AERCO	BMK 5000	5000	4350-4800	94%	165	195	75 / 700	4 PSI @ 500 GPM	4" - 10"WC	480/3/60	19	5	REFER TO NOTES

NOTES:
1. PROVIDE CONDENSATE NEUTRALIZER FOR EACH BOILER, PIPE TO FLOOR DRAIN.
2. MANUFACTURER SHALL EQUIP THE BOILERS WITH MANUAL RESET HIGH-LIMIT AQUASTAT, SAFETY CONTROLS THAT COMPLY WITH ASME FOR LOW PRESSURE BOILER, LOW WATER CUTOFF AND A MANUAL-RESET HIGH-LIMIT TEMPERATURE DEVICE COMPLY WITH ASME STANDARDS.
3. HI/LOW GAS PRESSURE SWITCH.
4. PROVIDE TEMPERATURE OUTDOOR AIR SENSOR, SENSOR SHOULD BE POSITIONED ON THE NORTH WALL OF THE BUILDING, AND NOT IN DIRECT SUNLIGHT.
5. MANUFACTURER TO PROVIDE ON BOARD BOILER SEQUENCING TECHNOLOGY (BST).
6. PROVIDE HEADER SENSOR, SENSOR SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
7. BOILER MANUFACTURER TO PROVIDE AND CONTROL, FIELD INSTALLED, MOTORIZED ISOLATION VALVES ON EACH BOILER
8. BOILER MANUFACTURER SHALL PROVIDE PRESSURE RELIEF VALVE.
9. BOILER MANUFACTURER SHALL PROVIDE GAS PRESSURE REGULATOR
10. COMBUSTION AIR SHALL BE INSULATED GALVANIZED DIRECT DUCTED.
11. VENT PIPING MATERIAL SHALL BE POLYPROPYLENE.

FREEZE PROTECTION CIRCULATING PUMP

TAG	SERVES	MANUFACTURER	SERIES	MODEL	TYPE	GPM	HEAD (FT)	EFF %	IMPELLER DIA (IN)	MOTOR (HP)	BHP	RPM	VOLT/PH/HZ	REMARKS
P-HWC-1	HWC-1	BELL & GOSSETT	e-60	1.25x1.25x5.25	INLINE	18	20	42.3	5	0.5	0.175	1800	115/1/60	REFER TO NOTES
P-HWC-2	HWC-2	BELL & GOSSETT	e-60	1.25x1.25x5.25	INLINE	20	12	43.5	4	0.25	0.117	1800	115/1/60	REFER TO NOTES
P-HWC-3	HWC-3	BELL & GOSSETT	e-60	1.25x1.25x5.25	INLINE	29	15	56	4.375	0.33	0.186	1800	115/1/60	REFER TO NOTES
P-HWC-5	HWC-5	BELL & GOSSETT	e-60	1.25x1.25x5.25	INLINE	21	15	48.8	4	0.25	0.157	1800	115/1/60	REFER TO NOTES
P-HWC-6	HWC-6	BELL & GOSSETT	e-60	1.25x1.25x5.25	INLINE	28	20	57.4	5	0.5	0.235	1800	115/1/60	REFER TO NOTES
P-HWC-7	HWC-7	BELL & GOSSETT	e-60	1.5x1.5x6.25	INLINE	57	25	62.6	5.375	0.75	0.551	1800	115/1/60	REFER TO NOTES
P-HWC-8	HWC-8	BELL & GOSSETT	e-60	1.5x1.5x6.25	INLINE	57	25	62.6	5.375	0.75	0.551	1800	115/1/60	REFER TO NOTES

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. PROVIDE WITH MOTOR RATED SWITCH AND STARTING RELAY.

VARIABLE FREQUENCY DRIVE SCHEDULE

TAG	SERVES	MANUFACTURER	MODEL	MOTOR HP	VOLT/PH/HZ	REMARKS
VFD-P-5	P-5	ABB	ACH 580	50	480/3/60	REFER TO NOTES
VFD-P-6	P-6	ABB	ACH 580	50	480/3/60	REFER TO NOTES

NOTES:
1. EACH VFD SHALL HAVE MANUAL BYPASS.

FINNED TUBE RADIATORS SCHEDULE

TYPE	MANUFACTURER	MODEL	TIER #	CENTER TO CENTER (IN)	FIN THICKNESS (IN)	TUBE SIZE (IN)	FIN NUMBER PER FOOT	FIN SIZE SQ. (IN)	BTUH/FT	AVG. WATER TEMP. °F	REMARKS
A, A1, A2 & A3	STERLING	C3/4-45	2	6	0.02	3/4"	50	4 1/4"	2256	180	REFER TO NOTES
B, B1 & B2	STERLING	C3/4-45	3	6	0.02	3/4"	50	4 1/4"	2552	180	REFER TO NOTES
C	STERLING	C3/4-45	1	-	0.02	3/4"	50	4 1/4"	1704	180	REFER TO NOTES

NOTES:
1. FINNED TUBES SHALL BE MANUFACTURED WITH SEAMLESS COPPER TUBING MECHANICALLY EXPANDED INTO THE DIAMETER OF THE EQUALLY SPACED ALUMINUM FINS.
2. PRIOR TO ORDER THIS CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO MATCH EXISTING ELEMENT DIMENSION.
3. EXISTING ENCLOSURE AND BACK PLATE TO REMAIN. ENCLOSURE COVER SHALL BE RE-INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE NEW BRACKETS AND CRADLES TO SUPPORT FINNED TUBES. SPACING AND NUMBER OF CRADLES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PROVIDE NEW JOINER STRIPS.
6. FOR LENGTH AND OTHER HEATING INFORMATION PLEASE REFER TO THE DRAWINGS.
7. REFER TO DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

CONVECTOR ELEMENTS SCHEDULE

TYPE	MANUFACTURER	TYPE	CONVECTOR DEPTH	TUBES PER ELEMENT	AVG. WATER TEMP. °F	REMARKS
E & E1	STERLING	SURFACE MOUNT	4"/6"/8"	2/3/4	180	REFER TO NOTES
D	STERLING	SURFACE MOUNT	4"/6"/8"	2/3/4	180	REFER TO NOTES
D1	STERLING	RECESSED OR SEMI-RECESSED	4"/6"/8"	2/3/4	180	REFER TO NOTES

NOTES:
1. PRIOR TO ORDER THIS CONTRACTOR SHALL FIELD VERIFY TO MATCH EXISTING ELEMENT DIMENSION.
2. EXISTING ENCLOSURE TO REMAIN. ENCLOSURE COVER SHALL BE RE-INSTALLED IN PROPER WAY AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE NEW BRACKETS (END POCKETS) TO SUPPORT THE HEATING ELEMENT. SUPPORT SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PROVIDE WITH TWO VENT PLUGS FOR EACH ELEMENT.
6. FOR MODEL AND OTHER HEATING INFORMATION PLEASE REFER TO DRAWINGS.
3. REFER TO DETAILS FOR ADDITIONAL REQUIREMENTS.

RADIANT CEILING PANEL SCHEDULE

TAG	MANUFACTURER	MODEL	PASSES	WIDTH	BTU/H PER LINEAR FOOT	AVG. WATER TEMP. °F	MIN GPM	REMARKS
RCP-01	STERLING	LRP	4	18"	363	180	2	REFER TO NOTES

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY TO COORDINATE WITH EXISTING CONDITIONS.
2. PROVIDE ALL INTERCONNECTING HARDWARE AND TRIM FOR PANEL LENGTHS AND LAYOUT SHOWN.
3. REFER TO DETAILS FOR ADDITIONAL REQUIREMENTS.
4. PROVIDE 0.115 INCH THICK FLUTED ALUMINUM FACE PANEL, TONGUE AND GROOVED PANEL EDGES WITH STEEL CHANNEL CROSS BRACES ATTACHED BY MECHANICAL FASTENER AND 1 INCH THICK FIBERGLASS PAD FACTORY APPLIED. FACTORY APPLIED POWDER COAT FINISH COLOR IS SELECTED BY THE OWNER. CONTRACTOR IS RESPONSIBLE FOR PROTECTING PANEL FINISH FROM SCRATCHES & BLEMISHES DURING CONSTRUCTION.
5. PROVIDE 1" THICK, PLENUM RATED, THERMAL ACOUSTICAL PAD OF 0.75 Lb DENSITY U-VALUE=0.16/INCH.

UNIT HEATER SCHEDULE

TAG	SERVE	MANUFACTURER	MODEL	ELECTRICAL		SUPPLY FAN		HOT WATER COIL							
				VOLT/HZ/PH	MCA	CFM	MOTOR HP	EAT °F	LAT °F	MBH	EWT °F	LWT °F	GPM	WPD FT-H_2O	REMARKS
UH-1	GYMNASIUM A & B	STERLING	HS-204	115/60/1	4.5	2900	1/3	60	107	148	190	160	14.9	0.79	REFER TO NOTES
UH-2	BOILER ROOM	STERLING	HS-108	115/60/1	2.2	1500	1/12	60	103	54.4	190	160	4.7	0.14	REFER TO NOTES

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY TO COORDINATE WITH EXISTING CONDITIONS.
2. CASING SHALL BE 20-GAUGE DIE-FORMED STEEL.
3. MOTOR SHALL BE TOTALLY ENCLOSED FAN COOLED, WITH THERMAL OVERLOAD PROTECTION AND PERMANENTLY LUBRICATED SLEEVE BEARINGS WITH SOLID STATE SPEED CONTROLLER.
4. MOTOR SHALL BE EXPLOSION PROOF.
5. PROVIDE OSHA FAN GUARD.
6. PROVIDE WITH HORIZONTAL INDIVIDUALLY ADJUSTABLE LOUVERS.
7. PROVIDE WALL BRACKETS. INSTALL UNIT HEATER IN ACCORDANCE OF MANUFACTURER RECOMMENDATIONS.
8. PROVIDE WITH MOTOR RATED SWITCH AND STARTING RELAY.

UNIT VENTILATOR SCHEDULE

TAG	MANUFACTURER	MODEL	ELECTRICAL		SUPPLY FAN											
			VOLTAGE	MCA	CFM	MOTOR HP	MOTOR TYPE	EAT °F	LAT °F	ROWS	MBH	EWT °F	LWT °F	GPM	WPD FT-H_2O	REMARKS
UV-01	DAIKIN	UAVV9V13	115/60/1	6.3	1000	0.333	VARIABLE ECM	49.9	132.6	3	90	190	150	4.5	1.6	REFER TO NOTES
UV-02	DAIKIN	UAVV9V10	115/60/1	6.3	800	0.333	VARIABLE ECM	49.9	136.5	3	75	190	152.4	4	2.85	REFER TO NOTES
UV-03	DAIKIN	UAVV9V07	115/60/1	6.3	600	0.333	VARIABLE ECM	56.6	140	3	54.7	190	158.7	3.5	1.97	REFER TO NOTES

NOTES:
1. PRIOR TO ORDER THIS CONTRACTOR SHALL FIELD VERIFY TO COORDINATE WITH EXISTING CONDITIONS.
2. TOP BAR GRILLE DISCHARGE AIR, AND BOTTOM FRONT RETURN AIR
3. COLOR BY THE OWNER.
4. FAN AND MOTOR ASSEMBLY SHALL BE OF LOW SPEED DESIGN TO ASSURE MAXIMUM QUIETNESS AND EFFICIENCY.
5. MOTOR SHALL BE ECM VARIABLE SPEED.
6. OUTSIDE AIR LOUVER TO REMAIN, PROVIDE INSULATED DUCTWORK ADAPTER TO CONNECT TO EXISTING OUTSIDE AIR LOUVER. SEAL TIGHT AIR AND WATER.
7. MERV-13 FILTER
8. MANUFACTURER SHALL PROVIDE WITH FREEZESTAT PROTECTION.
9. PROVIDE WITH END PANELS.
10. MANUFACTURER TO PROVIDE VALVE KIT.
11. PROVIDE WITH MOTOR RATED SWITCH AND STARTING RELAY.

CABINET UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	SIZE	ELECTRICAL			SUPPLY FAN			FILTER	HOT WATER COIL								
				VOLTAGE	MCA	MROPD	CFM	MOTOR HP	MOTOR TYPE	TYPE	EAT °F	LAT °F	ROWS	MBH	EWT °F	LWT °F	GPM	WPD FT-H_2O	REMARKS
CUH-1	DAIKIN	FHVC106	06	115/60/1	5.3	15	500	1/4	ECM	1" MERV 8	70	157	3	47.4	190	159.8	3.1	2.54	REFER TO NOTES
CUH-2	STERLING	RW-1120	04	115/60/1	2.5	15	230	1/15	ECM	1/2" PERM.	50	150	2	46.3	190	160	3	1.3	REFER TO NOTES
CUH-3	STERLING	RW-1120	04	115/60/1	2.5	15	430	1/15	ECM	1/2" PERM.	50	150	2	46.3	190	160	3	1.3	REFER TO NOTES

NOTES:
1. CUH-1:
   a. 18 GAUGE CABINET ENCLOSURE, STANDARD STYLE.
   b. 1/4" INCH CLOSED CELL CABINET INSULATION
   c. PROVIDE WITH LEVELING LEGS.
   d. BOTTOM FRONT RETURN AIR GRILLE
   e. TOP DOUBLE DEFLECTION DISCHARGE AIR DIFFUSER
   f. EXTENDED END POCKETS.
2. CUH-2 AND CUH-3:
   a. FRONT RETURN AND DISCHARGE AIR.
   b. 18 GAUGE CABINET ENCLOSURE
   c. ADJUSTABLE REAR MOUNTING BRACKETS.
   d. PROVIDE WALL SEAL ASSEMBLY.
3. 3-SPEED ECM MOTOR.
4. COLOR BY THE OWNER
5. PROVIDE MOTOR RATED SWITCH AND STARTING RELAY
6. PROVIDE WITH FILTER.

HOT WATER COIL SCHEDULE

TAG	SERVE	FPI	ROWS	FIN HEIGHT (IN)	FIN LENGTH (IN)	FACE AREA (FT^2)	CFM	FACE VELOCITY (FT/MIN)	EAT °F	LAT °F	MBH	ADP (IN-H_2O)	EWT °F	LWT °F	GPM	WDP (FT-H_2O)	REMARKS
HWC-1	LIBRARY	13	1	24	67	11.2	6000	537.3	70	111.2	270	0.22	190	159.9	17.9	9.1	REFER TO NOTES
HWC-2	BAND ROOM	10	2	27	34.5	6.5	2850	440.6	2.9	100.7	305	0.25	190	159.8	20.2	2	REFER TO NOTES
HWC-3	CAFE C-276	9	2	27	56	10.5	4000	381	2.9	102.5	436	0.18	190	159.2	28.3	4.5	REFER TO NOTES
HWC-5	KITCHEN	11	2	27	35	6.6	3000	457	2.9	104.1	332	0.39	190	158.7	21.2	2.2	REFER TO NOTES
HWC-6	CAFE C-250	9	2	27	56	10.5	4000	381	2.9	102.5	436	0.18	190	159.2	28.3	4.5	REFER TO NOTES
HWC-7	GYMNASIUM-B	10	2	33	70	16	8100	504.9	2.9	101	869	0.32	190	159.7	57.3	14.9	REFER TO NOTES
HWC-8	GYMNASIUM-A	10	2	33	70	16	8100	504.9	2.9	101.0	869	0.32	190	159.7	57.3	14.9	REFER TO NOTES

NOTES:
1. PRIOR TO ORDER COIL, CONTRACTOR SHALL FIELD VERIFY TO MATCH EXISTING OVERALL COIL DIMENSIONS.
2. EXISTING ENCLOSURE TO REMAIN (EXCEPT FOR 'HWC-1')
3. PROVIDE ALL NECESSARY ACCESSORIES TO SECURE THE COIL INSIDE THE EXISTING ENCLOSURE.
4. SEAL AIR BETWEEN HOT WATER COIL AND ENCLOSURE.

HOT WATER PUMP SCHEDULE

TAG	MANUFACTURER	SERIES	MODEL	TYPE	GPM	HEAD (FT)	EFF %	IMPELLER DIA (IN)	MOTOR (HP)	BHP	RPM	VOLT/PH/HZ	WEIGHT (LBS)	REMARKS
P-1	BELL & GOSSETT	e-1510	6G-SS-326T-L	BASE MOUNTED END SUCTION	1090	100	78.8	10.75	50	33.6	1694	480/3/60	1276	REFER TO NOTES
P-2	BELL & GOSSETT	e-1510	6G-SS-326T-L	BASE MOUNTED END SUCTION	1090	100	78.8	10.75	50	33.6	1694	480/3/60	1276	REFER TO NOTES

NOTES:
1. PROVIDE WITH ANSI/OSHA COUPLING GUARD
2. PROVIDE WITH FABRICATED HEAVY DUTY BASE PLATE.
3. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. PROVIDE WITH PREMIUM EFFICIENCY MOTOR.

REVISIONS

© COPYRIGHT

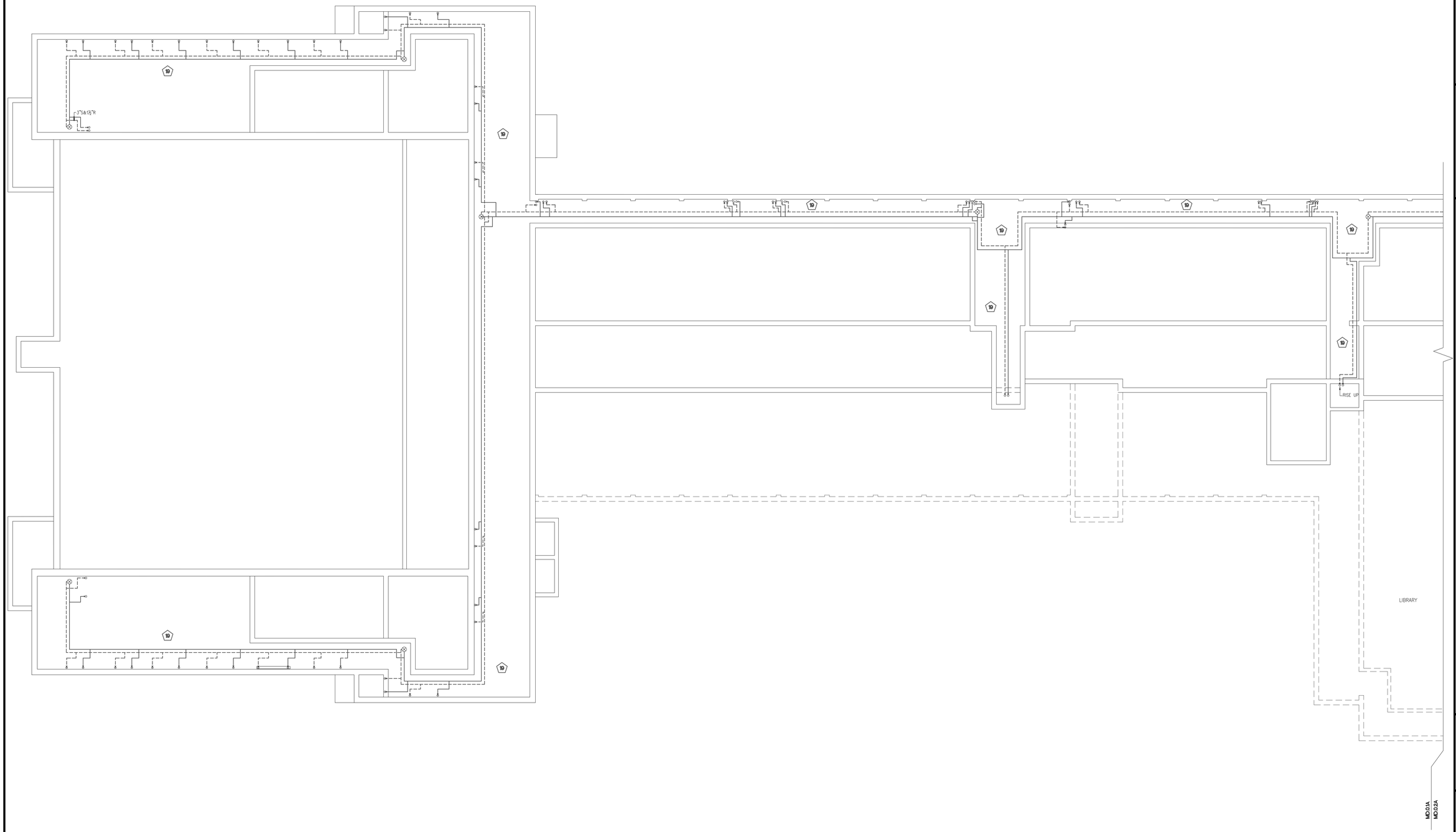
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE - West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 667-3233
Fax: (860) 321-7070
w.w.w.bemisassociates.com

TITLE
MECHANICAL SCHEDULES

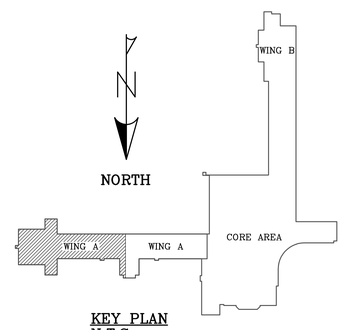
DATE 02/07/2020

DWG. NO.
M0.1



TUNNEL PART PLAN -WING A - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC regardless of any charge paid or not paid for the drawing and shall be returned to the Bemis Associates LLC upon request.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as a publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

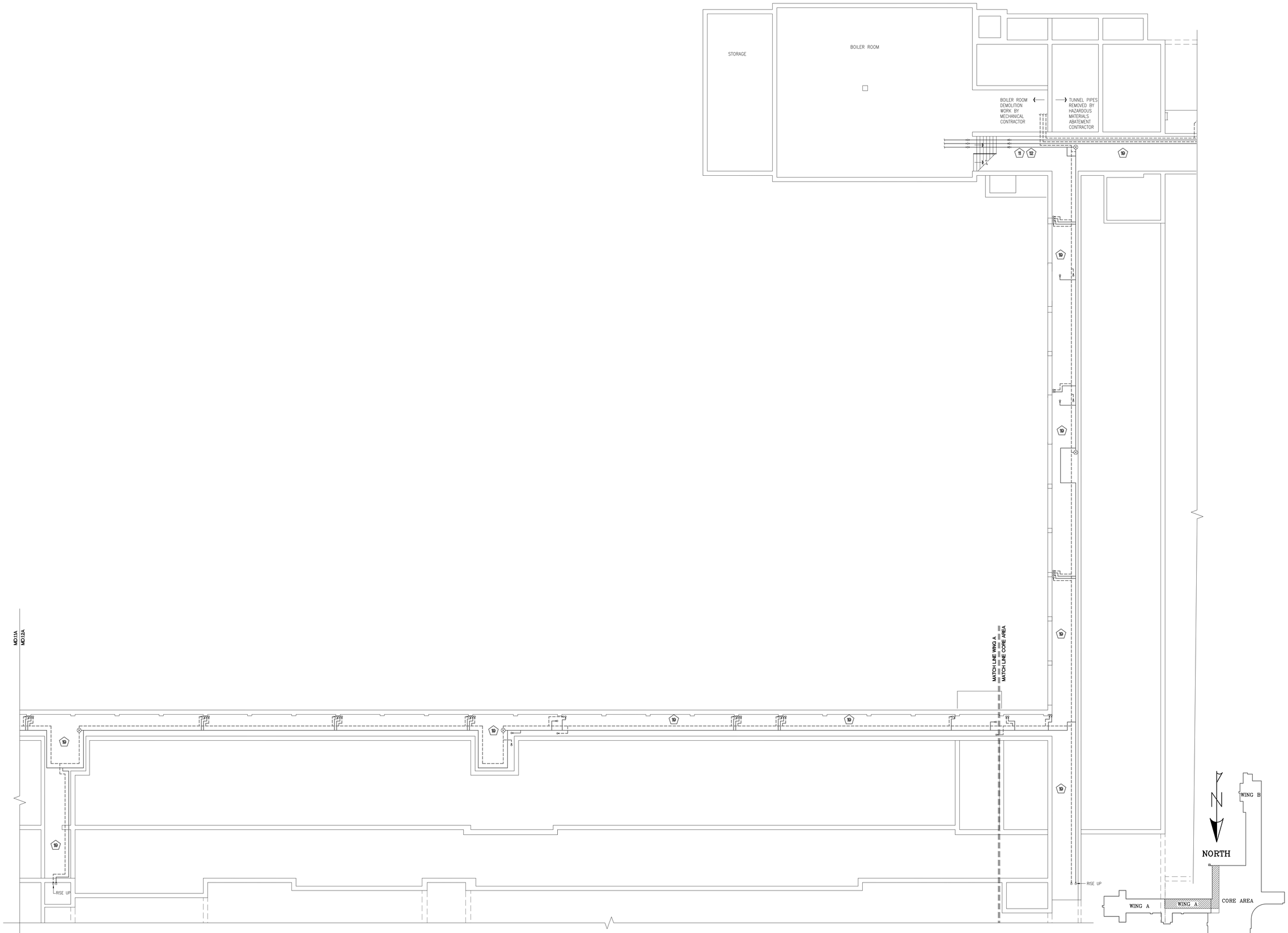
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 674-1333
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
TUNNEL PART PLAN -WING A - MECHANICAL DEMOLITION

DATE 02/07/2020

DWG. NO.
MD.0.1A



TUNNEL PART PLAN -WING A AND CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"

KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC regardless of any charge paid or not paid for it or any other reason. This drawing shall not be copied or used for any purpose not specifically agreed to in writing by Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

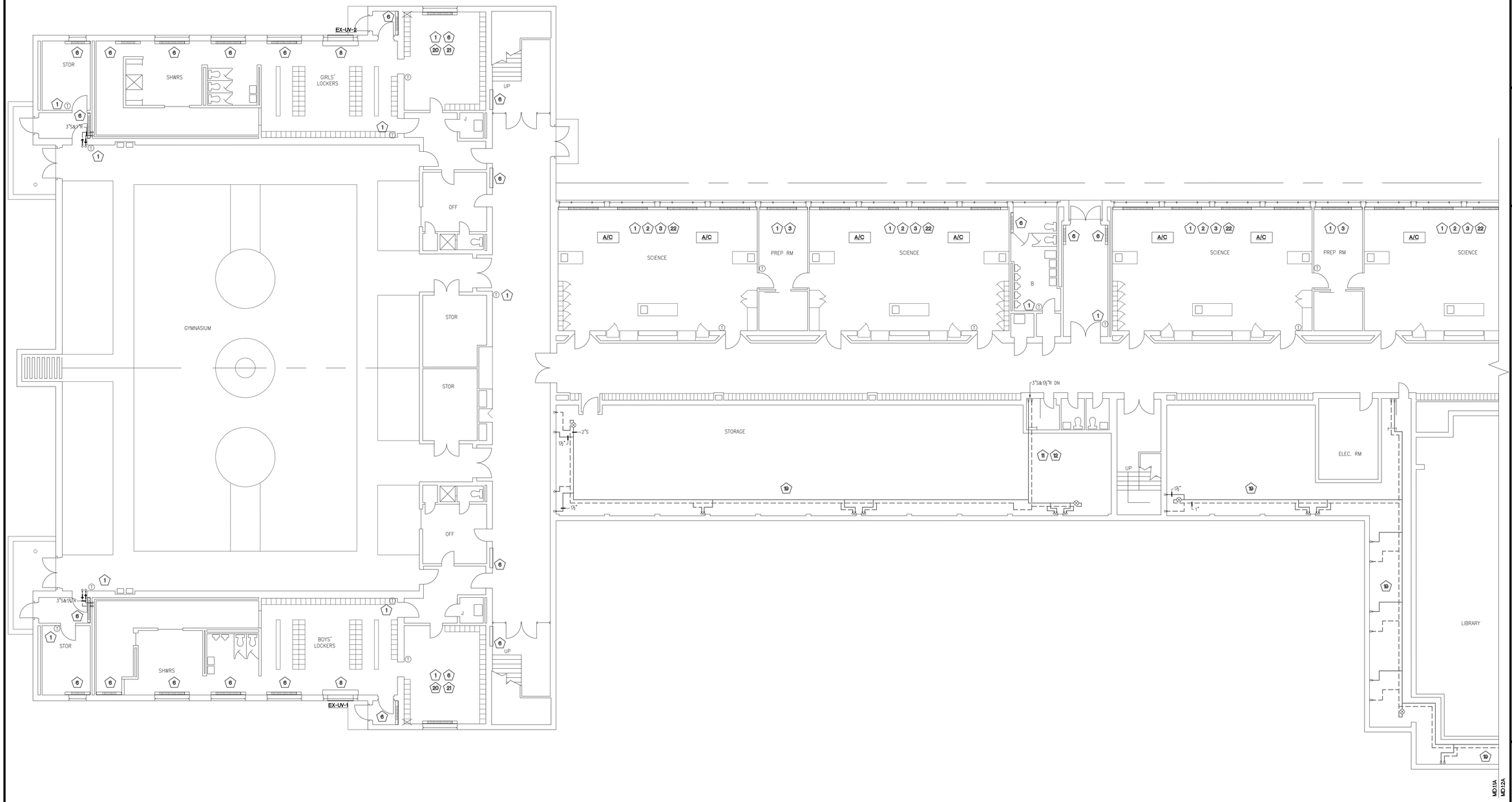
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
TUNNEL PART PLAN WING A AND CORE AREA - MECHANICAL DEMOLITION

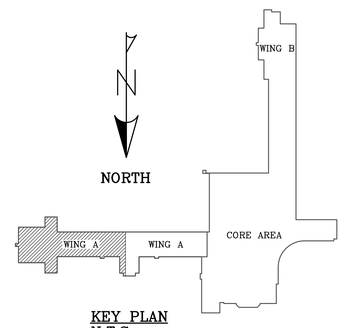
DATE 02/07/2020

DWG. NO.
MD.0.2A



BASEMENT PART PLAN -WING A - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is loaned to the recipient for the specified purpose and must be returned on request. This drawing and the information contained thereon shall not be reproduced, copied or disclosed to others without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

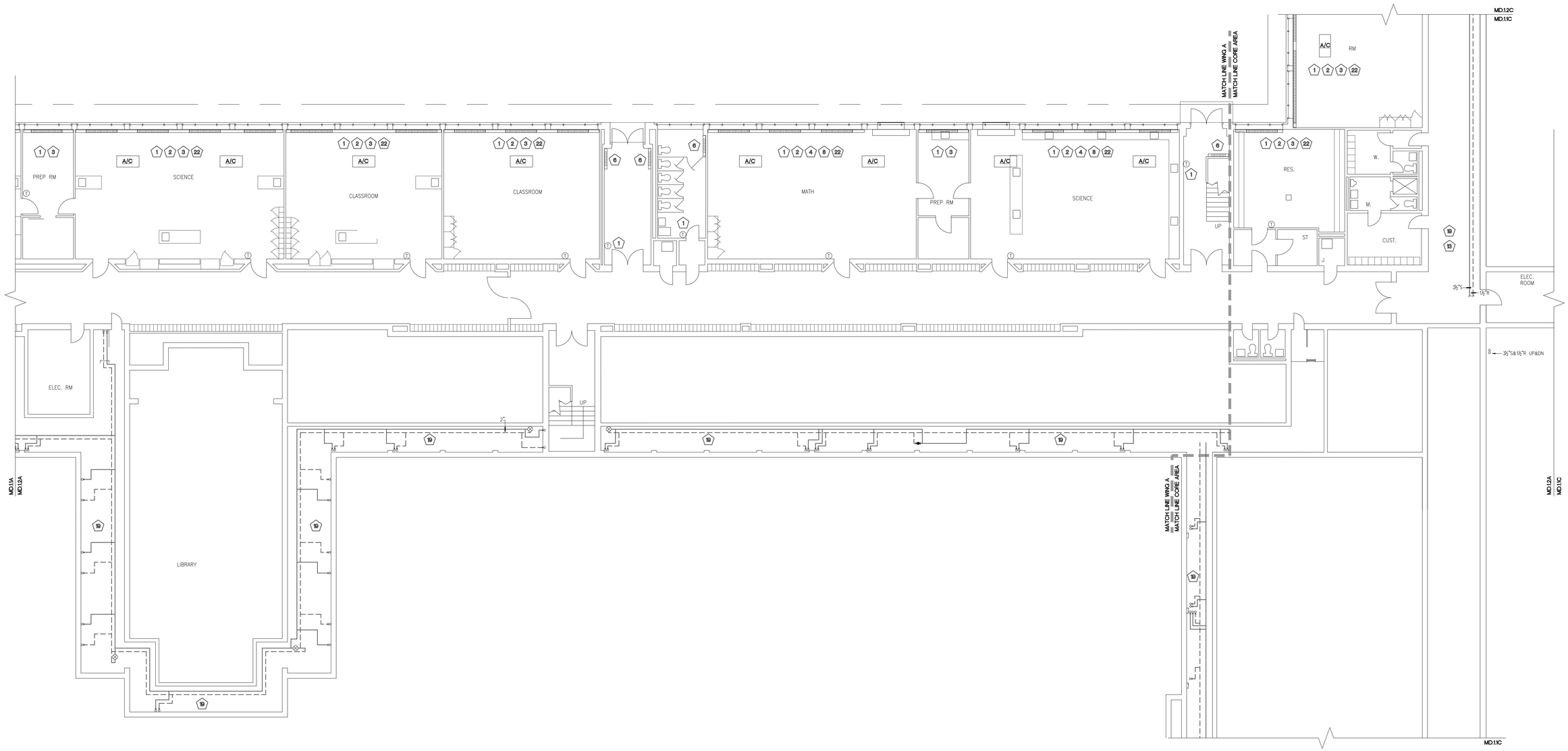
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 677-2333
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT PART PLAN -WING A - MECHANICAL DEMOLITION

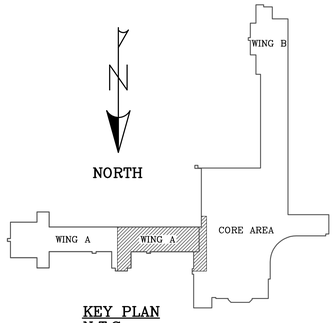
DATE 02/07/2020

DWG. NO.
MD.1.1A



BASEMENT PART PLAN -WING A - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration, or distribution of this document, or any part thereof, without the express written consent of Bemis Associates LLC is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

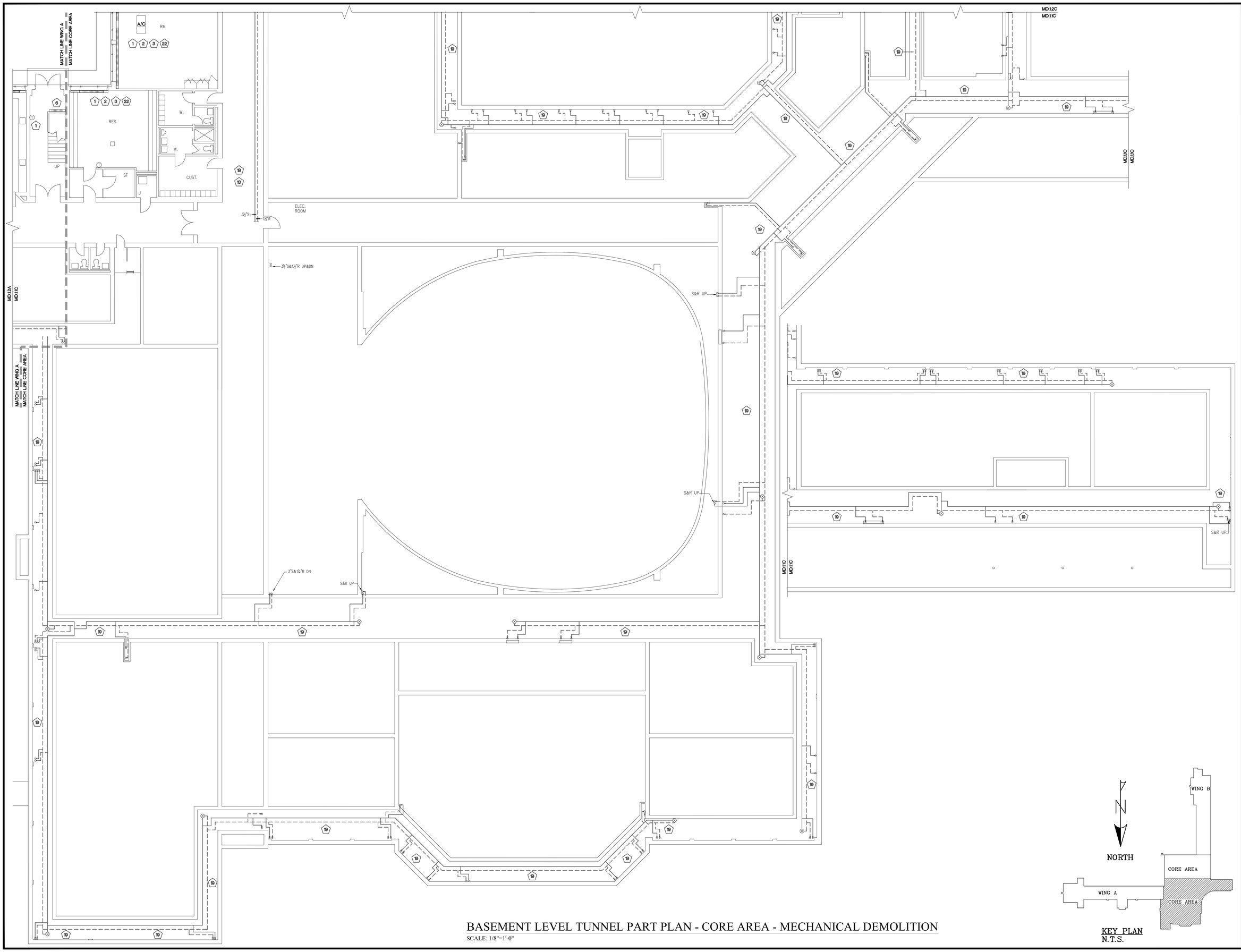
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 321-7333
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT PART PLAN WING A- MECHANICAL DEMOLITION

DATE 02/07/2020

DWG. NO.
MD.1.2A



BASEMENT LEVEL TUNNEL PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC regardless of the fee charged, and should be returned on request. This drawing and the information included on it may not be reproduced in any form or manner nor may it be loaned, copied or exhibited without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alteration or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

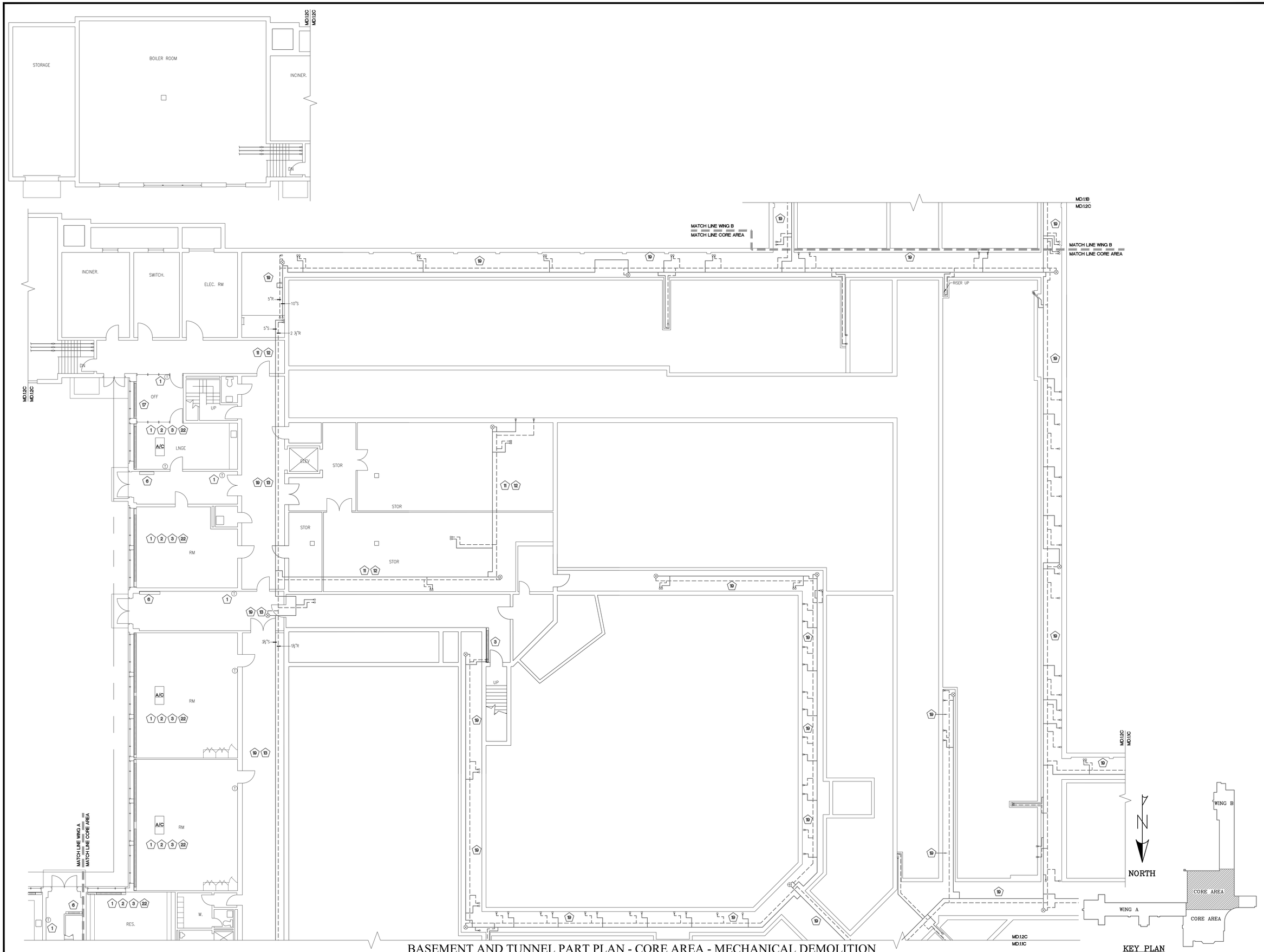
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS / ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 321-7333
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT PART PLAN - CORE AREA - MECHANICAL DEMOLITION

DATE 02/07/2020

DWG. NO.
MD.1.1C



BASEMENT AND TUNNEL PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"

KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is loaned for the exclusive use of the recipient and must be returned on request. This drawing and the information contained thereon may not be reproduced, copied or disclosed to others without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

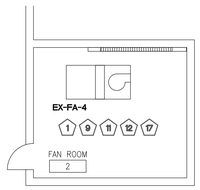
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 677-2333
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT PART PLAN - CORE AREA - MECHANICAL DEMOLITION

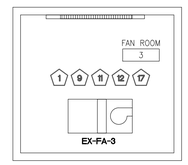
DATE 02/07/2020

DWG. NO.
MD.1.2C



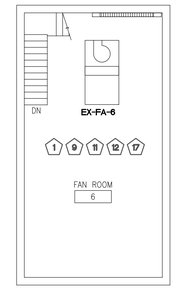
FAN ROOM 2 PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



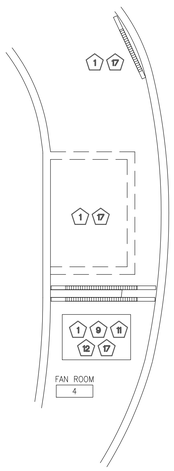
FAN ROOM 3 PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



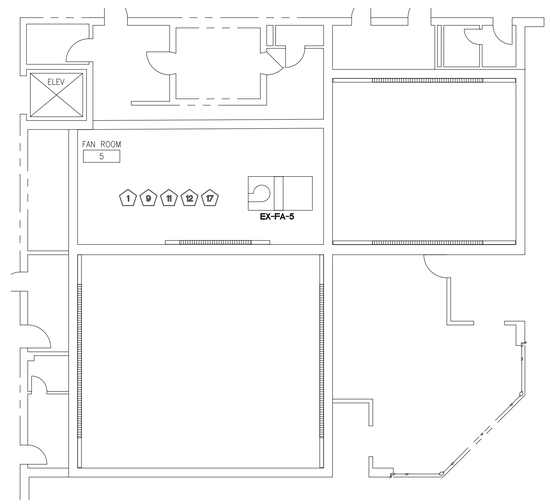
FAN ROOM 6 PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



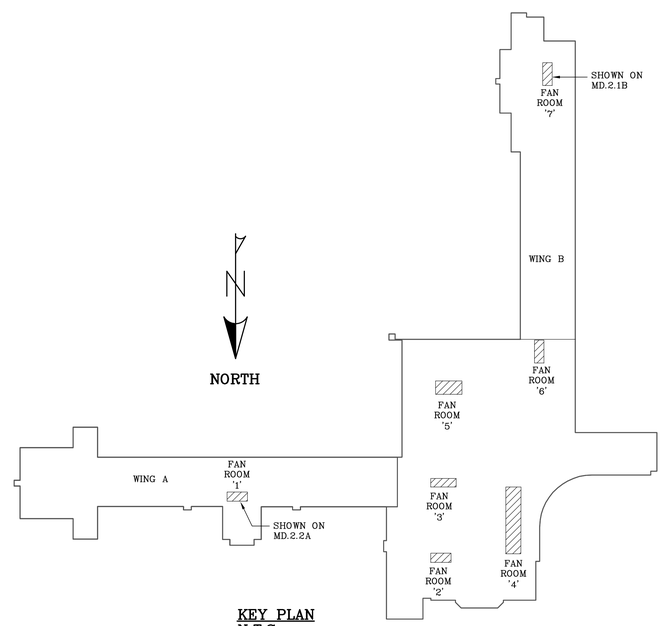
FAN ROOM 4 PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



FAN ROOM 5 PART PLAN - CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. Reproduction or publication of this drawing, in whole or in part, without the express written consent of Bemis Associates LLC is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with this project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 674-1233
Fax: (860) 321-7070
www.bemisassociates.com

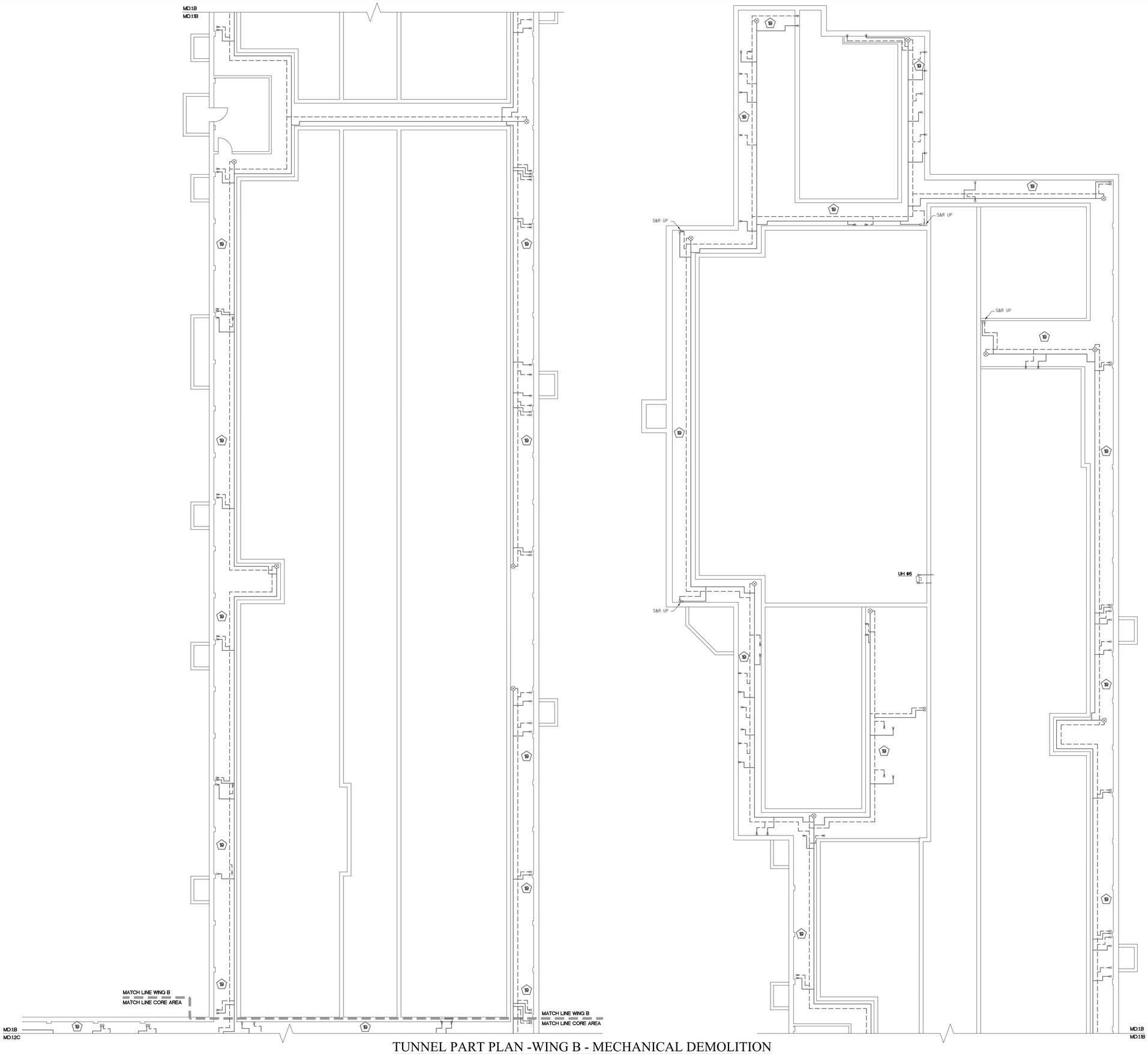
TITLE

FAN ROOMS PART PLANS - CORE AREA - MECHANICAL

DATE 02/07/2020

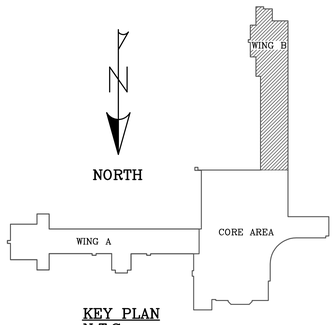
DWG. NO.

MD.1.3C



TUNNEL PART PLAN -WING B - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws of the United States. The drawing may be reproduced only for the use of Bemis Associates LLC and those persons or entities to which the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with this project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alteration or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

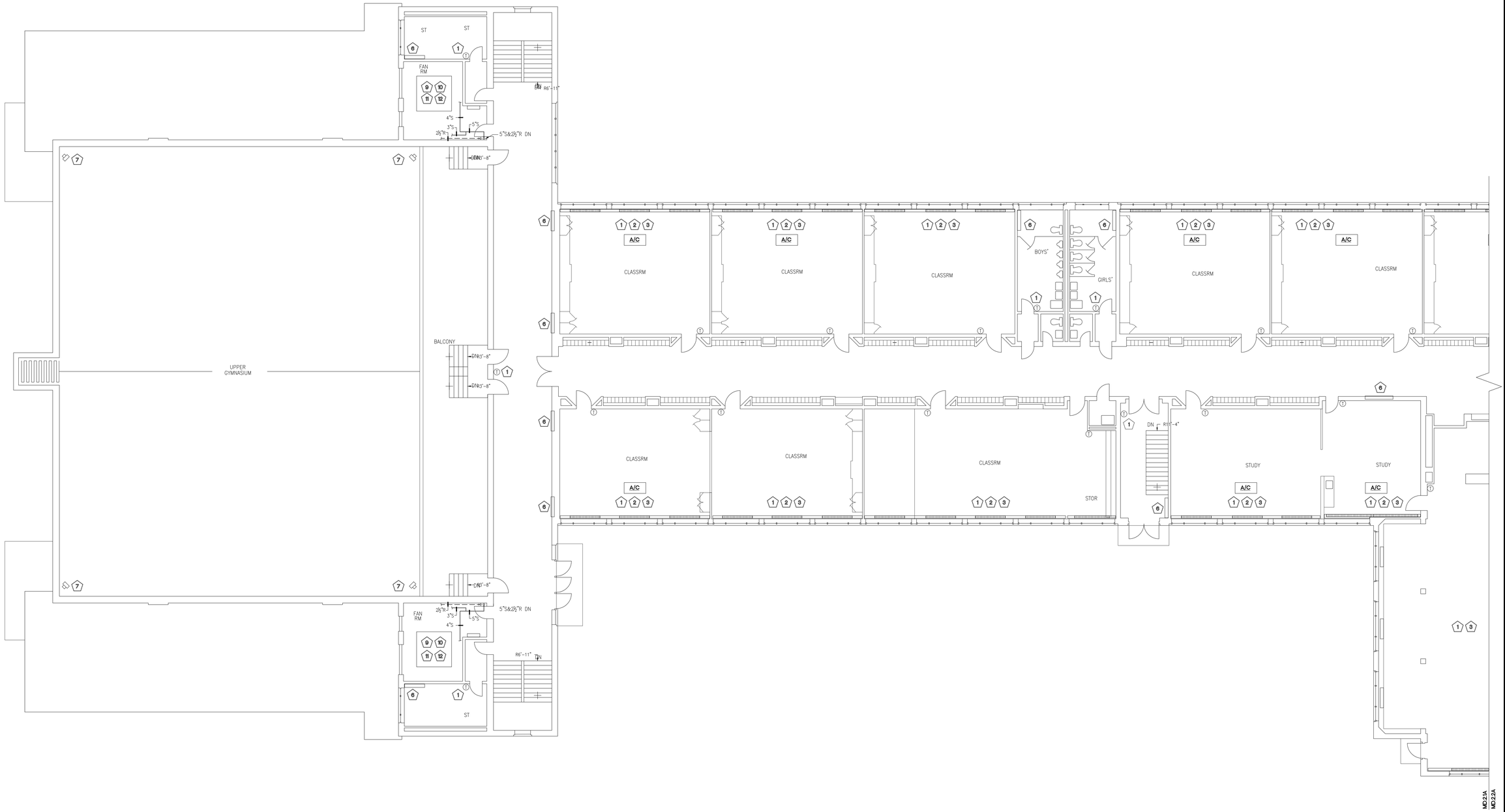
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 321-7233
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT PART PLAN -WING B - MECHANICAL DEMOLITION

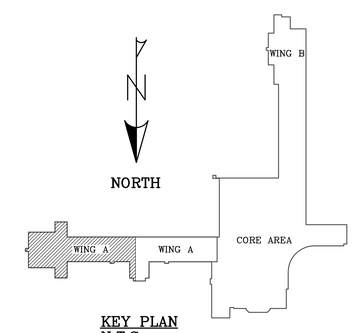
DATE 02/07/2020

DWG. NO.
MD.1.1B



FIRST FLOOR PART PLAN -WING A - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The drawing shall not be used or reproduced in any manner without the express written consent of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with this project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

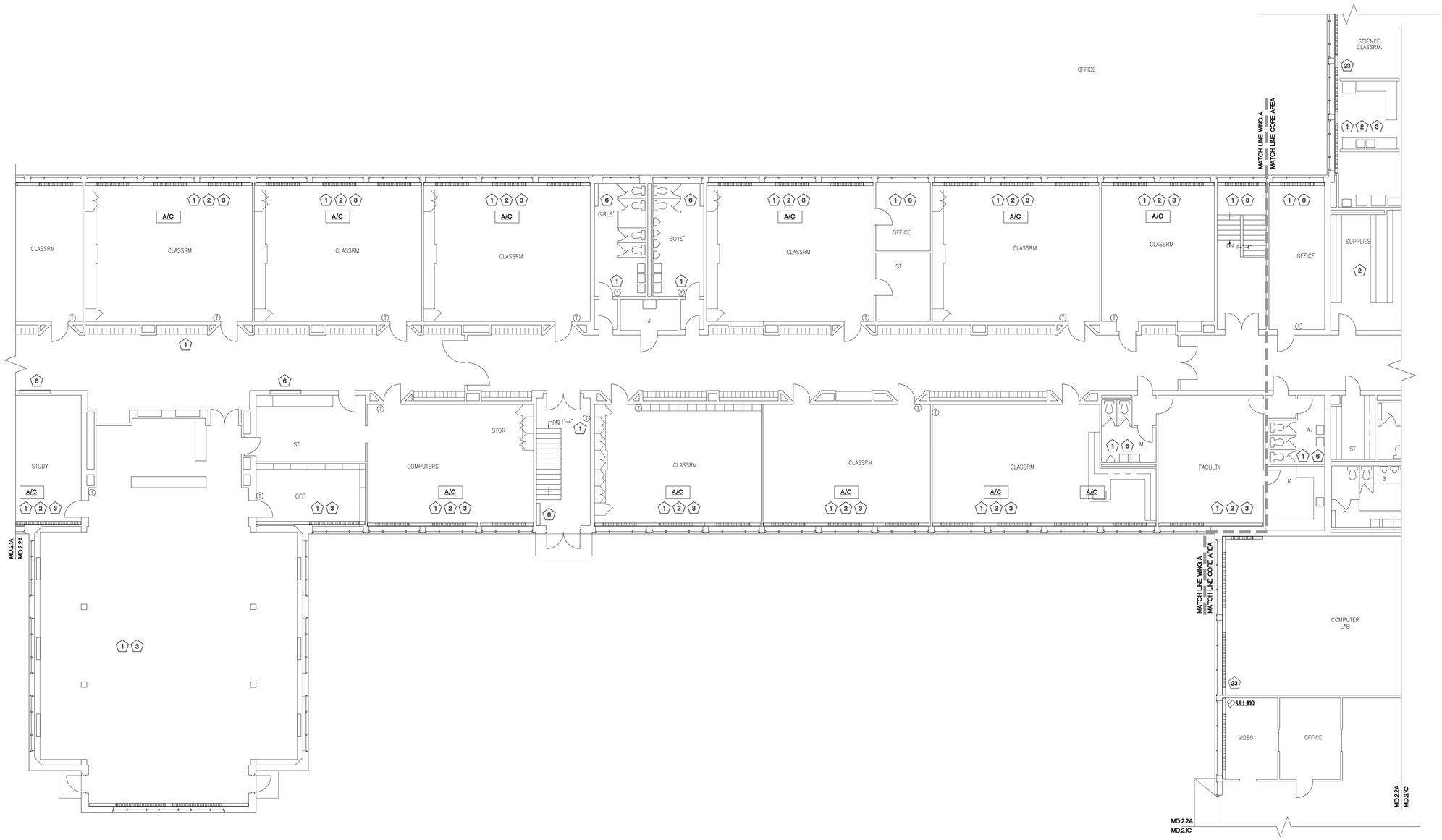
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS / ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 521-2031
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
FIRST FLOOR Part Plan -WING A - MECHANICAL DEMOLITION

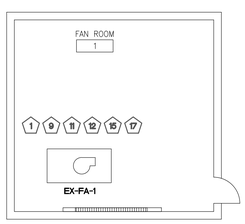
DATE 02/07/2020

DWG. NO.
MD.2.1A



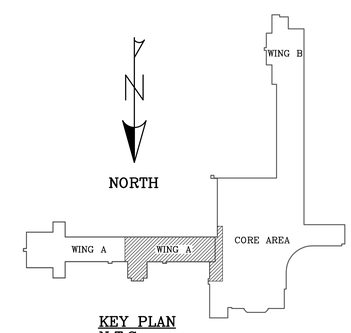
FIRST FLOOR PART PLAN -WING A - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



FAN ROOM 1 - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws of the United States. This drawing shall not be reproduced or distributed in whole or in part without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with this project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

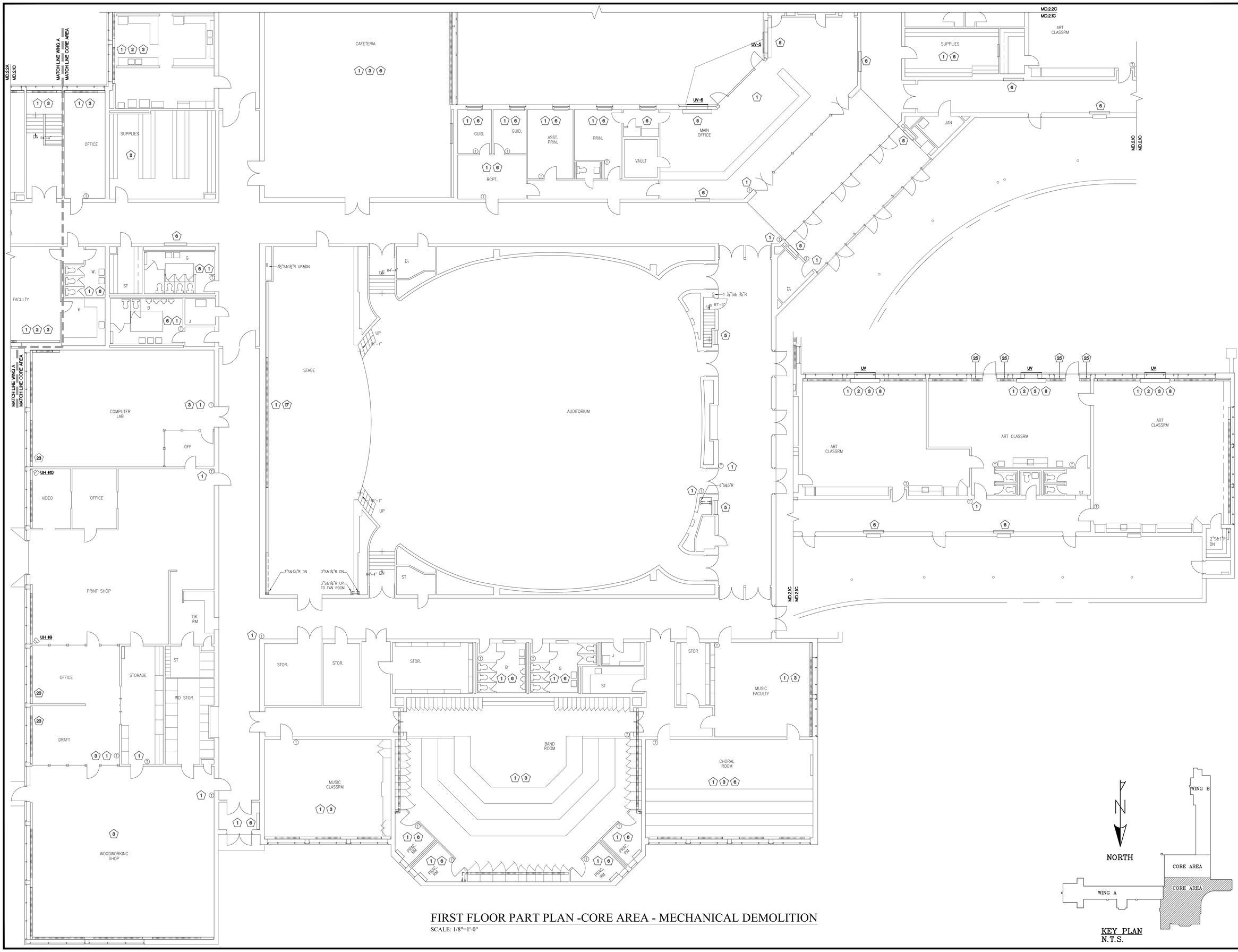
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS / ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 521-7070
Fax: (860) 521-7070
www.bemisassociates.com

TITLE
FIRST FLOOR Part Plan -WING A - MECHANICAL DEMOLITION

DATE 02/07/2020

DWG. NO.
MD.2.2A



FIRST FLOOR PART PLAN -CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC regardless of the fee charged for its preparation and any other compensation, if any. This drawing shall not be reproduced or distributed in whole or in part without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Tel: (860) 321-7233
Fax: (860) 321-7070
www.bemisassociates.com

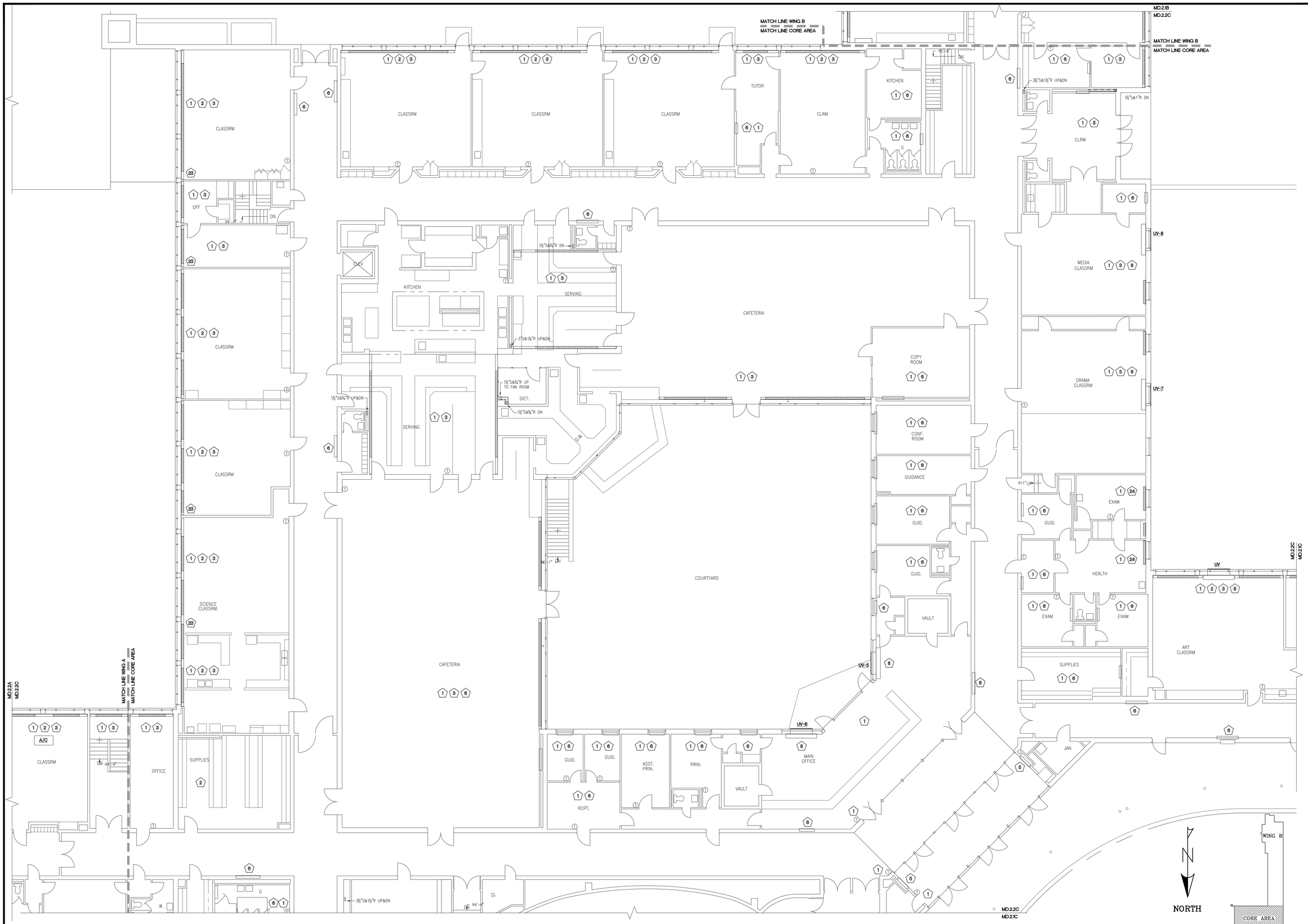
TITLE

FIRST FLOOR Part Plan -CORE AREA - MECHANICAL DEMOLITION

DATE 02/07/2020

DWG. NO.

MD.2.1C



FIRST FLOOR PART PLAN -CORE AREA - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws of the United States. This drawing shall not be used for any purpose not specifically agreed to in writing by Bemis Associates LLC.
Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.
Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

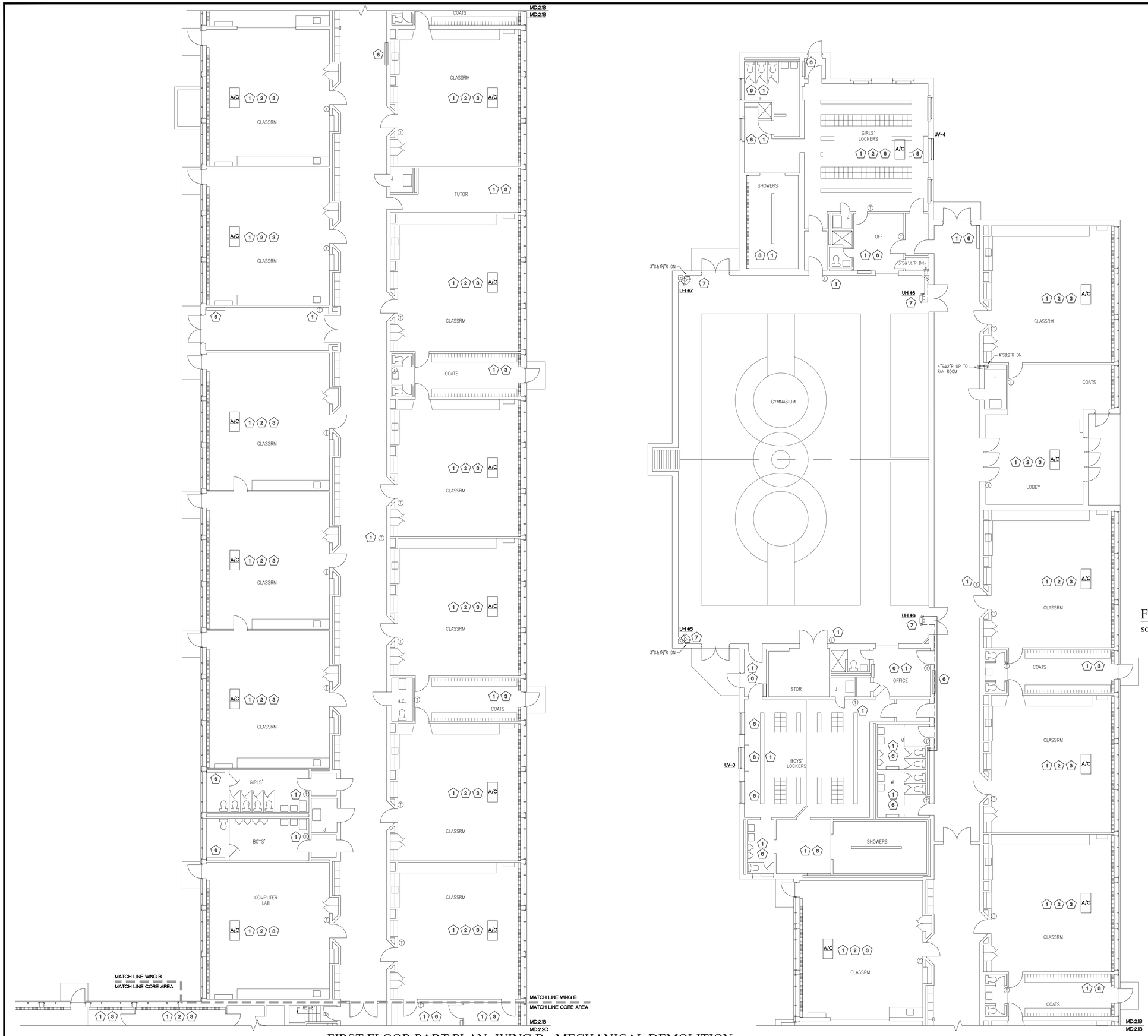
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Tel: (860) 321-7332
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
FIRST FLOOR Part Plan
-CORE AREA -
MECHANICAL
DEMOLITION

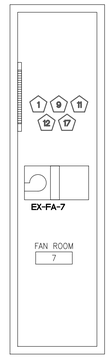
DATE 02/07/2020

DWG. NO.
MD.2.2C



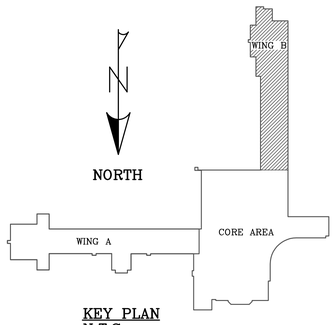
FIRST FLOOR PART PLAN -WING B - MECHANICAL DEMOLITION

SCALE: 1/8"=1'-0"



FAN ROOM 7 - WING B - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the Copyright Act of 1976 as a dramatic work. This drawing and the information contained herein shall not be used for any purpose not specifically agreed to in writing by the owner.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 677-2603
Fax: (860) 321-7070
www.bemisassociates.com

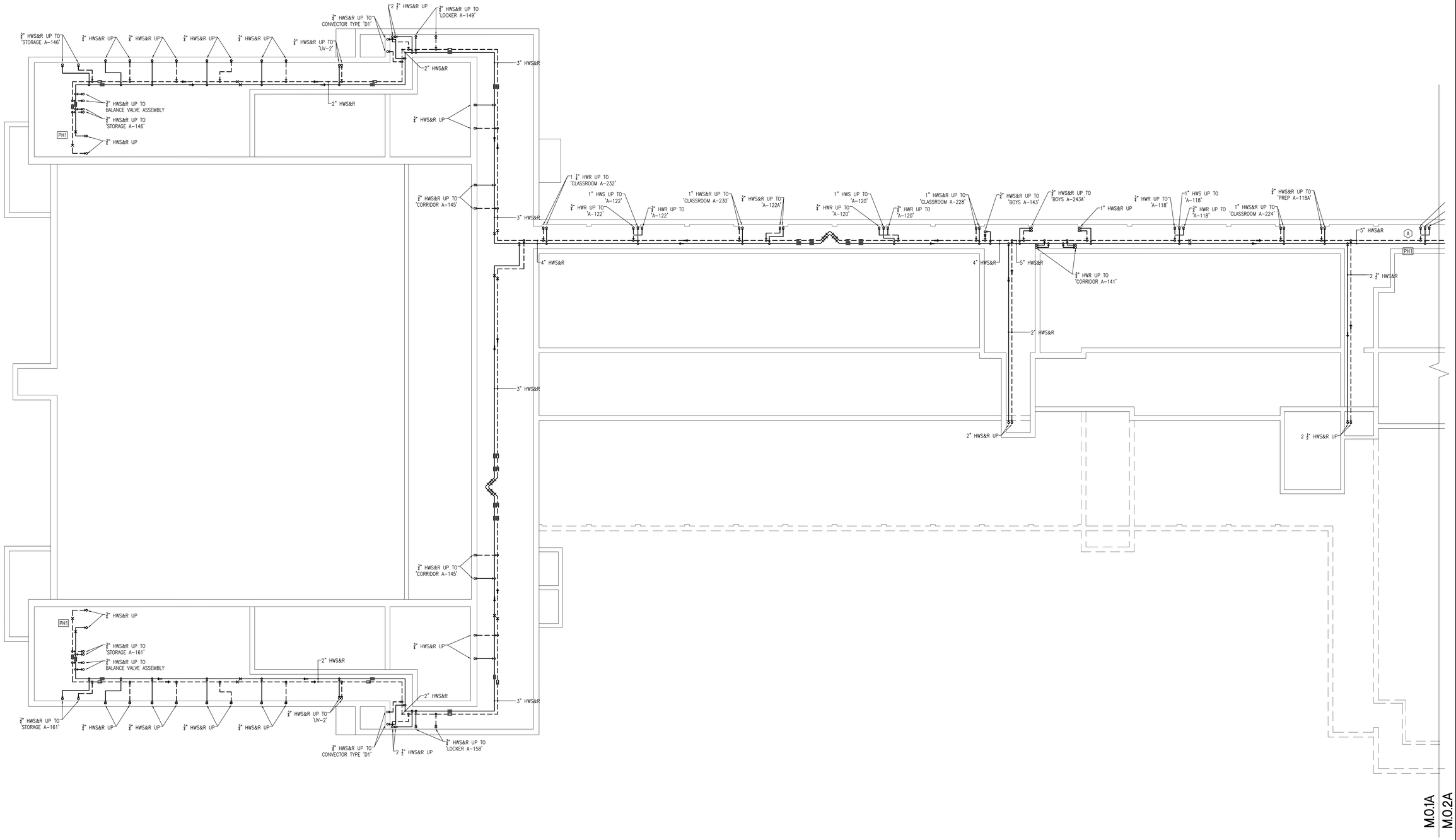
TITLE

FIRST FLOOR Part Plan -WING B - MECHANICAL DEMOLITION

DATE 02/07/2020

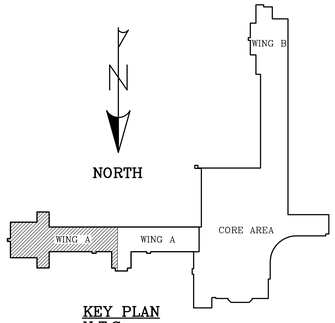
DWG. NO.

MD.2.1B



TUNNEL PART PLAN -WING A - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws of the United States. This drawing shall not be reproduced, used or disclosed to others without written permission. Any alterations to this drawing must be reported to the undersigned. Any violation of the rights of Bemis Associates LLC. will be prosecuted to the fullest extent possible under the law.

Submission or distribution of this drawing to meet official regulatory requirements or other purposes in connection with the project for which it was prepared is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violation of the rights of Bemis Associates LLC. shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

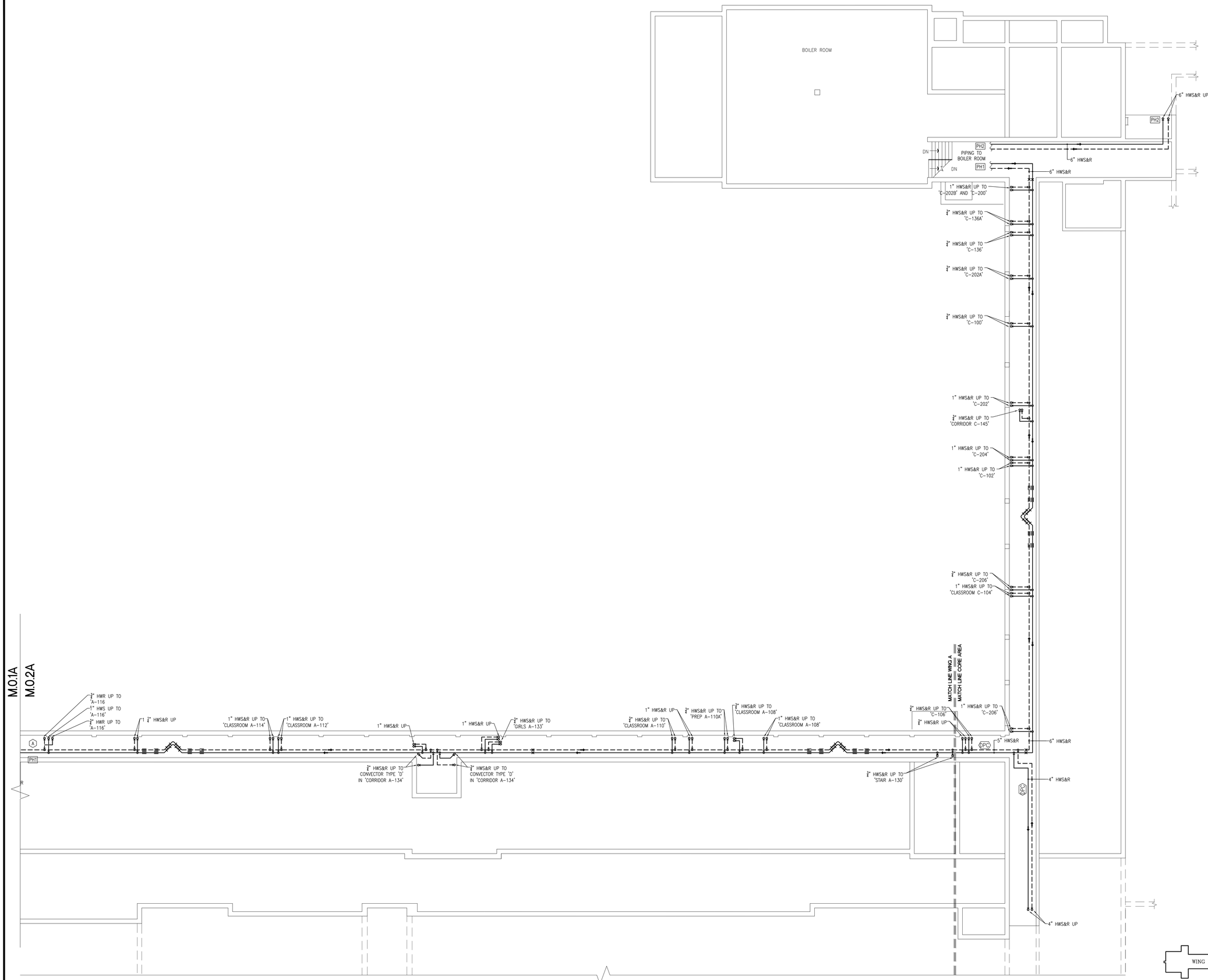
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
TUNNEL PART PLAN -WING A - MECHANICAL

DATE 02/07/2020

DWG. NO.
M.0.1A



TUNNEL PART PLAN -WING A AND CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"

KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the Copyright Act of 1976 as a dramatic work. This drawing and the information contained thereon shall not be reproduced, used or disclosed to others without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or other purposes in connection with the project for which it was to be rendered is permitted to the extent permitted by the agreement between the owner and Bemis Associates LLC.

Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

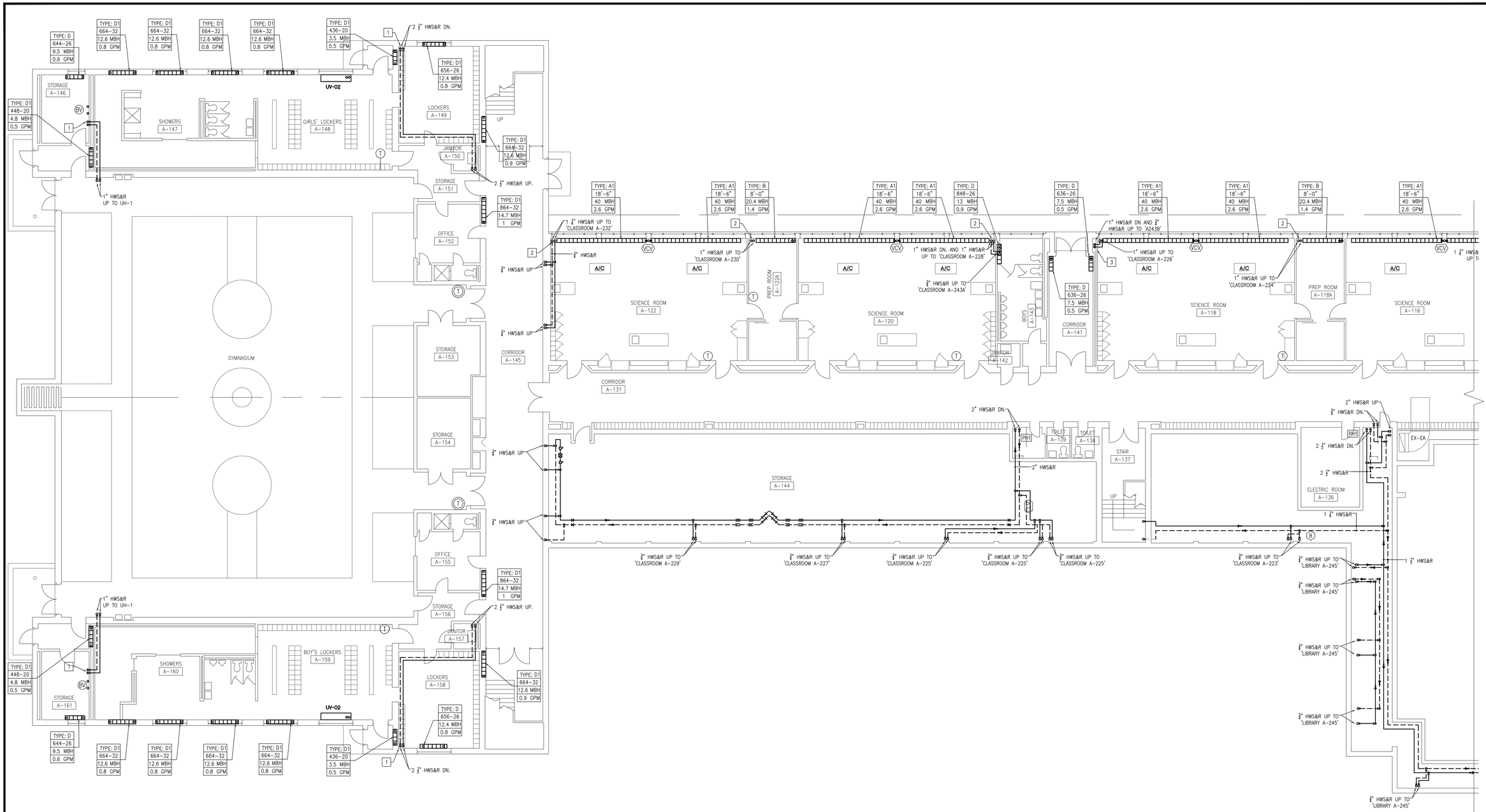
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Phone: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
TUNNEL PART PLAN WING A AND CORE AREA-MECHANICAL

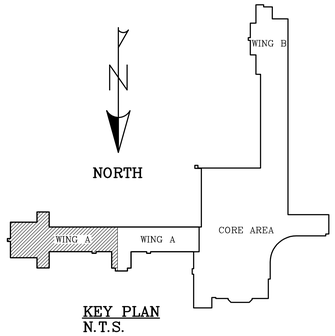
DATE 02/07/2020

DWG. NO.
M.0.2A



BASEMENT PART PLAN -WING A - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The drawing shall not be loaned, copied or distributed except as required for the execution of the work to be executed at the premises as designated by the owner. Any other use or reproduction or designation of any of the rights of ownership without express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of ownership.

Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

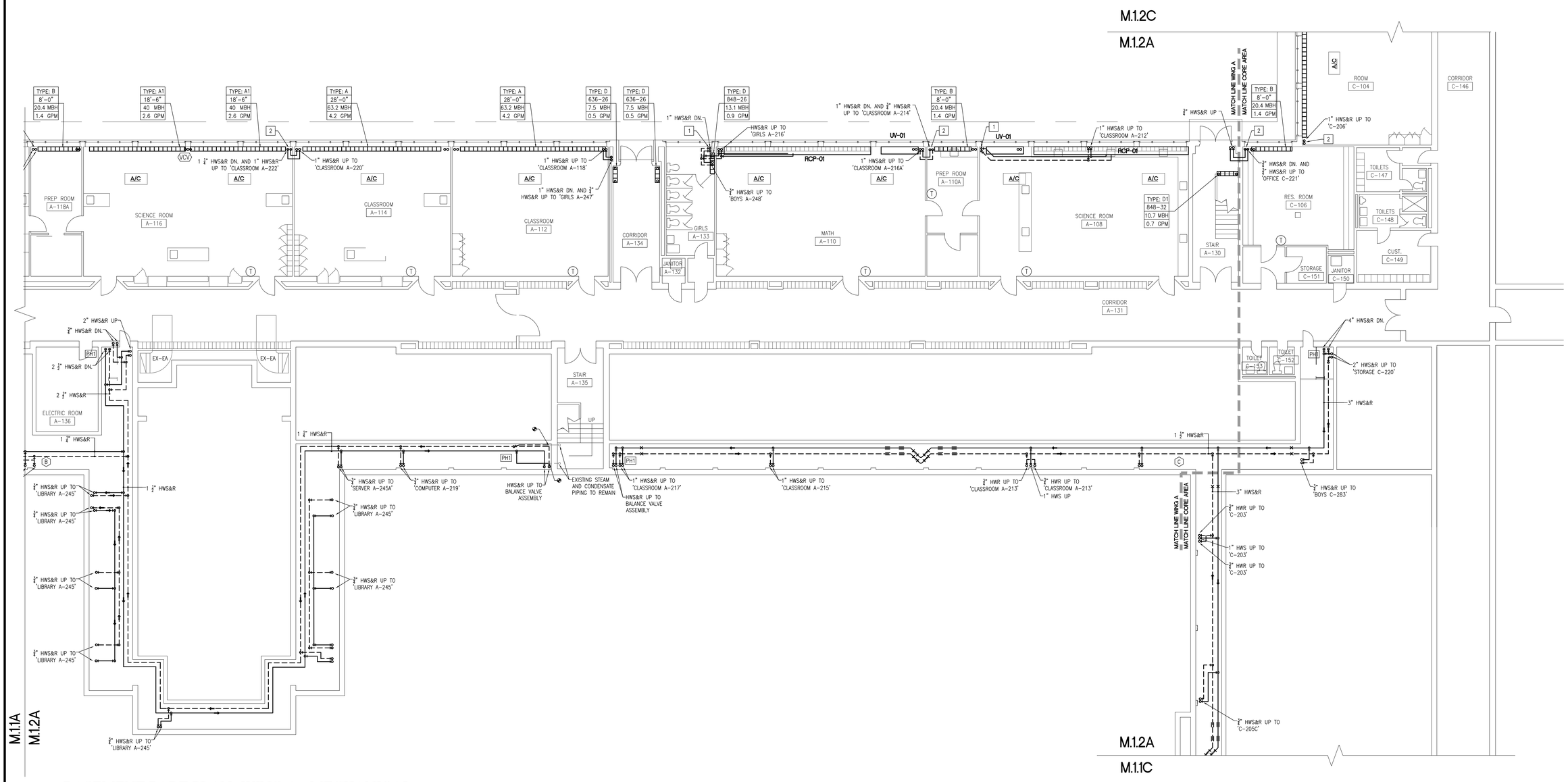
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 677-2603
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT Part Plan -WING A - MECHANICAL

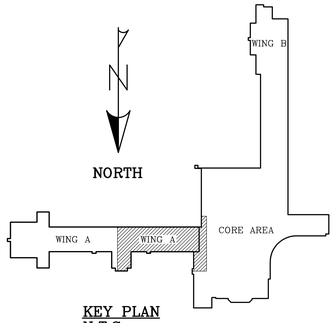
DATE 02/07/2020

DWG. NO.
M.1.1A



BASEMENT PART PLAN -WING A - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC whether the project for which it was prepared is executed or not. This drawing and the information contained thereon shall not be used by any person or entity for any purpose or project not specifically agreed to by Bemis Associates LLC.
Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.
Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

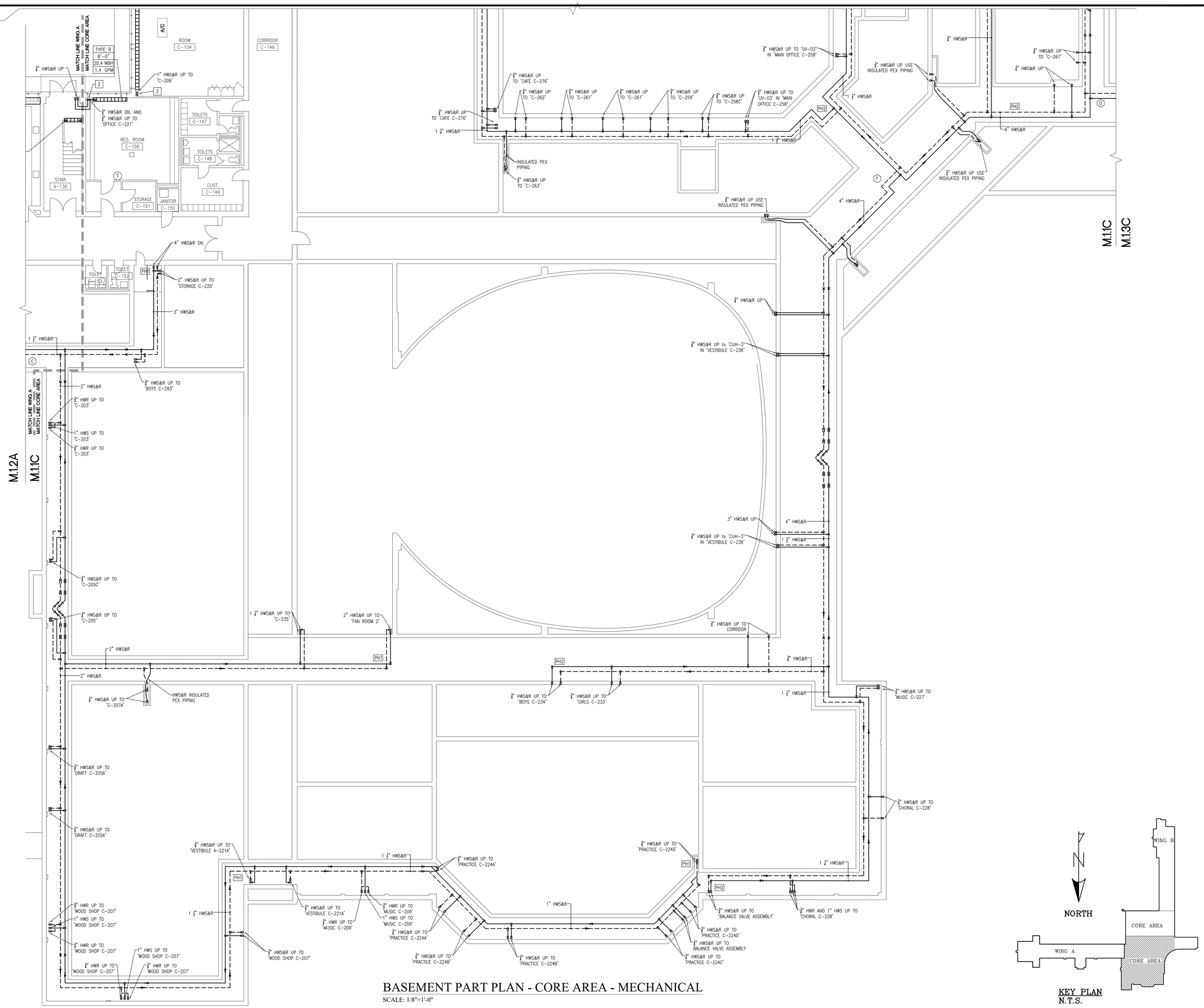
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Phone: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT WING A-MECHANICAL

DATE 02/07/2020

DWG. NO.
M.1.2A



BASEMENT PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, in whole or in part, or any other use of this drawing without the express written consent of Bemis Associates LLC is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

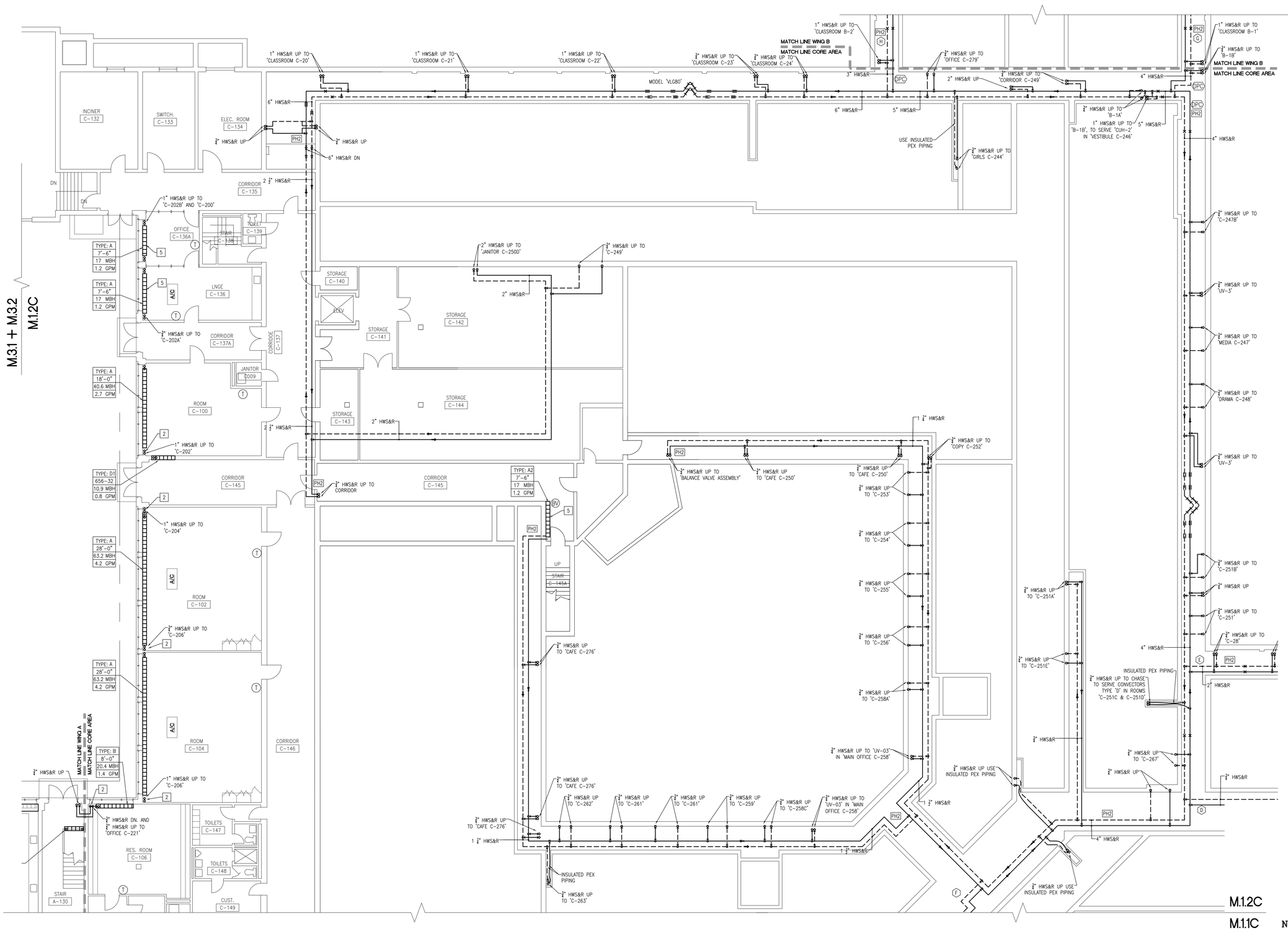
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 677-2333
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT LEVEL TUNNEL PART PLAN - CORE AREA - MECHANICAL

DATE 02/07/2020

DWG. NO.
M.1.1C



BASEMENT AND TUNNEL PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"

KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is loaned for the exclusive use of the client named on this drawing. Reproduction or distribution of this drawing or any part thereof is not permitted without the express written consent of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

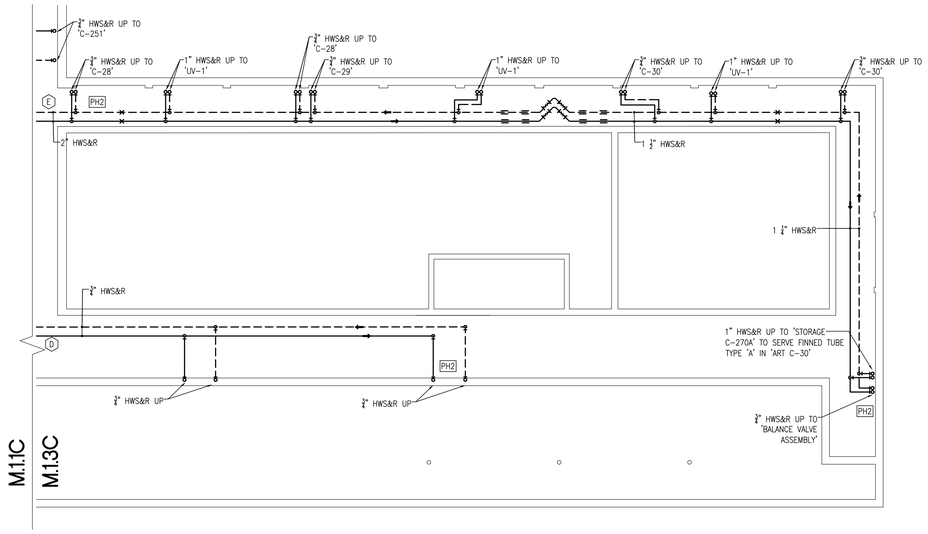
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 677-2323
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT AND TUNNEL PART PLAN - CORE AREA - MECHANICAL

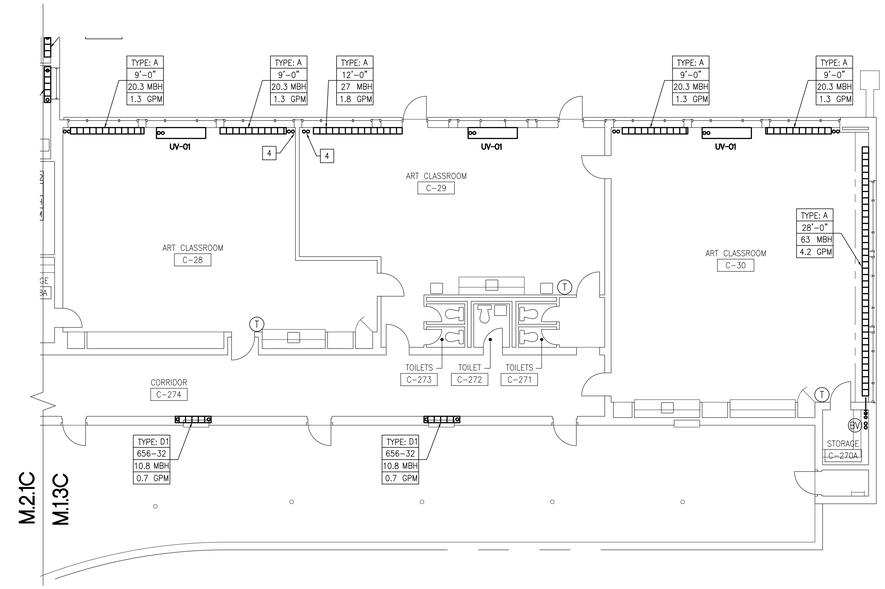
DATE 02/07/2020

DWG. NO.
M.1.2C



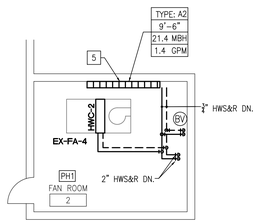
BASEMENT AND TUNNEL PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



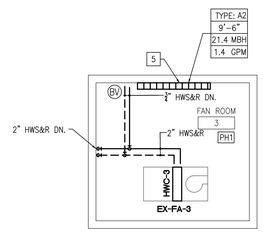
FIRST FLOOR PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



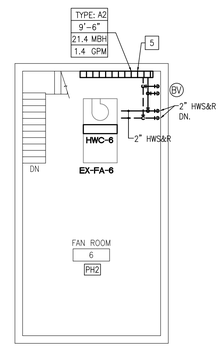
FAN ROOM 2 PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



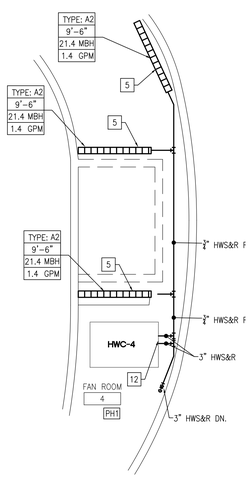
FAN ROOM 3 PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



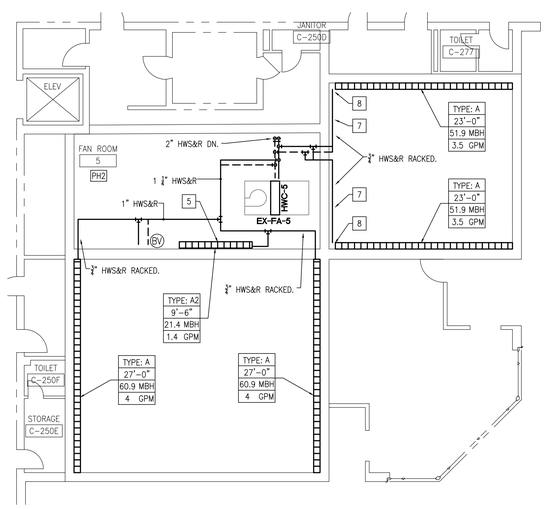
FAN ROOM 6 PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



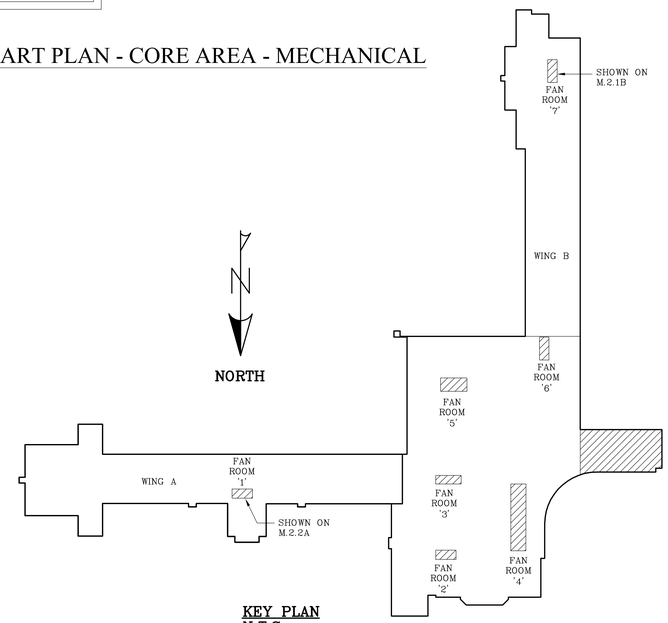
FAN ROOM 4 PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



FAN ROOM 5 AND KITCHEN PART PLAN - CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration or use for any purpose other than those authorized by Bemis Associates LLC is prohibited. This drawing shall not be copyrighted or distributed as part of any copyrighted work without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

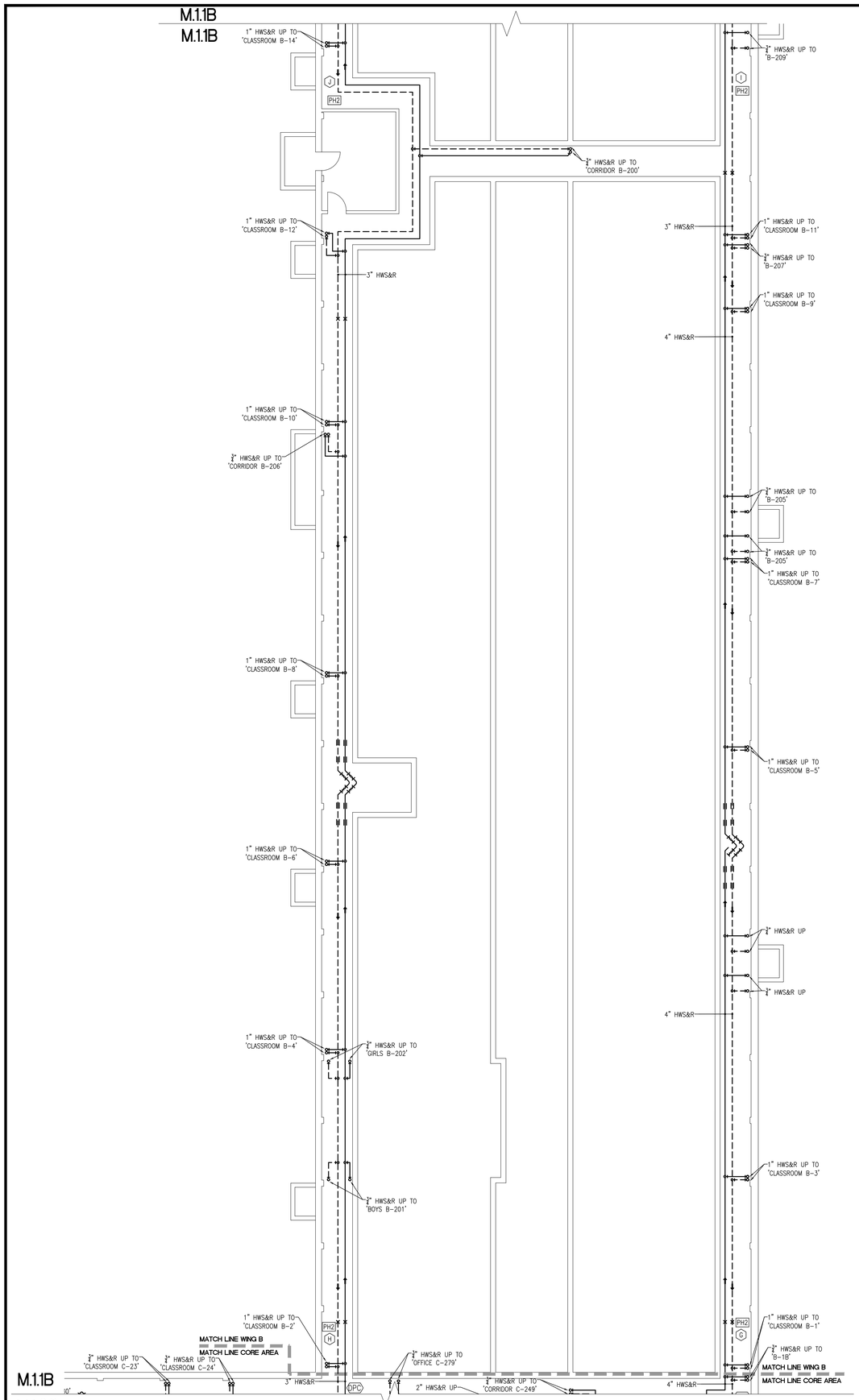
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 674-1233
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT, FIRST FLOOR, AND FAN ROOMS PART PLAN - CORE AREA - MECHANICAL

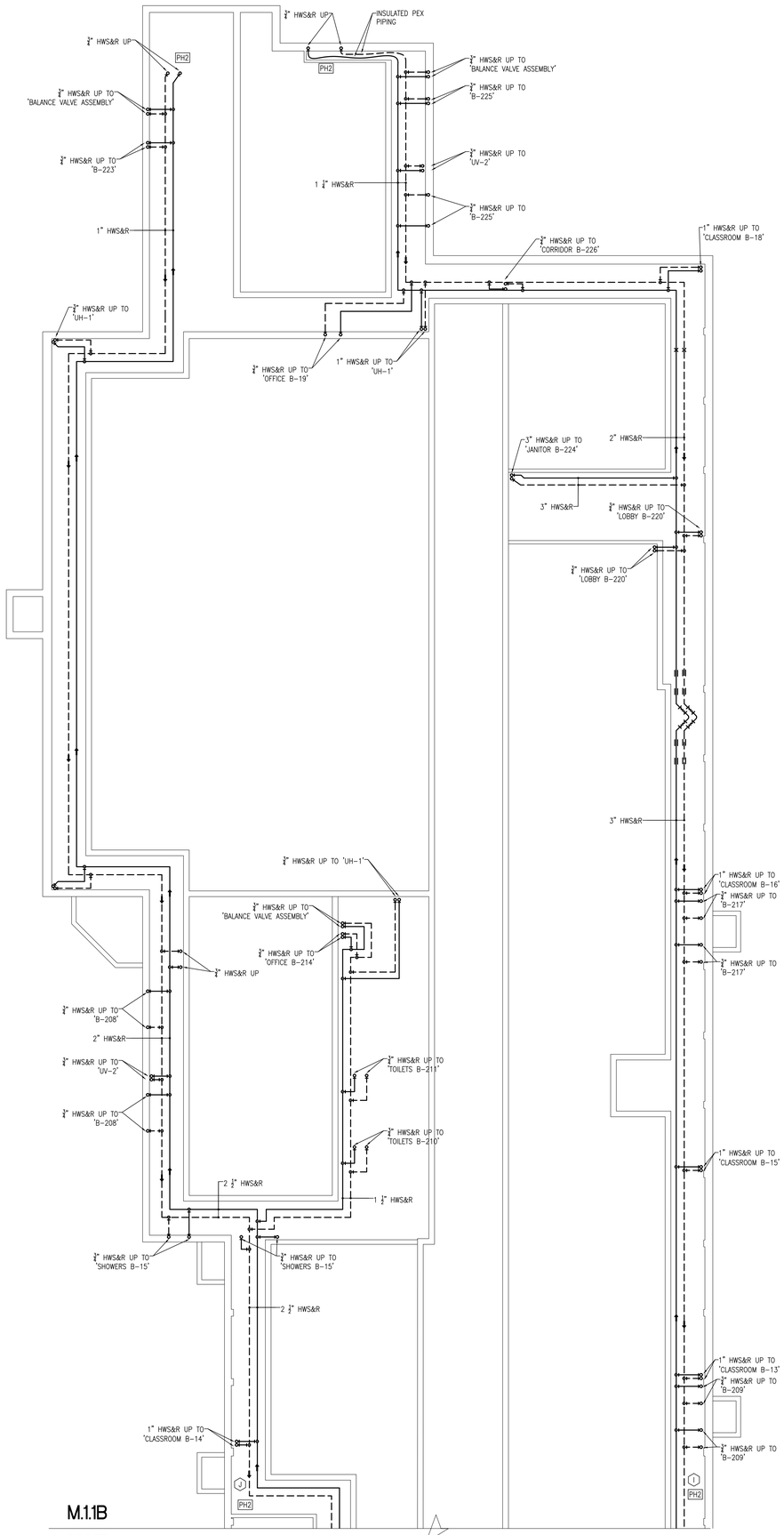
DATE 02/07/2020

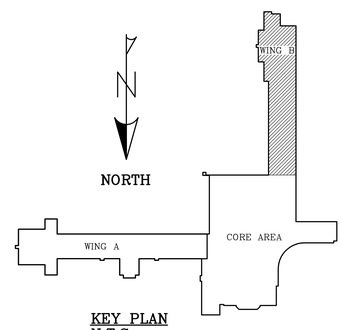
DWG. NO.
M.1.3C



TUNNEL PART PLAN -WING B - MECHANICAL

SCALE: 1/8"=1'-0"





KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration, or distribution of this drawing, in whole or in part, without written consent of Bemis Associates LLC, is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

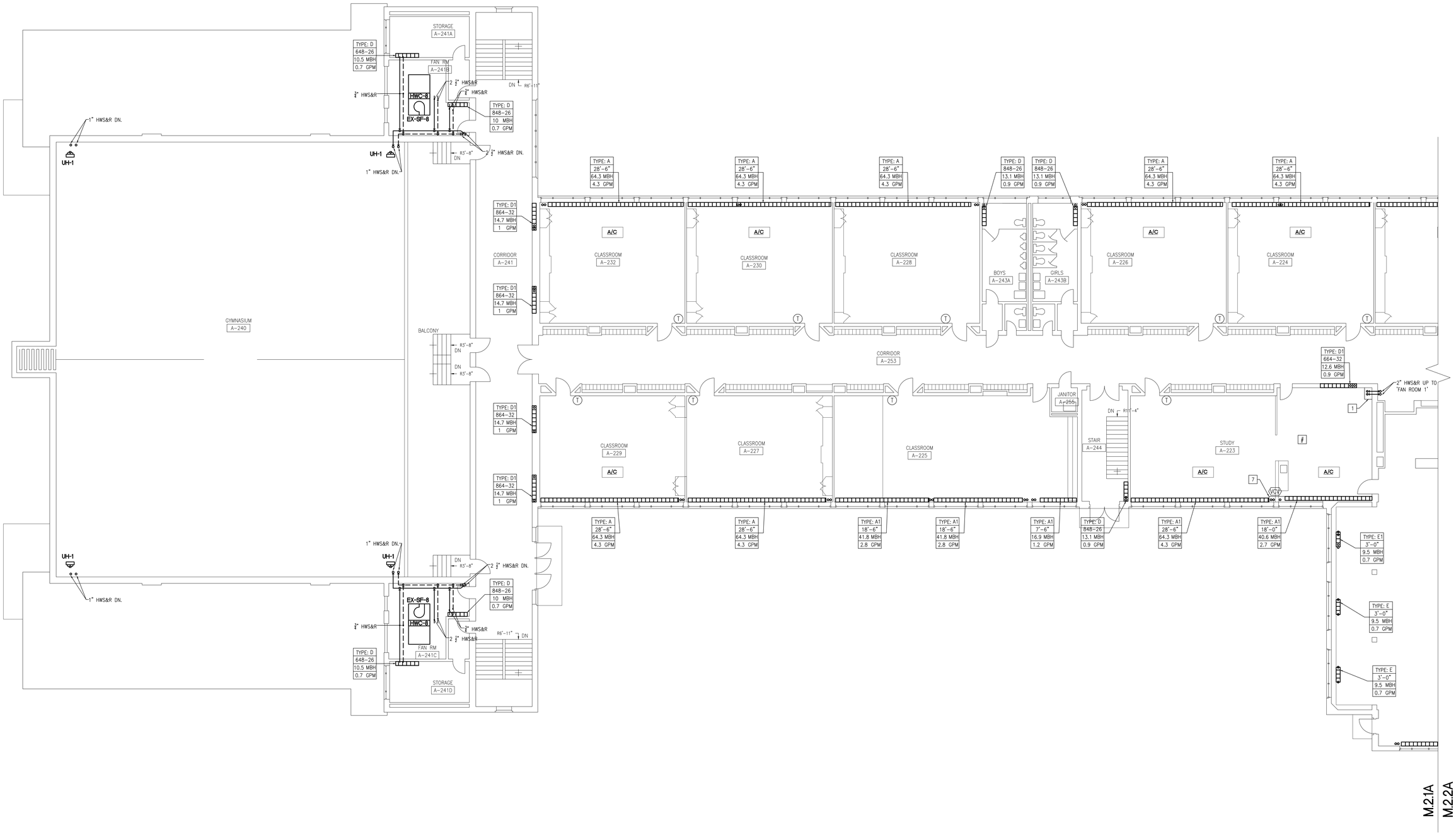
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Phone: (860) 674-1515
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
TUNNEL PART PLAN -WING B - MECHANICAL

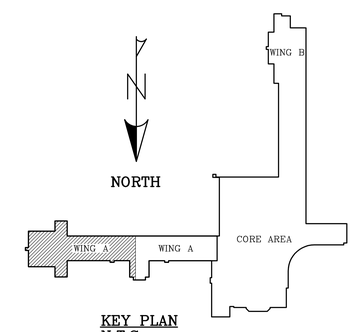
DATE 02/07/2020

DWG. NO.
M.1.1B



FIRST FLOOR PART PLAN -WING A - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, in whole or in part, or any other use of this drawing without the express written consent of Bemis Associates LLC is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

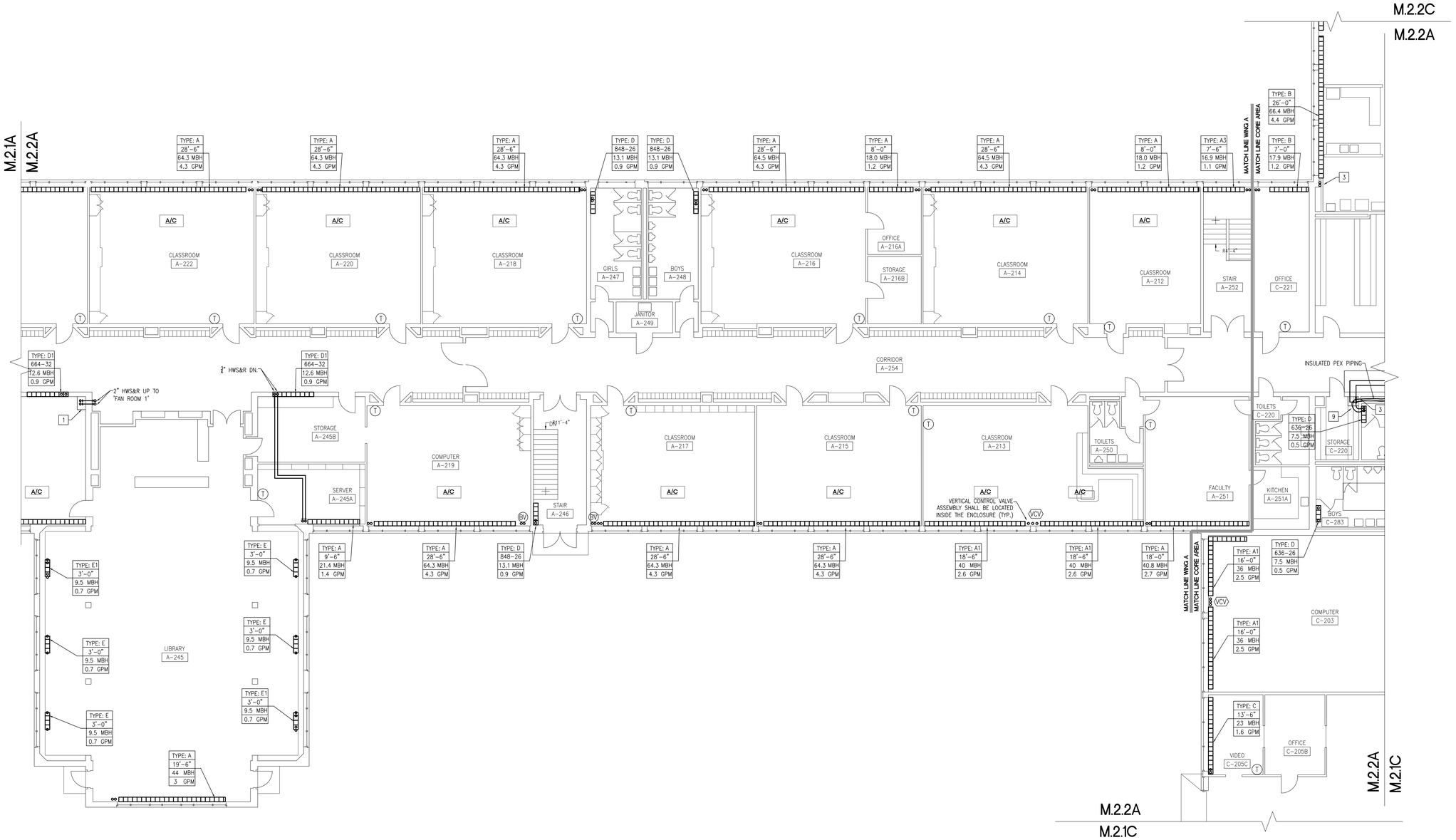
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 677-2603
Fax: (860) 321-7070
www.bemisassociates.com

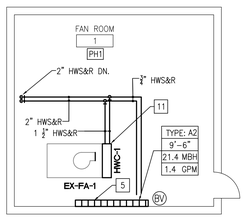
TITLE
FIRST FLOOR Part Plan
-WING A -
MECHANICAL

DATE 02/07/2020

DWG. NO.
M.2.1A

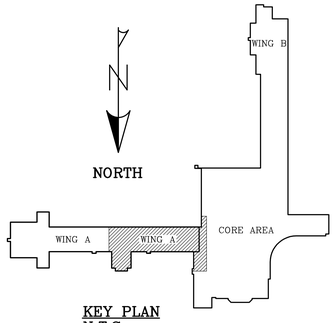


FIRST FLOOR PART PLAN -WING A - MECHANICAL



FAN ROOM 1 - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws of the United States. This drawing shall not be reproduced, in whole or in part, or be used for any purpose not specified in writing by Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alteration or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

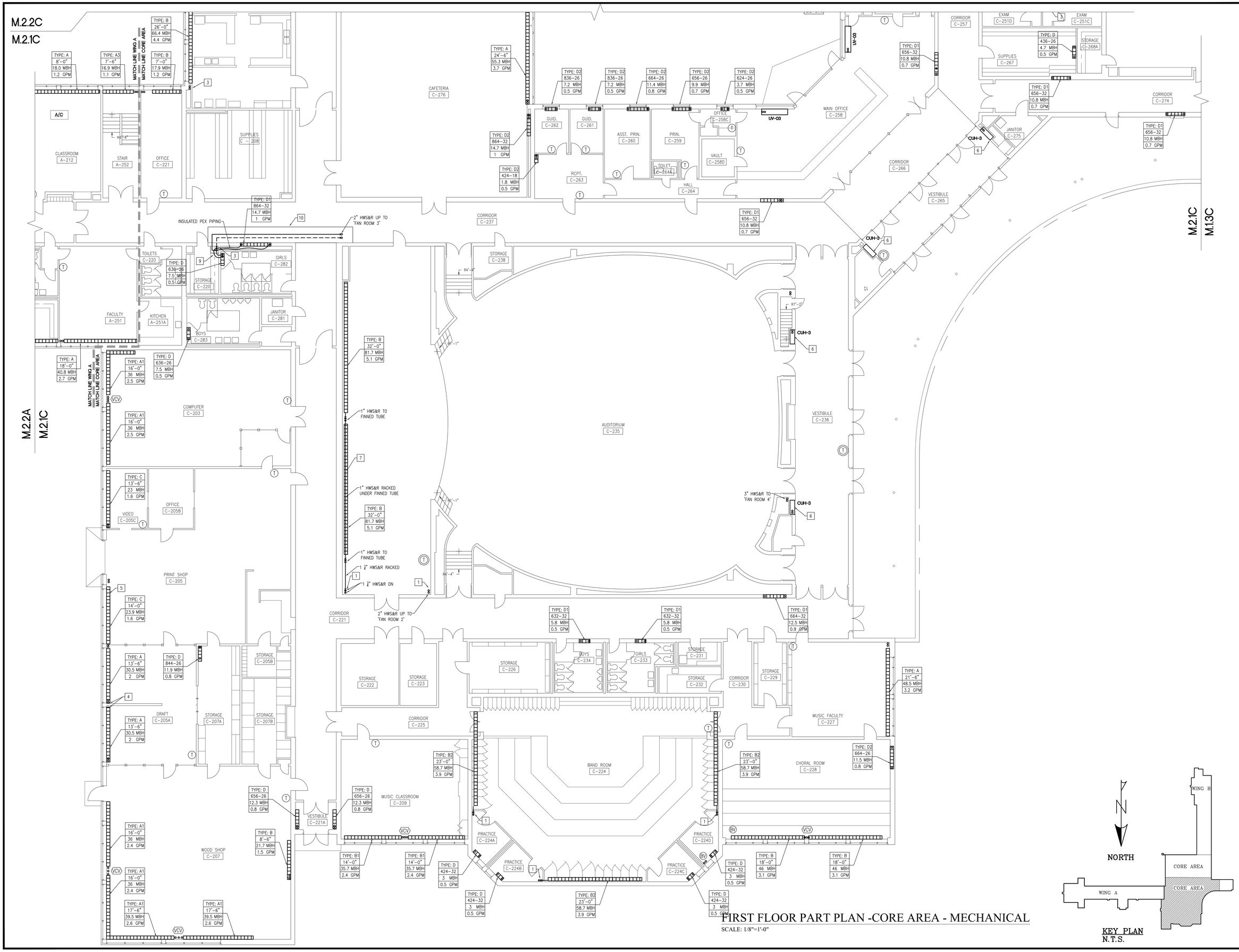
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 677-7233
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
FIRST FLOOR Part Plan -WING A - MECHANICAL

DATE 02/07/2020

DWG. NO.
M.2.2A



FIRST FLOOR PART PLAN -CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"

KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration or use of this drawing without the express written consent of Bemis Associates LLC is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

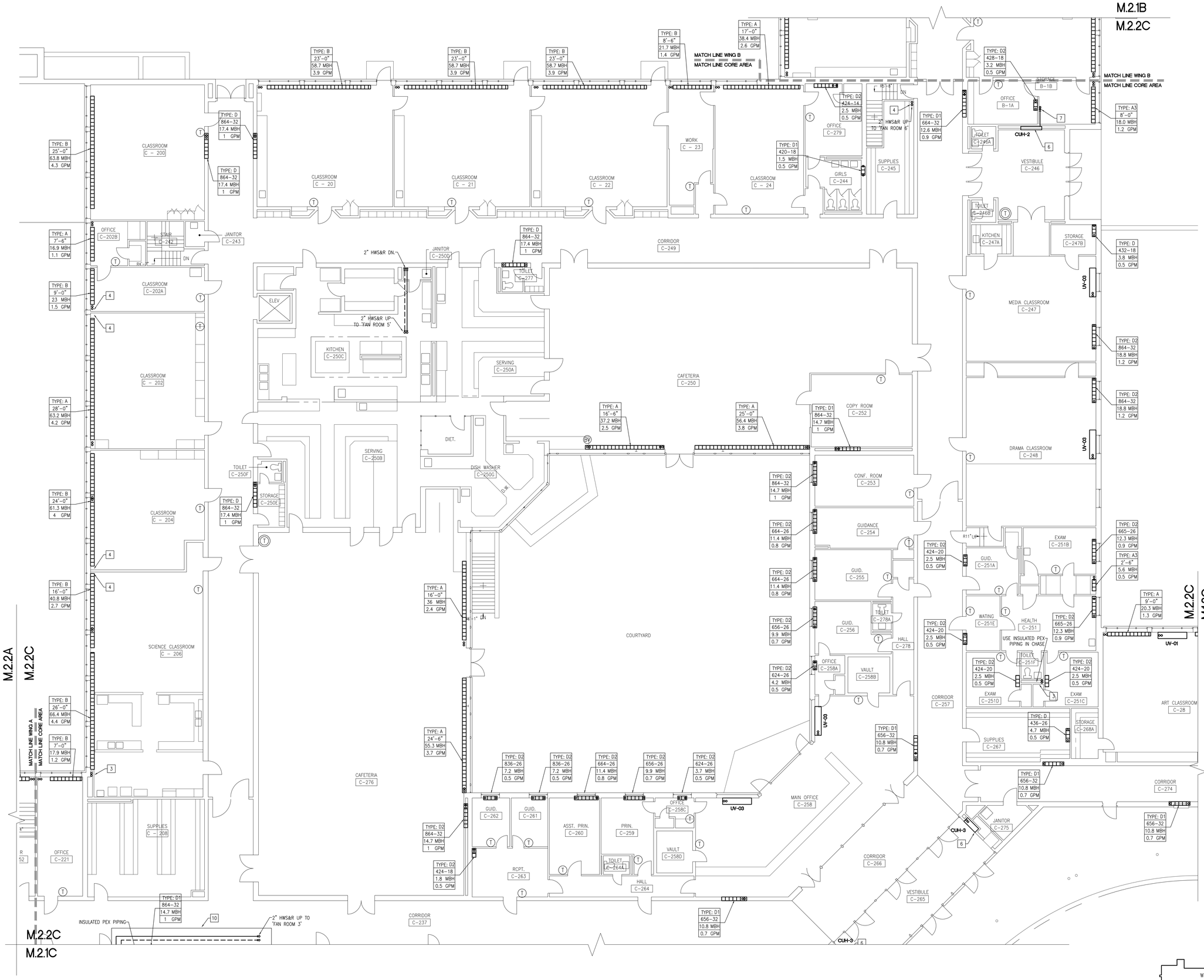
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 521-7070
Fax: (860) 521-7070
www.bemisassociates.com

TITLE
FIRST FLOOR Part Plan -CORE AREA - MECHANICAL

DATE 02/07/2020

DWG. NO.
M.2.1C



FIRST FLOOR PART PLAN -CORE AREA - MECHANICAL

SCALE: 1/8"=1'-0"

KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws of the United States. This drawing shall not be reproduced or used for other projects by parties other than the owner without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

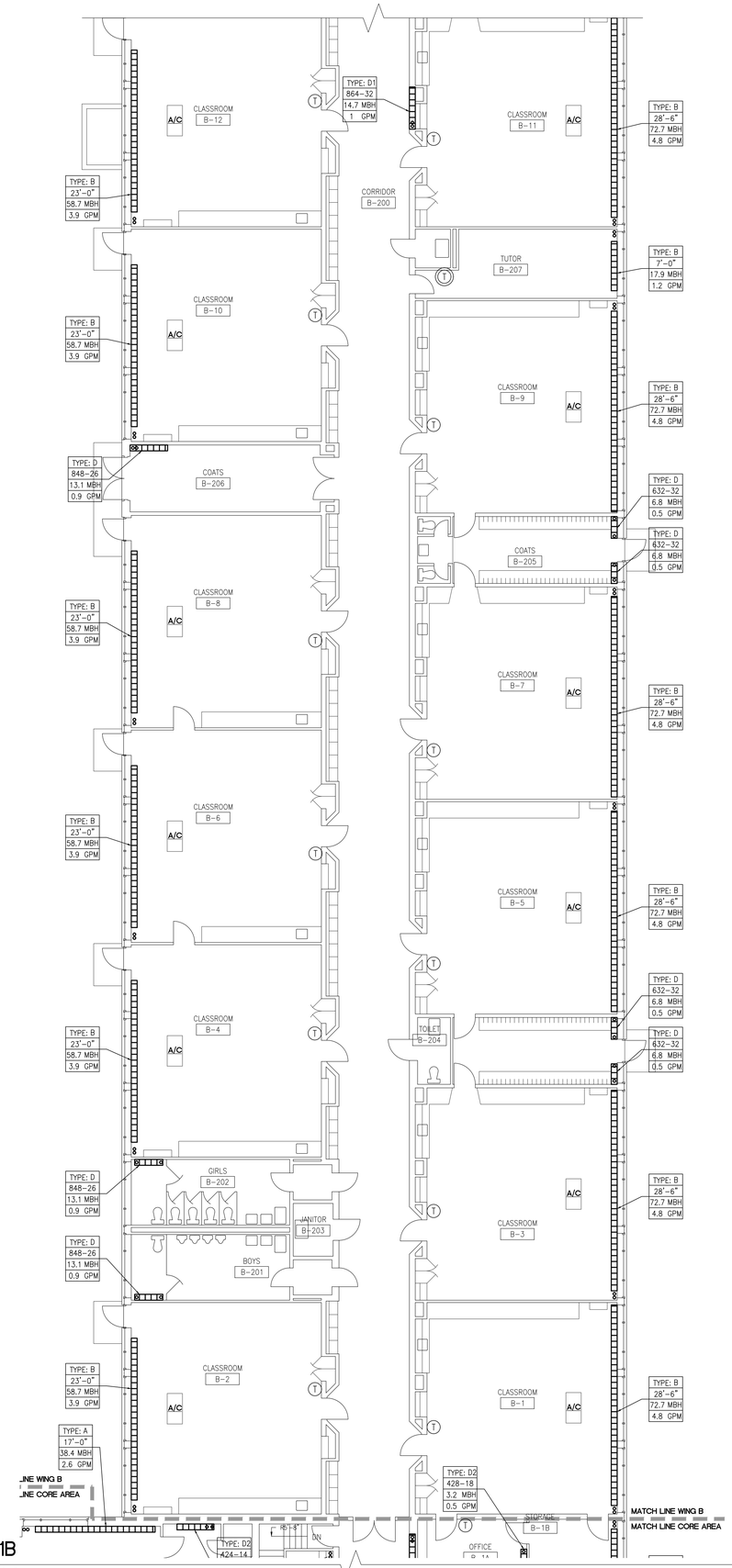
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 677-2323
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
FIRST FLOOR Part Plan -CORE AREA - MECHANICAL

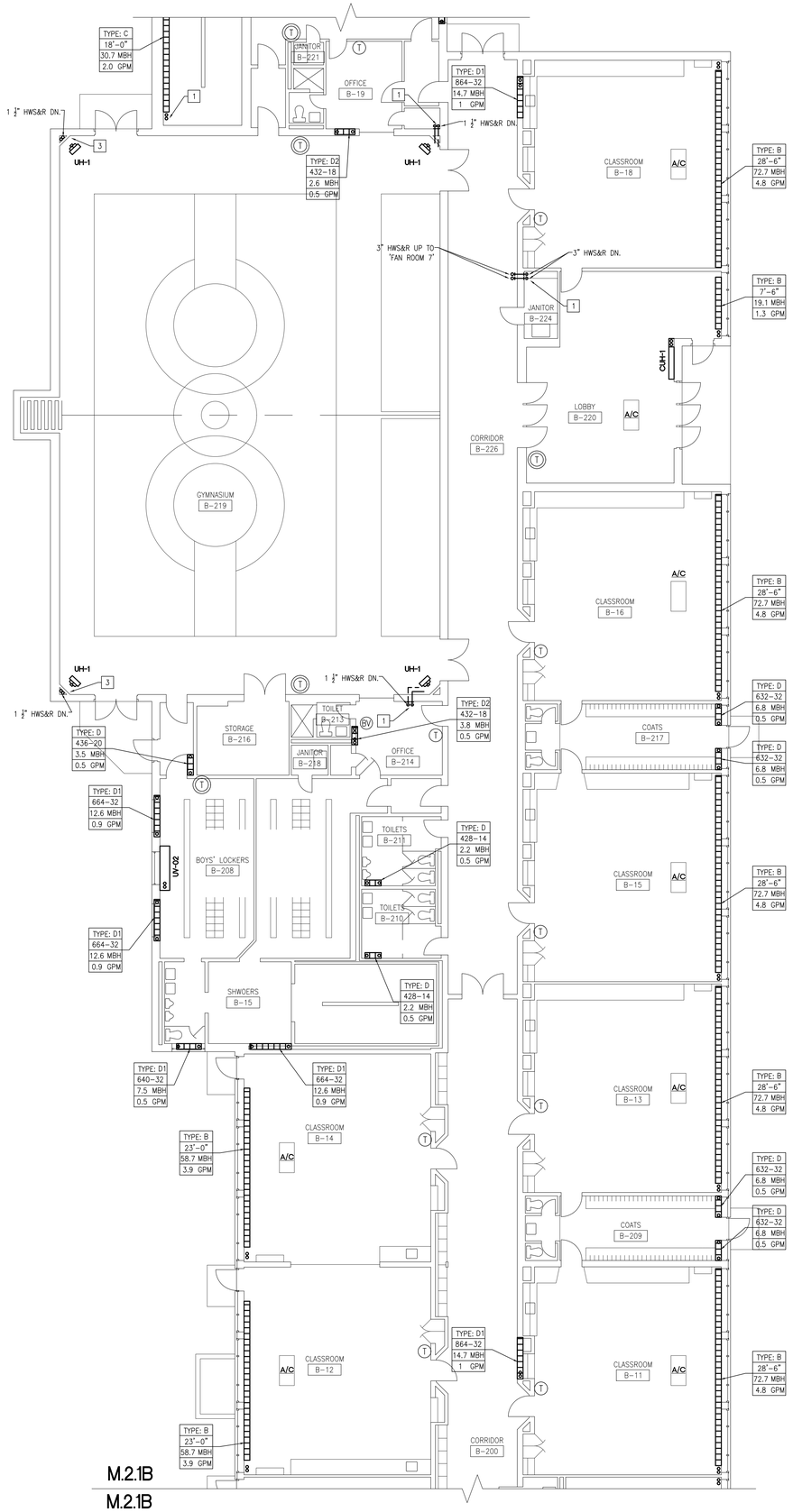
DATE 02/07/2020

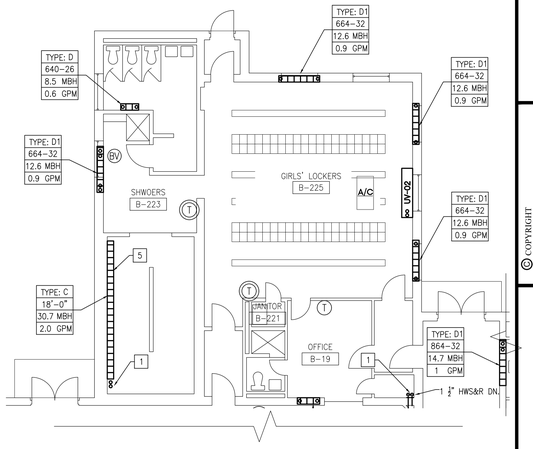
DWG. NO.
M.2.2C

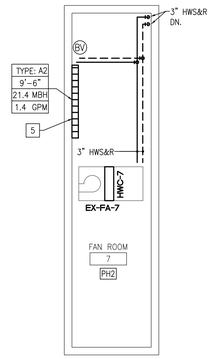


FIRST FLOOR PART PLAN -WING B - MECHANICAL

SCALE: 1/8"=1'-0"

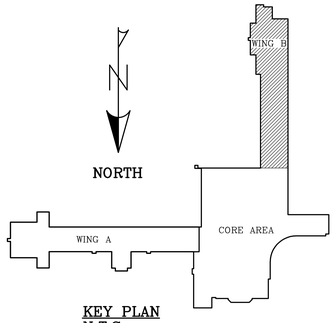






FAN ROOM 7 - WING B - MECHANICAL

SCALE: 1/8"=1'-0"



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the Copyright Act of 1976. This drawing shall not be reproduced, used or disclosed without the express written consent of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with this project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

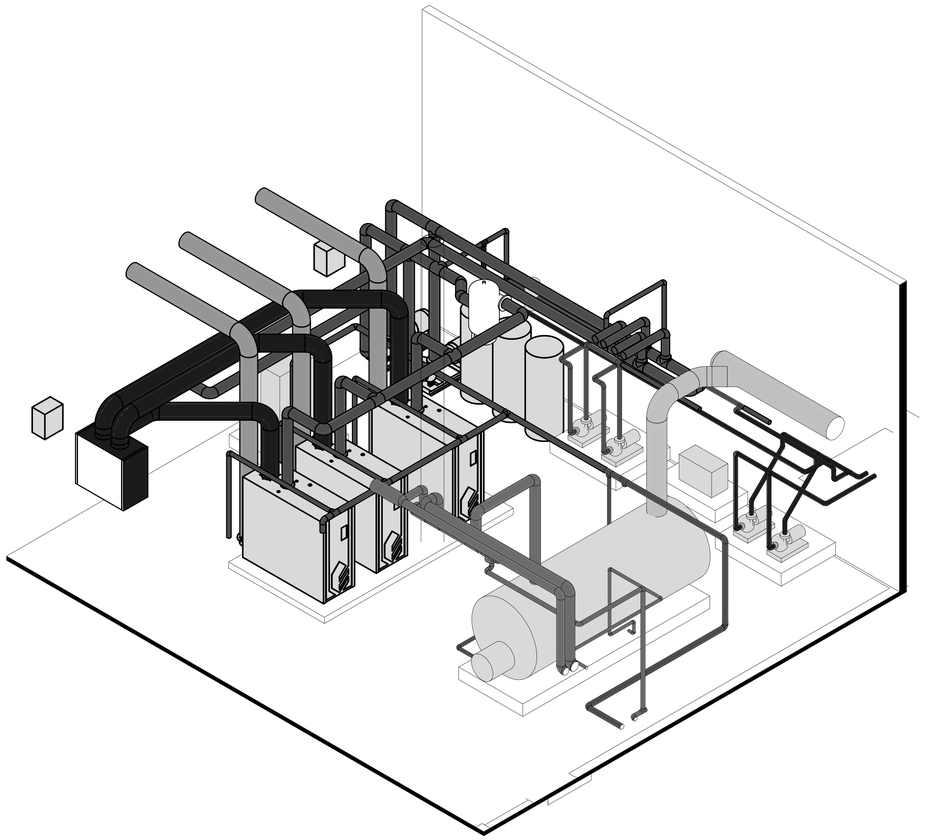
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 676-0333
Fax: (860) 321-7070
www.bemisassociates.com

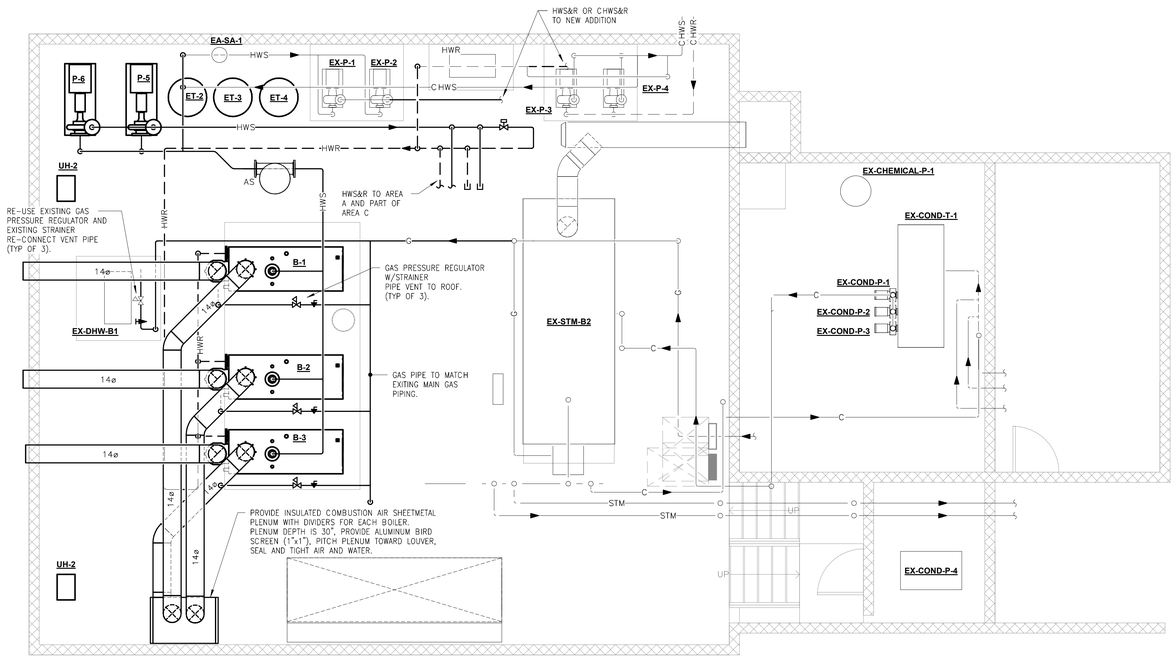
TITLE
FIRST FLOOR Part Plan -WING B - MECHANICAL

DATE 02/07/2020

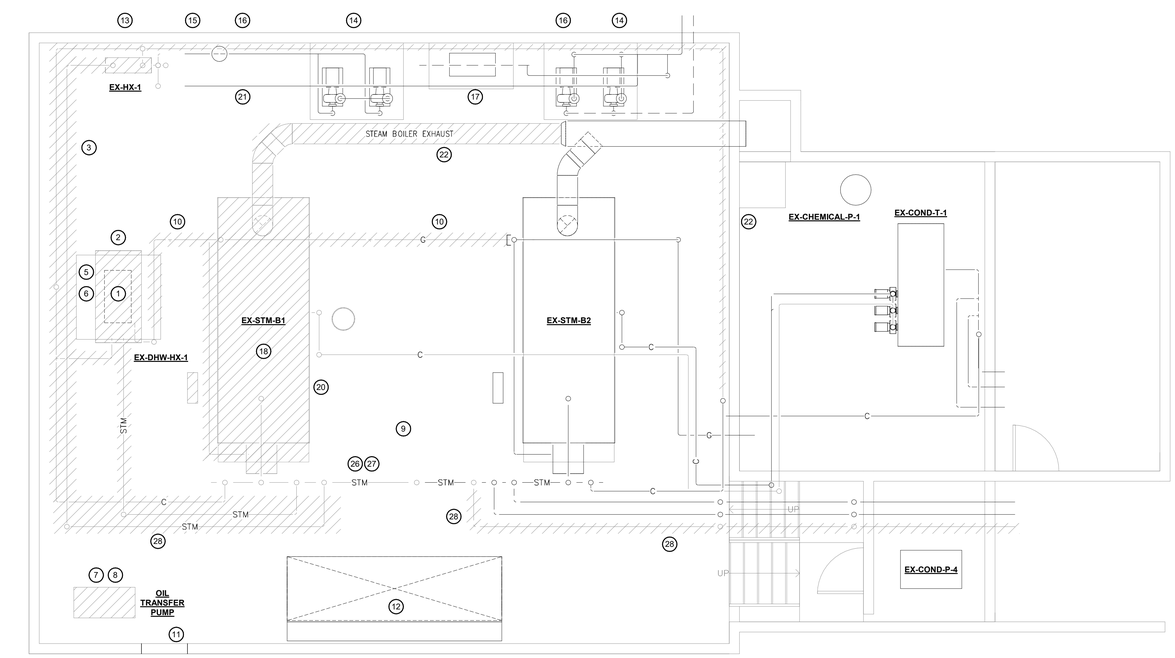
DWG. NO.
M.2.1B



3 M3.1 BOILER ROOM - PH1



1 M3.1 HVAC- BOILER ROOM PH1
1/4" = 1'-0"



2 M3.1 HVAC DEMO - Boiler Room PH1
1/4" = 1'-0"

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It is protected by the copyright laws and is unpublished work. This drawing and the concepts and data contained herein are not to be used for any purpose without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not a waiver of Bemis Associates LLC's rights in the drawing or work.

It is a violation of law to alter this drawing in any way. Bemis Associates LLC reserves the rights of ownership of the rights of ownership shall be presumed to the fullest extent possible under the law.

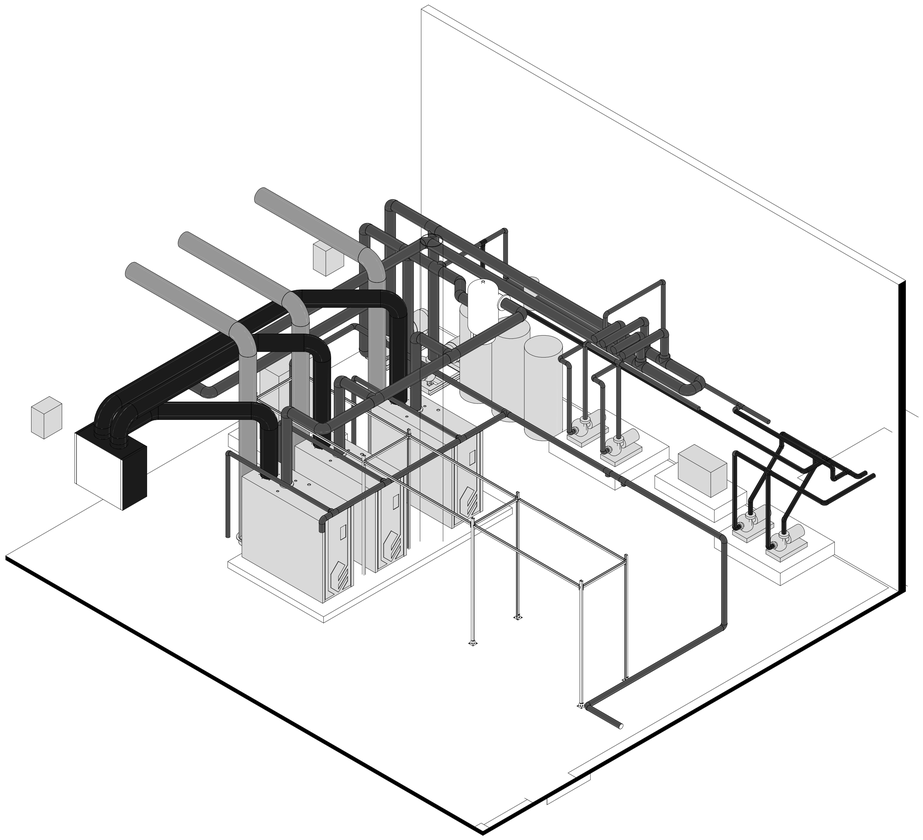
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, LLC.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 321-7331
Fax: (860) 321-7070
www.bemisassociates.com

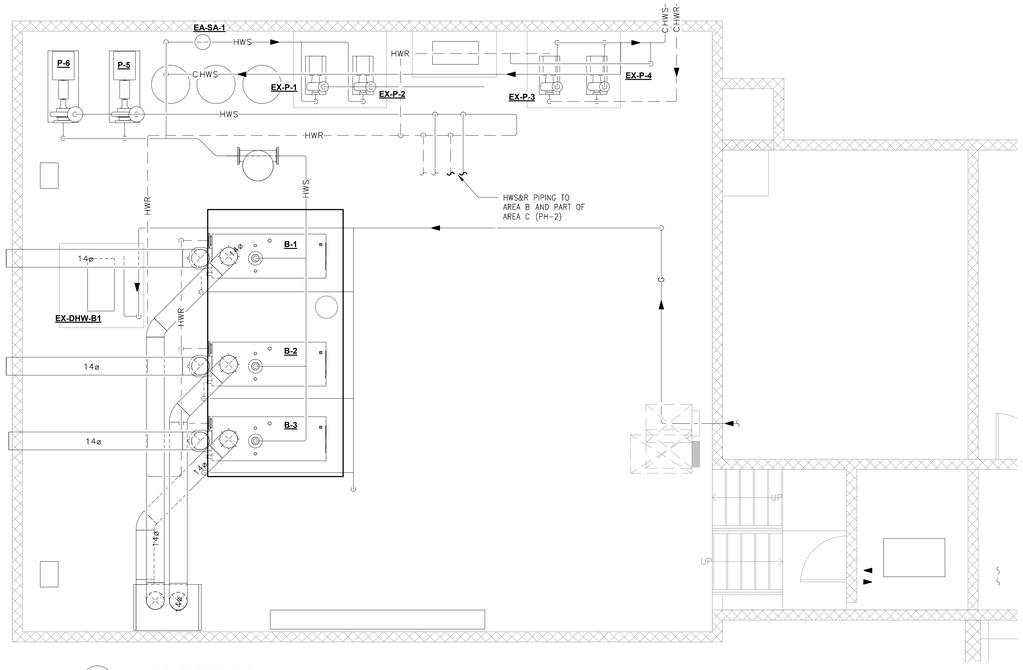
TITLE
BOILER ROOM - DEMOLITION AND NEW WORK PH1

DATE 11/01/2018

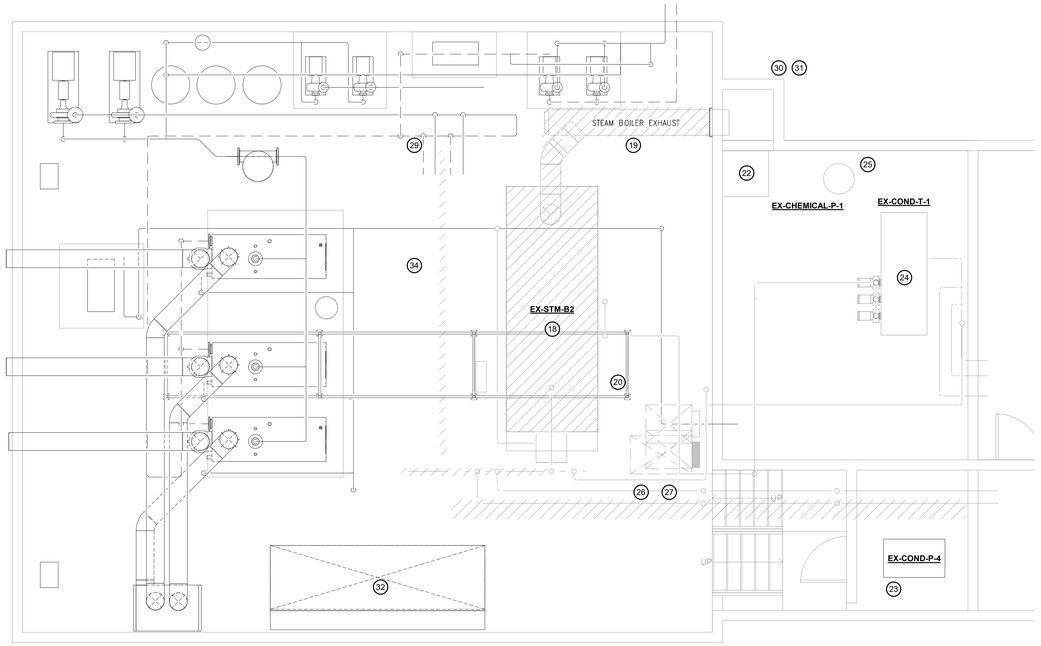
DWG. NO.
M3.1



3 / M3.2 BOILER ROOM - PH2



2 / M3.2 HVAC- BOILER ROOM PH2
1/4" = 1'-0"



1 / M3.2 HVAC DEMO - Boiler Room PH2
1/4" = 1'-0"

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration or use of this drawing is prohibited without the express written consent of Bemis Associates LLC.
Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not a waiver of Bemis Associates LLC's rights under the copyright law.
No reprint or publication in derogation of any of the rights of Bemis Associates LLC.
Reproduction or distribution of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

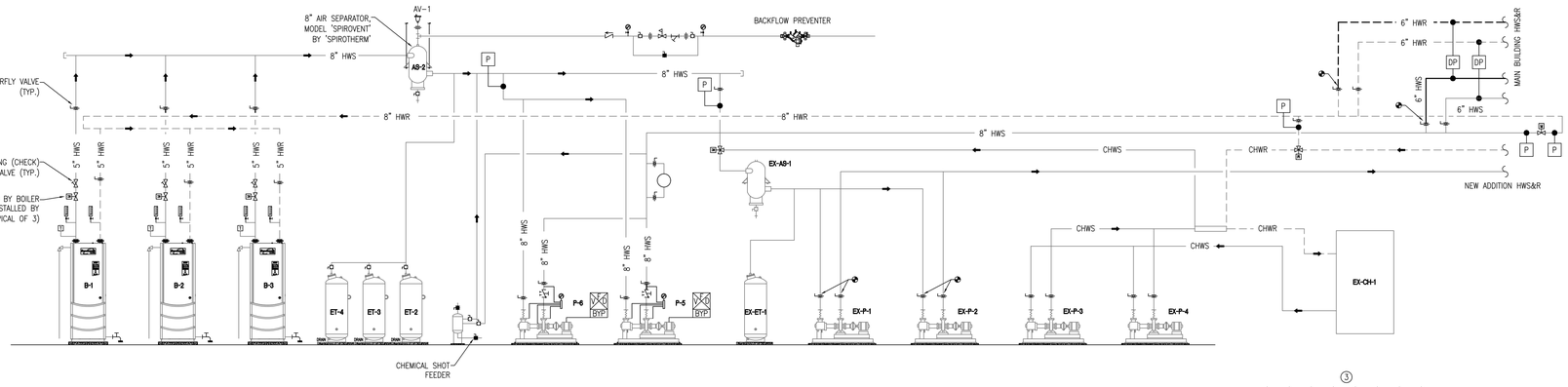
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

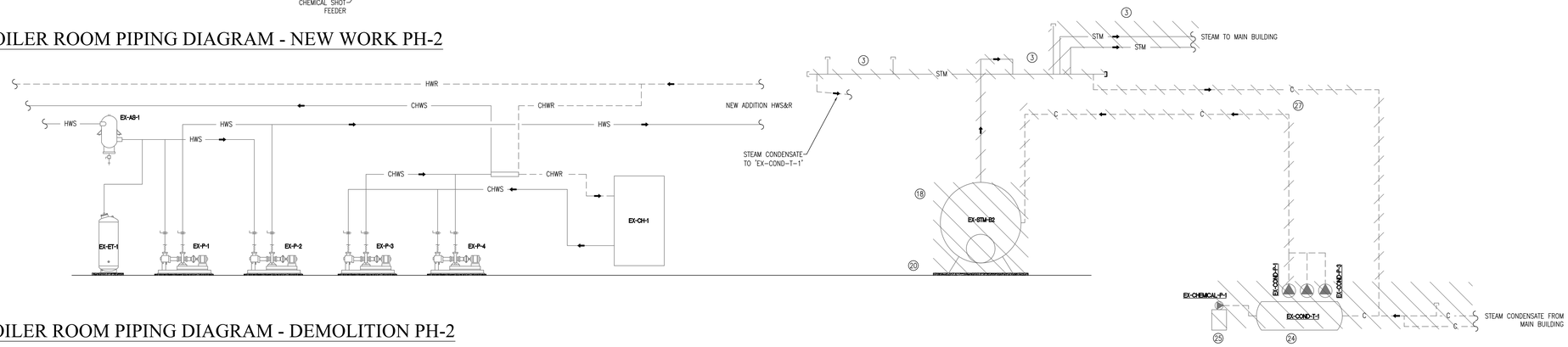
TITLE
BOILER ROOM - DEMOLITION AND NEW WORK PH2

DATE 11/01/2018

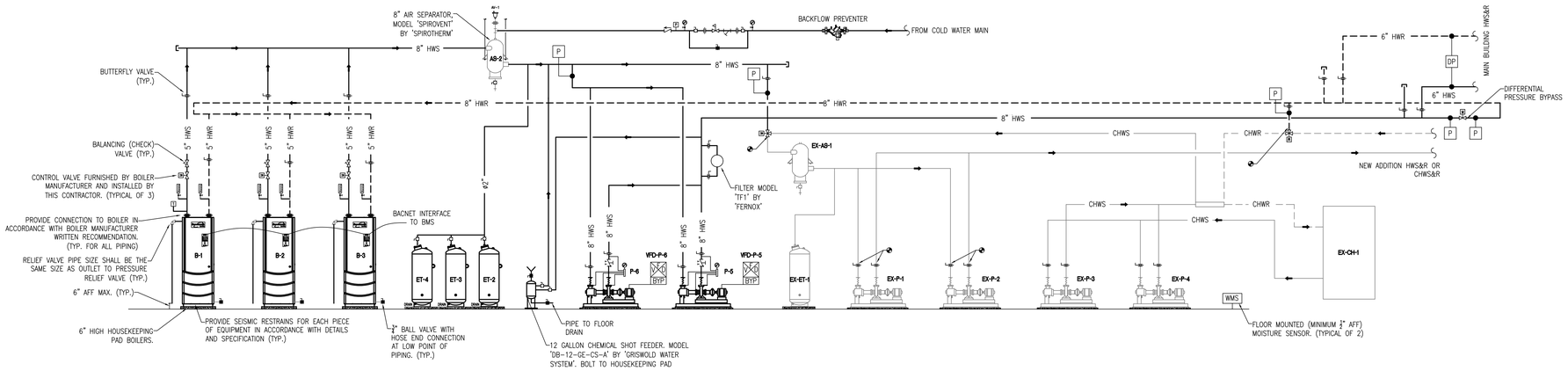
DWG. NO.
M3.2



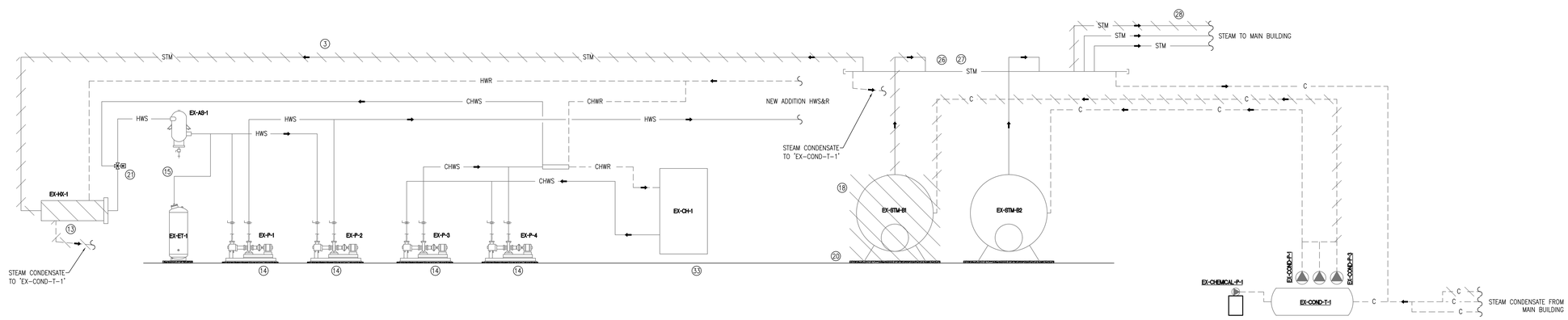
BOILER ROOM PIPING DIAGRAM - NEW WORK PH-2



BOILER ROOM PIPING DIAGRAM - DEMOLITION PH-2



BOILER ROOM PIPING DIAGRAM - NEW WORK PH-1



BOILER ROOM PIPING DIAGRAM - DEMOLITION PH-1

REVISIONS

© COPYRIGHT

This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration, or distribution of this document or any part thereof without the express written consent of Bemis Associates LLC is prohibited.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alteration or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 321-7233
Fax: (860) 321-7070
www.bemisassociates.com

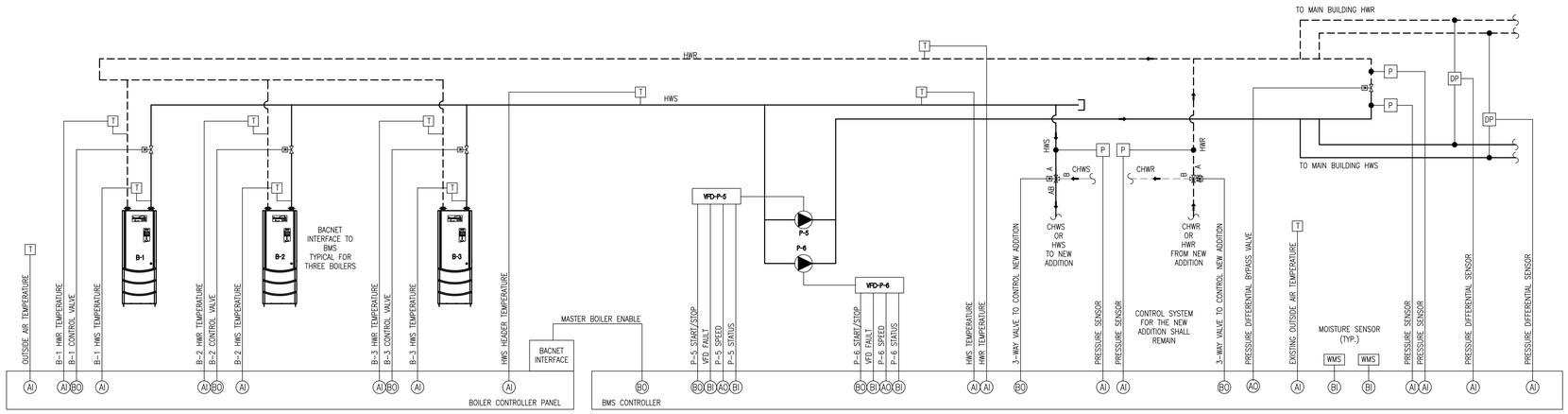
TITLE

BOILER ROOM - PIPING DIAGRAM DEMO / NEW WORK PH1 & PH2

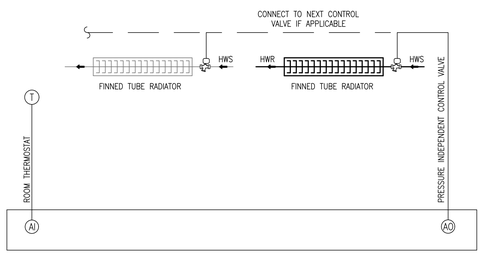
DATE 02/07/2020

DWG. NO.

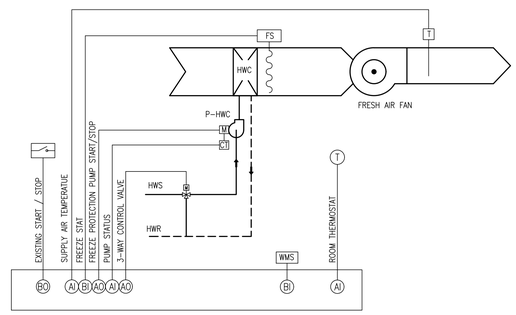
M4.1



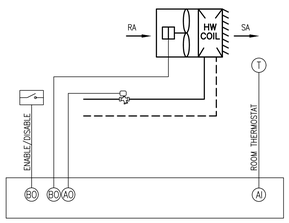
BOILER ROOM CONTROL DIAGRAM



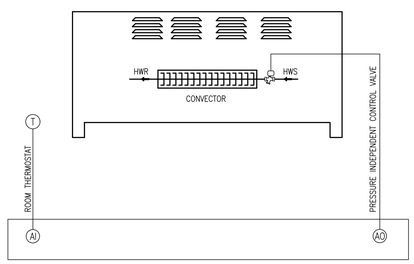
FINNED TUBE CONTROL DIAGRAM



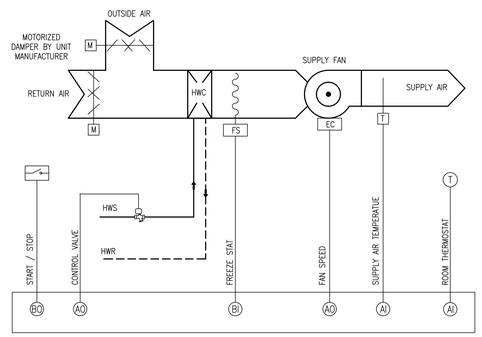
FAN ROOM CONTROL DIAGRAM



UNIT HEATER AND CABINET UNIT HEATER CONTROL DIAGRAM



CONVECTOR TYPE 'D2' CONTROL DIAGRAM



UNIT VENTILATOR CONTROL DIAGRAM

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration or use for any purpose other than those authorized by contract is prohibited. Visual contact with this drawing constitutes notice of this reservation and acceptance of the restrictions to which it is subject.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

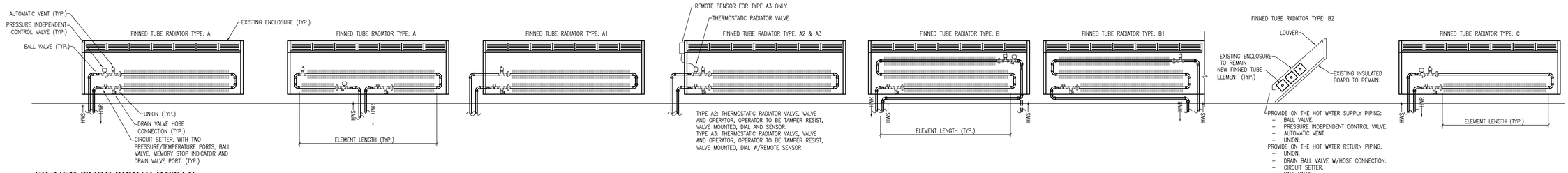
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

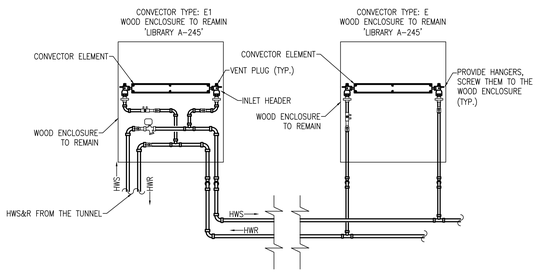
TITLE
MECHANICAL CONTROL DIAGRAM

DATE 02/07/2020

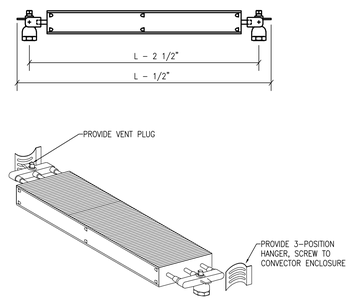
DWG. NO.
M5.1



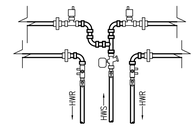
FINNED TUBE PIPING DETAIL
SCALE: NTS



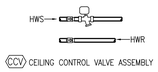
'LIBRARY A-245' CONVECTOR PIPING DETAIL
SCALE: NTS



CONVECTOR ELEMENT DETAIL FOR TYPES 'E', 'E1', 'D', 'D1'
SCALE: NTS

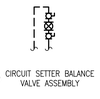


VERTICAL CONTROL VALVE ASSEMBLY DETAIL
SCALE: NTS

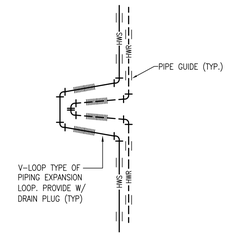


CEILING CONTROL VALVE ASSEMBLY DETAIL
SCALE: NTS

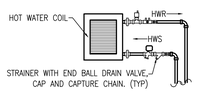
NOTES:
BALANCE VALVE ASSEMBLY SHALL BE LOCATED INSIDE THE CONVECTOR/FINNED TUBE ENCLOSURE. OTHERWISE, PROVIDE METAL BOX WITH ACCESS DOOR THAT CAN FIT THE ASSEMBLY INSIDE.



BALANCE VALVE ASSEMBLY DETAIL
SCALE: NTS

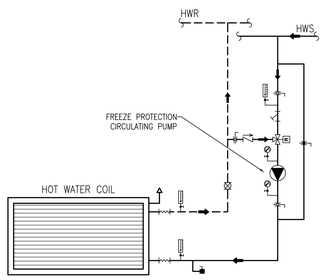


TYPICAL EXPANSION LOOP DETAIL
NO SCALE

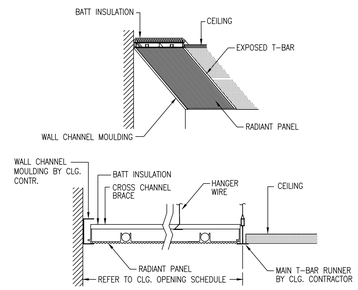


1. PROVIDE COIL VALVE PACKAGE IN LIEU OF INDIVIDUAL VALVES AS FOLLOWS:
   1.1. RETURN PIPING: UNION, AUTOMATIC VENT, CIRCUIT SETTER (THAT INCLUDE TWO PRESSURE/TEMPERATURE (P/T) PORTS, BALL VALVE, AND MEMORY STOP INDICATOR) AND SHUT-OFF VALVE.
   1.2. SUPPLY PIPING: SHUT-OFF VALVE, STRAINER (WITH END BALL DRAIN VALVE, HOSE END, CAP AND CAPTURE CHAIN), P/T PORTS, PRESSURE INDEPENDENT CONTROL VALVE, AND UNION.
2. ISOLATION VALVES AND STRAINER SHALL BE LINE SIZE AS SHOWN IN CONTRACT DRAWINGS.
3. ALL VALVES INCLUDING P/T PORTS SHALL HAVE EXTENDED STEMS TO ACCOMMODATE INSULATION INSTALLATION. CONTROL VALVES AND STRAINERS SHALL HAVE REMOVABLE INSULATION.

UNIT HEATER, CABINET UNIT HEATER AND UNIT VENTILATOR PIPING DETAIL
SCALE: NTS



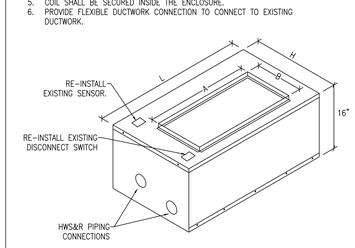
HOT WATER COIL PIPING DIAGRAM
SCALE: NTS



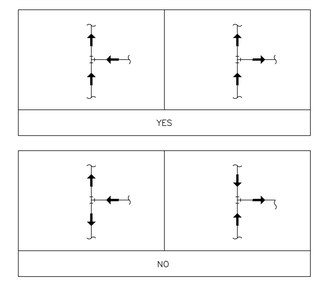
RADIANT CEILING PANEL DETAIL
NO SCALE

NOTES:

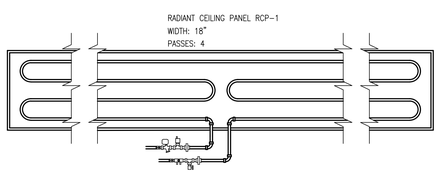
1. PROVIDE INTERNALLY INSULATED HOT WATER COIL 'HWC-1' ENCLOSURE. SEAL ALL INSULATION EDGES.
2. SHEET METAL ENCLOSURE SHALL BE MINIMUM 18 GAUGE
3. DIMENSIONS L, H, A, AND B TO MATCH EXISTING.
4. SCREW AND SEAL THE ENCLOSURE TO THE EXISTING 'EX-FA-1'.
5. COIL SHALL BE SECURED INSIDE THE ENCLOSURE.
6. PROVIDE FLEXIBLE DUCTWORK CONNECTION TO CONNECT TO EXISTING DUCTWORK.



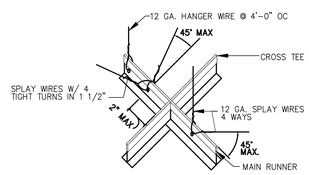
HOT WATER COIL 'HWC-1' SHEET METAL ENCLOSURE
NO SCALE



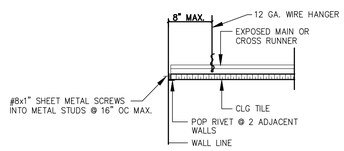
ALLOWABLE FLOW CONFIGURATIONS IN PIPING TEES - HVAC SYSTEMS



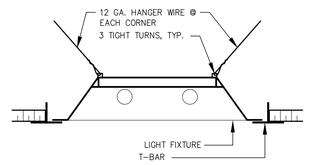
RADIANT CEILING PANEL PIPING DETAIL
SCALE: NTS



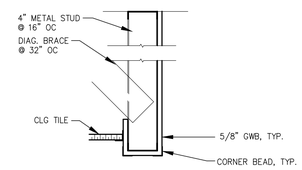
TYP. ACT 4-WAY SPLAY BRACING
ALL SPLAY WIRES AT 45



TYP. ACT STARTER WALLS

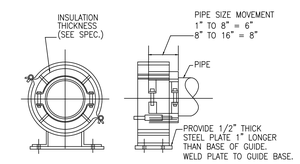


TYP. LIGHT FIXTURE DETAIL

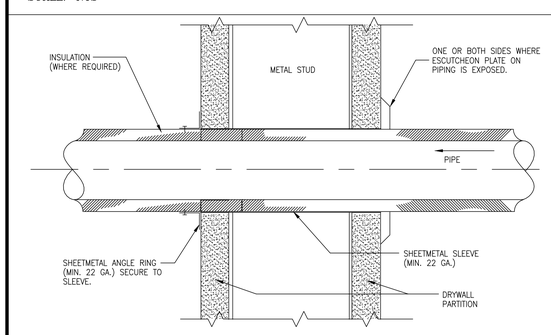


TYP. SOFFIT DETAIL

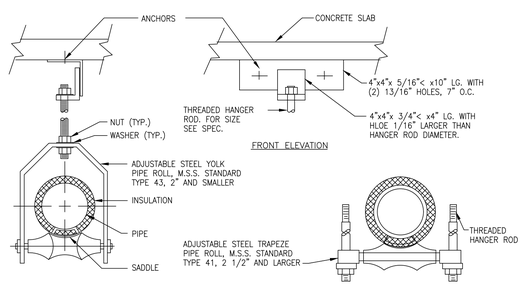
ACOUSTIC CEILING DETAILS
SCALE: NTS



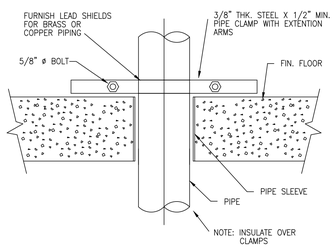
PIPE GUIDE DETAIL
SCALE: NTS



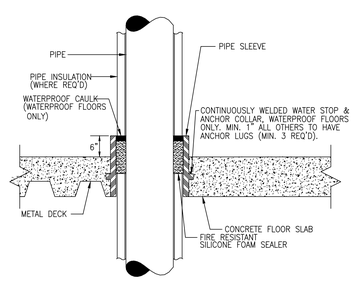
PIPE SLEEVE THROUGH WALL DETAIL
SCALE: NTS



ROLLER PIPE HANGER DETAIL
SCALE: NTS



TYPICAL PIPE RISER SUPPORT DETAIL
SCALE: NTS



TYPICAL PIPE SLEEVE THROUGH FLOOR DETAIL
SCALE: NTS

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of BEMIS | ASSOCIATES, L.L.C. The reproduction, alteration or distribution of this drawing, in whole or in part, without written consent of BEMIS | ASSOCIATES, L.L.C., is prohibited by state and federal laws. This drawing and the ideas and designs incorporated herein, as an instrument of service, is to be recovered at the discretion of the Architect. Submission or distribution of this drawing to meet official regulations is not to be construed as a publication in derogation of any of the rights of BEMIS | ASSOCIATES, L.L.C.
Any development or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

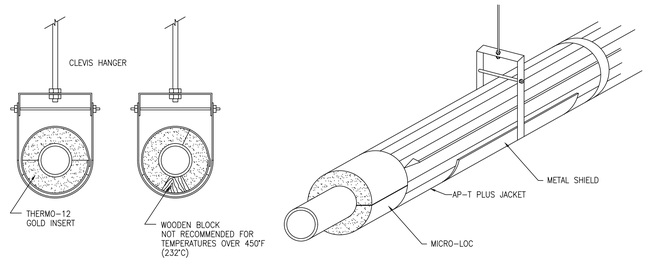
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 321-7231
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
MECHANICAL DETAILS

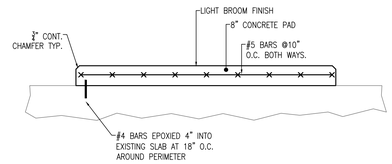
DATE 02/07/2020

DWG. NO.
M6.1



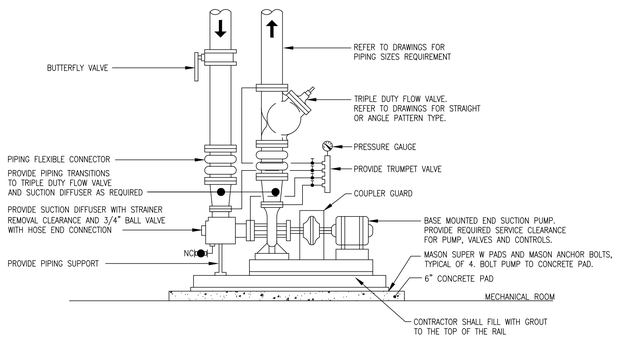
TYPICAL HOT OR CHILLED WATER PIPING INSULATION

SCALE: NTS



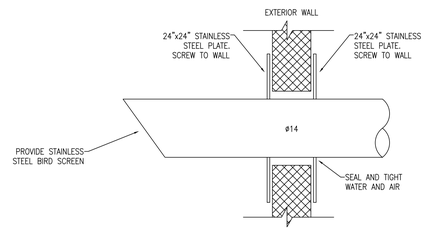
TYPICAL HOUSE KEEPING PAD DETAIL

NO SCALE



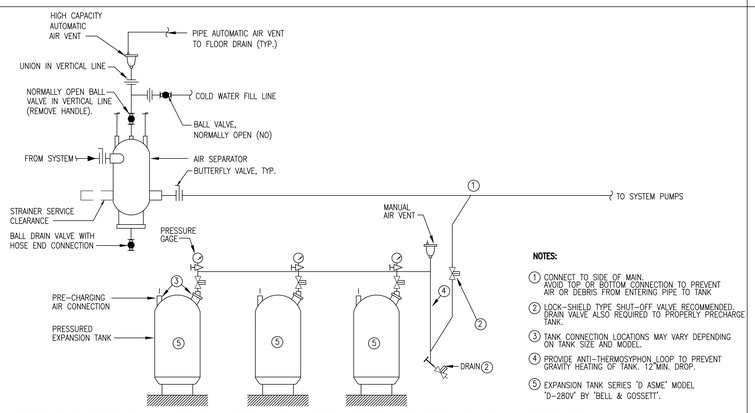
TYPICAL PIPING DETAIL FOR BASE MOUNTED PUMPS

SCALE: NTS



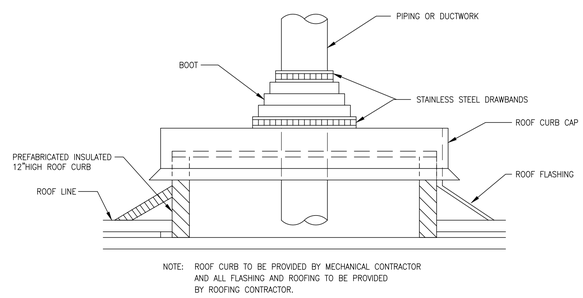
TYPICAL BOILER VENT PENETRATION THROUGH OUTSIDE WALL

SCALE: NTS



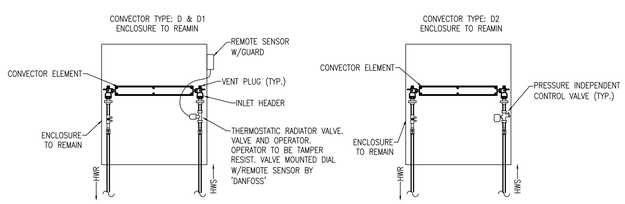
TYPICAL VERTICAL EXPANSION TANKS WITH AIR SEPARATOR DETAIL

SCALE: NTS



TYPICAL PIPING ROOF CURB DETAIL

NOT TO SCALE



CONVECTOR PIPING DETAIL

SCALE: NTS

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, alteration, or distribution of this document without the express written approval of Bemis Associates LLC is prohibited.
Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.
Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 677-2603
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
MECHANICAL DETAILS

DATE 02/07/2020

DWG. NO.
M6.2

GENERAL SPECIFICATION NOTES - ELECTRICAL

1. THE CONTRACTOR SHALL VERIFY AND OBTAIN ALL NECESSARY DIMENSIONS AT THE BUILDING.
2. FINISHED WORK: THE INTENT OF THE SPECIFICATIONS AND DRAWINGS IS TO CALL FOR FINISHED WORK, COMPLETED, TESTED AND READY FOR OPERATION.
3. GOOD PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHOW EVERY CONDUIT, JUNCTION BOX, FITTING OR MINOR DETAIL AND IT IS UNDERSTOOD THAT WHILE THE DRAWINGS MUST BE FOLLOWED AS CLOSELY AS CIRCUMSTANCES WILL PERMIT, THE SYSTEMS SHALL BE INSTALLED ACCORDING TO THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH GOOD PRACTICE.
4. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON DRAWINGS BUT MENTIONED IN SPECIFICATION OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
5. CODES AND STANDARDS - COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES AND STANDARDS WHEREVER APPLICABLE INCLUDING THE FOLLOWING: 2018 CONNECTICUT STATE BUILDING CODE, 2015 INTERNATIONAL BUILDING CODE, 2018 CONNECTICUT FIRE SAFETY CODE, 2015 INTERNATIONAL FIRE CODE, 2013 NFPA 72 NATIONAL FIRE ALARM CODE, 2017 NFPA 70 NATIONAL ELECTRICAL CODE, 2010 NFPA STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS, 2015 INTERNATIONAL ENERGY CONSERVATION CODE, ICC/ANSI A117.1-2009 ACCESSIBLE AND USABLE BUILDING AND FACILITIES, ADA, NFPA, UNDERWRITERS LABORATORIES, FACTORY MUTUAL INSURANCE COMPANY, NEMA STANDARDS.
6. NOTE THAT THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL EQUIPMENT AND SYSTEMS, WITHOUT SHOWING EVERY DETAIL AND FITTING.
7. ALL CABLES AND CONDUITS PASSING THROUGH FLOORS, WALLS OR PARTITIONS SHALL BE PROVIDED WITH EMT CONDUIT SLEEVES SIZED TO GIVE A MINIMUM OF 1/2" CLEARANCE BETWEEN SLEEVE AND THE OUTSIDE DIAMETER OF THE CABLE OR CONDUIT.
8. ALL SLEEVES AND/OR CORE BORED HOLES AROUND CONDUIT AND CABLE SHALL BE PACKED WITH DAMMING MATERIAL AND SEALED. SEALANT SHALL ALLOW FOR MOVEMENT WITHOUT CRACKING AND SHALL BE 3M BRAND FIRE BARRIER CAULK CP25 OR APPROVED EQUAL.
9. PROVIDE FIRE STOPPING AT ALL FIRE AND/OR SMOKE RATED WALL OR FLOOR PENETRATIONS IN ORDER TO MAINTAIN ITS ORIGINAL INTEGRITY.
10. ALL POWER CONDUCTORS SHALL BE COPPER RATED 600 VOLTS, 90 DEG. C., COLOR CODED, TYPE XHHW-2 FOR FEEDERS AND TYPE THWN FOR BRANCH CIRCUITS.
11. MINIMUM SIZE CONDUCTORS FOR POWER AND LIGHTING SHALL BE #12 AWG. PROVIDE MINIMUM #10 AWG SIZE FOR RUNS EXCEEDING 75' IN CONDUCTOR LENGTH AND #8 AWG SIZE FOR RUNS EXCEEDING 150' IN CONDUCTOR LENGTH. PROVIDE LARGER SIZE CONDUCTORS AS SCHEDULED OR AS NOTED ON THE DRAWINGS.
12. THE NUMBER OF WIRES ON A CONDUIT/CABLE RUN IS INDICATED ON THE DRAWINGS BY CROSS LINES ON THE CONDUIT/CABLE RUNS. PROVIDE CODE-SIZED CONDUIT FOR THE NUMBER AND SIZE OF WIRES UNLESS A LARGER SIZE IS SHOWN ON THE DRAWINGS. MINIMUM CONDUIT SIZE SHALL BE 3/4".
13. TYPE MC CABLE MAY BE USED FOR LIGHTING AND HEAT PUMP CIRCUITS WHERE CONCEALED ABOVE HUNG CEILINGS OR WHERE FISHED DOWN WITHIN STUD WALLS.
14. OUTLET BOXES SHALL BE CODE GAUGE GALVANIZED STEEL AND SHALL BE OF SHAPES AND SIZES TO SUIT THEIR RESPECTIVE LOCATIONS AND INSTALLATIONS, AND SHALL BE PROVIDED WITH COVERS TO SUITE THEIR FUNCTION AND INSTALLATION.
15. OUTLET BOXES SHALL BE EQUIPPED WITH FIXTURE STUD OR STRAPS WHERE REQUIRED. MINIMUM BOX SIZE FOR FIXTURE, WALL OR SWITCH OUTLETS SHALL BE NOMINAL 4" X4" X 2-1/8" (I.E. 2 GANG SIZE).
16. INSTALL BOXES IN ACCESSIBLE LOCATIONS AND AT UNIFORM HEIGHTS. IN HUNG CEILINGS THEY SHALL BE READILY ACCESSIBLE BY REMOVAL OF LIGHT FIXTURE, CEILING TILE OR ACCESS PANEL.
17. SET BOXES AND COVERS SQUARE AND TRUE TO BUILDING FINISH.
18. RACEWAYS AND CABLE SHALL BE RUN IN PARALLEL TO OR AT RIGHT ANGLES TO WALL LINES.
19. RACEWAYS AND CABLE SHALL BE SUPPORTED FROM THE STRUCTURE BY ROD HANGERS, OR RACK MOUNTED OR OTHER APPROVED ELECTRICAL MOUNTING. DO NOT SUPPORT DIRECTLY FROM ROOF DECKING.
20. RACEWAYS AND CABLES SHALL BE CONCEALED IN ALL FINISHED AREAS.
21. RACEWAYS: PROVIDE EMT CONDUIT FOR BRANCH CIRCUIT HOMERUNS & FOR WIRING EXPOSED TO VIEW, CONNECTORS AND COUPLINGS SHALL BE GALVANIZED STEEL SET-SCREW TYPE. PROVIDE GLAND COMPRESSION CONNECTORS AND COUPLINGS WHERE LOCATED IN DAMP AND WET LOCATIONS. PROVIDE FLEXIBLE STEEL CONDUIT FOR FINAL CONNECTIONS TO MOTOR DRIVEN EQUIPMENT. PROVIDE LIQUIDTIGHT FLEXIBLE STEEL CONDUIT WHERE LOCATION IN DAMP AND WET AREAS.
22. WIRING DEVICES:
    - A. ALL DEVICES SHALL BE FURNISHED IN HUBBELL OR APPROVED EQUAL IN COOPER, PASS & SEYMOUR OR LEVITON. DEVICES SPECIFIED HEREIN ARE BASED ON HUBBELL UNLESS OTHERWISE NOTED. RECEPTACLE AND SWITCH COLORS SHALL BE AS DIRECTED BY ARCHITECT.
    - B. LIGHTING SWITCHES SHALL BE TOGGLE TYPE, HEAVY DUTY SPECIFICATION GRADE, 20 AMP, #CS1221 FOR SINGLE POLE, DIMMER SWITCHES: PROVIDE IN LUTRON MANUFACTURE, TYPES AND CAPACITIES AS LISTED BELOW FOR DIFFERENT APPLICATIONS. FLUORESCENT DIMMERS SHALL BE COMPATIBLE WITH LUTRON HI-LUME AND SCO-10 FLUORESCENT DIMMING BALLAST. WHERE MULTIPLE DIMMER SWITCHES ARE SHOWN GROUPED TOGETHER SET IN GANGS WITH A COMMON WALL PLATE. WALL PLATES FOR DIMMER SWITCHES SHALL BE LUTRON NFB SERIES METAL WALL PLATES, CLEAR ANODIZED ALUMINUM FINISH. DO NOT GANG DIMMING AND NON-DIMMING SWITCHES TOGETHER.
    - C. RECEPTACLES SHALL BE HEAVY DUTY SPECIFICATION GRADE, 2 POLE, 3 WIRE GROUNDING, NEMA 5-20R, RATED 20 AMPS AT 125 VOLTS AC, #HBL5361 FOR SINGLE RECEPTACLES, #HBL5362 FOR DUPLEX RECEPTACLES, TWO(2) #HBL5362 FOR QUADRUPLEX RECEPTACLES AND #GF5362 FOR DUPLEX GFCI RECEPTACLES.
    - D. WALL PLATES SHALL BE TYPE 302 STAINLESS STEEL, SATIN FINISH. FURNISH WALL PLATES IN SAME MANUFACTURER AS DEVICES.
23. BRANCH CIRCUIT WIRING AND ARRANGEMENT OF HOME RUNS HAS BEEN DESIGNED FOR MAXIMUM ECONOMY CONSISTENT WITH ADEQUATE SIZING FOR VOLTAGE DROPS, CIRCUIT AMPACITIES AND OTHER CONSIDERATIONS. INSTALL THE WIRING WITH CIRCUITS ARRANGED AS SHOWN ON THE DRAWINGS, EXCEPT AS APPROVED IN ADVANCE BY THE ARCHITECT AND ENGINEER. DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL.
24. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH 120V SINGLE PHASE CIRCUIT. DO NOT USE A COMMON NEUTRAL FOR GROUPS OF CIRCUITS. PROVIDE A SEPARATE GROUND WIRE FOR EACH CIRCUIT BACK TO THE RESPECTIVE PANEL GROUND. IF MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN ONE CONDUIT THEY SHALL BE DE-RATED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. DO NOT INSTALL MORE THEN THREE 30 AMP SINGLE PHASE OR FOUR 20 AMP SINGLE PHASE CIRCUITS IN THE SAME CONDUIT. DO NOT MIX LIGHTING AND POWER CIRCUIT IN THE SAME CONDUIT.

DEMOLITION NOTES:

1. PRIOR TO SUBMITTING BID, VISIT THE SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
2. THE DEMOLITION DRAWINGS ARE INTENDED ONLY TO DEFINE THE GENERAL SCOPE OF DEMOLITION WORK AND TO ASSIST THE CONTRACTOR DURING BIDDING. THE DEMOLITION DRAWINGS MAY NOT SHOW EVERY ITEM WHICH MUST BE DISCONNECTED, REMOVED, OR RELOCATED IN ORDER TO FACILITATE NEW WORK. THE CONTRACTORSHALL BE RESPONSIBLE FOR ALL DEMOLITION WORK REQUIRED WHETHER OR NOT SHOWN ON THE PLANS.
3. DEMOLITION WORK SHALL BE COORDINATED WITH CONSTRUCTION PHASING SO THAT EXISTING PORTIONS OF THE BUILDING REMAIN FULLY ACTIVE AND FUNCTIONAL UP UNTIL THE TIME SUCH AREAS ARE TURNED OVER TO THE CONTRACTOR FOR RENOVATION WORK.
4. COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER TO MINIMIZE INCONVENIENCE TO THE BUILDING OCCUPANTS. ALL SERVICES AND SYSTEMS SHALL BE MAINTAINED IN OPERATION DURING THE REGULAR SCHOOL DAY. ALL LIFE SAFETY SYSTEMS SHALL BE MAINTAINED IN FULLY OPERATIONAL CONDITION UNTIL THE NEW SYSTEMS HAVE BEEN INSTALLED, TESTED, AND APPROVED.
5. REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK AS NECESSARY FOR COORDINATION WITH THE WORK OF OTHER TRADES.
6. MECHANICAL EQUIPMENT SHALL BE REMOVED UNDER OTHER DIVISIONS OF THIS CONTRACT. EQUIPMENT SHALL BE DISONNECTED UNDER THIS DIVISION.
7. EXISTING ELECTRICAL EQUIPMENT, WIRING, AND RACEWAYS SHALL NOT BE REUSED UNLESS SPECIFICALLY NOTED OTHERWISE.
8. REMOVE ALL DEMOLITION MATERIAL FROM THE JOB SITE UNLESS THE OWNER WANTS TO RETAIN ANY SUCH MATERIAL FOR HIS USE. MATERIAL REQUESTED BY THE OWNER FOR SALVAGE SHALL BE DELIVERED TO THE OWNER'S DESIGNATED MATERIAL STORAGE AREA, ON SITE.
9. PROVIDE AND INSTALL BLANK STAINLESS STEEL COVER PLATES OVER ANY EXISTING FLUSH OUTLET BOXES WHICH ARE TO BE ABANDONED IN PLACE.
10. WHERE EXISTING WIRING TO REMAIN IS BURIED IN EXISTING WALLS OR CEILINGS NOT SCHEDULED FOR DEMOLITION, THE WIRING MAY BE DISCONNECTED, CUT BACK TO BELOW THE FINISHED SURFACE, AND LEFT IN PLACE. THE SURFACE OF THE EXISTING WALL OR CEILING SHALL THEN BE PATCHED AND REFINISHED TO MATCH THE ORIGINAL FINISH. WHERE EXISTING WIRING IS RUN BELOW FLOOR SLABS NOT SCHEDULED FOR DEMOLITION, THE WIRING SHALL BE DISCONNECTED AND REMOVED FROM IT'S RACEWAY. THE RACEWAY SHALL THEN BE CUT BACK TO BELOW THE FINISHED FLOOR SURFACE AND PLUGGED WITH CONCRETE. THE SURFACE OF THE EXISTING FLOOR SHALL THEN BE PATCHED AND REFINISHED TO MATCH THE ORIGINAL FINISH.
11. EXISTING LIGHT FIXTURES WHICH ARE FOUND TO CONTAIN PCB BALLASTS SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. REMOVAL AND DISPOSAL OF PCB BALLASTS SHALL BE HANDLED BY THE HAZARDOUS MATERIAL ABATEMENT TRADE CONTRACTOR.
THE CONTRACTOR SHALL ASSUME THAT ALL LIGHTING BALLASTS CONTAIN POLYCHLORINATD BIPHENYLS (PCB'S) UNLESS THEY ARE CLEARLY LABELLED "NO PCB'S". THE CONTRACTOR SHALL COLLECT, PACKAGE, MANIFEST, AND TRANSPORT PCB BALLASTS TO A PERMITTED BALLAST RECYCLER IN ACCORDANCE WITH APPLICABLE OSHA, EPA, AND CONNECTICUT REGULATIONS. THE BALLAST RECYCLER SHALL RECYCLE, RECOVER, OR RECLAIM UNCONTAMINATED METAL BALLAST COMPONENTS. THE RECYCLER SHALL INCINERATE THE BALLAST CAPACITOR, ASPHALT POTTING MATERIAL, AND ANY COMPONENT CONTAINING 50 PARTS PER MILLION OR MORE PCB'S PURSUANT TO 40 CFR 761-70. THE CONTRACTOR SHALL PROVIDE TO THE OWNER THE WASTE MANIFESTS AND A CERTIFICATE OF DESTRUCTION PURSUANT TO 40 CFR 761 SUBPART K.
12. EXISTING FLUORESCENT LAMPS SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS FOR MERCURY DISPOSAL. LAMPS SHALL BE PLACED IN APPROVED CONTAINERS AND SHALL BE REMOVED FROM THE SITE FOR PROPER DISPOSAL. THE DISPOSAL CONTRACTOR SHALL BE FULLY INSURED AND SHALL ADHERE TO ALL FEDERAL, STATE AND LOCAL LAWS PERTAINING TO HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS. THE REMOVAL SHALL BE HANDLED BY THE HAZARDOUS MATERIAL ABATEMENT TRADE CONTRACTOR.

GENERAL SYMBOLS

	THICK, DARK SOLID LINES INDICATE NEW OR RELOCATED ITEMS
	THIN, LIGHT LINES INDICATE EXISTING ITEMS TO REMAIN IN PLACE AND BE REUSED
	THICK, DASHED LINES INDICATE EXISTING ITEMS TO BE REMOVED
ETR	SUB LETTERS "ETR" INDICATES EXISTING EQUIPMENT TO REMAIN INTACT
RE	SUB LETTER "RE" INDICATES EXISTING EQUIPMENT TO BE DISCONNECTED AND REMOVED
RL	SUB LETTER "RL" INDICATES EXISTING EQUIPMENT TO BE DISCONNECTED, REMOVED AND RELOCATED
NL	SUB LETTER "NL" INDICATES NEW LOCATION OF RELOCATED EQUIPMENT
NR	SUB LETTER "NR" INDICATES NEW EQUIPMENT TO REPLACE EXISTING
RR	SUB LETTER "RR" INDICATES REMOVE EQUIPMENT AND REPLACE ON NEW SURFACE
*	* = a, b, clg, AF, GF IG OR TP. WHEN TAGGED IN THE ELECTRICAL SYMBOL LIST, REFER TO THE ABBREVIATION LIST
XXX	ITALICS INDICATE EXISTING WIRING, DEVICE, EQUIPMENT, ETC.

ELECTRICAL SYMBOLS

	LINEAR PENDANT OR SURFACE MOUNTED LED LIGHT FIXTURE, TYPE AS DESIGNATED.
	LINEAR PENDANT OR SURFACE MOUNTED LED LIGHT FIXTURE WITH INTEGRAL EMERGENCY BATTERY PACK, TYPE AS DESIGNATED.
	SELF-CONTAINED SINGLE FACE WALL MOUNT EXIT SIGN LIGHT FIXTURE, TYPE AS DESIGNATED HATCH INDICATES FACE LOCATION.
	SELF-CONTAINED SINGLE FACE CEILING MOUNT EXIT SIGN LIGHT FIXTURE, TYPE AS DESIGNATED HATCH INDICATES FACE LOCATION.
S	SINGLE-POLE SWITCH
S_3	3-WAY SWITCH
S_T	THERMAL OVERLAOD SWITCH
S_{EO}	BOILER EMERGENCY SHUTOFF SWITCH, 48"AFF UNLESS NOTED DIFFERENTLY.
S_{OS}	LINE VOLTAGE DUAL TECHNOLGY WALL SWITCH OCCUPANCY SENSOR, 48"AFF UNLESS NOTED DIFFERENTLY
	DUPLEX RECEPTACLE, 18"AFF UNLESS NOTED DIFFERENTLY
	DOUBLE DUPLEX RECEPTACLE, 18"AFF UNLESS NOTED DIFFERENTLY
	BRANCH CIRCUIT WIRING, CROSS LINES INDICATE NUMBER OF CONDUCTORS
	BRANCH CIRCUIT HOMERUN IN CONDUIT, CROSS LINES INDICATE NUMBER OF CONDUCTORS
	GROUND
	PANELBOARD, 120/208V-3Ø-4W
	PANELBOARD, 277/480V-3Ø-4W
	DISCONNECT SWITCH
	COMBINATION STARTER/DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	STARTER
	MOTOR POWER CONNECTION
J	JUNCTION BOX
	SPECIAL EQUIPMENT POWER CONNECTION, EQUIPMENT AS DESIGNATED
TX	EXISTING STEPDOWN TRANSFORMER
VFD	VARIABLE FREQUENCY DRIVE (BY MECHANICAL CONTRACTOR) WIRED BY E.C. PER MANUFACTURER'S REQUIREMENTS (COORDINATE WITH EQUIPMENT SUPPLIER)
SK	CEILING MOUNTED SPEAKER
WAP	CEILING MOUNTED WIRELESS ACCESS POINT
S	CEILING MOUNTED FIRE ALARM SYSTEM SMOKE DETECTOR
	CEILING MOUNTED CCTV CAMERA

ABBREVIATIONS

AMP	AMPERE
AC	ABOVE COUNTER
ACU	AIR CONDITIONING UNIT(S)
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CURRENT
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
C	CONDUIT(S)
C/B	CIRCUIT BREAKER
CAT	CATEGORY ETHERNET CABLE
CATV	COMMUNITY ANTENNA TELEVISION
CCTV	CLOSED CIRCUIT TELEVISION
cd	CANDELLA
CKT	CIRCUIT
CLG	CEILING
COND	CONDENSER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
DEG	DEGREE
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATOR
em	INDICATES LIGHT FIXTURES ON EMERGENCYPOWER
EMT	ELECTRICAL METALLIC TUBING
EWH	ELECTRIC WALL HEATER
FACP	FIRE ALARM CONTROL PANEL
FARA	FIRE ALARM REMOTE ANNUNCIATOR
FCU	FAN COIL UNIT
FT	FOOT OR FEET
GFCI	INDICATES DEVICE WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERTER
JB	JUNCTION BOX
KVA	KILOVOLT AMPERE
KW	KILOWATT
MC	METAL CLAD CABLE
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
N/L	NIGHT LIGHT
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PF	POWER FACTOR
Ø	PHASE
PNL	PANELBOARD
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RTU	ROOF TOP UNIT
SQ	SQUARE
SS	STAINLESS STEEL
STP	SHIELDED TWISTED PAIR
SW	SWITCH
T	TRANSFORMER
TEMP	TEMPERATURE
TSP	TWISTED SHIELDED PAIR
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
UV	UNIT VENTILATOR
V	VOLTS
VAC	VOLT ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VIF	VERIFY IN FIELD
W	WATTS
WAP	WIRELESS ACCESS POINT
WP	WEATHER PROOF
WTR	WATER

PANELBOARD NOMENCLATURE

PANEL TYPE
PANEL #
CIRCUIT #
XX/XX

LIGHTING FIXURE SCHEDULE

TYPE	FIXURE DESCTIPTION, MANUFACTURER AND MODEL#	LAMP	FIXTURE WATTS	VOLTAGE	REMARKS	ACCEPTABLE ALTERNATE MANUFACTUERERS
A	4' x 3" x 3-7/8"D LED LENSED SURFACE MOUNTED STRIP LIGHT, ROUND SEMI-FROST LENS, STEP DIMMING DRIVER METALUX #4SNLED-LD5LN-52SL-LC-UNV-L850-SD1	INCLUDED LED'S 5,478 LUMENS 3,500° K 80 CRI	41 W	277 V	DLC LISTED PENDANT MOUNT BELOW OBSTRUCTIONS (SEE DETAIL)	COLUMBIA, LITHONIA OR DAY-BRITE
A1	4' x 3" x 3-7/8"D LED LENSED SURFACE MOUNTED STRIP LIGHT, ROUND SEMI-FROST LENS, STEP DIMMING DRIVER & INTEGRAL 90 MINUTE EMERGENCY BATTERY BACKUP METALUX #4SNLED-LD5LN-52SL-LC-UNV-EL14W-L850-SD1	INCLUDED LED'S 5,478 LUMENS 3,500° K 80 CRI	41 W	277 V	DLC LISTED PENDANT MOUNT BELOW OBSTRUCTIONS (SEE DETAIL)	COLUMBIA, LITHONIA OR DAY-BRITE
E	RECESSED CEILING MOUNT LED EXIT SIGN WITH 6" RED LETERING "EXIT" AND 90 MINUTE EMERGENCY BATTERY BACKUP, MIRROR FACE, SINGLE SIDED, BRUSHED ALLUMINUM TRIM PLATE BEGHELLI #OL2-SA-LR-1-M-CR-BA-AT	INCLUDED LED	2 W	120 V		ISOLITE,EVENLITE OR SIGNTEX

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC, whether the project for which it is intended is constructed or not. This drawing, and the concepts and ideas contained herein, shall not be used, copied or retained without the express written approval of Bemis Associates LLC.
Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.
Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

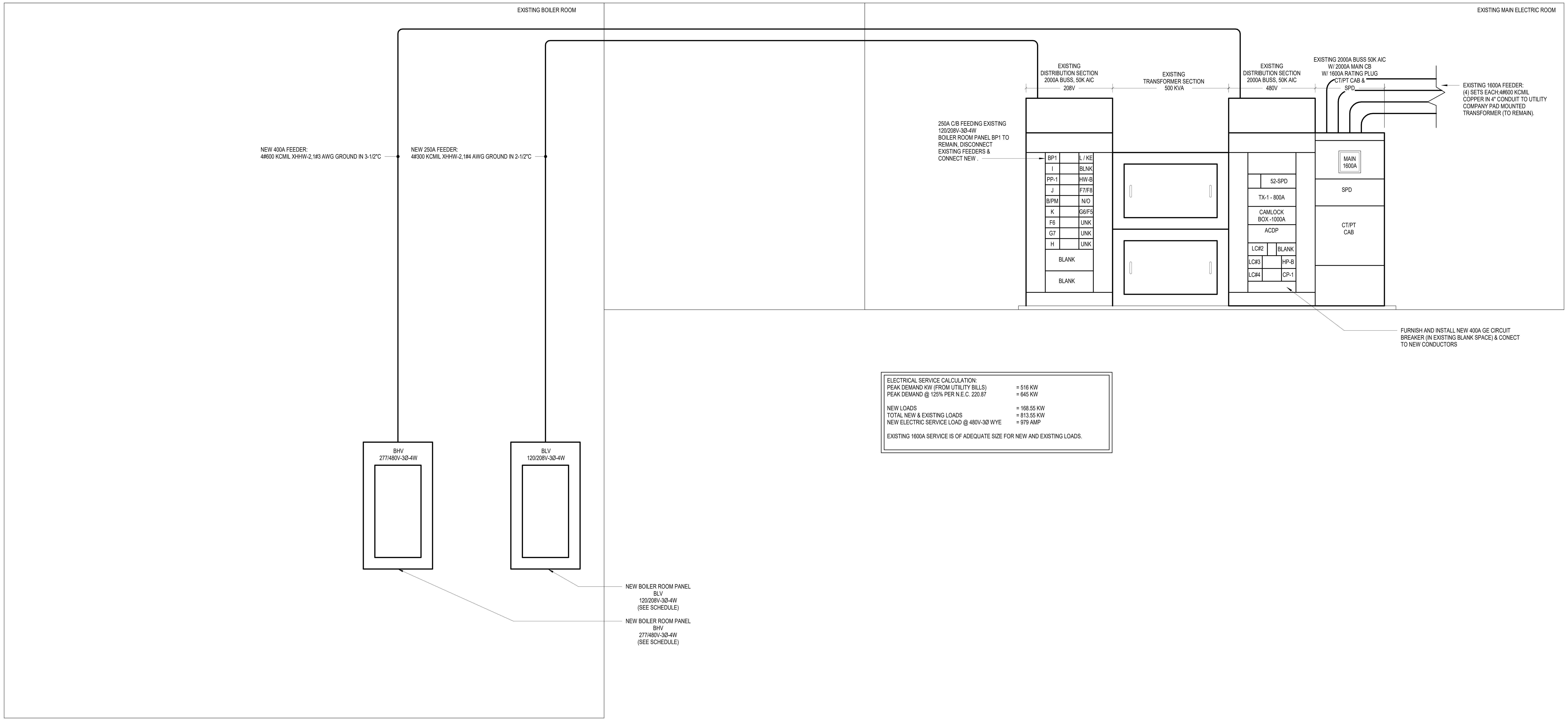
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
(860) 667-3233
Fax: (860) 321-7070
w w w.bemisassociates.com

TITLE
ELECTRICAL GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS

DATE 11/01/2018

DWG. NO.
E.0.0



1 E.0.1 Electrical Main Distribution Riser Diagram
N.T.S.

PANEL:	BHV				MANUFACTURER & MODEL:				CUTLER HAMMER,#POW-R-LINE 3a						
MOUNTING:	SURFACE				VOLTAGE CLASSIFICATION:				408Y/277V,3 PHASE,4 WIRE						
MAINS...	400 A MLO				SCR (FULLY RATED):				65 kIC (Minimum)						
200%...					SPD:										
BREAKER					PHASE LOAD - KW								BREAKER		
#	TRIP RATI...	POLES	LOAD DESCRIPTION	LOAD KW	A		B		C		LOAD KW	LOAD DESCRIPTION	POLES	TRIP RATI...	#
1	100 A	3	40 HP PUMP (LEAD)	54.00	18	0					0.00	40 HP PUMP (LAG)	3	100 A	2
3	--	--	--	--			18	0			--	--	--	--	4
5	--	--	--	--					18	0	--	--	--	--	6
7	20 A	3	NEW BOILER	13.30	4.43	4.43					13.30	NEW BOILER	3	20 A	8
9	--	--	--	--			4.43	4.43			--	--	--	--	10
11	--	--	--	--					4.43	4.43	--	--	--	--	12
13	20 A	3	NEW BOILER	13.30	4.43	0.41					0.41	Lighting	1	20 A	14
15	--	--	--	--			4.43	1.33			3.99	Ex Base Mounted Pump 3HP	3	20 A	16
17	--	--	--	--					4.43	1.33	--	--	--	--	18
19	20 A	3	EXISTING 5HP PUMP	6.32	2.11	1.33					--	--	--	--	20
21	--	--	--	--			2.11	1.33			3.99	Ex Base Mounted Pump 3HP	3	20 A	22
23	--	--	--	--					2.11	1.33	--	--	--	--	24
25	20 A	3	EXISTING 5HP PUMP	6.32	2.11	1.33					--	--	--	--	26
27	--	--	--	--			2.11								28
29	--	--	--	--					2.11						30
31															32
33															34
35															36
37															38
39															40
41															42
TOTAL LOAD PER PHASE:					38.58		38.17		38.17		TOTAL LOAD ON PANEL		114.91 138 A		KW AMPS

NOTES:
[1] PROVIDE PANELBOARD WITH SILVER PLATED COPPER BUSS AND COPPER GROUND BAR.
[2] PROVIDE PANELBOARD WITH DOOR-IN-DOOR TRIM.
[3] PROVIDE WITH BLACK FACE, WHITE CORE ENGRAVED NAMEPLATE FIXED TO PANEL WITH TWS SCREWS OR RIVETS.
[4] PROVIDE WITH METAL FRAM PLASTIC COVER CIRCUIT DIRECTORY FRAME.
[5] PROVIDE WITH TYPE WRITTEN CIRCUIT DIRECTORY PREPRESENTING CIRCUITS AS ACTUALLY CONNECTED TO PANEL.
[6] CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.
[7] * = GFCI C/B.

PANEL:	BLV				MANUFACTURER & MODEL:				CUTLER HAMMER,#POW-R-LINE 3a						
MOUNTING:	SURFACE				VOLTAGE CLASSIFICATION:				208Y/120V,3 PHASE,4 WIRE						
MAINS...	400 A MLO				SCR (FULLY RATED):				65 kIC (Minimum)						
200%...					SPD:										
BREAKER					PHASE LOAD - KW								BREAKER		
#	TRIP RATI...	POLES	LOAD DESCRIPTION	LOAD KW	A		B		C		LOAD KW	LOAD DESCRIPTION	POLES	TRIP RATI...	#
1	20 A	1	Receptacles	1.68	1.68	0.9					2.69	EX AIR COMPRESSOR (3HP)	3	20 A	2
3	20 A	3	EXISTING (2) 1/2HP PUMPS	1.66			0.55	0.9			--	--	--	--	4
5	--	--	--	--					0.55	0.9	--	--	--	--	6
7	--	--	--	--	0.55	0.74					2.22	EXISTING OIL PUMPS	3	20 A	8
9	20 A	2	EXISTING DOMESTIC W.H.	2.00			1	0.74			--	--	--	--	10
11	--	--	--	--					1	0.74	--	--	--	--	12
13	40 A	2	RE-FEED EXISTING RANGE	8.00	4	2.5					5.00	RE-FEED EXISTING DRYER	2	30 A	14
15	--	--	--	--			4	2.5			--	--	--	--	16
17	20 A	1	RE-FEED EXISTING WASHER	0.83					0.83	1	1.00	RE-FEED EXISTING EXTERIOR...	1	20 A	18
19	20 A	1	RE-FEED LOUVER MOTOR	0.83	0.83	1					1.00	RE-FEED EXISTING DIGISPAN	1	20 A	20
21	20 A	1	RE-FEED EXISTING HEAT TIMER	1.00			1	1			1.00	RE-FEED EXISTING ATC	1	20 A	22
23	20 A	2	RE-FEED EXISTING SITE LIGHTS	2.00					1	1	3.00	RE-FEED EXIST UNKNOWN...	3	20 A	24
25	--	--	--	--	1	1					--	--	--	--	26
27	20 A	3	RE-FEED EXISTING VACUUM...	3.00			1	1			--	--	--	--	28
29	--	--	--	--					1	1	3.00	RE-FEED EXIST UNKNOWN...	3	20 A	30
31	--	--	--	--	1	1					--	--	--	--	32
33	20 A	1	RE-FEED EXIST MOTORIZED...	0.00			0	1			--	--	--	--	34
35	20 A	1	Temperature Controls	1.20					1.2	0.53	0.53	Boiler Rm Unit Heaters	1	20 A	36
37	20 A	1	Temperature Controls	1.20	1.2	1.2					1.20	Temperature Controls	1	20 A	38
39	20 A	1	Temperature Controls	1.20			1.2	1.2			1.20	Temperature Controls	1	20 A	40
41	20 A	1	Temperature Controls	1.20					1.2	1.2	1.20	Temperature Controls	1	20 A	42
43	20 A	1	Temperature Controls	1.20	1.2	1.2					1.20	Temperature Controls	1	20 A	44
45	20 A	1	Temperature Controls	1.20			1.2	1.2			1.20	Temperature Controls	1	20 A	46
47	20 A	1	Spare	--					0	0	--	Spare	1	20 A	48
49	20 A	1	Spare	--	0	0					--	Spare	1	20 A	50
51	20 A	1	Spare	--			0	0			--	Spare	1	20 A	52
53	20 A	1	Spare	--					0	0	--	Spare	1	20 A	54
55	20 A	1	Spare	--	0	0					--	Spare	1	20 A	56
57	--	--	Space	--			0	0			--	Space	--	--	58
59	--	--	Space	--					0	0	--	Space	--	--	60
61	--	--	Space	--	0	0					--	Space	--	--	62
63	--	--	Space	--			0	0			--	Space	--	--	64
65	--	--	Space	--					0	0	--	Space	--	--	66
67	--	--	Space	--	0	0					--	Space	--	--	68
69	--	--	Space	--			0	0			--	Space	--	--	70
71	--	--	Space	--					0	0	--	Space	--	--	72
73	--	--	Space	--	0	0					--	Space	--	--	74
75	--	--	Space	--			0	0			--	Space	--	--	76
77	--	--	Space	--					0	0	--	Space	--	--	78
79	--	--	Space	--	0	0					--	Space	--	--	80
81	--	--	Space	--			0	0			--	Space	--	--	82
83	--	--	Space	--					0	0	--	Space	--	--	84
TOTAL LOAD PER PHASE:					21		19.49		13.15		TOTAL LOAD ON PANEL		53.64 149 A		KW AMPS

NOTES:
[1] PROVIDE PANELBOARD WITH SILVER PLATED COPPER BUSS AND COPPER GROUND BAR.
[2] PROVIDE PANELBOARD WITH DOOR-IN-DOOR TRIM.
[3] PROVIDE WITH BLACK FACE, WHITE CORE ENGRAVED NAMEPLATE FIXED TO PANEL WITH TWS SCREWS OR RIVETS.
[4] PROVIDE WITH METAL FRAM PLASTIC COVER CIRCUIT DIRECTORY FRAME.
[5] PROVIDE WITH TYPE WRITTEN CIRCUIT DIRECTORY PREPRESENTING CIRCUITS AS ACTUALLY CONNECTED TO PANEL.
[6] CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.
[7] * = GFCI C/B.

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC, whether the project for which it is intended is constructed or not. This drawing, and the concepts and ideas contained herein, shall not be used, copied or retained without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not
to be construed as publication in derogation of any of the rights of Bemis Associates LLC.
Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 667-3233
Fax: (860) 321-7070
w w w.bemisassociates.com

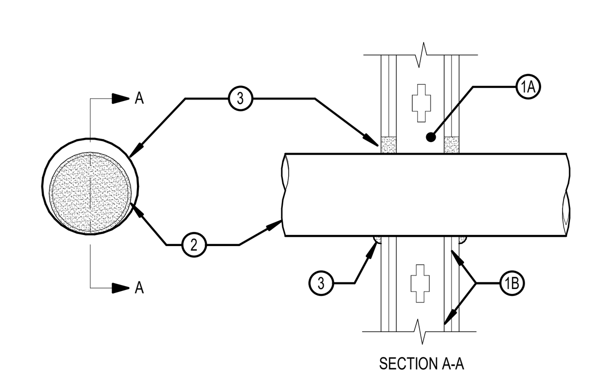
TITLE
ELECTRICAL RISER DIAGRAM

DATE 11/01/2018

DWG. NO.
E.0.1

SYSTEM NO. W-L-1080

F RATING-- 2 HR
T RATING-- 0 and 3/4 HR (SEE ITEM 2)

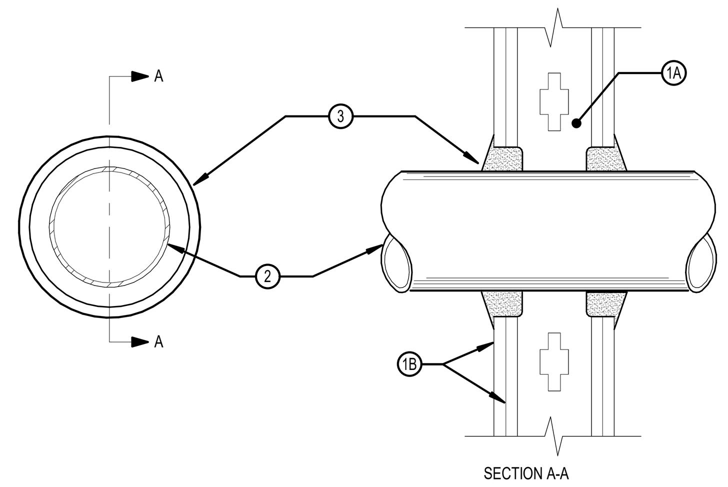


1. Wall Assembly - The 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide channels spaced max 24 in. OC.
B. Gypsum Board* - Two layers of nom 5/8 in. thick gypsum wallboard as specified in the individual U300 and U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 5-1/4 in. Diam of circular opening cut through both layers of gypsum wallboard on each side of wall assembly to be min 3/4 in. to max 1-1/2 in. larger than outside diam of pipe, conduit or tube. Side edge of through opening to be min 3 in. from nearest stud in wall cavity.
2. Pipe or Conduit - Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 4 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 4 in. diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe, nom 4 in. diam (or smaller) steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing or nom 2 in. diam Type L (or heavier) copper tubing. When steel or iron pipe, conduit or tube is used, T Rating of firestop system (Item 3) is 3/4 h. When copper tubing is used, T Rating of firestop system (Item 3) is 0 h. A max of one pipe, conduit or tube is permitted in the firestop system. Max annular space between pipe, conduit or tube and edge of opening is 3/4 in. Min annular space between pipe, conduit or tube and edge of opening is zero in. (point contact). Pipe, conduit or tube to be rigidly supported on both sides of wall assembly.
3. Fill,Void or Cavity Material* - Putty - Putty fill material installed to fill annular space throughout thickness of gypsum wallboard layers on each side of wall assembly. A min 1/4 in. diam bead of putty is to be applied to the wall surface where the pipe, conduit or tube is installed in point contact with the edge of the through opening. Putty installed symmetrically on both sides of wall assembly.
MINNESOTA MINING & MFG CO - Type MPS-2+ Putty
*Bearing the UL Classification Marking

7 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.

SYSTEM NO. W-L-1010

(FORMERLY SYSTEM NO. 242)
F RATING-- 2 HR
T RATING--0 HR
L RATING AT AMBIENT--LESS THAN 1 CFM/sq ft (SEE ITEM 3)
L RATING AT 400° F--LESS THAN 1 CFM/sq ft (SEE ITEM 3)

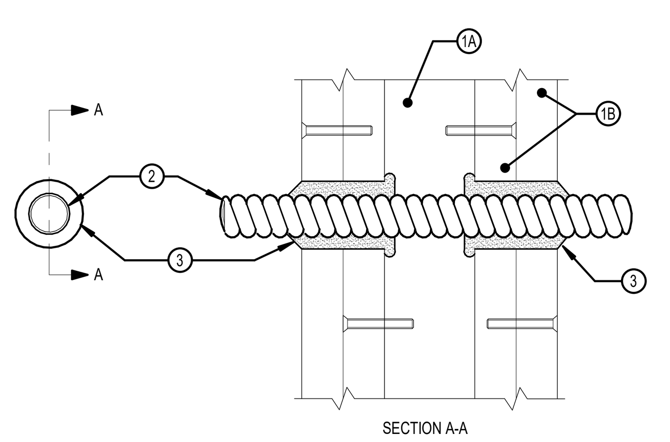


1. Wall Assembly - The fire rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is centered in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing in all four sides.
B. Gypsum Board* - Two layers of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 14-1/2 in. for wood stud walls and 25-1/2 in. for steel stud walls.
2. Through Penetrants - One metallic pipe, conduit of tubing to be centered within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
A. Steel Pipe - Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe. A nom annular space of 3/4 in. is required within the firestop system.
B. Steel Pipe - Nom 4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe. A nom annular space of 3/4 in. is required within the firestop system.
C. Conduit - Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit. A nom annular space of 3/4 in. is required within the firestop system.
D. Copper Tubing - Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing. A nom annular space of 3/4 in. is required within the firestop system.
3. Fill,Void or Cavity Material* - Sealant - Min 1-1/4 in. thickness of fill material applied within the annulus on both surfaces of wall. Additional fill material to be installed such that a min 1/4 in. crown is formed around the penetrating item.
MINNESOTA MINING & MFG CO - Types FB-2000, FB-2000+.
(Note: L Ratings apply only when FB-2000+ is used).
*Bearing the UL Classification Marking

6 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.

SYSTEM NO. W-L-1032

(FORMERLY SYSTEM NO. 480)
F RATING-- 2 HR
T RATINGS-- 0, 1-1/2 AND 2 HR (SEE ITEM 2)
L RATING AT AMBIENT--LESS THAN 1 CFM/sq ft
L RATING AT 400° F--LESS THAN 1 CFM/sq ft

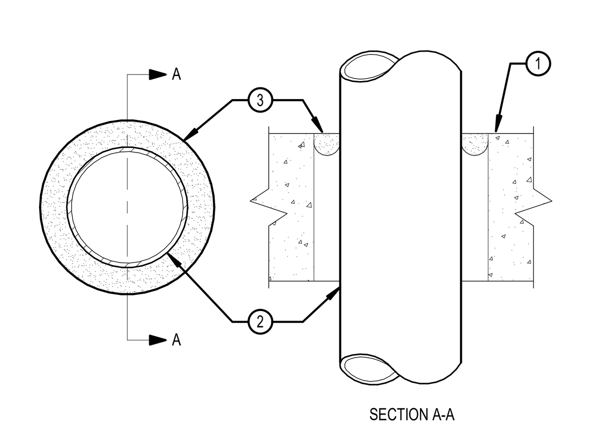


1. Wall Assembly - The fire rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 and U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
B. Gypsum Board* - Two layers of nom 4 ft wide by 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition design. Max diam of opening is 3 in.
2. Through Penetrating Product* - Flexible Metal Conduit - Nom 2 in. diam (or smaller) aluminum Flexible Metal Conduit+. Max one flexible metal conduit installed near center of through opening in gypsum wallboard layers. Diam of opening cut through both layers of gypsum wallboard on each side of wall to min 1/4 in. to max 1 in. larger than diam of flexible metal conduit. When nom 1-1/4 in. to 2 in. diam conduit is used, T Rating is 0 h**When nom 1/2 in. to 1 in. diam conduit is used,T Rating is 1-1/2 hr. When nom 3/8 in. diam conduit is used,T Rating is 2 hr.** Flexible metal conduit to be rigidly supported on both sides of wall assembly.
ANAMET INDUSTRIAL INC
3. Fill,Void or Cavity Material* - Caulk - Caulk fill material forced into annular space around entire circumference of flexible metal conduit to completely fill nom 1-1/4 in. deep annulus in gypsum wallboard layers on each side of the wall assembly.
MINNESOTA MINING & MFG CO - CP 25WB+
*Bearing the UL Classification Marking

5 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.

SYSTEM NO C-AJ-1027

F RATING--3 HR
T RATING--0 HR



1. Floor or Wall Assembly - Min 4-1/2 in. thick lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified**Concrete Blocks***. Max diam of through opening is 12-1/4 in.
See**Concrete Blocks** (CAZT) category in Fire Resistance Directory for names of manufacturers.
2. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Min annular space between pipe, conduit or tubing and edge of opening is 0 in. (point contact). Max annular space is dependent on pipe, conduit or tubing type and size as well as the F Rating of the system, as shown in the table below. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
A. Steel Pipe - Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Conduit - Nom 6 in. diam (or smaller) rigid steel conduit.
C. Conduit - Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
D. Copper - Tubing Nom 3 in. diam (or smaller) Type L (or heavier) copper tubing.
E. Copper - Pipe Nom 3 in. diam (or smaller) Regular (or heavier) copper pipe.

F. Iron Pipe - Nom 10 in. diam (or smaller) cast or ductile iron pipe

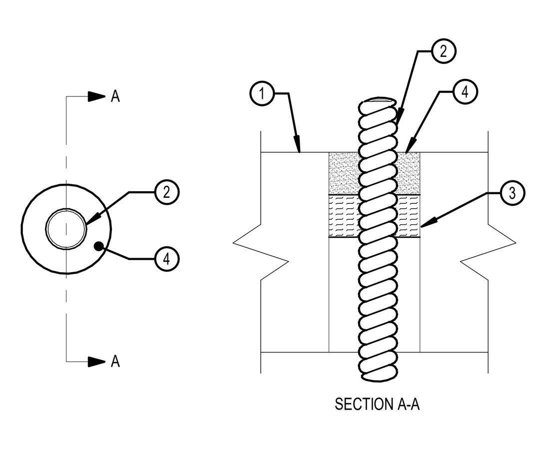
Pipe Conduit or Tubing Type	Max Nom Pipe Conduit or Tubing Diam In.	F Rating Hr	Max Annular Space In.
2-1/2	1/2-12	3	3/4
2-1/2	1/2-12	3	3/4
4-1/2	1/2-6	3	1-1/2
4-1/2	1/2-12	3	3/4
4-1/2	1/2-20	2	7/8

3. Fill,Void or Cavity Materials* - Putty - Moldable putty material kneaded by hand and applied to fill annular space to a min depth of 1 in., flush with top surface of floor. In wall assemblies, required putty thickness to be installed symmetrically on both sides of wall.
MINNESOTA MINING & MFG CO - MPS-2+
*Bearing the UL Classification Marking

4 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.

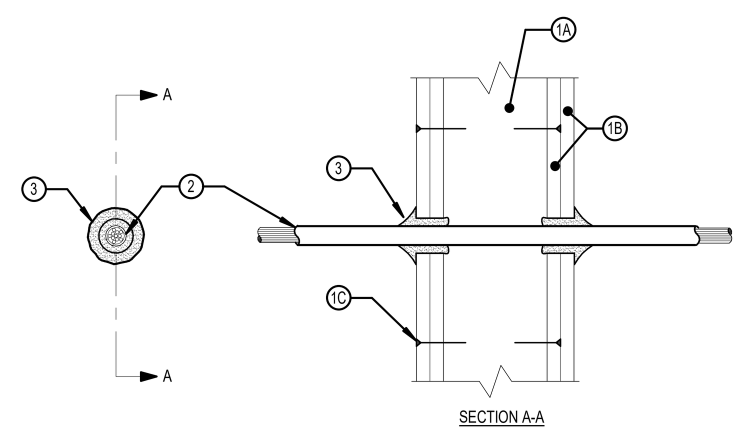
SYSTEM NO C-AJ-1052

(FORMERLY SYSTEM NO. 337)
F RATING--2 HR
T RATING--0 HR



1. Floor or Wall Assembly - Min 4-1/2 in. thick lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified**Concrete Blocks***. Diam of circular through opening in floor or wall assembly to be 3/4 in. to 1-1/2 in. larger than diam of flexible metal conduit (Item 2) installed in through opening. Max diam of opening is 6 in.
See**Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrating Product* - Nom 4 in. diam (or smaller) aluminum or stee**Flexible Metal Conduit** +. Max one flexible metal conduit to be installed near center of circular through opening in floor or wall assembly. Flexible metal conduit to be rigidly supported on both sides of floor or wall assembly.
AFC CABLE SYSTEMS INC
3. Packing Material - Nom 1 in. thickness of ceramic (alumina silica) fiber blanket or mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed min 1 in. from top surface of floor or from both surfaces of wall.
4. Fill,Void or Cavity Material* - Caulk - Applied to fill the annular space around the flexible metal conduit. In floors, a min 1 in. depth of fill material to be installed flush with top surface of floor. In walls, a min 1 in. depth of fill material to be installed flush with wall surface on both sides of wall assembly.
MINNESOTA MINING & MFG CO - CP 25WB+
*Bearing the UL Classification Marking
**Please refer to the letter from UL on page 11.

3 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.



System No.W-L-3001

September 07, 2004
(Formerly System No. 149)
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 3/4, 1, 1-1/2 and 2 Hr (See Item 2)
L Rating At Ambient - 15 CFM/sq ft (See Item 3)
L Rating At 400 F - less than 1 CFM/sq ft (See Item 3)

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in OC.
B. **Gypsum Board*** - Nom 1/2 or 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers and sheet orientation shall be as specified in the individual Wall or Partition Design. Diam of circular through opening to be 3/8 in. to 5/8 in. larger than outside diam of cable or cable bundle.
C. **Fasteners** - When wood stud framing is employed gypsum wallboard layers attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type S self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Cables - Individual cable or max 1 in. diam cable bundle installed in through opening with an annular space of min 0 in. (point contact) to max 3/4 in. Cable to be rigidly supported on both sides of wall assembly. The following types and sizes of cables may be used:

A. Max 150 pair No. 24 AWG copper conductor telephone cable with polyvinyl chloride (PVC insulation and jacket materials. When max 25 pair telephone cable is used,

T Rating is 2 hr.When 50 to 150 pair telephone cable is used in 1 hr fire rated wall, T Rating is 3/4 hr.When 50 to 150 pair telephone cable is used in 2 hr fire rated wall, T Rating is 1 hr.

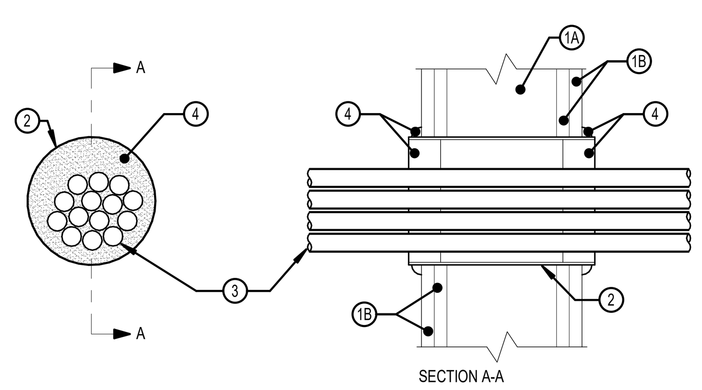
B. Max No. 10 AWG multiple copper conductor Type NM ("Romex") nonmetallic sheathed cable with PVC insulation and jacket materials.
When Type NM cable is used, max T Rating is 1-1/2 hr.
C. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 in.
When fiber optic cable is used, max T Rating is 2 hr.
D. Max 12 AWG multi conductor (max seven conductors) power/control cable with cross-linked polyethylene (XLPE) insulation and XLPE or PVC jacket materials.
When multi conductor power/control cable is used, max T Rating is 2 hr.
E. Max four conductor with ground No. 2 AWG (or smaller) aluminum SER cables with polyvinyl chloride insulation and jacket materials.

3. Fill,Void or Cavity Materials* - Caulk, Sealant or Putty - Caulk or putty fill material installed to completely fill annular space between cable and gypsum wallboard on both sides of wall and with a min 1/4 in. diam bead of caulk or putty applied to perimeter of cable(s) at its egress from each side of the wall.

3M COMPANY - MP+ Stix putty, CP 25WB+ caulk, FB-3000 WT sealant or Cable Wrap putty
(Note: L Ratings apply only when CP 25WB+ caulk or FB-3000 WT sealant is used.)

*Bearing the UL Classification Mark

2 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.

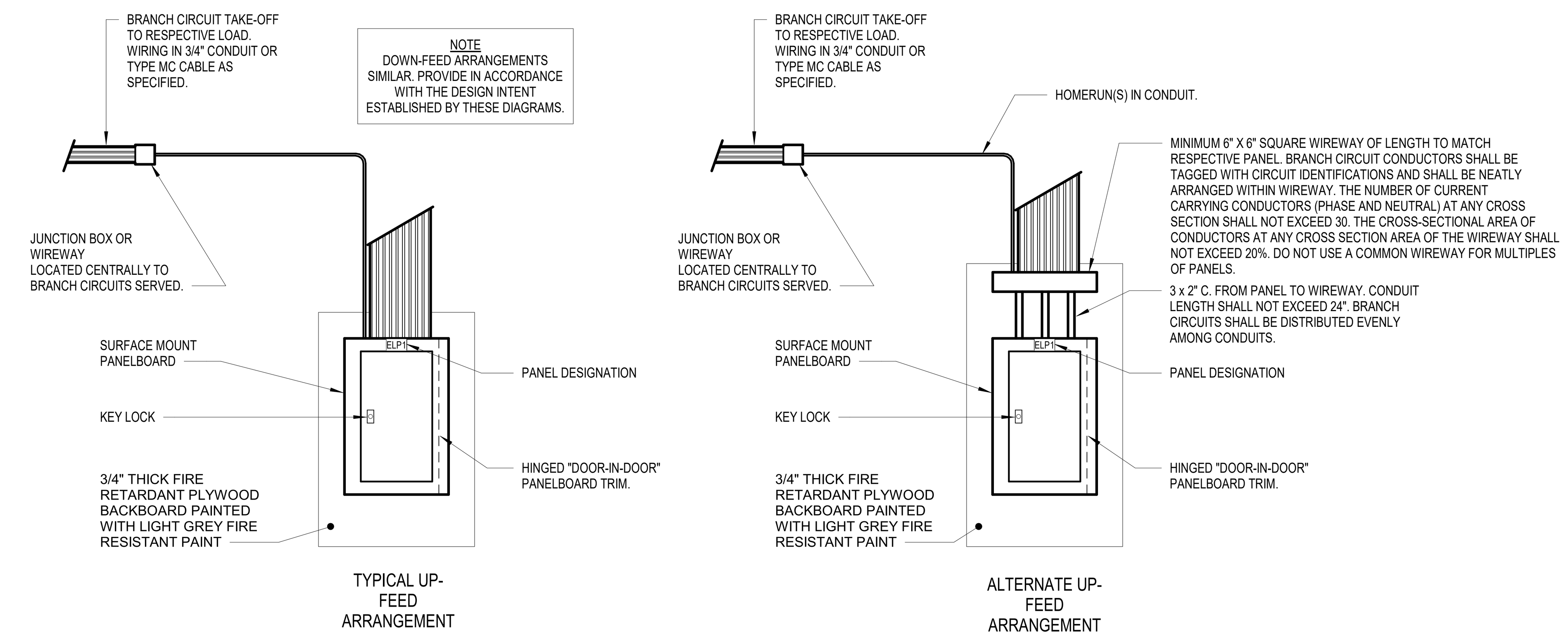


SYSTEM NO. W-L-3031

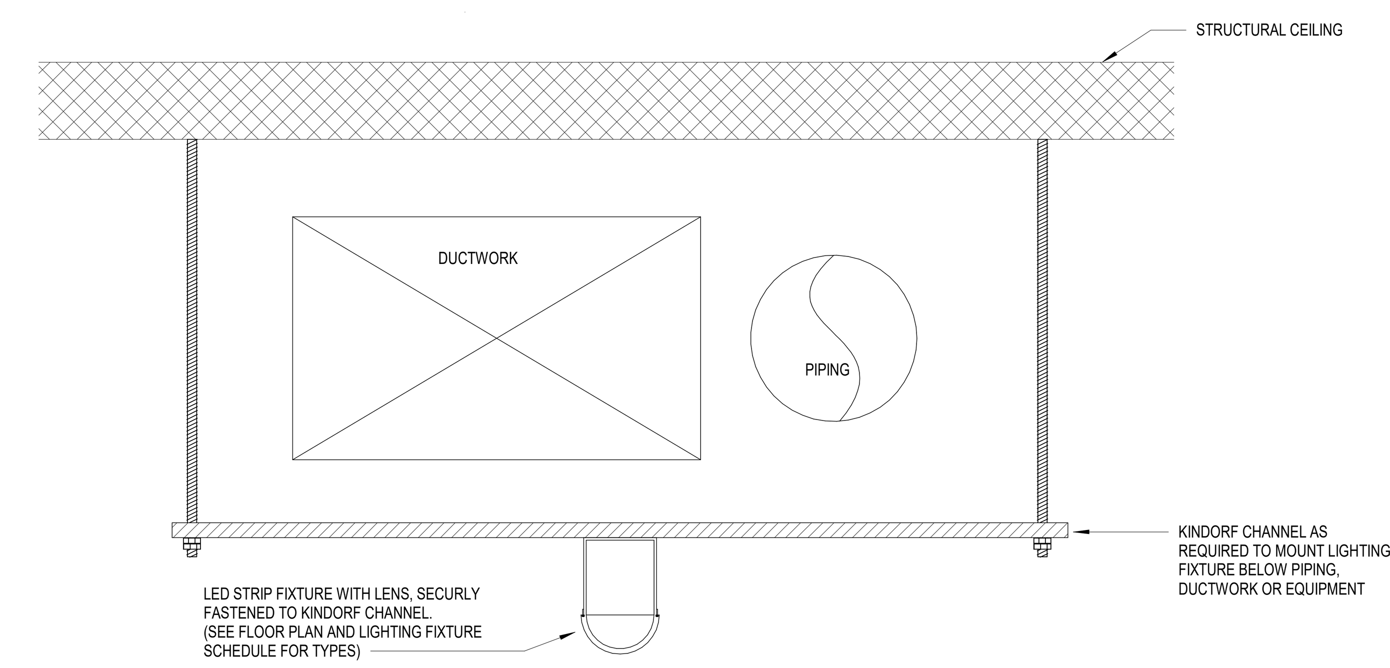
(FORMERLY SYSTEM NO. 589)
F RATINGS-- 1 AND 2 HR (SEE ITEM 1)
T RATINGS-- 1/2, 1, 1-1/2 HR (SEE ITEM 3)

1. **Wall Assembly** - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-1/2 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
B. Gypsum Board* - 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 4 in.
The hourly F Rating of the firestop system is 1 hr when installed in a 1 hr fire rated wall and 2 hr when installed in a 2 hr fire rated wall.
2. **Steel Sleeve**- Cylindrical sleeve fabricated from min 0.019 in. thick (28 gauge) galv sheet steel and having a min 2 in. lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall plus approx 7/8 to 1 in. such that, when installed, the ends of the sleeve will project approx 7/16 to 1/2 in. beyond the surface of the wall on each side of the wall assembly. Sleeve installed by coiling the sheet steel to a diam smaller than the max 4 in. diam through openings, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.
3. **Cables** - Aggregate cross-sectional area of cables in opening to be min 10 percent to max 40 percent of the cross-sectional area of the sleeved opening in wall. Cables to be rigidly supported on both sides of wall assembly. Any combination of the following types and sizes of cable may be used:
A. Max 150 pair No. 24 AWG copper conductor telecommunication cables; PVC insulation and jacket materia**When multi conductor telecommunication cable is used, T Rating is 1/2 hr.**
B. Max 12 AWG multi conductor Type TC copper power and control cables; Type XHHW conductors (XLP insulation) with XLP or PVC jacket. When max 12 AWG multi conductor cables are used, T Rating is 1 hr.
C. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 i**When fiber optic cable is used, T Rating is 1-1/2 hr.**
4. **Fill,Void or Cavity Materials* - Putty** - Min 1 in. thickness of moldable putty packed tightly into annular space between cables and sheet steel sleeve (and interstices between cables, if possible), flush with each end of steel sleeve. A nom 1/4 in. diam continuous "rope" or putty shall be applied around the circumference of the steel sleeve at its egress from the gypsum wallboard layers on both sides of the wall assembly.
MINNESOTA MINING & MFG CO - Type MPS-2+, Cable Wrap Putty
*Bearing the UL Classification Mark

1 / E1.1 ELECTRICAL FIRE STOPPING DETAIL
N.T.S.



2 / E.0.2 08 Typical Branch circuit Homerun Arrangements
12" = 1'-0"



3 / E.0.2 LIGHTING FIXTURE SUPPORT DETAIL
N.T.S.

REVISIONS

© COPYRIGHT

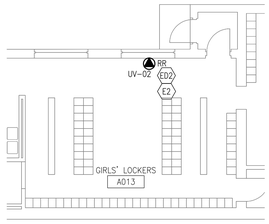
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 667-3233
Fax: (860) 321-7070
w.w.w.bemisassociates.com

TITLE
ELECTRICAL DETAILS

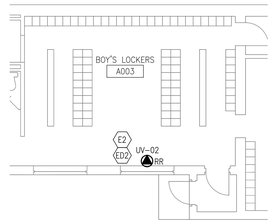
DATE 11/01/2018

DWG. NO.
E.0.2



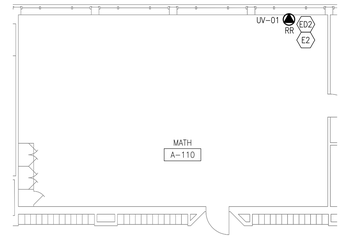
1 BASEMENT PART PLAN -GIRLS LOCKER RM A013 - ELECTRICAL NEW AND DEMOLITION WORK (PHASE 1)

SCALE: 1/8"=1'-0"



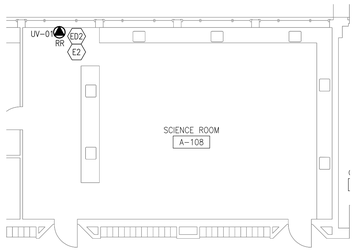
2 BASEMENT PART PLAN -BOYS LOCKER RM A003 - ELECTRICAL NEW AND DEMOLITION WORK (PHASE 1)

SCALE: 1/8"=1'-0"



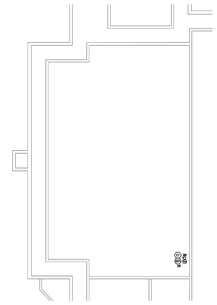
3 BASEMENT PART PLAN -MATH - A110 - ELECTRICAL NEW AND DEMOLITION WORK (PHASE 1)

SCALE: 1/8"=1'-0"



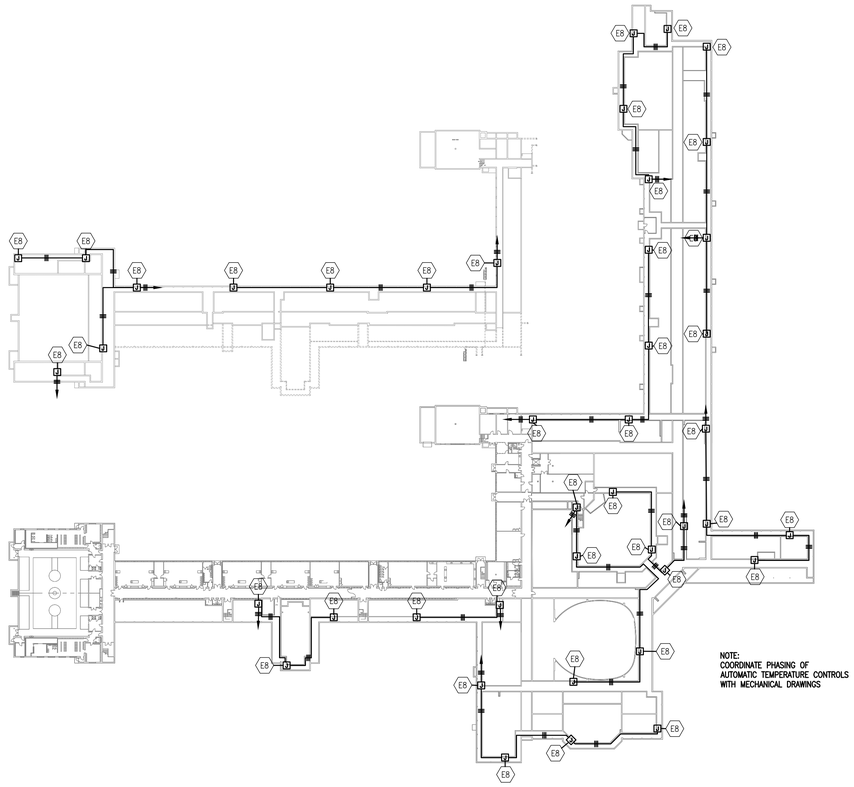
4 BASEMENT PART PLAN -MATH - A110 - ELECTRICAL NEW AND DEMOLITION WORK (PHASE 1)

SCALE: 1/8"=1'-0"



5 BASEMENT PART PLAN -TUNNEL AREA - ELECTRICAL NEW AND DEMOLITION WORK (PHASE 1)

SCALE: 1/8"=1'-0"



5 BASEMENT PART PLAN -TUNNEL AREA - POWER FOR HVAC CONTROL PANELS

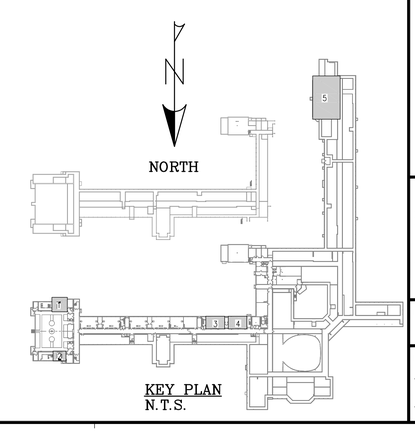
SCALE: 1/64"=1'-0"

ELECTRICAL KEY NOTES (NEW WORK)	
SYMBOL	DESCRIPTION OF WORK
E1	NEW UNIT HEATER AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW THERMAL OVERLOAD SWITCH AND CONNECT NEW UNIT HEATER TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E2	NEW UNIT VENTILATOR AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW MOTOR RATED SWITCH AND CONNECT NEW UNIT VENTILATOR TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E3	NEW CABINET UNIT HEATER AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW THERMAL OVERLOAD SWITCH AND CONNECT NEW CABINET UNIT HEATER TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL CABINET UNIT HEATERS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E4	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#12, 1#12G IN 3/4" CONDUIT FROM NEW SWITCH TO NEAREST 120/208V PANEL (WITHIN 100') & CONNECT TO NEW 1P-20A CIRCUIT BREAKER. E.C. SHALL PROVIDE NEW CIRCUIT BREAKER IN EXISTING BLANK SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC RATING (COORDINATE WITH FIELD CONDITIONS).
E5	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) REPLACING EXISTING, E.C. SHALL DISCONNECT ELECTRICAL AND MAKE SAFE FOR REMOVAL. E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND RECONNECT TO EXISTING BRANCH CIRCUIT, RE-WORK TO NEW UNIT AND CONNECT (MAINTAIN CONTINUITY) IF EXISTING CIRCUIT IS OTHER THAN 1P-20A THIS CONTRACTOR SHALL PROVIDE NEW 1P-20A ENCLOSED CIRCUIT BREAKER ADJACENT TO EXISTING ELECTRIC PANEL (VERIFY EXACT LOCATION IN FIELD) TAP EXISTING PANEL BUS WITH 2#12, 1#12G IN 3/4"C TAP LENGTH NOT TO EXCEED 10'. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL AIC RATING.
E6	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#10, 1#10G IN 3/4" CONDUIT FROM NEW SWITCH TO NEAREST 120/208V PANEL (WITHIN 100') & CONNECT TO NEW 1P-30A CIRCUIT BREAKER. E.C. SHALL PROVIDE NEW CIRCUIT BREAKER IN EXISTING BLANK SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC RATING (COORDINATE WITH FIELD CONDITIONS).
E7	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#12, 1#12G IN 3/4" CONDUIT FROM NEW SWITCH TO NEW ENCLOSED CIRCUIT BREAKER & CONNECT.
E8	NEW JUNCTION BOX WITH 3/4" CONDUIT AND 1P-20A CIRCUIT FOR AUTOMATIC TEMPERATURE CONTROL CONTROLLERS (COORDINATE EXACT LOCATION AND QUANTITIES WITH MECHANICAL CONTRACTOR) E.C. SHALL EXTEND NEW 20A CIRCUIT FROM JUNCTION BOXES BACK TO NEW ELECTRICAL PANEL BLV AND CONNECT AS REQUIRED (MAXIMUM OF 4 JUNCTION BOXES PER CIRCUIT). WIRE SIZE SHALL BE SUCH THAT MAXIMUM VOLTAGE DROP DOES NOT EXCEED 3%, VERIFY CONTROLLER LOADS WITH EQUIPMENT SUPPLIER AND INSTALLED CONDUIT DISTANCES WITH FIELD CONDITIONS AND INCLUDE CALCULATIONS WITH ELECTRICAL SUBMITTALS FOR APPROVAL PRIOR TO ROUGHING.

ELECTRICAL KEY NOTES (DEMOLITION)	
SYMBOL	DESCRIPTION OF WORK
ED1	EXISTING UNIT HEATER TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE ALL EXISTING WIRING. (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
ED2	EXISTING UNIT VENTILATOR TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE ALL EXISTING WIRING (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
ED3	EXISTING CABINET UNIT HEATER TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE EXISTING WIRING.(TYPICAL FOR ALL CABINET UNIT HEATERS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).

NOTES:

1. SEE SYMBOLS, SCHEDULES, NOTES & DETAILS.
2. E.C. SHALL RE-WIRE EXISTING EQUIPMENT BEING REPLACED WITH NEW, COORDINATE FINAL QUANTITY AND LOCATION OF ALL EQUIPMENT WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS.
3. PROVIDE A SEPARATE NEUTRAL WIRE FOR EACH CIRCUIT.
4. PROVIDE A SEPARATE GROUND WIRE IN EACH CONDUIT.
5. WHERE EXISTING EQUIPMENT IS SUPPLIED BY METALLIC CONDUIT, THE CONDUIT MAY BE USED AS THE EQUIPMENT GROUND PER N.E.C. WHERE EXISTING EQUIPMENT BRANCH CIRCUITS DO NOT CONTAIN A SEPARATE GROUND (SUCH AS BX CABLE), THE ELECTRICAL CONTRACTOR SHALL PROVIDE NEW AS PART OF THE BASE CONTRACT. E.C. SHALL REMOVE AND REPLACE EXISTING BRANCH CIRCUIT BACK TO UPSTREAM PANELBOARD (COMPLETE) PROVIDE NEW MATCHING WIRING AND CONDUIT FROM PANELBOARD TO EQUIPMENT AND CONNECT. E.C. SHALL REMOVE ALL EXISTING ASSOCIATED OBSOLETE WIRING, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE.
6. ALL NEW BRANCH CIRCUIT WIRING SHALL BE CONCEALED, CUT AND PATCH WALLS, FLOORS AND CEILINGS WHERE NECESSARY, WHERE CONCEALING NEW BRANCH CIRCUIT WIRING IS NOT PRACTICABLE, THIS CONTRACTOR SHALL PROVIDE THE FOLLOWING:
   - IN FINISHED OCCUPIED AREAS E.C. SHALL PROVIDE WIREMOLD DS4000 STEEL RACEWAY (COLOR TO MATCH SURROUNDINGS) COMPLETE WITH ALL ACCESSORIES.
   - IN FINISHED UNOCCUPIED AREAS E.C. SHALL PROVIDE WIREMOLD V700 STEEL RACEWAY (COLOR TO MATCH SURROUNDINGS) COMPLETE WITH ALL ACCESSORIES.
   - IN UNFINISHED AREAS E.C. SHALL PROVIDE EMT CONDUIT.



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction, publication or use for purposes other than those for which it was prepared is prohibited. Any ideas or designs incorporated herein shall not be reproduced or used for any purpose without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violations of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

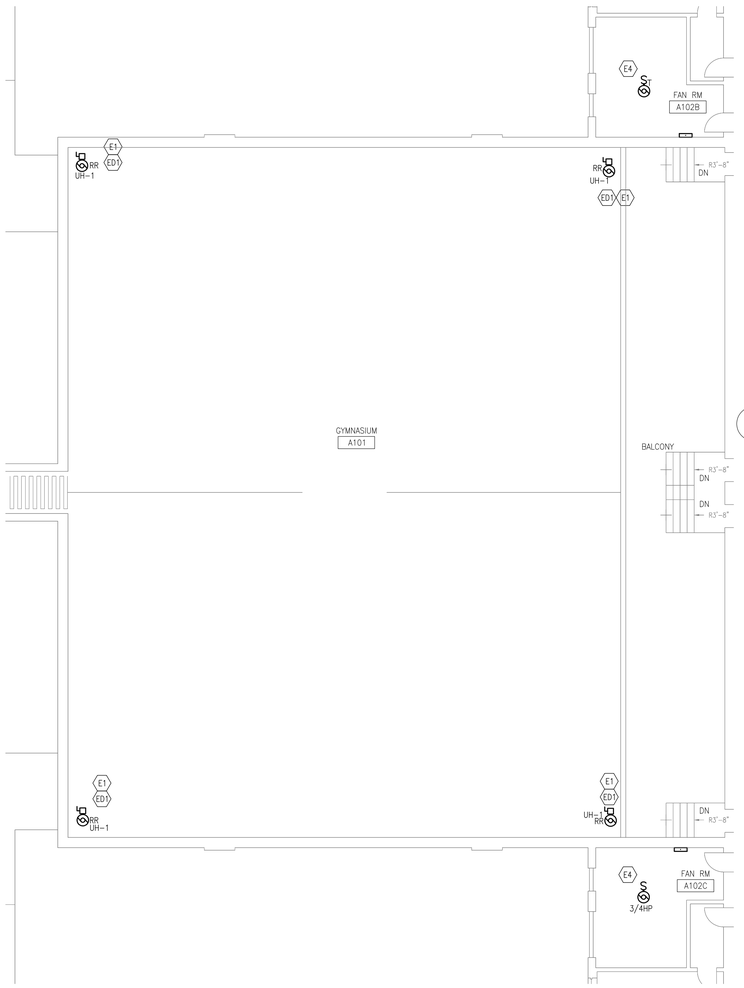
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Phone: (860) 321-7233
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
BASEMENT PART PLANS ELECTRICAL NEW AND DEMOLITION WORK

DATE 02/07/2020

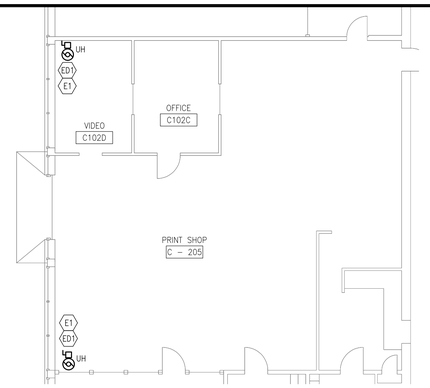
DWG. NO.
E.1.1



1 1ST FLOOR PART PLAN -GYM A101 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

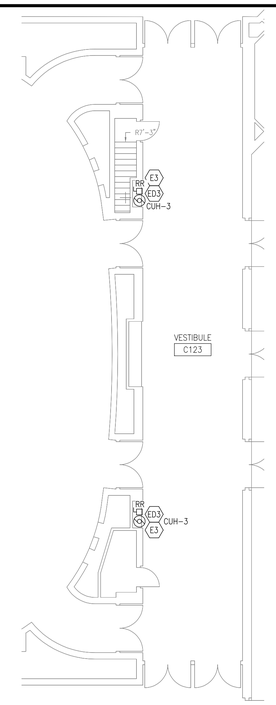
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 1



2 1ST FLOOR PART PLAN - PRINT SHOP C205 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

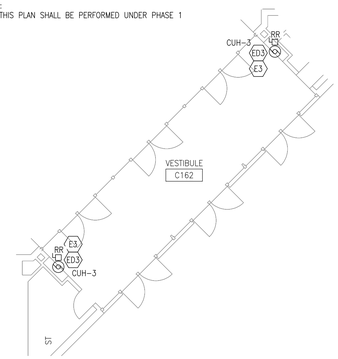
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 1



3 1ST FLOOR PART PLAN -VESTIBULE - C123 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

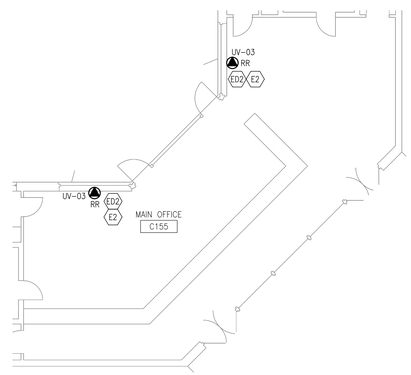
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



4 1ST FLOOR PART PLAN -VESTIBULE - C162 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

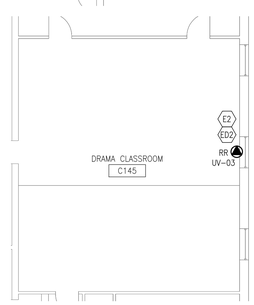
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



5 1ST FLOOR PART PLAN -MAIN OFFICE C155 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

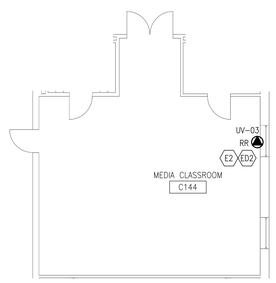
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



6 1ST FLOOR PART PLAN -DRAMA CLASSROOM C145 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

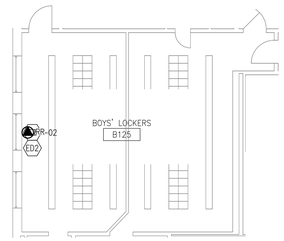
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



7 1ST FLOOR PART PLAN -MEDIA CLASSROOM C144 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

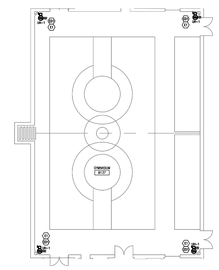
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



8 1ST FLOOR PART PLAN - BOYS LOCKERS B125 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

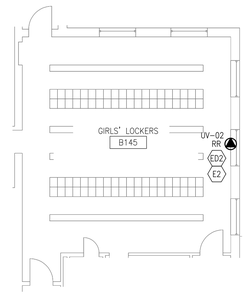
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



9 1ST FLOOR PART PLAN - GYMNASIUM B137 - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"

PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



10 1ST FLOOR PART PLAN - GIRLS LOCKERS B145 - ELECTRICAL NEW AND DEMOLITION WORK

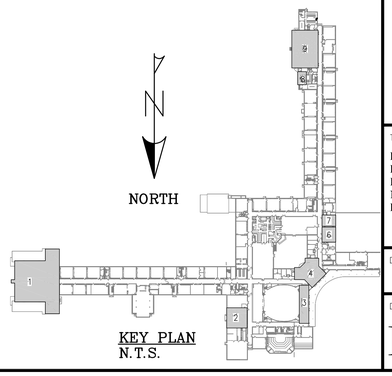
SCALE: 1/8"=1'-0"

PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2

ELECTRICAL KEY NOTES (NEW WORK)	
SYMBOL	DESCRIPTION OF WORK
E1	NEW UNIT HEATER AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW THERMAL OVERLOAD SWITCH AND CONNECT NEW UNIT HEATER TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E2	NEW UNIT VENTILATOR AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW MOTOR RATED SWITCH AND CONNECT NEW UNIT VENTILATOR TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E3	NEW CABINET UNIT HEATER AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW THERMAL OVERLOAD SWITCH AND CONNECT NEW CABINET UNIT HEATER TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL CABINET UNIT HEATERS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E4	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 1#12, 1#12G IN 3/4" CONDUIT FROM NEW SWITCH TO NEAREST 120/208V PANEL (WITHIN 100') & CONNECT TO NEW 1P-20A CIRCUIT BREAKER. E.C. SHALL PROVIDE NEW CIRCUIT BREAKER IN EXISTING BLANK SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC RATING (COORDINATE WITH FIELD CONDITIONS).
E5	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) REPLACING EXISTING, E.C. SHALL DISCONNECT ELECTRICAL AND MAKE SAFE FOR REMOVAL. E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND RECONNECT TO EXISTING BRANCH CIRCUIT. RE-WORK TO NEW UNIT AND CONNECT (MAINTAIN CONTINUITY) IF EXISTING CIRCUIT IS OTHER THAN 1P-20A THIS CONTRACTOR SHALL PROVIDE NEW 1P-20A ENCLOSED CIRCUIT BREAKER ADJACENT TO EXISTING ELECTRIC PANEL (VERIFY EXACT LOCATION IN FIELD) TAP EXISTING PANEL BUS WITH 2#12, 1#12G IN 3/4"C TAP LENGTH NOT TO EXCEED 10'. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL AIC RATING.
E6	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#10, 1#10G IN 3/4" CONDUIT FROM NEW SWITCH TO NEAREST 120/208V PANEL (WITHIN 100') & CONNECT TO NEW 1P-30A CIRCUIT BREAKER. E.C. SHALL PROVIDE NEW CIRCUIT BREAKER IN EXISTING BLANK SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC RATING (COORDINATE WITH FIELD CONDITIONS).
E7	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#12, 1#12G IN 3/4" CONDUIT FROM NEW SWITCH TO NEW ENCLOSED CIRCUIT BREAKER & CONNECT.
E8	NEW JUNCTION BOX WITH 3/4" CONDUIT AND 1P-20A CIRCUIT FOR AUTOMATIC TEMPERATURE CONTROL CONTROLLERS (COORDINATE EXACT LOCATION AND QUANTITIES WITH MECHANICAL CONTRACTOR) E.C. SHALL EXTEND NEW 20A CIRCUIT FROM JUNCTION BOXES BACK TO NEW ELECTRICAL PANEL BLV AND CONNECT AS REQUIRED (MAXIMUM OF 4 JUNCTION BOXES PER CIRCUIT). WIRE SIZE SHALL BE SUCH THAT MAXIMUM VOLTAGE DROP DOES NOT EXCEED 3%. VERIFY CONTROLLER LOADS WITH EQUIPMENT SUPPLIER AND INSTALLED CONDUIT DISTANCES WITH FIELD CONDITIONS AND INCLUDE CALCULATIONS WITH ELECTRICAL SUBMITTALS FOR APPROVAL PRIOR TO ROUGHING.

ELECTRICAL KEY NOTES (DEMOLITION)	
SYMBOL	DESCRIPTION OF WORK
ED1	EXISTING UNIT HEATER TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE ALL EXISTING WIRING. (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
ED2	EXISTING UNIT VENTILATOR TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE ALL EXISTING WIRING (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
ED3	EXISTING CABINET UNIT HEATER TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE EXISTING WIRING.(TYPICAL FOR ALL CABINET UNIT HEATERS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).

NOTES:
1. SEE SYMBOLS, SCHEDULES, NOTES & DETAILS.
2. E.C. SHALL RE-WIRE EXISTING EQUIPMENT BEING REPLACED WITH NEW, COORDINATE FINAL QUANTITY AND LOCATION OF ALL EQUIPMENT WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS.
3. PROVIDE A SEPARATE NEUTRAL WIRE FOR EACH CIRCUIT.
4. PROVIDE A SEPARATE GROUND WIRE IN EACH CONDUIT.
5. WHERE EXISTING EQUIPMENT IS SUPPLIED BY METALLIC CONDUIT, THE CONDUIT MAY BE USED AS THE EQUIPMENT GROUND PER N.E.C. WHERE EXISTING EQUIPMENT BRANCH CIRCUITS DO NOT CONTAIN A SEPARATE GROUND (SUCH AS BX CABLE), THE ELECTRICAL CONTRACTOR SHALL PROVIDE NEW AS PART OF THE BASE CONTRACT. E.C. SHALL REMOVE AND REPLACE EXISTING BRANCH CIRCUIT BACK TO UPSTREAM PANELBOARD (COMPLETE) PROVIDE NEW MATCHING WIRING AND CONDUIT FROM PANELBOARD TO EQUIPMENT AND CONNECT. E.C. SHALL REMOVE ALL EXISTING ASSOCIATED OBSOLETE WIRING, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE.
6. ALL NEW BRANCH CIRCUIT WIRING SHALL BE CONCEALED, CUT AND PATCH WALLS, FLOORS AND CEILINGS WHERE NECESSARY, WHERE CONCEALING NEW BRANCH CIRCUIT WIRING IS NOT PRACTICABLE, THIS CONTRACTOR SHALL PROVIDE THE FOLLOWING:
   - IN FINISHED OCCUPIED AREAS E.C. SHALL PROVIDE WIREMOLD DS4000 STEEL RACEWAY (COLOR TO MATCH SURROUNDINGS) COMPLETE WITH ALL ACCESSORIES.
   - IN FINISHED UNOCCUPIED AREAS E.C. SHALL PROVIDE WIREMOLD V700 STEEL RACEWAY (COLOR TO MATCH SURROUNDINGS) COMPLETE WITH ALL ACCESSORIES.
   - IN UNFINISHED AREAS E.C. SHALL PROVIDE EMT CONDUIT.



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. It shall not be reproduced or published in whole or in part, or used for any purpose other than the project shown on this drawing, without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as a publication in derogation of any of the rights of Bemis Associates LLC.

Any alterations or violations of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL

HOT WATER CONVERSION

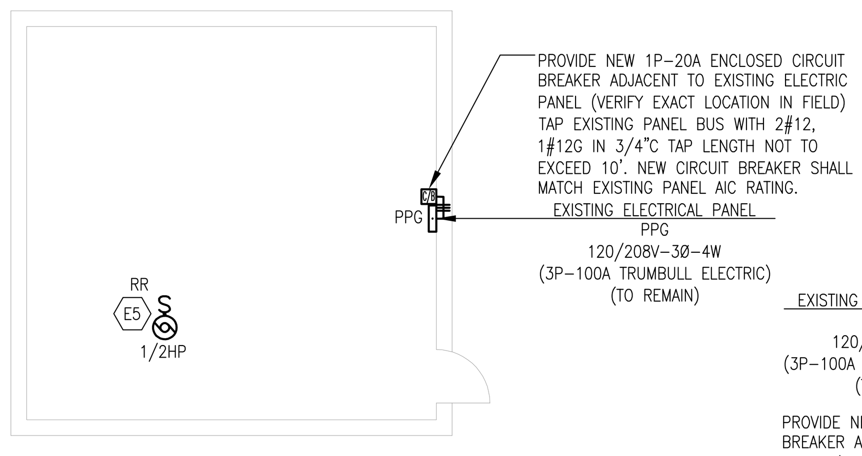
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Phone: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
FIRST FLOOR PART PLANS ELECTRICAL NEW AND DEMOLITION WORK

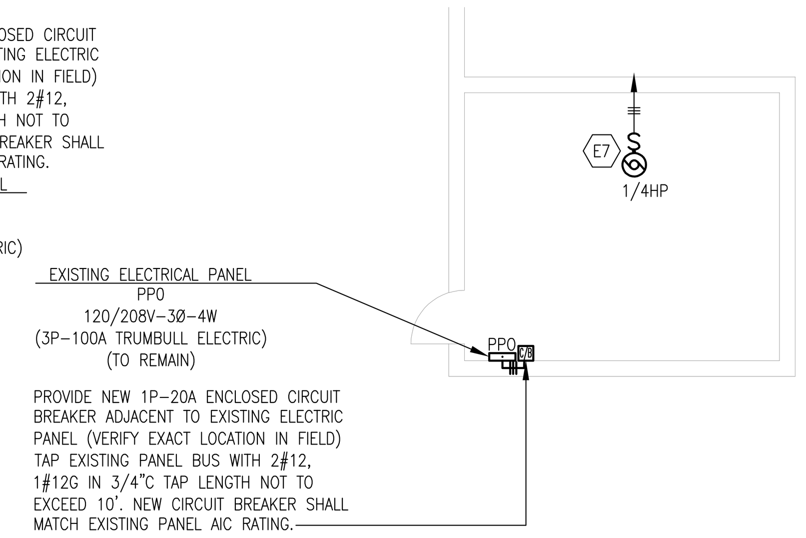
DATE 02/07/2020

DWG. NO.
E.1.2



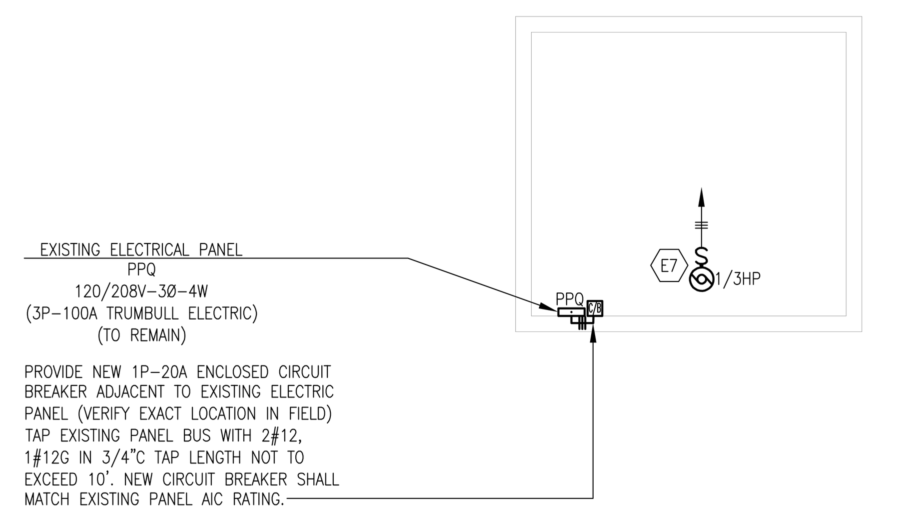
1 FAN ROOM PART PLAN -WING A - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 1



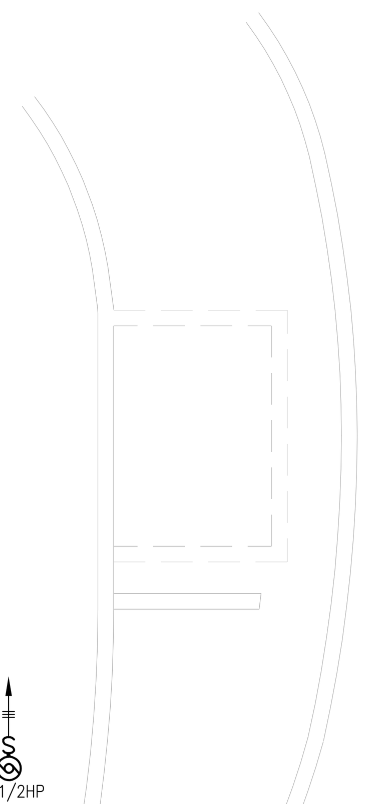
2 FAN ROOM PART PLAN -CORE AREA- ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 1



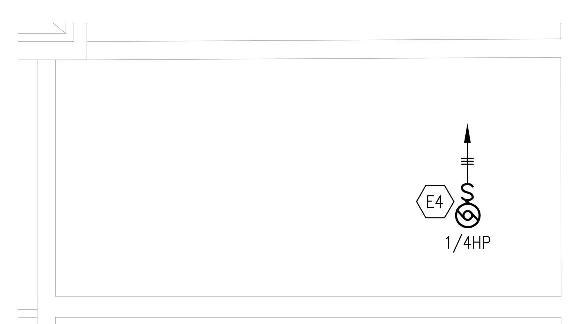
3 FAN ROOM PART PLAN -CORE AREA - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



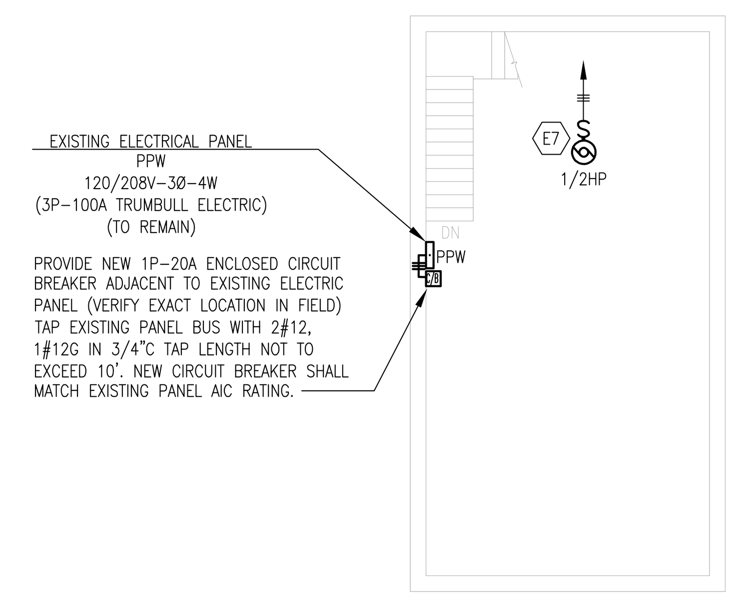
4 FAN ROOM PART PLAN -CORE AREA- ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



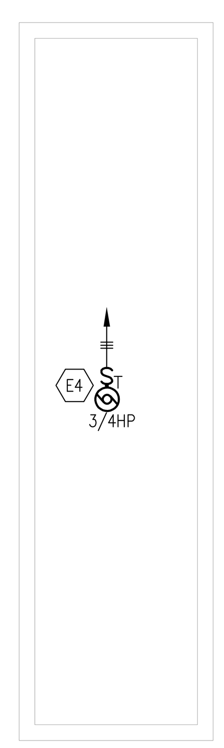
5 FAN ROOM PART PLAN -CORE AREA - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



6 FAN ROOM PART PLAN -CORE AREA - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2



7 FAN ROOM PART PLAN -WING B - ELECTRICAL NEW AND DEMOLITION WORK

SCALE: 1/8"=1'-0"
PHASING NOTES:
ALL WORK ON THIS PLAN SHALL BE PERFORMED UNDER PHASE 2

ELECTRICAL KEY NOTES (NEW WORK)

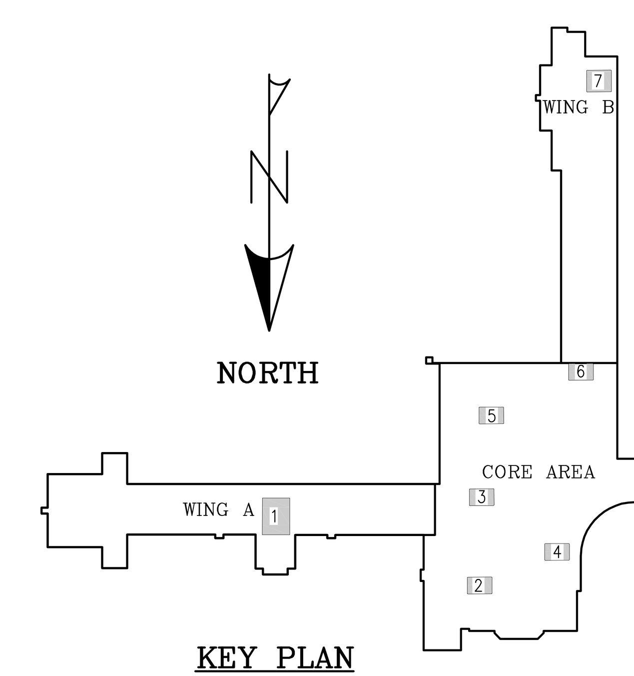
SYMBOL	DESCRIPTION OF WORK
E1	NEW UNIT HEATER AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW THERMAL OVERLOAD SWITCH AND CONNECT NEW UNIT HEATER TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E2	NEW UNIT VENTILATOR AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW MOTOR RATED SWITCH AND CONNECT NEW UNIT VENTILATOR TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E3	NEW CABINET UNIT HEATER AT EXISTING LOCATION (BY M.C.) E.C. SHALL PROVIDE NEW THERMAL OVERLOAD SWITCH AND CONNECT NEW CABINET UNIT HEATER TO EXISTING BRANCH CIRCUIT, EXTEND NEW MATCHING WIRING & CONDUIT, PROVIDE ALL NECESSARY MATERIALS & LABOR NECESSARY FOR A COMPLETE INSTALLATION (TYPICAL FOR ALL CABINET UNIT HEATERS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
E4	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#12, 1#12G IN 3/4" CONDUIT FROM NEW SWITCH TO NEAREST 120/208V PANEL (WITHIN 100') & CONNECT TO NEW 1P–20A CIRCUIT BREAKER. E.C. SHALL PROVIDE NEW CIRCUIT BREAKER IN EXISTING BLANK SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC RATING (COORDINATE WITH FIELD CONDITIONS).
E5	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) REPLACING EXISTING, E.C. SHALL DISCONNECT ELECTRICAL AND MAKE SAFE FOR REMOVAL. E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND RECONNECT TO EXISTING BRANCH CIRCUIT, RE–WORK TO NEW UNIT AND CONNECT (MAINTAIN CONTINUITY) IF EXISTING CIRCUIT IS OTHER THAN 1P–20A THIS CONTRACTOR SHALL PROVIDE NEW 1P–20A ENCLOSED CIRCUIT BREAKER ADJACENT TO EXISTING ELECTRIC PANEL (VERIFY EXACT LOCATION IN FIELD) TAP EXISTING PANEL BUS WITH 2#12, 1#12G IN 3/4"C TAP LENGTH NOT TO EXCEED 10'. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL AIC RATING.
E6	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#10, 1#10G IN 3/4" CONDUIT FROM NEW SWITCH TO NEAREST 120/208V PANEL (WITHIN 100') & CONNECT TO NEW 1P–30A CIRCUIT BREAKER. E.C. SHALL PROVIDE NEW CIRCUIT BREAKER IN EXISTING BLANK SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC RATING (COORDINATE WITH FIELD CONDITIONS).
E7	NEW CIRCULATOR PUMP FOR NEW HOT WATER COIL (BY M.C.) E.C SHALL PROVIDE NEW 20A MOTOR RATED SWITCH AND CONNECT TO NEW PUMP AND EXTEND 2#12, 1#12G IN 3/4" CONDUIT FROM NEW SWITCH TO NEW ENCLOSED CIRCUIT BREAKER & CONNECT.
E8	NEW JUNCTION BOX WITH 3/4" CONDUIT AND 1P–20A CIRCUIT FOR AUTOMATIC TEMPERATURE CONTROL CONTROLLERS (COORDINATE EXACT LOCATION AND QUANTITIES WITH MECHANICAL CONTRACTOR) E.C. SHALL EXTEND NEW 20A CIRCUIT FROM JUNCTION BOXES BACK TO NEW ELECTRICAL PANEL BLV AND CONNECT AS REQUIRED (MAXIMUM OF 4 JUNCTION BOXES PER CIRCUIT). WIRE SIZE SHALL BE SUCH THAT MAXIMUM VOLTAGE DROP DOES NOT EXCEED 3%, VERIFY CONTROLLER LOADS WITH EQUIPMENT SUPPLIER AND INSTALLED CONDUIT DISTANCES WITH FIELD CONDITIONS AND INCLUDE CALCULATIONS WITH ELECTRICAL SUBMITTALS FOR APPROVAL PRIOR TO ROUGHING.

ELECTRICAL KEY NOTES (DEMOLITION)

SYMBOL	DESCRIPTION OF WORK
ED1	EXISTING UNIT HEATER TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE ALL EXISTING WIRING. (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
ED2	EXISTING UNIT VENTILATOR TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE ALL EXISTING WIRING (TYPICAL FOR ALL UNIT VENTILATORS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).
ED3	EXISTING CABINET UNIT HEATER TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW (BY M.C.) E.C. SHALL DISCONNECT EXISTING ELECTRICAL AS REQUIRED FOR REMOVAL, MAKE SAFE EXISTING WIRING.(TYPICAL FOR ALL CABINET UNIT HEATERS, COORDINATE EXACT LOCATION WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS).

NOTES:

1. SEE SYMBOLS, SCHEDULES, NOTES & DETAILS.
2. E.C. SHALL RE–WIRE EXISTING EQUIPMENT BEING REPLACED WITH NEW, COORDINATE FINAL QUANTITY AND LOCATION OF ALL EQUIPMENT WITH MECHANICAL DRAWINGS AND FIELD CONDITIONS.
3. PROVIDE A SEPARATE NEUTRAL WIRE FOR EACH CIRCUIT.
4. PROVIDE A SEPARATE GROUND WIRE IN EACH CONDUIT.
5. WHERE EXISTING EQUIPMENT IS SUPPLIED BY METALLIC CONDUIT, THE CONDUIT MAY BE USED AS THE EQUIPMENT GROUND PER N.E.C. WHERE EXISTING EQUIPMENT BRANCH CIRCUITS DO NOT CONTAIN A SEPARATE GROUND (SUCH AS BX CABLE), THE ELECTRICAL CONTRACTOR SHALL PROVIDE NEW AS PART OF THE BASE CONTRACT. E.C. SHALL REMOVE AND REPLACE EXISTING BRANCH CIRCUIT BACK TO UPSTREAM PANELBOARD (COMPLETE) PROVIDE NEW MATCHING WIRING AND CONDUIT FROM PANELBOARD TO EQUIPMENT AND CONNECT. E.C. SHALL REMOVE ALL EXISTING ASSOCIATED OBSOLETE WIRING, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE.
6. ALL NEW BRANCH CIRCUIT WIRING SHALL BE CONCEALED, CUT AND PATCH WALLS, FLOORS AND CEILINGS WHERE NECESSARY, WHERE CONCEALING NEW BRANCH CIRCUIT WIRING IS NOT PRACTICABLE, THIS CONTRACTOR SHALL PROVIDE THE FOLLOWING:
   - IN FINISHED OCCUPIED AREAS E.C. SHALL PROVIDE WIREMOLD DS4000 STEEL RACEWAY (COLOR TO MATCH SURROUNDINGS) COMPLETE WITH ALL ACCESSORIES.
   - IN FINISHED UNOCCUPIED AREAS E.C. SHALL PROVIDE WIREMOLD V700 STEEL RACEWAY (COLOR TO MATCH SURROUNDINGS) COMPLETE WITH ALL ACCESSORIES.
   - IN UNFINISHED AREAS E.C. SHALL PROVIDE EMT CONDUIT.



KEY PLAN
N.T.S.

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC, whether the project for which it is intended is constructed or not. This drawing, and the concepts and ideas contained herein, shall not be used, copied or retained without the express written approval of Bemis Associates LLC.

Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.

Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
(860) 667–3233
Fax: (860) 321–7070
w.w.w.bemisassociates.com

TITLE
PENTHOUSE PARTIAL FLOOR PLANS ELECTRICAL NEW WORK

DATE 02/07/2020

DWG. NO.
E.1.3

PUMP P-2 DISCONNECT & VFD
TO BE DISCONNECTED & RE-WIRED TO NEW PANEL. E.C. SHALL DISCONNECT & REMOVE EXISITNG WIRING FROM DISCONNECT BACK TO UPSTREAM PANEL (COMPLETE) CUT BACK CONDUIT TO STRUCTURE, CAP & SECURE.

PUMP P-1 DISCONNECT & VFD
TO BE DISCONNECTED & RE-WIRED TO NEW PANEL. E.C. SHALL DISCONNECT & REMOVE EXISITNG WIRING FROM DISCONNECT BACK TO UPSTREAM PANEL (COMPLETE) CUT BACK CONDUIT TO STRUCTURE, CAP & SECURE.

EXISTING ELECTRICAL PANEL HP-B 277/480V-3Ø-4W (FED BY 175A IN MDP) AND ALL ASSOCIATED OBSOLETE WIRING TO BE DISCONNECTED AND REMOVED TO UPSTREAM PANEL, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE AS REQUIRED. E.C. SHALL EXAMINE EXISTING PANEL LOADS TO DETERMINE ALL EXISTING CIRCUITS NOT NOTED TO BE REMOVED AND SHALL EXTEND NEW MATCHING WIRING & CONDUIT TO NEW ELECTRIC PANEL BLV & CONNECT (MAINTAIN CONTINIUITY).

PUMPS DISCONNECTS & HOA STARTERS
TO BE DISCONNECTED & RE-WIRED TO NEW PANEL. E.C. SHALL DISCONNECT & REMOVE EXISITNG WIRING FROM DISCONNECT BACK TO UPSTREAM PANEL (COMPLETE) CUT BACK CONDUIT TO STRUCTURE, CAP & SECURE.

EXISTING BOILER #1
CONTROL = 15A@115V-1Ø
BURNER = 43.4A @ 208V-3Ø
OIL PUMP = 4.0A @ 208V-3Ø
DISCONNECT AND REMOVE ALL OBSOLETE ELECTRICAL MADE AVAILABLE BY REMOVAL, COMPLETE BACK TO PANEL (INCLUDING WIRING, CONDUIT, J-BOXES, DISCONNECT SWITCHES, ETC.) COORDINATE WITH FIELD CONDITIONS

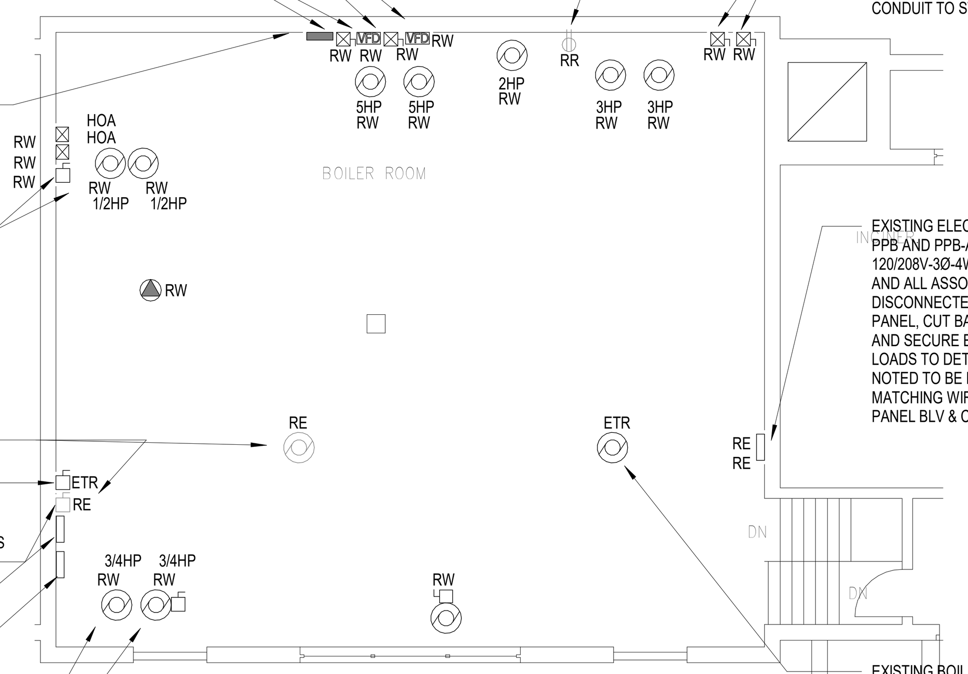
BOILER #2 DISCONNECT 100A

BOILER #1 DISCONNECT 100A AND ALL ASSOCIATED OBSOLETE WIRING TO BE DISCONNECTED AND REMOVED TO UPSTREAM PANEL, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE AS REQUIRED (COMPLETE)

EXISTING ELECTRIC PANEL BWHP 120/208V-3Ø-4W 400A FED BY BP1

EXISTING ELECTRIC PANEL BP1 120/208V-3Ø-4W 400A FED BY 250A IN 208VDP

EXISTING FUEL PUMPS TO BE DISCONNECTED AND RE-WIRED TO NEW ELECTRICAL PANEL BLV
E.C. SHALL DISCONNECT & REMOVE ALL EXISTING OBSOLETE WIRING FROM PUMPS DISCONNECT TO UPSTREAM PANEL (COMPLETE) CUT BACK CONDUIT TO STRUCTURE, CAP & SECURE AS REQUIRED.



EXISTING DUPLEX RECEPTACLE AND ALL ASSOCIATED OBSOLETE WIRNIG TO BE REMOVED BACK TO SUPPLYING PANEL, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE AS REQUIRED. E.C. SHALL FURNISH & INSTALL NEW DUPLEX RECEPTACLE AT NEW LOCATION AND WIRE TO NEW PANEL (TYPICAL FOR ALL EXISTING DUPLEX RECEPTACLES IN BOILER ROOM COORDINATE QUANTITY AND LOCATION)

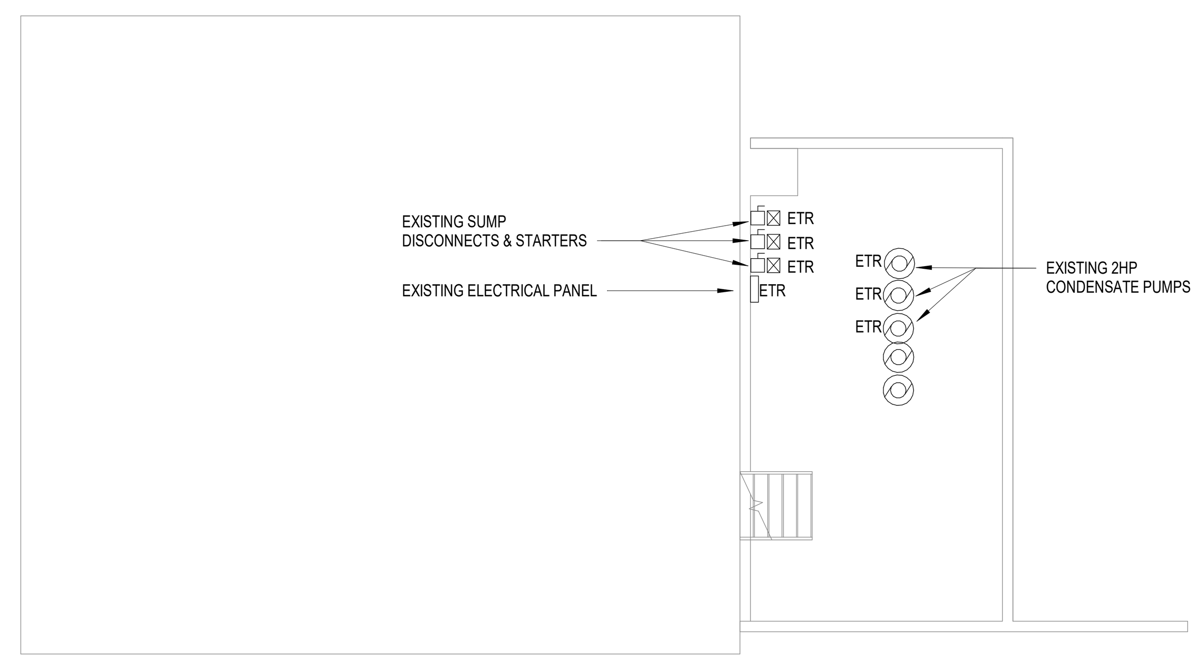
EXISTING COMBINATION DISCONNECT & VFD FOR EXISTING 3HP BASE MOUNTED PUMPS TO BE DISCONNECTED & RE-WIRED TO NEW PANEL. E.C. SHALL DISCONNECT & REMOVE EXISITNG WIRING FROM DISCONNECT BACK TO UPSTREAM PANEL (COMPLETE) CUT BACK CONDUIT TO STRUCTURE, CAP & SECURE.

EXISTING ELECTRICAL PANELS PPB AND PPB-A (STACKED) 120/208V-3Ø-4W AND ALL ASSOCIATED OBSOLETE WIRING TO BE DISCONNECTED AND REMOVED TO UPSTREAM PANEL, CUT BACK CONDUIT TO STRUCTURE, CAP AND SECURE E.C. SHALL EXAMINE EXISTING PANEL LOADS TO DETERMINE ALL EXISTING CIRCUITS NOT NOTED TO BE REMOVED AND SHALL EXTEND NEW MATCHING WIRING & CONDUIT TO NEW ELECTRIC PANEL BLV & CONNECT (MAINTAIN CONTINIUITY).

EXISTING BOILER #2
CONTROL = 15A@115V-1Ø
BURNER = 43.4A @ 208V-3Ø
OIL PUMP = 4.0A @ 208V-3Ø

1 / E.2.1 ELECTRICAL BOILER ROOM PHASE 1 DEMO
1/8" = 1'-0"

NOTES:
1. UPON REMOVAL OF ANY ELECTRICAL EQUIPMENT OR ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED BY OTHER DIVISION THIS CONTRACTOR SHALL:
   A. DISCONNECT ELECTRICAL POWER FROM EQUIPMENT, MAKE SAFE FOR REMOVAL.
   B. REMOVE ALL ASSOCIATED OBSOLETE ELECTRICAL EQUIPMENT, SWITCHES, WIRING, ETC.
   C. REMOVE ALL ASSOCIATED OBSOLETE WIRING (COMPLETE BACK TO SOURCE).
   D. EXTEND NEW MATCHING WIRING AND CONDUIT AS REQUIRED TO MAINTAIN CONTINUITY OF ANY EQUIPMENT NOT LISTED FOR REMOVAL AND DISTRUBED BY THE REMOVAL OF EXISTING , CONNECT TO EXISTING/NEW CIRCUIT TO MAINTAIN CONTINUITY.
   E. CUT BACK ALL ASSOCIATED OBSOLETE CONDUITS TO STRUCTURE, CEILING OR BELOW FLOOR, CAP. WHERE CONDUITS ARE CUT BACK TO BELOW FLOOR THIS CONTRACTOR SHALL PATCH FLOOR SURFACE TO MATCH EXISTING SURROUNDINGS (COORDINATE WITH FIELD CONDITIONS).



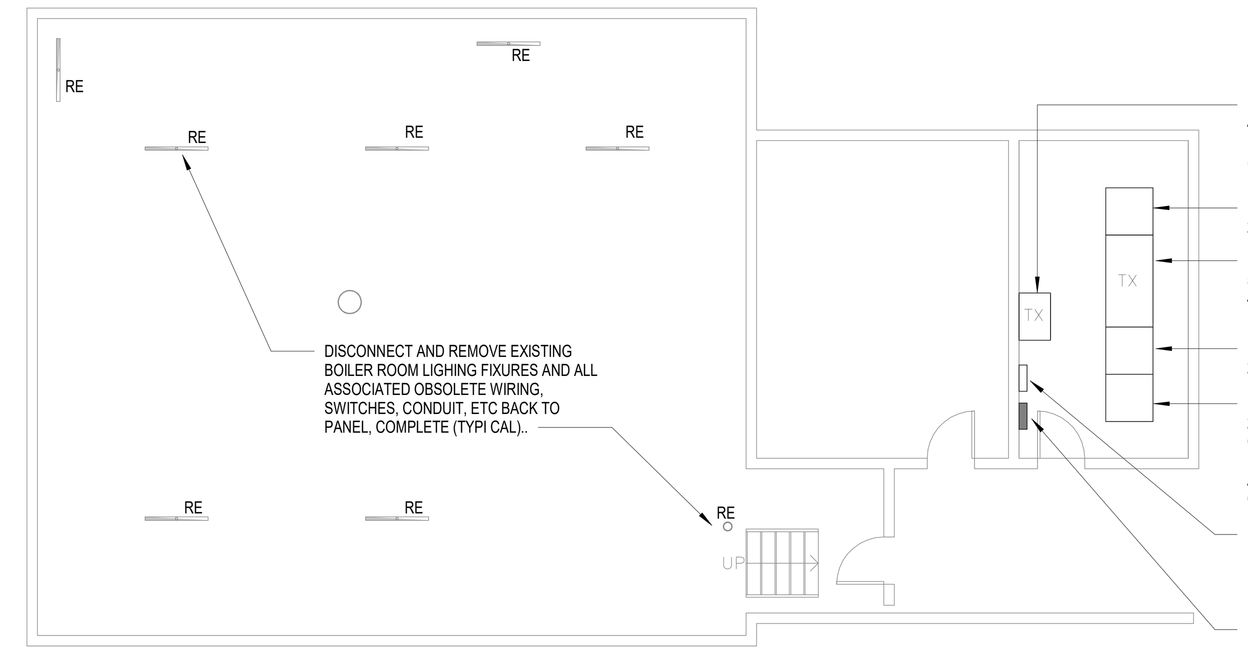
EXISTING SUMP DISCONNECTS & STARTERS

EXISTING ELECTRICAL PANEL

EXISTING 2HP CONDENSATE PUMPS

2 / E.2.1 ELECTRICAL SUB BOILER ROOM PHASE 1 DEMO
1/8" = 1'-0"

NOTES:
1. UPON REMOVAL OF ANY ELECTRICAL EQUIPMENT OR ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED BY OTHER DIVISION THIS CONTRACTOR SHALL:
   A. DISCONNECT ELECTRICAL POWER FROM EQUIPMENT, MAKE SAFE FOR REMOVAL.
   B. REMOVE ALL ASSOCIATED OBSOLETE ELECTRICAL EQUIPMENT, SWITCHES, WIRING, ETC.
   C. REMOVE ALL ASSOCIATED OBSOLETE WIRING (COMPLETE BACK TO SOURCE).
   D. EXTEND NEW MATCHING WIRING AND CONDUIT AS REQUIRED TO MAINTAIN CONTINUITY OF ANY EQUIPMENT NOT LISTED FOR REMOVAL AND DISTRUBED BY THE REMOVAL OF EXISTING , CONNECT TO EXISTING/NEW CIRCUIT TO MAINTAIN CONTINUITY.
   E. CUT BACK ALL ASSOCIATED OBSOLETE CONDUITS TO STRUCTURE, CEILING OR BELOW FLOOR, CAP. WHERE CONDUITS ARE CUT BACK TO BELOW FLOOR THIS CONTRACTOR SHALL PATCH FLOOR SURFACE TO MATCH EXISTING SURROUNDINGS (COORDINATE WITH FIELD CONDITIONS).



DISCONNECT AND REMOVE EXISTING BOILER ROOM LIGHING FIXTURES AND ALL ASSOCIATED OBSOLETE WIRING, SWITCHES, CONDUIT, ETC BACK TO PANEL, COMPLETE (TYPI CAL).

EXISTING 75kVA STEPDOWN TRANSFORMER 480V DELTA PRIMARY 120/208V WYE SECONDARY (SERVES PANEL CP-1)

EXISTING 208V DISTRIBUTION SECTION 2000A, 120/208V-3Ø-4W

EXISTING SWITCHBOARD MOUNTED 500kVA STEPDOWN TRANSFORMER 480V DELTA PRIMARY 120/208V WYE SECONDARY

EXISTING MAIN DISRIBUTION SECTION 2000A, 277/480V-3Ø-4W

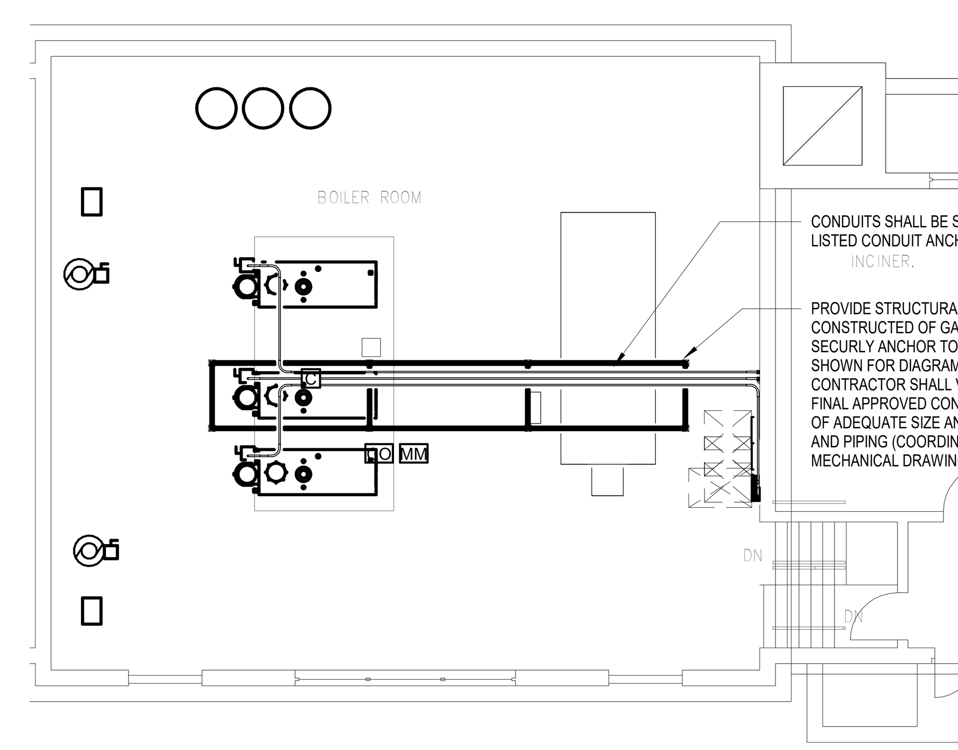
EXISTING 2000A SWITCHBOARD SWBD1 277/480V-3Ø-4W CONTAINING: 1600A MAIN SERVICE DISCONNECT ASCO 400 SERIES SPD CT / PT SECTION

EXISTING ELECTRICAL PANEL CP-1 120/208V-3Ø-4W 225A MCB, 30 POLE

EXISTING ELECTRICAL PANEL HP-B 277/480V-3Ø-4W 225A MLO, 18 POLE (DISCONNECT & REMOVE EXISTING BREAKER FEEDING BOILER ROOM PANEL & SEAL OPENINGS IN PANEL)

3 / E.2.1 ELECTRICAL BOILER ROOM CEILING AND ELECTRICAL ROOM PHASE 1 DEMO
1/8" = 1'-0"

NOTES:
1. UPON REMOVAL OF ANY ELECTRICAL EQUIPMENT OR ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED BY OTHER DIVISION THIS CONTRACTOR SHALL:
   A. DISCONNECT ELECTRICAL POWER FROM EQUIPMENT, MAKE SAFE FOR REMOVAL.
   B. REMOVE ALL ASSOCIATED OBSOLETE ELECTRICAL EQUIPMENT, SWITCHES, WIRING, ETC.
   C. REMOVE ALL ASSOCIATED OBSOLETE WIRING (COMPLETE BACK TO SOURCE).
   D. EXTEND NEW MATCHING WIRING AND CONDUIT AS REQUIRED TO MAINTAIN CONTINUITY OF ANY EQUIPMENT NOT LISTED FOR REMOVAL AND DISTRUBED BY THE REMOVAL OF EXISTING , CONNECT TO EXISTING/NEW CIRCUIT TO MAINTAIN CONTINUITY.
   E. CUT BACK ALL ASSOCIATED OBSOLETE CONDUITS TO STRUCTURE, CEILING OR BELOW FLOOR, CAP. WHERE CONDUITS ARE CUT BACK TO BELOW FLOOR THIS CONTRACTOR SHALL PATCH FLOOR SURFACE TO MATCH EXISTING SURROUNDINGS (COORDINATE WITH FIELD CONDITIONS).



CONDUITS SHALL BE SECURLY ATTACHED TO STAND WITH UL LISTED CONDUIT ANCHORS PER NEC

PROVIDE STRUCTURAL SUPPORT CONDUIT/PIPING RACK CONSTRUCTED OF GALVANIZED STEEL, FROM FLOOR TO 10' AFF. SECURLY ANCHOR TO FLOOR. SIZE AND LOCATION OF RACK IS SHOWN FOR DIAGRAMATICAL PURPOSES ONLY THIS CONTRACTOR SHALL VERIFY EXACT SIZE AND LOCATION WITH FINAL APPROVED CONDUIT AND PIPING LAYOUTS. RACK SHALL BE OF ADEQUATE SIZE AND STRENGTH FOR SUPPORT OF CONDUITS AND PIPING (COORDINATE PIPING SIZES AND QUANTITIES WITH MECHANICAL DRAWINGS)

7 / E.2.1 ELECTRICAL BOILER ROOM PHASE 1 NEW WORK (CONDUIT & SUPORT)
1/8" = 1'-0"

PUMP P-2 DISCONNECT & VFD
E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT FROM VFD TO NEW ELECTRICAL PANEL BHV AND CONNECT (MAINTAIN CONTINUITY).

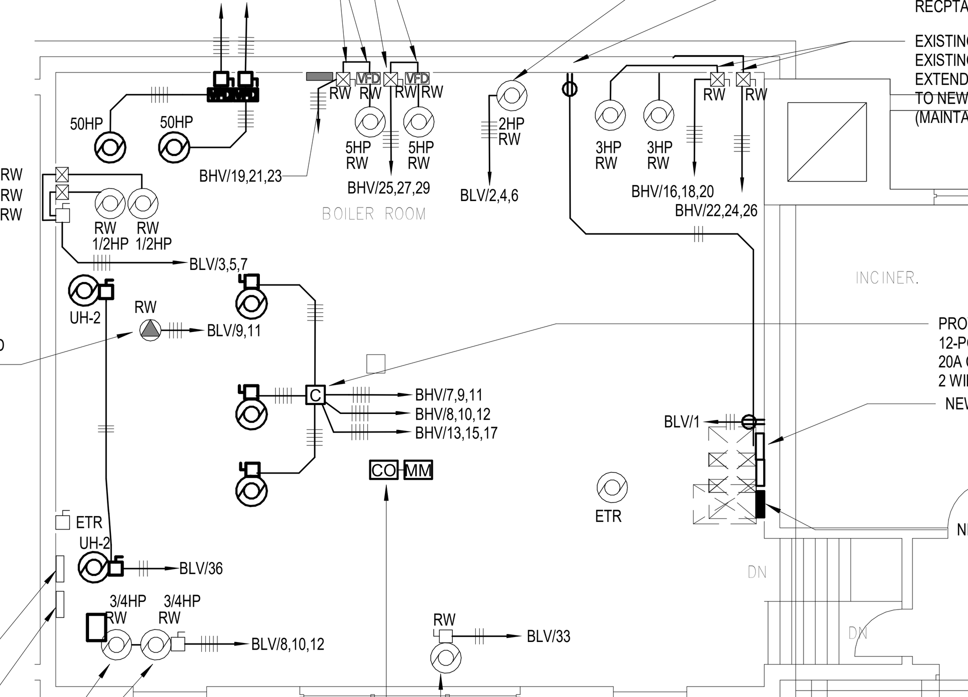
PUMP P-1 DISCONNECT & VFD
E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT FROM VFD TO NEW ELECTRICAL PANEL BHV AND CONNECT (MAINTAIN CONTINUITY).

EXISTING GAS FIRED DOMESTIC WATER HEATER TO BE RE-WIRED, E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT TO NEW ELECTRICAL PANEL BLV AND CONNECT (MAINTAIN CONTINUITY).

EXISTING ELECTRIC PANEL BWHP 120/208V-3Ø-4W 400A FED BY BP1

EXISTING ELECTRIC PANEL BP1 120/208V-3Ø-4W 400A FED BY 250A IN 208VDP

EXISTING FUEL PUMPS
E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT FROM VFD TO NEW ELECTRICAL PANEL BLV AND CONNECT (MAINTAIN CONTINUITY).



EXISTING AIR COMPRESSOR,
E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT FROM VFD TO NEW ELECTRICAL PANEL BLV AND CONNECT (MAINTAIN CONTINUITY).

NEW RECEPTACLE AT EXISTING LOCATION EXTEND 2# 12, 1#12G IN 3/4"C TO NEW 1P-20A C/B IN NEW PANEL BLV AND CONNECT (TYPICAL FOR ALL DUPLEX RECPTACLES IN BOILER ROOM).

EXISTING COMBINATION DISCONNECT & VFD FOR EXISTING 3HP BASE MOUNTED PUMPS, E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT FROM VFD TO NEW ELECTRICAL PANEL BHV AND CONNECT (MAINTAIN CONTINUITY).

PROVIDE ASCO #918122071XC,47L SERIES 12-POLE MECHANICALLY HELD CONTACTOR, 20A CONTACTS, 120V COIL, NEMA 1 ENCLOSURE, 2 WIRE CONTROL MODULE.

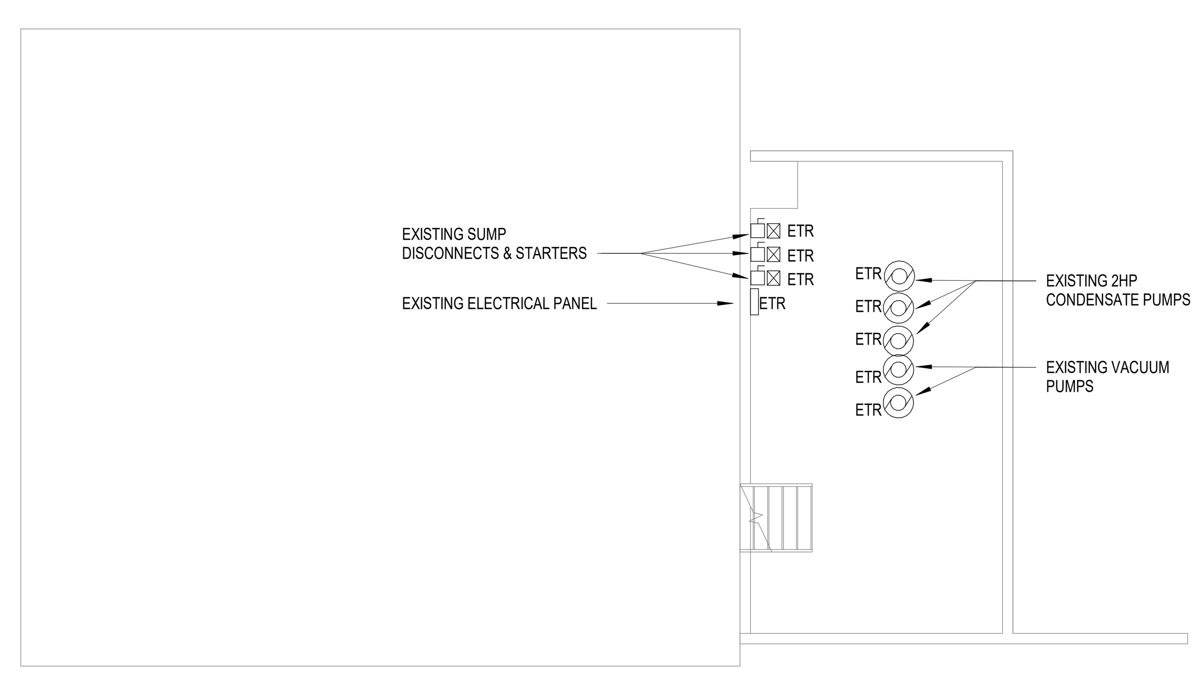
NEW ELECTRICAL PANEL BLV 120/208V-3Ø-4W (SEE SCHEDULE)

NEW ELECTRICAL PANEL BHV 277/480V-3Ø-4W (SEE SCHEDULE)

EXISTING MOTORIZED DAMPER
E.C. SHALL EXTEND NEW MATCHING WIRING & CONDUIT FROM MOTORIZED DAMPER TO NEW ELECTRICAL PANEL BLV AND CONNECT (MAINTAIN CONTINUITY).

PROVIDE NEW CARBON MONOXIDE DETECTOR AND NEW FIRE ALARM SYSTEM MONITORING MODULE (MATCH EXISTING MANUFACTURER), EXTEND NEW MC CABLE LISTED FOR USE IN FIRE ALARM SYSTEMS AND CONNECT TO EXISTING LOCAL FIRE ALARM NOTIFICATION BRANCH CIRCUIT AND CONNECT. INCLUDE ALL NECESSARY MATERIALS, LABOR & PROGRAMING (COMPLETE).

5 / E.2.1 ELECTRICAL BOILER ROOM PHASE 1 NEW WORK
1/8" = 1'-0"



EXISTING SUMP DISCONNECTS & STARTERS

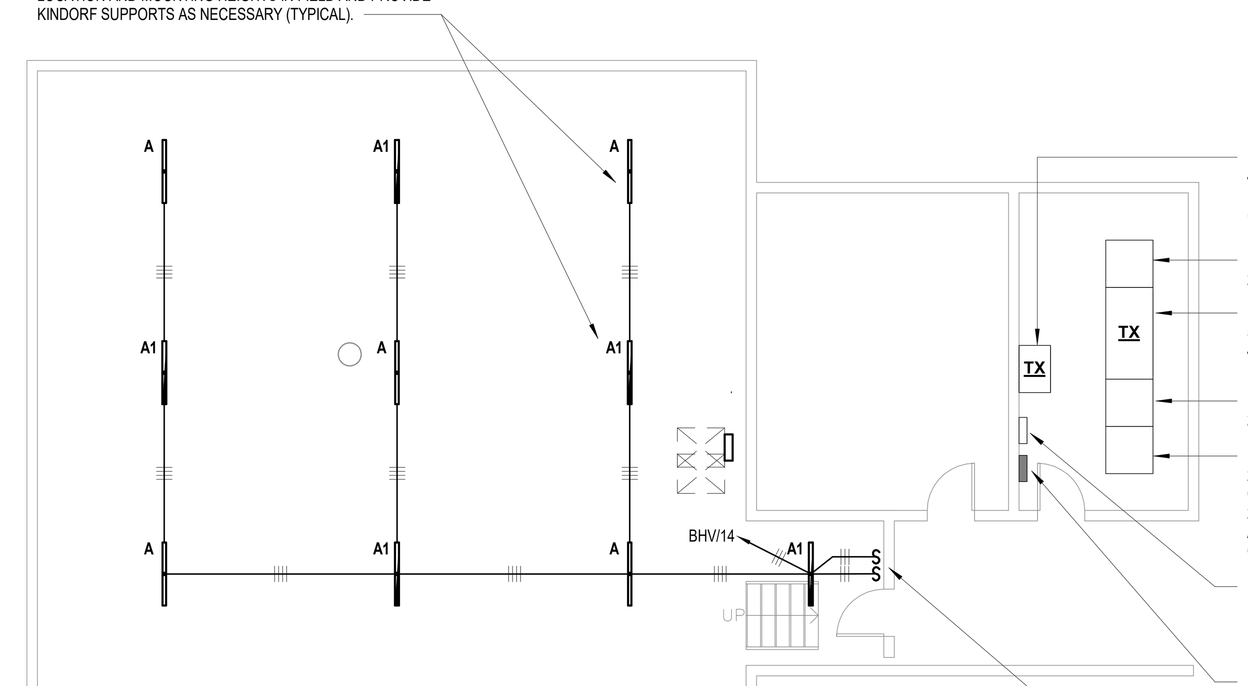
EXISTING ELECTRICAL PANEL

EXISTING 2HP CONDENSATE PUMPS

EXISTING VACUUM PUMPS

4 / E.2.1 ELECTRICAL SUB BOILER ROOM PHASE 1 NEW WORK
1/8" = 1'-0"

NEW LIGHTING FIXTURES SHALL BE SECURLY MOUNTED BELOW PIPING AND DUCTWORK (COORDINATE FINAL LOCATION AND MOUNTING HEIGHTS IN FIELD AND PROVIDE KINDORF SUPPORTS AS NECESSARY (TYPICAL).



EXISTING 75kVA STEPDOWN TRANSFORMER 480V DELTA PRIMARY 120/208V WYE SECONDARY (SERVES PANEL CP-1)

EXISTING 208V DISTRIBUTION SECTION 2000A, 120/208V-3Ø-4W

EXISTING SWITCHBOARD MOUNTED 500kVA STEPDOWN TRANSFORMER 480V DELTA PRIMARY 120/208V WYE SECONDARY

EXISTING MAIN DISRIBUTION SECTION 2000A, 277/480V-3Ø-4W

EXISTING 2000A SWITCHBOARD SWBD1 277/480V-3Ø-4W CONTAINING: 2000A MAIN SERVICE DISCONNECT ASCO 400 SERIES SPD CT / PT SECTION

EXISTING ELECTRICAL PANEL CP-1 120/208V-3Ø-4W 225A MCB, 30 POLE

EXISTING ELECTRICAL PANEL HP-B 277/480V-3Ø-4W 225A MLO, 18 POLE

E.C. SHALL BOILER ROOM LIGHTS SO THAT 50% OF LIGHT OUTPUT IS CONTROLED BY EACH WALL SWITCH

6 / E.2.1 ELECTRICAL BOILER ROOM CEILING AND ELECTRIC ROOM PHASE 1 NEW WORK
1/8" = 1'-0"

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC, whether the project for which it is intended is constructed or not. This drawing, and the concepts and ideas contained herein, shall not be used, copied or retained without the express written approval of Bemis Associates LLC.
Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC.
Any abridgement or violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

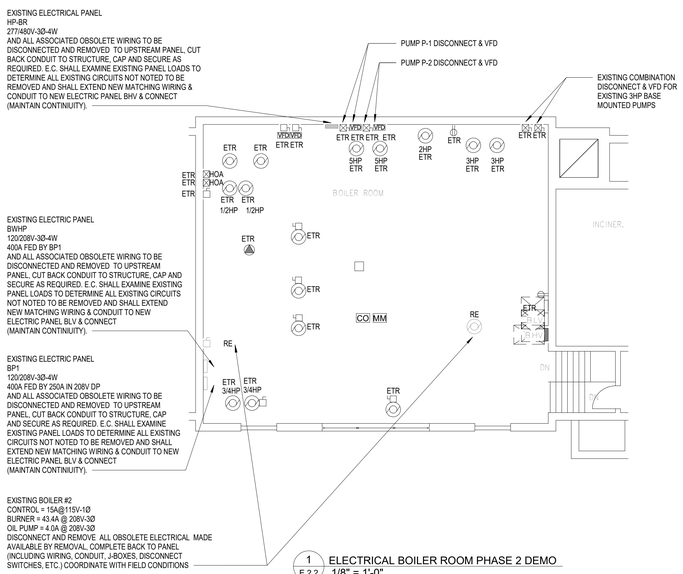
KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS | ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032

TITLE
ELECTRICAL BOILER ROOM DEMOLITION AND NEW WORK PHASE 1

DATE 11/01/2018

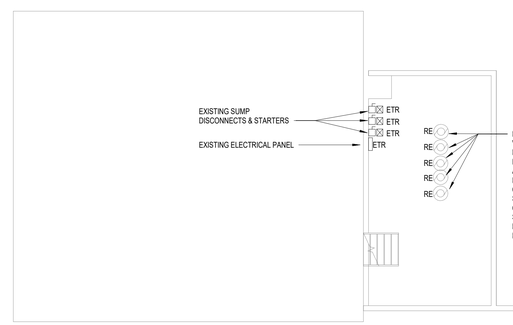
DWG. NO.
E.2.1



1 E.2.2 ELECTRICAL BOILER ROOM PHASE 2 DEMO
1/8" = 1'-0"

NOTES:

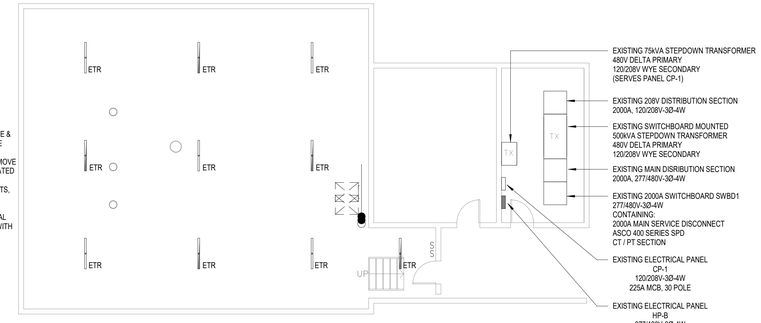
1. UPON REMOVAL OF ANY ELECTRICAL EQUIPMENT OR ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED BY OTHER DIVISION THIS CONTRACTOR SHALL:
   - A. DISCONNECT ELECTRICAL POWER FROM EQUIPMENT, MAKE SAFE FOR REMOVAL.
   - B. REMOVE ALL ASSOCIATED OBSOLETE ELECTRICAL EQUIPMENT, SWITCHES, WIRING, ETC.
   - C. REMOVE ALL ASSOCIATED OBSOLETE WIRING (COMPLETE BACK TO SOURCE).
   - D. EXTEND NEW MATCHING WIRING AND CONDUIT AS REQUIRED TO MAINTAIN CONTINUITY OF ANY EQUIPMENT NOT LISTED FOR REMOVAL AND DISTRUBED BY THE REMOVAL OF EXISTING , CONNECT TO EXISTING/NEW CIRCUIT TO MAINTAIN CONTINUITY.
   - E. CUT BACK ALL ASSOCIATED OBSOLETE CONDUITS TO STRUCTURE, CEILING OR BELOW FLOOR, CAP. WHERE CONDUITS ARE CUT BACK TO BELOW FLOOR THIS CONTRACTOR SHALL PATCH FLOOR SURFACE TO MATCH EXISTING SURROUNDINGS (COORDINATE WITH FIELD CONDITIONS).



2 E.2.2 ELECTRICAL SUB BOILER ROOM PHASE 2 DEMO
1/8" = 1'-0"

NOTES:

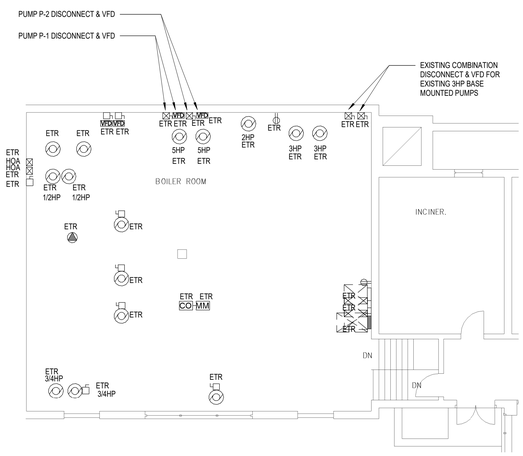
1. UPON REMOVAL OF ANY ELECTRICAL EQUIPMENT OR ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED BY OTHER DIVISION THIS CONTRACTOR SHALL:
   - A. DISCONNECT ELECTRICAL POWER FROM EQUIPMENT, MAKE SAFE FOR REMOVAL.
   - B. REMOVE ALL ASSOCIATED OBSOLETE ELECTRICAL EQUIPMENT, SWITCHES, WIRING, ETC.
   - C. REMOVE ALL ASSOCIATED OBSOLETE WIRING (COMPLETE BACK TO SOURCE).
   - D. EXTEND NEW MATCHING WIRING AND CONDUIT AS REQUIRED TO MAINTAIN CONTINUITY OF ANY EQUIPMENT NOT LISTED FOR REMOVAL AND DISTRUBED BY THE REMOVAL OF EXISTING , CONNECT TO EXISTING/NEW CIRCUIT TO MAINTAIN CONTINUITY.
   - E. CUT BACK ALL ASSOCIATED OBSOLETE CONDUITS TO STRUCTURE, CEILING OR BELOW FLOOR, CAP. WHERE CONDUITS ARE CUT BACK TO BELOW FLOOR THIS CONTRACTOR SHALL PATCH FLOOR SURFACE TO MATCH EXISTING SURROUNDINGS (COORDINATE WITH FIELD CONDITIONS).



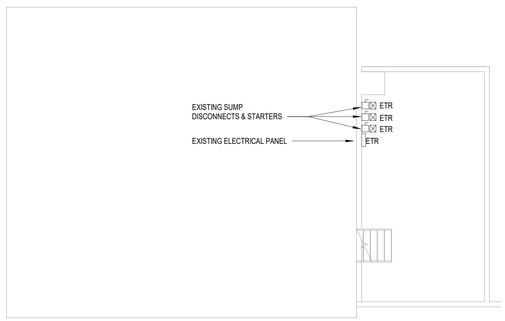
3 E.2.2 ELECTRICAL BOILER ROOM CEILING AND ELECTRICAL ROOM PHASE 2 DEMO
1/8" = 1'-0"

NOTES:

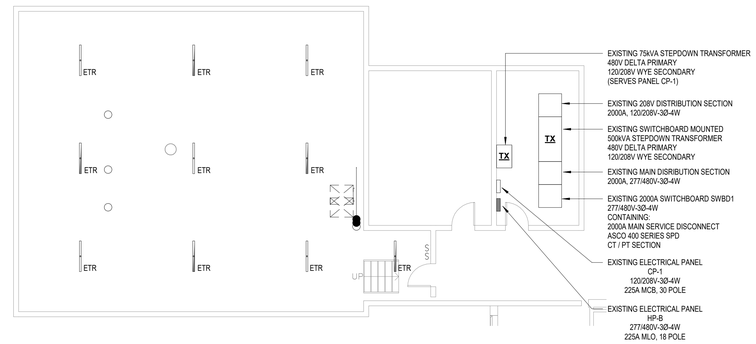
1. UPON REMOVAL OF ANY ELECTRICAL EQUIPMENT OR ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED BY OTHER DIVISION THIS CONTRACTOR SHALL:
   - A. DISCONNECT ELECTRICAL POWER FROM EQUIPMENT, MAKE SAFE FOR REMOVAL.
   - B. REMOVE ALL ASSOCIATED OBSOLETE ELECTRICAL EQUIPMENT, SWITCHES, WIRING, ETC.
   - C. REMOVE ALL ASSOCIATED OBSOLETE WIRING (COMPLETE BACK TO SOURCE).
   - D. EXTEND NEW MATCHING WIRING AND CONDUIT AS REQUIRED TO MAINTAIN CONTINUITY OF ANY EQUIPMENT NOT LISTED FOR REMOVAL AND DISTRUBED BY THE REMOVAL OF EXISTING , CONNECT TO EXISTING/NEW CIRCUIT TO MAINTAIN CONTINUITY.
   - E. CUT BACK ALL ASSOCIATED OBSOLETE CONDUITS TO STRUCTURE, CEILING OR BELOW FLOOR, CAP. WHERE CONDUITS ARE CUT BACK TO BELOW FLOOR THIS CONTRACTOR SHALL PATCH FLOOR SURFACE TO MATCH EXISTING SURROUNDINGS (COORDINATE WITH FIELD CONDITIONS).



5 E.2.2 ELECTRICAL BOILER ROOM PHASE 2 NEW WORK
1/8" = 1'-0"



4 E.2.2 ELECTRICAL SUB BOILER ROOM PHASE 2 NEW WORK
1/8" = 1'-0"



6 E.2.2 ELECTRICAL BOILER ROOM CEILING AND ELECTRIC ROOM PHASE 2 NEW WORK
1/8" = 1'-0"

REVISIONS

© COPYRIGHT
This drawing is an instrument of service and shall remain the property of Bemis Associates LLC. The reproduction of this drawing without permission is a violation of the copyright laws and shall be reported to the appropriate authorities. This drawing and the concepts and ideas contained herein are the property of Bemis Associates LLC. Submission or distribution of this drawing to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of any of the rights of Bemis Associates LLC. Violation of the rights of Bemis Associates LLC shall be prosecuted to the fullest extent possible under the law.

KING PHILIP MIDDLE SCHOOL
HOT WATER CONVERSION
100 KING PHILIP DRIVE – West Hartford, Connecticut

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, Ct 06032
Phone: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
ELECTRICAL BOILER ROOM DEMOLITION AND NEW WORK PHASE 2

DATE 11/01/2018

DWG. NO.
E.2.2