# **POLICE DEPARTMENT**

# **TOWN OF TEMPLETON DEHUMIDIFICATION IMPROVEMENTS**

# TOWN OF TEMPLETON POLICE DEPART 33 SOUTH ROAD TEMPLETON, MASSACHUSETTS 0146

PLAN NO.	DESCRIPTION	PLAN NO.	DESCRIPTION
<b>TO 04</b>			
T0.01	TITLE SHEET	E0.1	ELECTRICAL LEGEND, NOTE
		E0.2	ELECTRICAL DETAILS & FA I
H0.01	HVAC LEGEND AND NOTES	ED0.1	ELECTRICAL DEMO PLAN
H0.02	HVAC SCHEDULES & SEQUENCES	ED0.2	ELECTRICAL DEMO PLAN
H0.03	HVAC DETAILS	ED0.3	ELECTRICAL DEMO PLAN
HD1.00	HVAC BASEMENT DEMO PLAN	E1.1	ELECTRICAL LOWER LEVEL
HD2.00	HVAC FIRST FLOOR DEMO PLAN	E1.2	ELECTRICAL UPPER LEVEL
HD3.00	HVAC ATTIC DEMO PLAN	E1.3	ELECTRICAL ATTIC NEW WO
H1.00	HVAC BASEMENT NEW WORK PLAN		
H2.00	HVAC FIRST FLOOR NEW WORK PLAN		
H3.00	HVAC ATTIC NEW WORK PLAN		

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				BLW Engineers, Inc. 311 Great Road, Post Office Box 1551	BLW Engineers, 311 Great Road, Post Office E	Inc.
				Littleton, Massachusetts 01460 T: 978.486.4301 F: 978.428.0067	Littleton, Massachusetts 0 T: 978.486.4301 F: 978.428	460 .0067
				www.blwengineers.com HVAC * ELECTRICAL * PLUMBING * FIRE PROTECTION		
				Client:	Client:	
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				DEPARTMENT 33 SOUTH ROAD		Г
				TEMPLETON, MA 01488		38
				Submission:	Submission:	
				PRICING 06/24/22	PRICING	06/24/22
				ADDENDUM 09/20/22	ADDENDUM	09/20/22
				Revision:	Revision:	
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Drawing No.

T0.1

## HVAC ABBREVIATIONS

- AFF = ABOVE FINISHED FLOOR
- AMP = AMPERE APD = AIR PRESSURE DROP
- ATC = AUTOMATIC TEMPERATURE CONTROL
- AV = AIRVENT
- BTU = BRITISH THERMAL UNIT
- BTUH = BTU PER HOUR CFM = CUBIC FEET PER MINUTE
- CO = CLEAN OUT
- DB = DRY BULB DEG = DEGREE
- DIA = DIAMETER
- DIFF = DIFFERENCE OR DELTA
- DN = DOWN
- DW = DISHWASHER
- EA = EACH
- EAT = ENTERING AIR TEMPERATURE
- ESP = EXTERNAL STATIC PRESSURE EWT = ENTERING WATER TEMPERATURE
- EXIST'G = EXISTING
- F = FAHRENHEIT
- FC = FLEXIBLE CONNECTOR
- FPM = FEET PER MINUTE FPS = FEET PER SECOND
- FT = FEET
- FTR = FIN TUBE RADIATION
- GA = GAGE
- HP = HORSEPOWER
- HWR = HOT WATER RETURN
- HWS = HOT WATER SUPPLY HZ = FREQUENCY (CYCLES PER SECOND)
- IN = INCH
- KH = KITCHEN HOOD
- LAT = LATENT OR LEAVING AIR TEMPERATURE

- LD = LINEAR DIFFUSER
- LPC = LOW PRESSURE CONDENSATE
- LPS = LOW PRESSURE STEAM
- LRA = LOCKED ROTOR AMPS
- LVG = LEAVING
- LWT = LEAVING WATER TEMPERATURE
- MBH = THOUSAND BTUH
- NTS = NOT TO SCALE
- OA = OUTSIDE AIR
- PH = PHASE (ELECTRICAL)
- R = RETURN RA = RETURN AIR
- RG = RETURN GRILLE
- RR = RETURN AIR REGISTER RLA = RUNNING LOAD AMPS
- RPM = REVOLUTIONS PER MINUTE
- SA = SUPPLY AIR
- SD = SUPPLY AIR DIFFUSER
- SEN = SENSIBLE
- SP = STATIC PRESSURE
- SR = SUPPLY REGISTER
- TA = TRANSFER AIR
- TR = TRANSFER REGISTER
- TSP = TOTAL STATIC PRESSURE
- TYP = TYPICAL
- VAV = VARIABLE AIR VOLUME TERMINAL UNIT
- V.D. = MANUAL VOLUME DAMPER
- W = WATT OR WIDE
- WB = WET BULB
- WC = WATER COLUMN
- WG = WATER GAUGE
- HVAC SPECIFICATIONS

#### PART 1 - GENERAL

#### 1.01 WORK INCLUDED:

- Α. THE WORK UNDER THIS SECTION SHALL INCLUDE THE FURNISHING OF ALL MATERIALS, LABOR, EQUIPMENT AND SUPPLIES AND THE PERFORMANCE OF ALL OPERATIONS TO PI INDICATED ON THE CONTRACT DRAWINGS.
- B. FURNISH, SET UP AND MAINTAIN ALL DERRICKS, HOISTING MACHINERY, SCAFFOLDS, STAGING AND PLANKING AS REQUIRED FOR THE WORK.
- 1.02 CODES, ORDINANCES, AND PERMITS: INSTALLATION OF SYSTEMS AND EQUIPMENT PROVIDED UNDER THIS SECTION SHALL BE DONE IN STRICT ACCORDANCE WITH MASSACHUSETTS DEPARTMENT OF PUBLIC SAFETY CODES, MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, MASSACHUSETTS STATE BUILDING CODE AND TOWN REGULATIONS HAVING JURISDICTION.
- 1.04 <u>RECORD DRAWINGS</u>: FURNISH UPON COMPLETION OF ALL WORK, RECORD DRAWINGS OF THE WORK OF THIS SECTION.
- 1.05 SHOP DRAWINGS: PROVIDE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL OF ALL EQUIPMENT, MATERIALS SPECIFIED AND AUTOMATIC TEMPERATURE CONTROLS.
- 1.06 OPERATING AND MAINTENANCE INSTRUCTIONS: FURNISH UPON COMPLETION OF ALL WORK, OPERATION AND MAINTENANCE DATA FOR ALL EQUIPMENT PROVIDED UNDER THIS SECTION.
- 1.07 CUTTING AND PATCHING: ALL CUTTING AND PATCHING NECESSARY FOR THE PROPER INSTALLATION OF WORK TO BE PERFORMED UNDER THIS SECTION AND SUBSECTIONS SHALL BE PERFORMED BY THE CONTRACTOR.
- 1.08 SEISMIC RESTRAINT REQUIREMENTS: ALL WORK INDICATED ON THESE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE, 780 CMR, 6TH EDITION, AND REFERENCED REQUIREMENTS OF BOCA AND NFPA.

# 1.09 SUBSTITUTIONS

- A. IF MATERIALS OR EQUIPMENT ARE SUBSTITUTED FOR SPECIFIED ITEMS THAT ALTER THE SYSTEMS SHOWN OR ITS PHYSICAL CHARACTERISTICS, OR WHICH HAVE DIFFERENT OPERATING CHARACTERISTICS, CLEARLY NOTE THE ALTERATIONS OR DIFFERENCE AND CALL IT TO THE ATTENTION OF THE A/E. UNDER NO CIRCUMSTANCES SHALL SUBSTITUTIONS BE MADE UNLESS MATERIAL OR EQUIPMENT HAS BEEN SUCCESSFULLY OPERATED FOR AT LEAST THREE CONSECUTIVE YEARS. B. ANY MODIFICATIONS TO THE DESIGN, AS A RESULT OF APPROVING A SUBSTITUTION, SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. ANY ADDITIONAL COST TO THIS CONTRACTOR OR ANY OTHER CONTRACTOR,
- DIRECTLY OR INDIRECTLY, AS A RESULT OF SUCH SUBSTITUTIONS, SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. PART 2 - PRODUCTS

# 2.01 SHEET METAL WORK

- A. GALVANIZED SHEET METAL ALL SUPPLY, RETURN, OUTDOOR, AND EXHAUST (SA, RA, OA, EA)
- 1. ALL DUCTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA. ALL DUCTWORK SHALL BE GALVANIZED STEEL. SEAL ALL LOW PRESSURE DUCT JOINTS (CLASS B). EXCESS SEALANT MUST BE REMOVED IMMEDIATELY TO PROVIDE A NEAT APPEARANCE.
- 2. ALL LOW PRESSURE DUCTS SHALL BE FABRICATED FOR 2 INCHES WATER GAUGE PRESSURE.
- 3. PROVIDE ACOUSTIC LINING FOR ALL RETURN AIR DUCTWORK.
- 4. ALL EXPOSED SUPPLY AIR DUCTWORK SHALL BE EITHER DOUBLE WALL OR INTERNALLY LINED WITH MINIMUM R6 INSULATION.

#### 2.02 DUCTWORK ACCESSORIES

- A. MANUAL VOLUME DAMPERS: MANUAL VOLUME DAMPERS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS AND AT EVERY BRANCH TAKE OFF FROM THE MAIN DUCT. B. FIRE DAMPERS: PROVIDE AND INSTALL FIRE DAMPERS AT ALL FIRE WALLS AND FLOORS, WHERE REQUIRED BY CODE AND AS INDICATED. FIRE DAMPER CONSTRUCTION AND INSTALLATION SHALL MEET THE
- REQUIREMENTS OF THE NFPA 90A, AND SHALL BE UL LABELED, TESTED AND INSPECTED IN ACCORDANCE WITH UL 555. AN ACCESS DOOR SHALL BE PROVIDED AT EACH DAMPER TO SERVICE AND INSPECT THE FUSIBLE LINK. PROVIDE FIRE DAMPERS IN EACH APARTMENT UNIT WHERE THE SUPPLY AIR DUCTWORK PENETRATES THE CEILING/FLOOR ASSEMBLY.
- C. FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET IN TOTAL LENGTH AND SHALL HAVE A MINIMUM INSULATING VALUE OF R-5.
- 2.03 ACOUSTIC LINING
- A. PROVIDE ON ALL RETURN AIR DUCTWORK.
- 2.04 <u>AIR OUTLETS</u>
- A. PROVIDE ALL AIR OUTLETS AS SHOWN ON PLANS AND AS SCHEDULED. PROVIDE PAINTED FINISH OPTIONS, COLORS SHALL BE SELECTED BY THE ARCHITECT.

#### 2.05 INSULATION

- A. SUPPLY, RETURN, AND OUTDOOR AIR DUCTWORK
  - 1. INSULATE SUPPLY, RETURN, OUTDOOR AIR DUCTWORK PER INSULATION SCHEDULE
  - 2. PROVIDE ACOUSTIC LINING ON ALL RETURN AIR DUCTWORK.

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# HVAC LEGEND

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	SUPPLY/OUTSIDE AIR DUCT UP	[×]	SUPPLY DIFFUSER (ARROWS INDICATE THROW DIRECTIONS)
	SUPPLY/OUTSIDE AIR DUCT DOWN	<u>ا</u>	
	RETURN/EXHAUST DUCT UP		EXHAUST ON RETURN REGISTER
	RETURN/EXHAUST DUCT DOWN		STEAM TRAP
			GATE VALVE
	RECTANGULAR DUCT ELBOW WITH TURNING VANES		COMBINATION BALANCING/SHUT-OFF VALVE
	STANDARD BRANCH, SUPPLY OR RETURN, NO SPLITTER		TWO-WAY VALVE CONTROL VALVE
			STRAINER
	DUCT TRANSITION	Ì	UNION
	RECTANGULAR TO ROUND DUCT TRANSITION		HOSE END DRAIN VALVE
~	MANUAL VOLUME DAMPER	$A^{AV}$	MANUAL AIR VENT
~	FIRE DAMPER	${\color{black}\textcircled{\bullet}}$	CONNECT TO EXISTING
	PIPE TURNING UP	T	THERMOSTAT
	PIPE TURNING DOWN	S	REMOTE SENSOR
	WATER SUPPLY	$\bigcirc$	
	WATER RETURN	CO	GREASE DUCT (KE) CLEAN OUT
	DRAIN PIPING		
	DIRECTION OF FLOW IN PIPE		

CONCENTRIC REDUCER

PROVIDE COMPLETE WORKING SYSTEMS	AS

A. PROVIDE ALL EQUIPMENT WITH ACCESSORIES AS SCHEDULED. CONTRACTOR TO PROVIDE SUBMITTALS FOR ALL EQUIPMENT, ISOLATORS & HANGERS PRIOR TO INSTALLATION.

## 2.07 <u>PIPING</u>

2.06 EQUIPMENT

A. PROVIDE HOT WATER PIPING MATERIALS AND SIZES AS SCHEDULED AND SHOWN ON PLANS

- 2.08 AUTOMATIC TEMPERATURE CONTROL
- A. PROVIDE CONTROL COMPONENTS AND LOW VOLTAGE WIRING FOR EACH SYSTEM AS REQUIRED FOR THE SEQUENCE OF OPERATION INDICATED. PROVIDE ALL CONTROL COMPONENTS FOR NEW SEQUI CONTROL INCLUDING REQUIRED INTERCONNECTING WIRING AND APPURTENANCES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.
- B. EXISTING AHU CONTROLS SHALL BE REVIEWED TO PROVIDE OPERATION FOR FULLY FUNCTIONAL HEATING, COOLING, AND DEHUMIDIFICATION SYSTEMS FOR E.AHU-1,2.

#### PART 3 - EXECUTION

3.01 <u>GENERAL</u>: INSTALL ALL ITEMS SPECIFIED UNDER PART 2 - PRODUCTS, ACCORDING TO THE APPLICABLE MANUFACTURER'S RECOMMENDATIONS AND SHOP DRAWINGS, THE DETAILS SHOWN ON THE DRAWINGS / UNDER THIS SECTION. PROVIDE ALL REQUIRED HANGERS AND SUPPORTS.

#### 3.02 EQUIPMENT

- A. EQUIPMENT SHALL BE INSTALLED COMPLETE WITH ALL REQUIRED HANGERS AND SUPPORTS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. FURNISH AND INSTALL ALL STEEL STRUCTURAL SUPPORT MEMBERS FOR PROPER HANGING AND SUPPORT OF EQUIPMENT. PROVIDE VIBRATION ISOLATION ON ALL HANGERS.
- C. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- 3.03 MISCELLANEOUS IRON AND STEEL: PROVIDE STEEL SUPPORTS AND HANGERS REQUIRED TO SUPPORT EQUIPMENT, DUCTWORK, AND OTHER EQUIPMENT OR MATERIALS. SUBMIT DETAILS OF STEEL SUPPOR OF FABRICATION FOR APPROVAL.

#### 3.04 BALANCING

- A. THE HVAC CONTRACTOR SHALL ENGAGE THE SERVICES OF AN INDEPENDENT FIRM TO PERFORM ADJUSTING AND BALANCING OF THE HVAC SYSTEMS. SYSTEMS SHALL BE ADJUSTED AND BALANCED SO ARE AS INDICATED ON THE DRAWINGS AND SO THAT THE DISTRIBUTION FROM SUPPLY OUTLETS IS FREE FROM DRAFTS, AND UNIFORM OVER THE FACE OF EACH OUTLET. AFTER COMPLETION OF THE T BALANCING AND ADJUSTING OF THE AIR SYSTEMS, A BALANCING REPORT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. A COPY SHALL ALSO BE SUBMITTED TO BUILDING MANAGER AND ENG RECORD WHEN CONSTRUCTION IS COMPLETE.
- B. BALANCING REPORT SHALL INCLUDE AIRFLOW READINGS AT EACH OF THE FOLLOWING;
- B.A. EXISTING SUPPLY/RETURN REGISTERS/DIFFUSERS B.B. ERV AIRFLOW - ERV SA, RA, EA, OA
- E.AHU-1 OA, SA, RA AIRFLOWS B.C.
- B.D. E.AHU-2 OA, SA, RA AIRFLOWS
- B.E. HYDRONIC HOT WATER COIL WATER FLOWS HHC-1,2

#### 3.05 HVAC PROTECTION

A. MERV 8 FILTERS AT RETURN AIR OPENING. BLANK OFF AND DO NOT OPERATE FANS DURING CONSTRUCTION, UNLESS NEEDED TO CONDITION TENANT SPACE. B. SUPPLY AND RETURN AIR OPENINGS DURING CONSTRUCTION-SEE ABOVE

#### 3.06 COMMISSIONING

A. THE OWNER SHALL ENGAGE THE SERVICES OF AN INDEPENDENT FIRM TO COMMISSION THE HVAC SYSTEMS.

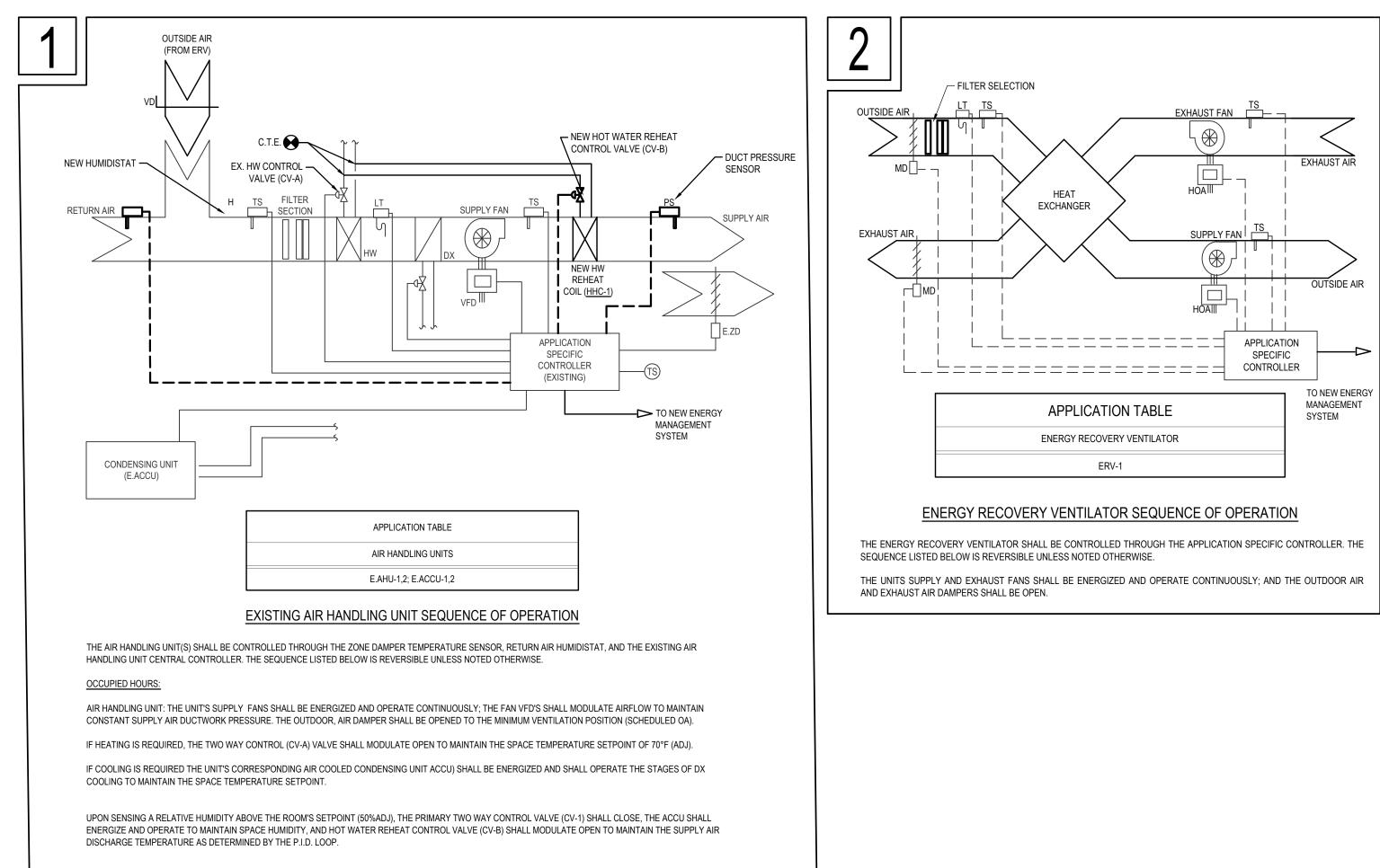
AL NOTES		Seal:
NTION IN THE FIELD. RAL DRAWINGS FOR NEW CONSTRUCTION DETAILS. BEFORE STARTING WORK TO BECOME FAMILIAR WITH CONSTRUCTION, AND COORDINATE WITH OTHER TRADES DNFLICTS.		BLW Engineers, Inc.
PERMITS AND PAY ALL FEES RELATED TO SAME. RY PIPING, EQUIPMENT AND SUPPORTS AS WELL AS ANY IPMENT, ETC. NOT SHOWN ON THE DRAWINGS OR CALLED FOR ATIONS BUT NECESSARY TO PROVIDE COMPLETE AND PEMS.		311 Great Road, Post Office Box 1551 Littleton, Massachusetts 01460 T: 978.486.4301 F: 978.428.0067 www.blwengineers.com HVAC * ELECTRICAL * PLUMBING * FIRE PROTECTION
L EQUIPMENT REQUIRING PERIODIC SERVICE AND		Client:
CORDANCE WITH STATE AND LOCAL CODES. RAWINGS. TAKE ALL MEASUREMENTS IN THE FIELD N WITH ALL EQUIPMENT AS APPROVED AND WITH ALL OTHER		TEMPLETON POLICE DEPARTMENT 33 SOUTH ROAD TEMPLETON, MA 01488
CNA.		
VIBRATION ISOLATORS.		Submission:
HT ACCESS DOOR FOR INSPECTION OF FIRE DAMPERS,		PRICING         06/24/22           ADDENDUM         09/20/22
ALL VERIFY DUCT, PIPING AND EQUIPMENT LOCATIONS FOR BEFORE INSTALLATION.		
R OUTLET AND EQUIPMENT LOCATIONS FURAL REFLECTED CEILING PLAN. CAL SUPPORTS FOR PIPING AT THE VALS INDICATED IN THE SPECIFICATIONS.		Revision:
		Project:     TEMPLETON POLICE     DEPARTMENT     DEPARTMENT     And Repartment     assource was an additional additiona additional additiona additional additiona
		THIS MATERIAL IS CONFIDENTIAL AND MAY NOT BE DISCLOSED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BLW ENGINEERS INC. COPYRIGHT BLW ENGINEERS INC. Drawn By: CAW Checked By: EMG Scale: As Noted Title: HVAC SPECIFICATIONS SPECIFICATIONS Drawing No.: HO.O.1
	NFLICTS. ERMITS AND PAY ALL FEES RELATED TO SAME. AY PIPING, EQUIPMENT AND SUPPORTS AS WELL AS ANY IPMENT, ETC. NOT SHOWN ON THE DRAWINGS OR CALLED FOR ATIONS BUT NECESSARY TO PROVIDE COMPLETE AND TEMS. L EQUIPMENT REQUIRING PERIODIC SERVICE AND CCORDANCE WITH STATE AND LOCAL CODES. RAWINGS. TAKE ALL MEASUREMENTS IN THE FIELD N WITH ALL EQUIPMENT AS APPROVED AND WITH ALL OTHER SHALL BE INSTALLED ON ACCORDANCE WITH THE LATEST CNA. QUIPMENT SHALL HAVE FLEXIBLE PIPE ON DUCT CONNECTIONS VIBRATION ISOLATORS. HT ACCESS DOOR FOR INSPECTION OF FIRE DAMPERS, HALL VERIFY DUCT, PIPING AND EQUIPMENT LOCATIONS FOR BEFORE INSTALLATION. R OUTLET AND EQUIPMENT LOCATIONS FURAL REFLECTED CEILING PLAN. EXAL SUPPORTS FOR PIPING AT THE	NFLIGTS. ERMITS AND PAY ALL FEES RELATED TO SAME. YP PIPING, EQUIPMENT AND SUPPORTS AS WELL AS ANY IPINENT, ETC. NOT SHOWN ON THE DRAWINGS OR CALLED FOR ATIONS BUT NECESSARY TO PROVIDE COMPLETE AND EMS. L EQUIPMENT REQUIRING PERIODIC SERVICE AND CORDANCE WITH STATE AND LOCAL CODES. RAWINGS. TAKE ALL MEASUREMENTS IN THE FIELD N WITH ALL EQUIPMENT AS APPROVED AND WITH ALL OTHER SHALL BE INSTALLED ON ACCORDANCE WITH THE LATEST CON. DUIPMENT SHALL HAVE FLEXIBLE PIPE ON DUCT CONNECTIONS WIBRATION ISOLATORS. IT ACCESS DOOR FOR INSPECTION OF FIRE DAMPERS, ALL VERIFY DUCT, PIPING AND EQUIPMENT LOCATIONS FOR IBEFORE INSTALLATION. ROUTLET AND EQUIPMENT LOCATIONS IURAL REFLECTED CEILING PLAN. IAL SUPPORTS FOR PIPING AT THE

																	EN	IERGY	/ RE	COVER	Y UN	IT SC	HED	ULE															
T <i>I</i>	AG NO.	MANUFACTURER (AS STANDARD)	MODEL NO. (AS STANDARD)	LOCATION SERVED	CFM (OA)	SUPPLY F ESP ("W.C.)	FAN DATA RPM	нр Г	CFM (EA)	EXHAUST FAN ESP ("W.C.)	N DATA	HP	TYPE CF	WIN =M D	ITER SUPPLY EAT LAT vB(°F) DB(°	AIR D F) ("W.C.)	) CFM		NERGY RE ER RETUF LAT DB(°F)	ECOVERY SECTIO RN AIR PD MBH ("W.C.) RCVD	ON CFM	S EAT DB(°F)	UMMER S EAT WB(°F)	UPPLY AIR LAT LAT DB(°F) WB(°	- PD F) ("W.C	cfm	EAT DB(°F)	SUMMER RET EAT LAT WB(°F) DB(°F)	URN AIR LAT PD WB(°F) ("W.C	MBH	VOL		ECTRICAI SE	HZ	HP	MCA M (A)	IOCP (A)	FILTER TYPE	WEIG (LBS
E	ERV-1	RENEWAIRE	HE1.5JINV-S15EE-DGNTFL1	SEE PLANS	1000	0.85	-	1.0	356	0.5	-	1.0	DIRECT 12	00	0 44.5	5 -	1000	70.0	-	- 72.6	1200	91.0	73.0	80.8 68.6	; -	1000	75.0	62.6 -		-	20	)8 1		60	-	9.9	15 N	MERV 8	504

2 3 4 5 6 7	8 9 10 11	Seal:
HVAC SCHEDULES		TH OF MALL
ENERGY RECOVERY UNIT SCHEDULE           SUPPLY FAN DATA         EXHAUST FAN DATA   ENERGY RECOVERY SECTION	ELECTRICAL DATA	ERIK N MEDHAVICAL 48162
MANUFACTURER (AS STANDARD)         MODEL NO. (AS STANDARD)         MODEL NO. (AS STANDARD)         CFM (AS STANDARD)         ESP ("W.C.)         RPM         HP         CFM (EA)         ESP ("W.C.)         RPM         HP         CFM (EA)         ESP ("W.C.)         RPM         HP         CFM (EA)         ESP ("W.C.)         RPM         HP         CFM (EA)         EAT (B(°F)         LAT (W.C.)         PD (W.C.)         CFM         EAT (W.C.)         LAT (B(°F)         PD (W.C.)         CFM         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         CFM         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         CFM         EAT (W.C.)         CFM         CFM         CFM	PHASE HZ HP MCA (A) MOCP (A) FILTER TYPE WEIGHT (LBS) REMARKS	ABIDE ABIDE STERES
ERV-1       RENEWAIRE       HE1.5JINV-S15EE-DGNTF-L1       SEE PLANS       100       0.85       -       1.0       DIRECT       1200       0       44.5       -       1000       70.0       72.6       1200       91.0       73.0       80.8       68.6       -       1000       75.0       62.6       -       -       -       208         NOTES:       1)       COORDINATE ALL ELECTRICAL REQUIREMENTS WITH EC PRIOR TO INSTALLATION.       -       1.0       356       0.5       -       1.0       DIRECT       1200       0       44.5       -       1000       73.0       80.8       68.6       -       1000       75.0       62.6       -       -       -       208	1 60 - 9.9 15 MERV 8 504 [1] [2] [3] [4] [5] [6] [7] [8]	
<ol> <li>PROVIDE ELECTRICAL DISCONNECT SWITCH.</li> <li>PROVIDE MOUNTING EQUIPMENT, VIBRATION ISOLATION.</li> <li>PROVIDE BALANCING DAMPERS ON ALL AIR OUTLETS.</li> <li>PROVIDE 3' OF ACOUSTICAL FLEX DUCT ON SUPPLY AND RETURN AIR CONNECTIONS OFF ERV (FA &amp; RA).</li> </ol>		
<ul> <li>6) AIR LEAKAGE FROM THE OUTSIDE AIR AND EXHAUST AIR SHOULD BE LESS THAN 5% FOR ALL ERV'S.</li> <li>7) PROVIDE MOTORIZED DAMPERS FOR EA AND OA DUCTS PRIOR TO LOUVER PLENUM.</li> <li>8) THE UNIT SHALL BE PROVIDED WITH MEANS OF FROST CONTROL TO PREVENT FREEZING OF CORE</li> </ul>		BĹW
EXISTING AIR HANDLING UNIT SCHEDULE         DX COOLING DATA       HP HEATING DATA       AIR HANDLING DATA       ELECTRICAL DATA		BLW Engineers, Inc. 311 Great Road, Post Office Box 1551
TAG No.       LOCATION(S) SERVED       MANUFACTURER (AS STANDARD)       MODEL NO. (AS STANDARD)       MODEL NO. (AS STANDARD)       MODEL NO. (DB/WB)       LAT (°F) (DB/WB)       TOTAL (MBH)       SENS. (MBH)       REF. TYPE       SST (°F)       LAT (°F)       TOTAL (MBH)       Ref. (°F)       LAT (°F)       TOTAL (MBH)       SENS. (°F)       Ref. (°F)       LAT (°F)       TOTAL (MBH)       Ref. (°F)       LAT (°F)       TOTAL (MBH)       GPM       PD (FT)       AIRFLOW (CFM)       OA (CFM)       ESP (°F)       Vol TS       PHASE       HZ       HZ      HZ       HZ <t< td=""><td>SYSTEM/SERVICE     LOCATION     INSULATION TYPE     INSTALLED     REMARKS       SUPPLY, RETURN     CONDITIONED     2" FIBERGLASS WRAP WITH     6    </td><td>Littleton, Massachusetts 01460 T: 978.486.4301 F: 978.428.0067 www.blwengineers.com</td></t<>	SYSTEM/SERVICE     LOCATION     INSULATION TYPE     INSTALLED     REMARKS       SUPPLY, RETURN     CONDITIONED     2" FIBERGLASS WRAP WITH     6	Littleton, Massachusetts 01460 T: 978.486.4301 F: 978.428.0067 www.blwengineers.com
A rest rest rest rest rest rest rest rest	& OUTDOOR AIR     SPACE     FSK FACING       SUPPLY, RETURN     UNCONDITIONED     3" FIBERGLASS WRAP WITH FSK FACING     12	HVAC * ELECTRICAL * PLUMBING * FIRE PROTECTION
NOTES: 1) UNIT IS EXISTING TO REMAIN. 2) PROVIDE NEW CONTROLS TO THE UNIT TO FACILITATE UNIT FUNCTION PER EXISTING AIR HANDLER UNIT SEQUENCE OF OPERATION.	ERV EXHAUST AIR (FROM UNIT TO OUTLET)     CONDITIONED     2" FIBERGLASS WRAP WITH FSK FACING     6	TEMPLETON POLICE
<ul> <li>3) UNIT OUTDOOR AIR DAMPER TO BE RE-BALANCED TO THE AIRFLOW LISTED ON THIS SCHEDULE, SUPPLIED BY NEW <u>ERV-1</u>.</li> <li>4) PROVIDE NEW EXTERNALLY MOUNTED HOT WATER HEATING COIL FOR DEHUMIDIFICATION OPERATION. SEE HOT WATER HEATING COIL SCHEDULE FOR DETAILS.</li> <li>5) PROVIDE MAINTENANCE / REPAIR WORK TO ACCU-1 AND ACCU-2 AS NEEDED FOR FULLY OPERATIONAL SYSTEM.</li> </ul>	PIPE MATERIAL TABLE	DEPARTMENT 33 SOUTH ROAD
HOT WATER HEATING COIL SCHEDULE	SYSTEM/SERVICE       LOCATION       PIPING       FITTINGS       JOINTS         HYDRONIC HOT WATER & ABOVE GRADE       TYPE "L" SEAMLESS COPPER       WROUGHT COPPER       SWEAT SOLDER	TEMPLETON, MA 01488
TAG No.       LOCATION(S) SERVED       MANUFACTURER (AS STANDARD)       MODEL NO. (AS STANDARD)       DIMENSIONS (L X W X H)"       EWT (°F)       LAT (°F)       LAT (°F)       TOTAL (MBH)       GPM       PD (FT)       AIRFLOW (CFM)       ROWS       FPI       WEIGHT (LBS)       REMARKS	2-1/2" AND SMALLER     ABOVE GRADE     TYPE "L" SEAMLESS COPPER     WROUGHT COPPER     SWEAT SOLDER       CONDENSATE DRAIN (CD)     ABOVE GRADE     TYPE 'L' COPPER     WROUGHT COPPER, NO LEAD     95/5 NO-LEAD SOLDER	Submission:
HHC-1       BASEMENT       DAIKIN       5BS0901B       28.9" X 15.7" X 5.5"       180.       158.       50.0       76.6       98.4       5.2       13.2       1900       1       9       18       [1][2][3]         HHC-2       FIRST FLOOR       DAIKIN       5BS0801C       28.9" X 15.7" X 5.5"       180.       158.4       50.0       76.9       64.8       6.0       15.4       2200       1       8       18       [1][2][3]	PIPE INSULATION SCHEDULE	PRICING 06/24/22
NOTES: 1) NEW HOT WATER HEATING COIL SHALL BE INSTALLED OUTSIDE THE AIR HANDLER'S CABINET TO SUPPLY AIR DUCTWORK MAIN PRIOR TO DUCT BRANCH TAKEOFFS. 2) CONTRACTOR SHALL VERIFY MOUNTING LOCATION, AND HOT WATER COIL DIMENSIONS IN FIELD PRIOR TO RELEASE. 3) PROVIDE NEW HOT WATER CONTROL VALVE FOR REHEAT OPERATION PER EXISTING AIR HANDLING UNIT SEQUENCE OF OPERATION.	SYSTEM/SERVICE       INSULATION TYPE       FITTINGS INSULATION TYPE       INSULATION WALL THICKNESS (IN.)         Ø<1	ADDENDUM 09/20/22
HVAC POWER EQUIPMENT SCHEDULE	HOT WATER SUPPLY & RETURN PIPING     FIBERGLASS W/ ALL SERVICE JACKET     ZESTON     1 1/2"     1 1/2"     2"       CONDENSATE PIPING     ELASTOMERIC     ELASTOMERIC     1/2"     1/2"     3/4"	
TAG NO.     DESCRIPTION     LOCATION     MANUFACTURER (AS STANDARD)     MODEL No. (AS STANDARD)     SERVING EQUIPMENT TAG     FIRE ALARM CONNECTION     ELECTRICAL DATA       VOLTS     PHASE     HZ	(CD) ELASTOMERIC ELASTOMERIC 1/2" 1/2" 3/4" 3/4"	Revision:
M MOTORIZED DAMPER SEE PLANS NO 120 1 60 PROVIDE MODULATING OPERATION ACTUATORS (0-10 V) FOR ALL MOTORIZED DAMPERS		
HVAC SEQUENCES OF OPERATION		Project:
OUTSIDE AIR (FROM ERV)		S
		ION ICE
C.T.E.		
NEW HUMIDISTAT		
RETURN AIR H TS FILTER SA LT SUPPLY FAN TS SUPPLY FAN TS SUPPLY AIR SUPPLY AIR SUPPLY FAN TS SUPPLY AIR SUPPLY FAN TS SUPPLY FAN		ETON, ETON
Image: March of the second		
Image: APPElication SPECIFIC     SPECIFIC       CONTROLLER     CONTROLLER       (EXISTING)     TS		
APPLICATION TABLE     MANAGEMENT SYSTEM     ENERGY RECOVERY VENTILATOR     MANAGEMENT SYSTEM		
CONDENSING UNIT (E.ACCU)		
APPLICATION TABLE		THIS MATERIAL IS CONFIDENTIAL AND MAY NOT BE DISCLOSED WITHOUT PRIOR WRITTEN AUTHORIZATION
AIR HANDLING UNITS       THE ENERGY RECOVERY VENTILATOR SHALL BE CONTROLLED THROUGH THE APPLICATION SPECIFIC CONTROLLER. THE SEQUENCE LISTED BELOW IS REVERSIBLE UNLESS NOTED OTHERWISE.         E.AHU-1,2; E.ACCU-1,2       THE UNITS SUPPLY AND EXHAUST FANS SHALL BE ENERGIZED AND OPERATE CONTINUOUSLY; AND THE OUTDOOR AIR		FROM BLW ENGINEERS INC. COPYRIGHT BLW ENGINEERS INC.
EXISTING AIR HANDLING UNIT SEQUENCE OF OPERATION		Project No.: 22252 Drawn By: CAW
THE AIR HANDLING UNIT(S) SHALL BE CONTROLLED THROUGH THE ZONE DAMPER TEMPERATURE SENSOR, RETURN AIR HUMIDISTAT, AND THE EXISTING AIR HANDLING UNIT CENTRAL CONTROLLER. THE SEQUENCE LISTED BELOW IS REVERSIBLE UNLESS NOTED OTHERWISE.		Checked By: EMG
AIR HANDLING UNIT: THE UNIT'S SUPPLY FANS SHALL BE ENERGIZED AND OPERATE CONTINUOUSLY; THE FAN VFD'S SHALL MODULATE AIRFLOW TO MAINTAIN CONSTANT SUPPLY AIR DUCTWORK PRESSURE. THE OUTDOOR, AIR DAMPER SHALL BE OPENED TO THE MINIMUM VENTILATION POSITION (SCHEDULED OA).		Scale: As Noted Title:
IF HEATING IS REQUIRED, THE TWO WAY CONTROL (CV-A) VALVE SHALL MODULATE OPEN TO MAINTAIN THE SPACE TEMPERATURE SETPOINT OF 70°F (ADJ). IF COOLING IS REQUIRED THE UNIT'S CORRESPONDING AIR COOLED CONDENSING UNIT ACCU) SHALL BE ENERGIZED AND SHALL OPERATE THE STAGES OF DX COOLING TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.		HVAC
UPON SENSING A RELATIVE HUMIDITY ABOVE THE ROOM'S SETPOINT (50% ADJ), THE PRIMARY TWO WAY CONTROL VALVE (CV-1) SHALL CLOSE, THE ACCU SHALL		SCHEDULES & SEQUENCES
ENERGIZE AND OPERATE TO MAINTAIN SPACE HUMIDITY, AND HOT WATER REHEAT CONTROL VALVE (CV-B) SHALL MODULATE OPEN TO MAINTAIN THE SUPPLY AIR DISCHARGE TEMPERATURE AS DETERMINED BY THE P.I.D. LOOP.		JEQUEINCES

	ENERGY RECOVERY UNIT SCHEDULE		
	MANUFACTURER (AS STANDARD)         MODEL NO. (AS STANDARD)         MODEL NO. (AS STANDARD)         MODEL NO. (AS STANDARD)         LOCATION SERVED         ESP ("W.C.)         RPM         HP         CFM (EA)         ESP ("W.C.)         RPM         HP         CFM (EA)         ESP ("W.C.)         RPM         HP         CFM (EA)         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         MBH (B(°F)         CFM (W.C.)         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         MBH (W.C.)         CFM         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         MBH (W.C.)         CFM         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         MBH (W.C.)         CFM         EAT (W.C.)         LAT (W.C.)         PD (W.C.)         MBH (WB(°F)         CFM         EAT (WB(°F)         LAT (WB(°F)         PD (W.C.)         MBH (WB(°F)         CFM         EAT (WB(°F)         LAT (WB(°F)         PD (W.C.)         CFM         EAT (WB(°F)         LAT (WB(°F)         DB(°F)         WB(°F)         CFM         EAT (WB(°F)         LAT (WB(°F)         DB(°F)         WB(°F)         CFM         EAT (WB(°F)         LAT (WB(°F)         DB(°F)         WB(°F)         CFM         DB(°F)         WB(°F)         CFM         DB(°F)         CFM         DB(°F)         CFM         DB(°F)         CFM         DB(°F)         CFM        <	BH CVD     VOLTS     PHASE     HZ     HP     MCA (A)     MOCP (A)     FILTER TYPE     WEIGHT (LBS)     REMARKS	
	<ol> <li>COORDINATE ALL ELECTRICAL REQUIREMENTS WITH EC PRIOR TO INSTALLATION.</li> <li>PROVIDE ELECTRICAL DISCONNECT SWITCH.</li> <li>PROVIDE MOUNTING EQUIPMENT, VIBRATION ISOLATION.</li> <li>PROVIDE BALANCING DAMPERS ON ALL AIR OUTLETS.</li> <li>PROVIDE 3' OF ACOUSTICAL FLEX DUCT ON SUPPLY AND RETURN AIR CONNECTIONS OFF ERV (FA &amp; RA).</li> <li>AIR LEAKAGE FROM THE OUTSIDE AIR AND EXHAUST AIR SHOULD BE LESS THAN 5% FOR ALL ERV'S.</li> </ol>		
	8) THE UNIT SHALL BE PROVIDED WITH MEANS OF FROST CONTROL TO PREVENT FREEZING OF CORE		
	LOCATION(S) MANUFACTURER MODEL NO.	SYSTEM/SERVICE     LOCATION     INSULATION TYPE     MINIMUM INSTALLED R-VALUE     REMARKS	E 311 L T:
	And the series         And the	& OUTDOOR AIR     SPACE     FSK FACING        SUPPLY, RETURN & OUTDOOR AIR     UNCONDITIONED SPACE     3" FIBERGLASS WRAP WITH FSK FACING     12	HVAC*E
	<ol> <li>UNIT IS EXISTING TO REMAIN.</li> <li>PROVIDE NEW CONTROLS TO THE UNIT TO FACILITATE UNIT FUNCTION PER EXISTING AIR HANDLER UNIT SEQUENCE OF OPERATION.</li> <li>UNIT OUTDOOR AIR DAMPER TO BE RE-BALANCED TO THE AIRFLOW LISTED ON THIS SCHEDULE, SUPPLIED BY NEW <u>ERV-1</u>.</li> <li>PROVIDE NEW EXTERNALLY MOUNTED HOT WATER HEATING COIL FOR DEHUMIDIFICATION OPERATION. SEE HOT WATER HEATING COIL SCHEDULE FOR DETAILS.</li> </ol>	(FROM UNIT TO OUTLET) SPACE FSK FACING 6	TE
		2-1/2" AND SMALLER ABOVE GRADE TIPE L SEAMLESS COPPER WROUGHT COPPER SWEAT SOLDER	Submis
	HHC-2         FIRST FLOOR         DAIKIN         5BS0801C         28.9" X 15.7" X 5.5"         180.         154.         50.0         76.9         64.8         6.0         15.4         2200         1         8         18         [1][2][3]		PRICINO
	<ol> <li>NEW HOT WATER HEATING COIL SHALL BE INSTALLED OUTSIDE THE AIR HANDLER'S CABINET TO SUPPLY AIR DUCTWORK MAIN PRIOR TO DUCT BRANCH TAKEOFFS.</li> <li>CONTRACTOR SHALL VERIFY MOUNTING LOCATION, AND HOT WATER COIL DIMENSIONS IN FIELD PRIOR TO RELEASE.</li> </ol>	SYSTEM/SERVICE     INSULATION TYPE     FITTINGS INSULATION TYPE     PIPE DIAMETER (IN.)       Ø<1	ADDENI
		RETURN PIPING     SERVICE JACKET     ZESTON     T 1/2     T 1/2     Z'     Z'       CONDENSATE PIPING     ELASTOMERIC     ELASTOMERIC     1/0"     2/4"     2/4"	Revisio
	TAG NO.     DESCRIPTION     LOCATION     LOCATION     MINIMAGINATION CONNECTION     EQUIPMENT TAG     CONNECTION     VOLTS     PHASE     HZ       MOTORIZED     MOTORIZED     LOCATION     LOCATION     LOCATION     LOCATION     VOLTS     PHASE     HZ		
1       1	HVAC SEQUENCES OF OPERATION		Projec
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In HANDLING UNITS       THE DATE UNITS (SUBJECT ACCUL-12)         LAIL-12, E ACCUL-12       THE EVERGY CECOUGERY VENTILATOR SHALL BE CONTROLLED THROUGH THE APPLICATION SPECIFIC CONTROLLER. THE SEQUENCE LISTED BELOW IS REVERSIBLE UNITS SUBJECT AND OPERATE CONTINUOUSLY, and THE OUTDOOR AIR AND EXTRANCE         EXISTING AIR HANDLING UNITS SUBJECT SEQUENCE OF OPERATION       THE EVERGY CECOUGERY VENTILATOR SHALL BE ENERGIZED AND OPERATE CONTINUOUSLY, and THE OUTDOOR AIR AND EXTRANCE         THE AR HANDLING UNIT(S) SHALL BE CONTROLLED THROUGH THE ZONE DAMERER TEMPERATURE SENSOR, RETURM AIR HUMIDISTAT, AND THE EXISTING AIR AND EXISTING AIR AND EXISTING AIR AND THE EXISTING AIR AND EXISTING AIR EXISTING AIR AND AND EXISTING AIR AND EXISTING AIR AND AND EXISTING	Image: content of the end o		
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TAG NO.	DESCRIPTION	LOCATION	MANUFACTURER (AS STANDARD)	MODEL No. (AS STANDARD)	SERVING EQUIPMENT TAG	FIRE ALARM CONNECTION	-	RICAL DAT	A HZ	REMARKS
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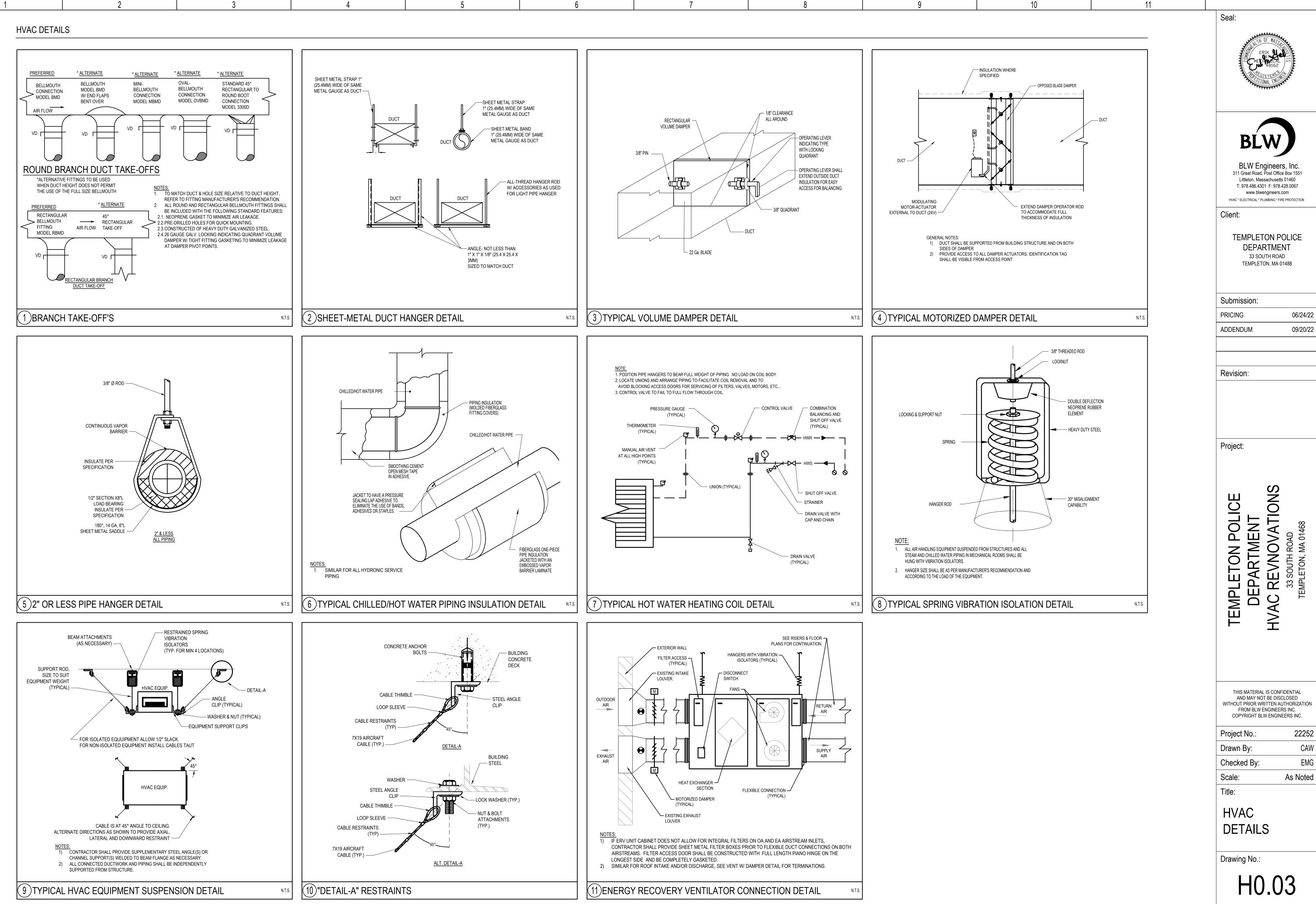
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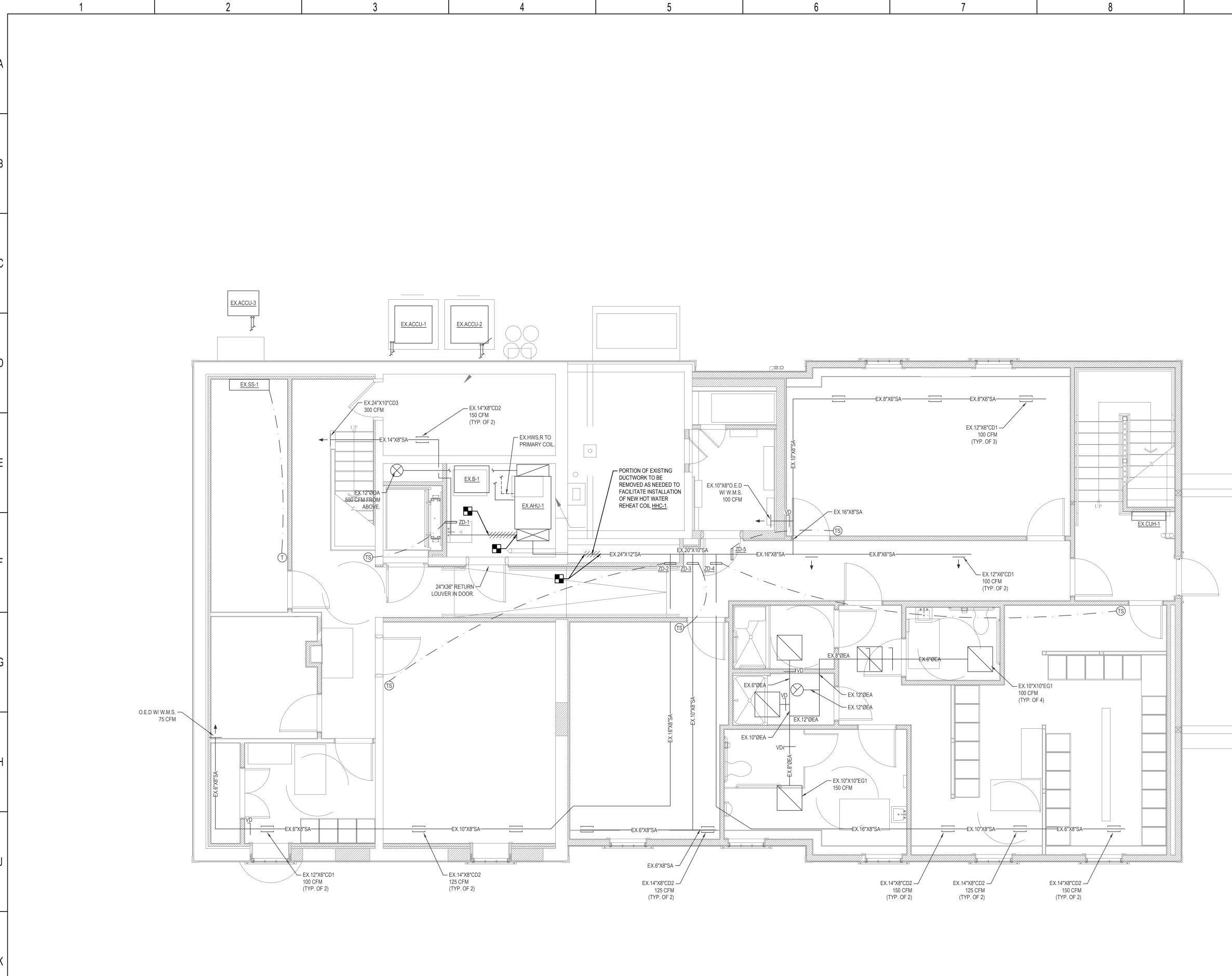
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	SYSTE	//SERVICE		LOCATIC		INSULATIO		MINIMUM INSTALLED R-VALUE		REMA	ARKS				BLW Engineers, Inc. 311 Great Road, Post Office Box 1551 Littleton, Massachusetts 01460
		(, RETURN DOOR AIR		CONDITIOI SPACE	NED 2	" FIBERGLASS FSK FA					-		-		T: 978.486.4301 F: 978.428.0067 www.blwengineers.com
	SUPPL	, RETURN	U	NCONDITIC SPACE	ONED 3	" FIBERGLASS FSK FA	WRAP WITH	12			-		-		HVAC * ELECTRICAL * PLUMBING * FIRE PROTECTION
	ERV EX (FROM UN	HAUST AIR T TO OUTL		CONDITIOI SPACE		" FIBERGLASS FSK FA		6			-				
[					PIPE	MATE	RIAL 1	<b>FABLE</b>					1		TEMPLETON POLICE DEPARTMENT
Ī	SYSTE	//SERVICE		LOCATION		PIPIN			TINGS		JOINTS	;			33 SOUTH ROAD TEMPLETON, MA 01488
-	HYDRONIC	HOT WATE D SMALLEF		BOVE GRA	DE TY	PE "L" SEAMLI	ESS COPPER	WROUGH	IT COPPER	SW	VEAT SOL	.DER	Ŧ		
	CONDEN	SATE DRAI	N	BOVE GRA	DE	TYPE 'L' CO	OPPER		COPPER, NO EAD	D 95/5 N	IO-LEAD S	SOLDER	F		Submission:
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	SYSTE	//SERVICE				. F	ITTINGS	INS	ULATION WA	ALL THICKI METER (IN.		)			ADDENDUM 09/20/22
_	HOT WAT	ER SUPPLY		FIBERGLA	ASS W/ ALI	L .	ATION TYPE	Ø<1 1 1/2"	1 <u>&lt;Ø&lt;</u> 1 <u>1</u> 1 1/2"	1 <del>1</del> <	ר <u>&lt;</u> 4 2"	4<Ø 2"			
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															Project No.: 22252
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															Title: HVAC
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Drawing No.:

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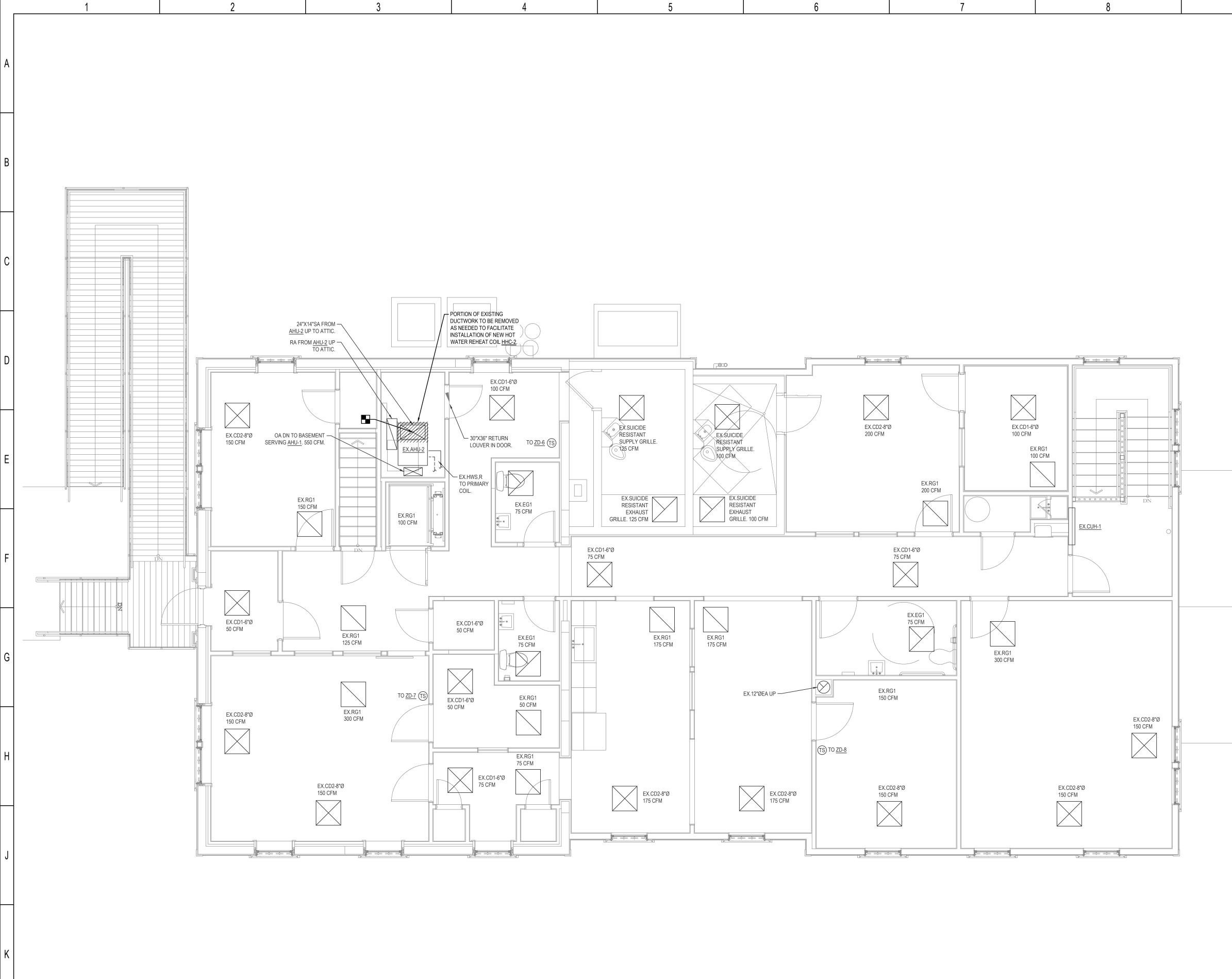






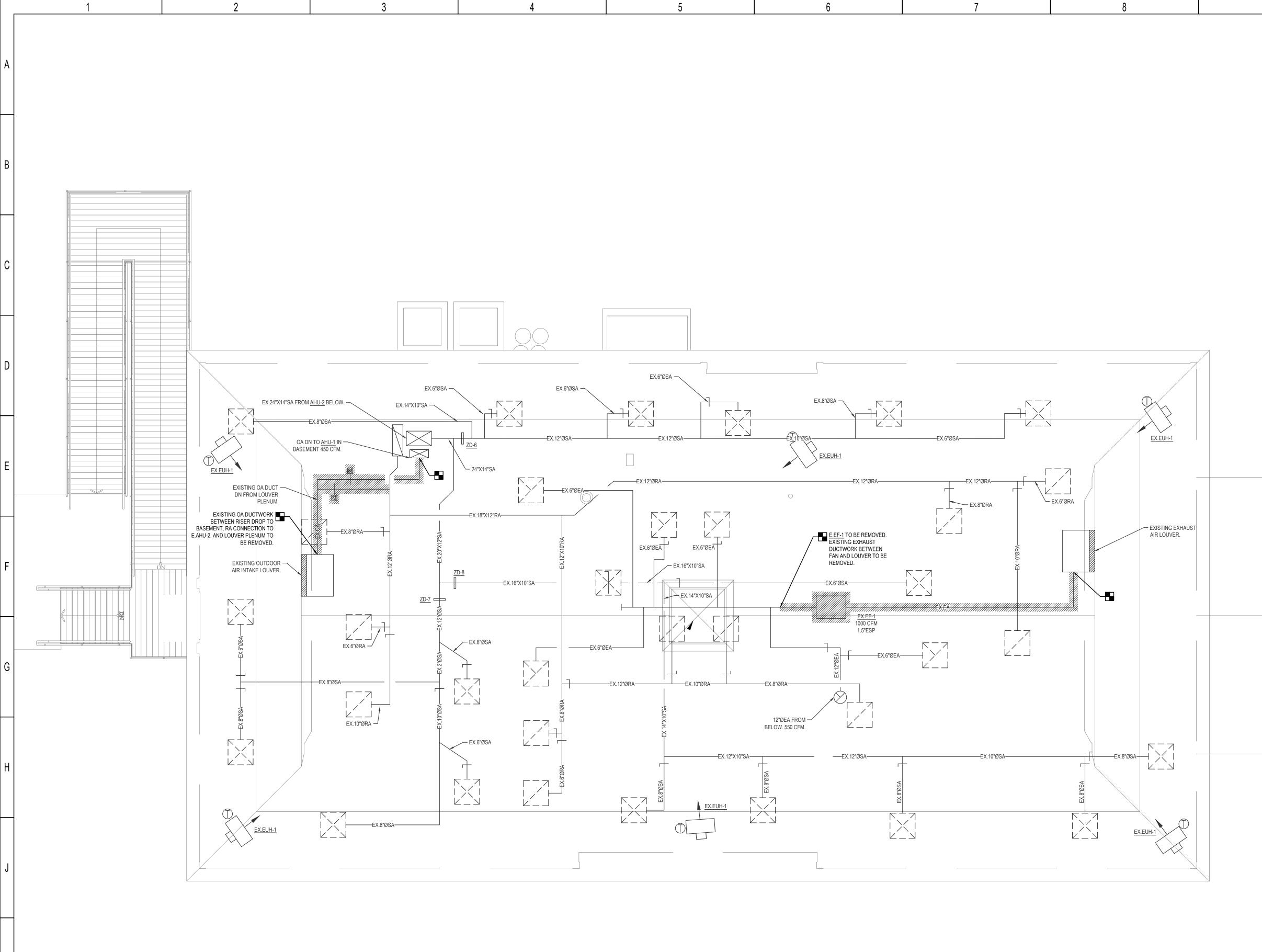
Basement Plan SCALE: 1/4"=1'-0"

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				BASEMENT DEMO PLAN
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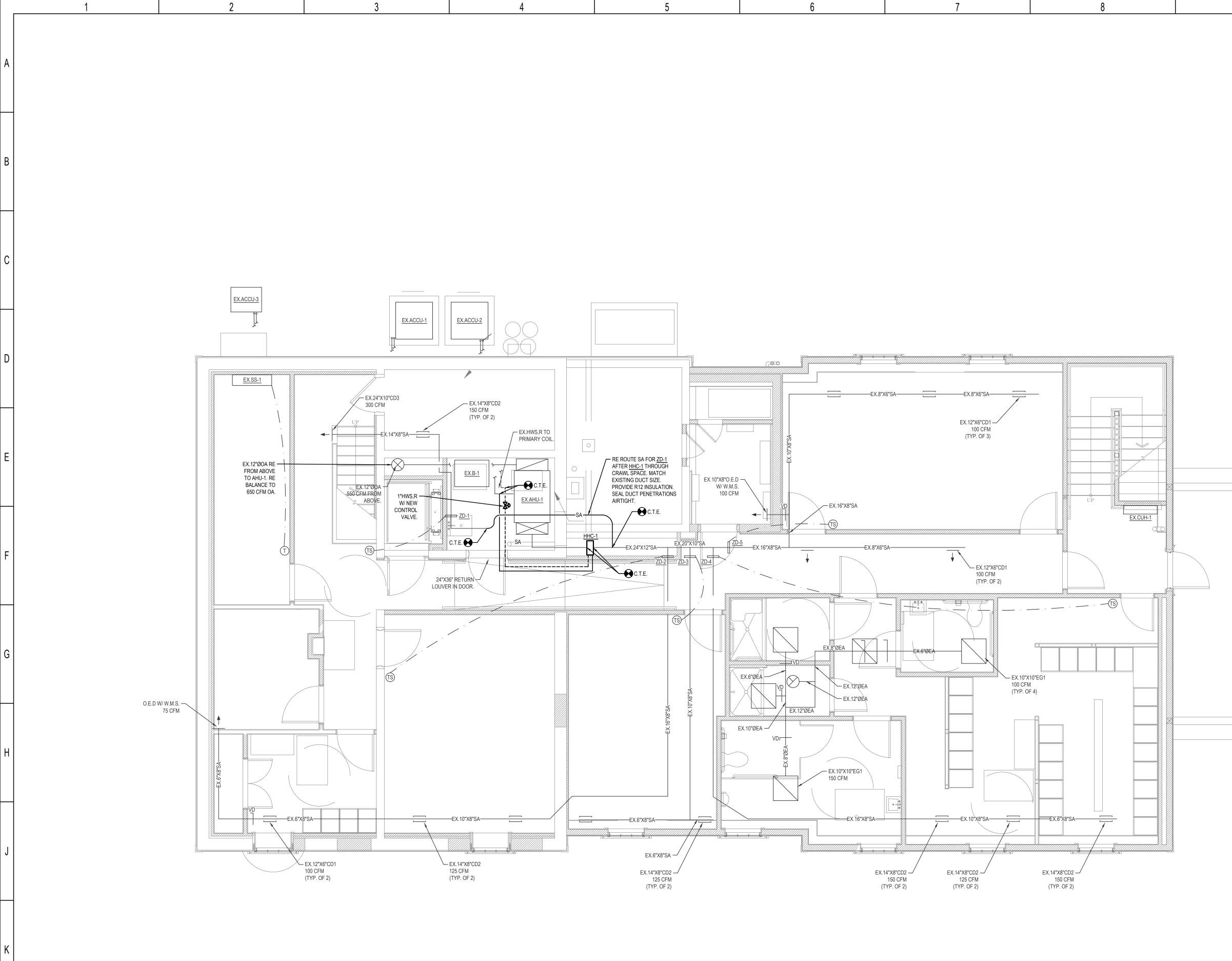


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				<b>BLW Engineers, Inc.</b> <b>BLW Engineers, Inc.</b> 311 Great Road, Post Office Box 1551 Littleton, Massachusetts 01460 T: 978.486.4301 F: 978.428.0067 www.blwengineers.com HVAC* ELECTRICAL* PLUMBING* FIRE PROTECTION Client: <b>TEMPLETON POLICE</b> DEPARTMENT 33 SOUTH ROAD TEMPLETON MA 01488
				TEMPLETON, MA 01488         Submission:         PRICING       06/24/22         ADDENDUM       09/20/22
				Revision:
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				Title: HVAC FIRST FLOOR DEMO PLAN Drawing No.: HD2.00



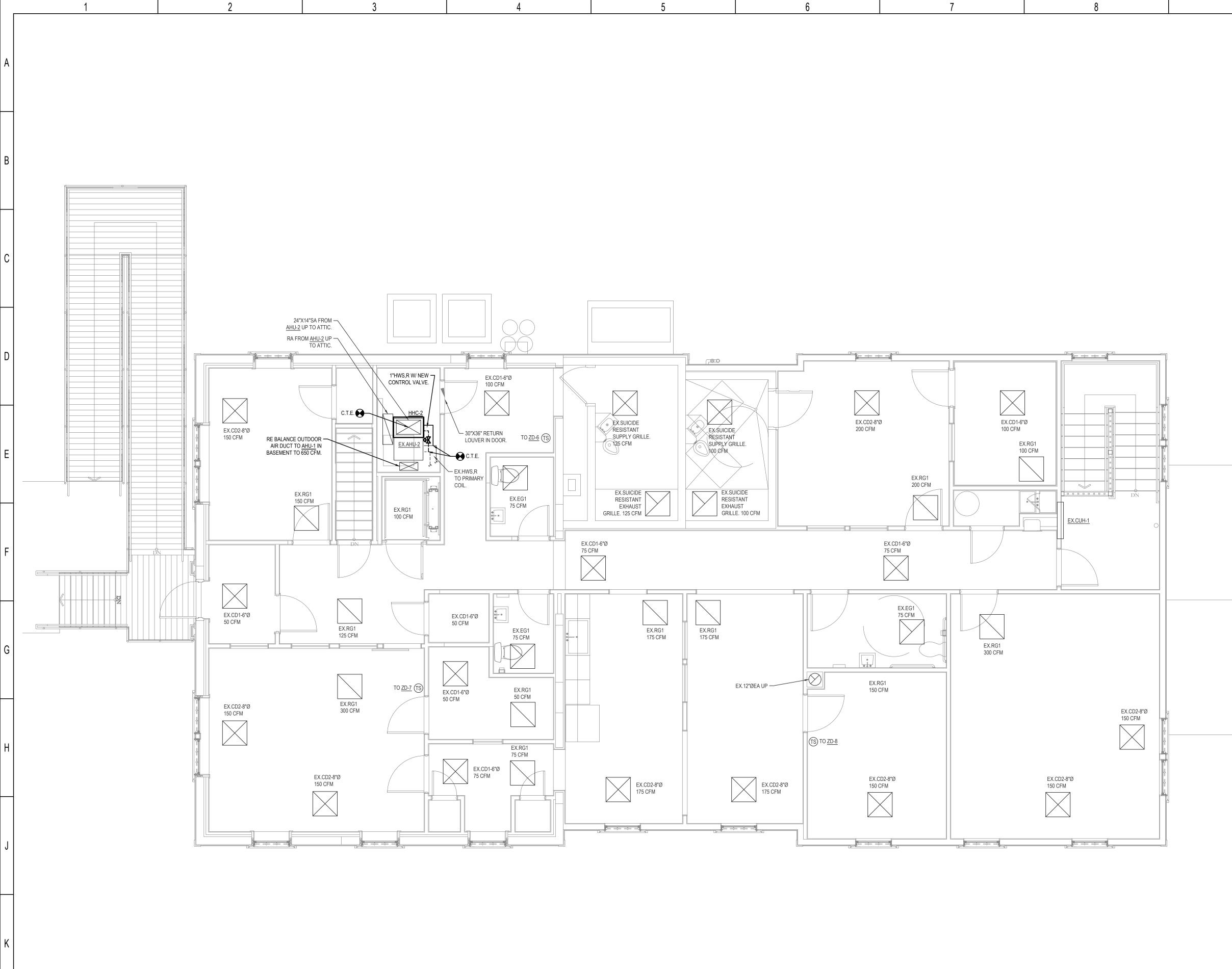


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			TEMPLETON POLICE DEPARTMENT 33 SOUTH ROAD TEMPLETON, MA 01488
			Submission:PRICING06/24/22ADDENDUM09/20/22
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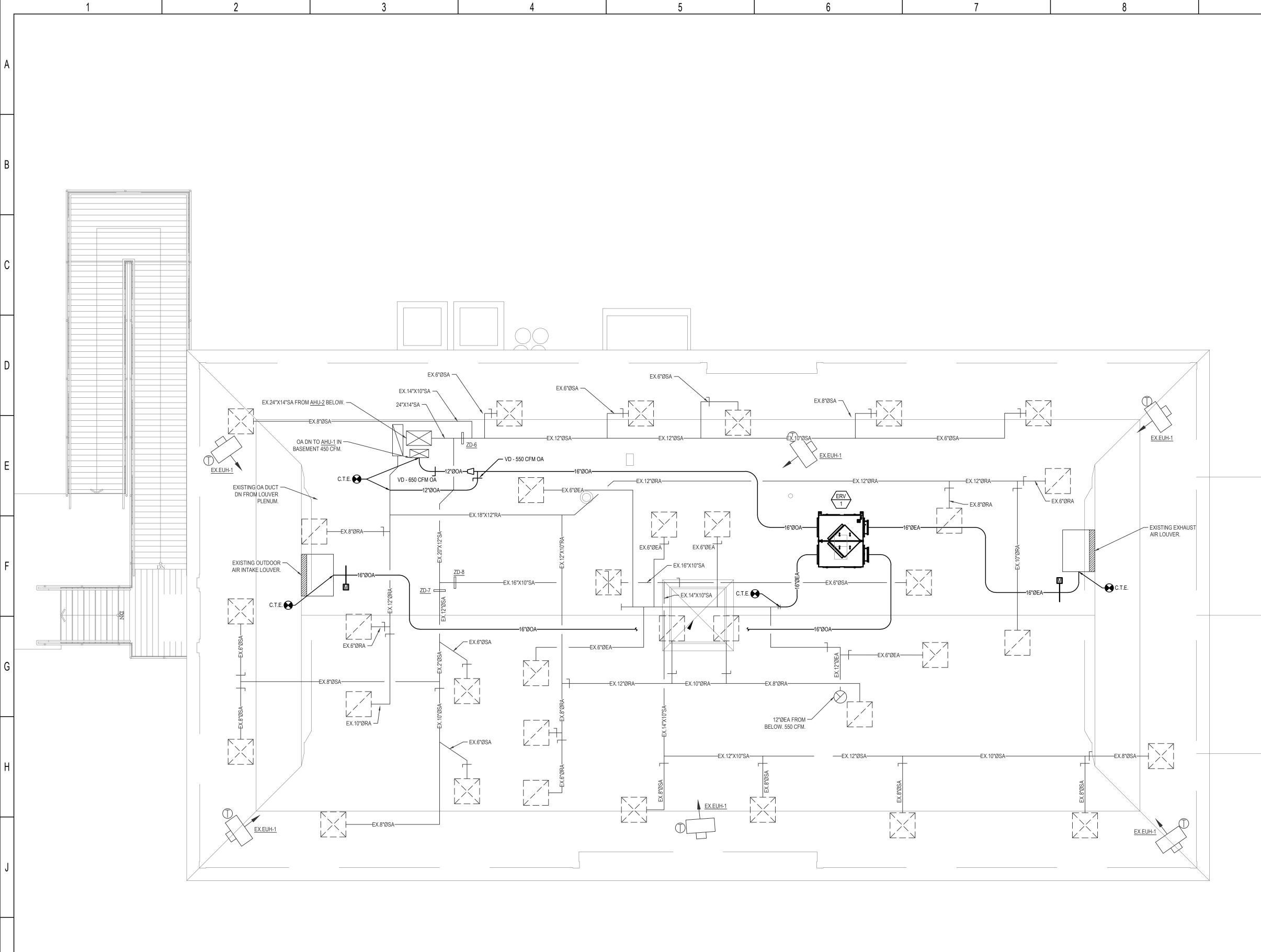


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			TEMPLETON POLICE DEPARTMENT 33 SOUTH ROAD TEMPLETON, MA 01488
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		Client: TEMPLETON POLICE DEPARTMENT 33 SOUTH ROAD TEMPLETON, MA 01488
		Submission:PRICING06/24/22ADDENDUM09/20/22
		Revision:
		Project:
		TEMPLETON POLICE DEPARTMENT HVAC REVNOVATIONS 33 SOUTH ROAD 33 SOUTH ROAD TEMPLETON, MA 01468
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			TEMPLETON POLICE DEPARTMENT 33 SOUTH ROAD TEMPLETON, MA 01488
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GENERAL NOTES	] [	POWER NOTES
1. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR MOUNTING HEIGHTS AND EXACT LOCATIONS OF ALL DEVICES.	] [	1. ALL CONDUITS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD, EXCEPT WHERE SPECIFIC DIMENSIONS AND DETAILS ARE SHOWN. ALL CONDUIT RUNS SHALL BE RIGIDLY SUPPORTED.

WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS. ALL CONDUIT, WIRING AND ELECTRICAL EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST STANDARDS

PERFORM WORK AND PROVIDE MATERIALS AND EQUIPMENT TO MAKE INSTALLATION COMPLETE IN EVERY DETAIL UNDER THIS CONTRACT

- OF THE NATIONAL & STATE ELECTRICAL CODES AND ANY APPLICABLE LOCAL REGULATIONS. ALL FLOOR, MASONRY WALLS AND STRUCTURAL CEILING PENETRATIONS SHALL BE SLEEVED.
- PROVIDE FIRE/MOISTURE SEAL FOR WALL, FLOOR OR CEILING PENETRATIONS.
- DO NOT LAY CABLES OR RACEWAY ON, OR SUPPORT FROM SUSPENDED CEILING OR PIPING AND DUCTWORK.
- OUTLET BOXES SHALL BE MOUNTED FLUSH. CONDUIT SHALL BE RUN CONCEALED. WHERE WALLS ARE BLOCK, DEVICES AND WIRING SHALL BE SURFACE MOUNTED. PROVIDE WIREMOLD OR EQUAL TO SURFACE MOUNTED RACEWAY WITH FINISHED BOXES.
- NO CONDUIT SMALLER THAN 3/4 INCH ELECTRICAL TRADE SIZE SHALL BE USED, UNLESS SPECIFICALLY CALLED FOR ON THE DRAWINGS.
- ALL WIRING WITHIN UTILITY CLOSETS MAY BE IN SURFACE MOUNTED CONDUIT. EMT MAY BE UTILIZED.
- 10. FLEXIBLE CONDUIT CONNECTIONS SHALL BE A MAXIMUM OF 6'-0".
- MC TYPE CONDUCTOR WITH INTEGRAL GROUND WIRE MAY BE UTILIZED FOR POWER AND LIGHTING CIRCUITS. MC CABLE SHALL BE UTILIZED ONLY WHERE COMPLETELY CONCEALED AND INSTALLED IN ACCORDANCE WITH CODE.
- STEEL OR FIRE-RATED ELECTRICAL BOXES (SWITCHES, OUTLETS, JUNCTION BOXES, ETC.) SHALL BE PROVIDED AND INSTALLED IN ALL FIRE RATED ASSEMBLIES AS IN ACCORDANCE WITH BUILDING AND ELECTRICAL CODES. UL LISTED MOLDABLE PUTTY PADS OR FIREBLOCK/SPRAY FOAM INSULATE SHALL BE USED TO SEAL ALL ANNULAR SPACES/PENETRATIONS AROUND OUTLET BOXES. FIRE RATED ASSEMBLIES INCLUDE EXTERIOR WALLS, FIRE-RATED WALLS, FLOOR/CEILING ASSEMBLIES AND ROOF/CEILING ASSEMBLIES.
- RECESSED ELECTRICAL ENCLOSURES SUCH AS BUT NOT LIMITED TO; PANELBOARDS, LOW VOLTAGE MEDIA CENTERS, ETC. SHALL BE PROVIDED WITH FIRE-RATED BOXES WHERE INSTALLED IN FIRE-RESISTANCE-RATED ASSEMBLIES. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES.
- ALL EQUIPMENT AND WIRING ON DWGS IS SHOWN DIAGRAMMATICALLY. EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD, EXCEPT WHERE SPECIFIC DIMENSIONS AND DETAILS ARE SHOWN. ALL CONDUIT RUNS SHALL BE RIGIDLY SUPPORTED.
- COORDINATE WITH ARCHITECTURAL FURNITURE LAYOUTS FOR EXACT LOCATION OF WALL MOUNTED POWER AND COMMUNICATIONS DEVICES. COORDINATE ALL LIGHTING FIXTURES, UNDER CABINET LIGHTING FIXTURES AND SWITCH LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS.

#### DEMOLITION NOTES

- REFER TO THE ARCHITECTURAL DRAWINGS FOR THE FULL EXTENT OF THE SCOPE OF DEMOLITION. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE HVAC, PLUMBING AND FIRE PROTECTION PLANS. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.
- THE ELECTRICAL DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE BUT NOT BE LIMITED TO DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
- THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
- THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.
- THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED SPARE.
- THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, ETC.). TEMPORARILY SUPPORTED ITEMS SHALL BE PERMANENTLY SUPPORTED AND INSTALLED WHEN FINALIZED STRUCTURES ARE IN PLACE.
- ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
- THE EXISTING FIRE ALARM SYSTEM SHALL REMAIN FULLY FUNCTIONAL DURING THE ENTIRE DEMOLITION AND CONSTRUCTION PERIOD. REUSE OF EXISTING FIRE ALARM SYSTEM RACEWAYS SHALL NOT BE ALLOWED. ALL REQUIRED SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE AND THE AUTHORITY HAVING JURISDICTION. DEMOLITION OF THE EXISTING SYSTEM SHALL NOT COMMENCE UNTIL THE NEW SYSTEM HAS BEEN COMPLETELY INSTALLED, TESTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.
- ALL DEMOLITION SCOPE ASSOCIATED WITH LOW VOLTAGE SYSTEMS INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, PAGING, CCTV, ETC. SHALL BE INCLUDED IN THIS CONTRACT.
- REMOVED FLUORESCENT AND HID LAMPS AND BATTERIES SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE. A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PREPARED FOR ALL DISPOSALS AND RETURNED WITH ALL APPLICABLE SIGN OFF'S PRIOR TO APPLICATION FOR FINAL PAYMENT.
- ALL BALLAST IN LIGHTING FIXTURES TO BE DISPOSED SHALL BE VERIFIED TO BE PCB FREE. ALL BALLAST MANUFACTURED PRIOR TO 1979 AND NOT LABELED AS PCB FREE SHALL BE CONSIDERED TO CONTAIN PCBs. PROVIDE WRITTEN VERIFICATION TO THE OWNER'S REPRESENTATIVE THAT CONFIRMS PCB FREE WASTE. WHERE PCB FREE WASTE CANNOT BE VERIFIED, BALLAST SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE, WITH PCB COMPONENTS ELIMINATED BY A HIGH TEMPERATURE INCINERATION. A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PREPARED FOR ALL DISPOSALS AND RETURNED WITH ALL APPLICABLE SIGN OFF'S PRIOR TO APPLICATION FOR FINAL PAYMENT. ALL HANDLING SHALL CONFORM TO EPA REQUIREMENTS. PROVIDE BREAKOUT COST FOR THIS SCOPE.

	EXCEPT WHERE SPECIFIC DIMENSIONS AND DE
2.	NEC - 406.12 TAMPER-RESISTANT RECEPTACLES IN NEC 518.2, ALL NONLOCKING-TYPE, 125 VOLT,
3.	CONDUCTORS AND CABLE SHALL BE MINIMUM # GREEN GROUND IN ALL FEEDERS. WIRE SIZE #8 CODE CONDUCTORS BLACK, RED, BLUE, WITH W
4.	ELECTRICAL CONTRACTOR SHALL CONFIRM ALL SPECIFICATIONS PRIOR TO ROUGH-IN.

	EXISTING
Х	EXISTING TO BE REMOVED, F
XM	EXISTING TO REMAIN
XN	EXISTING EQUIPMENT TO BE
XR	EXISTING EQUIPMENT TO BE
XC	NEW EQUIPMENT TO BE CON NEAREST EXISTING DEVICE (
XL	NEW LOCATION OF EXISTING

	Ι
AMP	AMPERE
2	ALTERNATING CURRENT
=	AMPERE FRAME
F	ABOVE FINISHED FLOOR
G	ABOVE FINISHED GRADE
С	AMPERE INTERRUPTING CAPACITY
-	ALUMINUM
Г	AMPERE TRIP
ſS	AUTOMATIC TRANSFER SWITCH
NG	AMERICAN WIRE GAUGE
	CONDUIT
3	CIRCUIT BREAKER
(T	CIRCUIT
-	CENTERLINE
J	COPPER
2	DIRECT CURRENT
=	DUAL ELEMENT
NG	DRAWING
)	ELECTRICAL CONTRACTOR
ЛН	ELECTRICAL MANHOLE
ΛT	ELECTRIC METALLIC CONDUIT
VC	ELECTRIC WATER COOLER
GND	GROUND
0	GENERAL CONTRACTOR
Ξ	GROUND-FAULT PROTECTION FOR EQUIPMENT (
C	GROUND-FAULT PROTECTION FOR PERSONNEL
-CI	GROUND-FAULT CIRCUIT-INTERRUPTER
c	HORSEPOWER
/AC	HEATING, VENTILATION AND AIR CONDITIONING
	BRANCH CIR
	BRANCHOIN
	HOMERUN TO PANELBOARD "PP1 REFER TO PANEL SCHEDULE FOF CONCEALED UNLESS OTHERWISI NUMBER OF ARROWS INDICATES
_	PP1-2 UNLESS NOTED OTHERWISE, WIF
_	20A/1P - 2#12,#12G-¾"C
	PP1-2,4,6 20A/2P - 3#12,#12G-74 C
	20A/3P - 3#12,#12G-74 C 20A/3P - 4#12,#12G-74"C
	··· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ··

	20A/2F - 3#12,#12G-74 C 20A/3P - 4#12,#12G-74"C WIRING FOR MULTIPLE HOM
4#1,#6G-1 <b>½</b> "C	HOMERUN FEEDER / BRANCH INDICATES (3) #1 AWG (
	BRANCH CIRCUIT OR FEEDEF NUMBER OF CONDUCTORS, UNLESS OTHERWISE NOTED
$\checkmark$	FLEXIBLE CONNECTION TO M

	RECEPTACLES AND DEVICES
"WP" INDICATE "FB#" INDICAT	CLE ANNOTATION: CIRCUIT NUMBER ES WEATHERPROOF IN-USE COVER ES FLOOR BOX CONFIGURATION, REFER TO FLOOR BOX SCHEDULE / DETAILS FOR ADDITIONAL INFORMA CATIONS FOR ADDITIONAL RECEPTACLE AND DEVICE DETAILS
5 €	DUPLEX CONVENIENCE RECEPTACLE OUTLET
⊨	DUPLEX GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE OUTLET
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE OUTLET, COUNTERTOP MOUNTING
J	JUNCTION BOX, COORDINATE MOUNTING HEIGHT WITH ARCHITECT, "HT" INDICATES HEAT TRACE

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#### POWER NOTES

ETAILS ARE SHOWN. ALL CONDUIT RUNS SHALL BE RIGIDLY SUPPORTED. ES - IN ALL AREAS SPECIFIED IN 406.12 PARAGRAPHS (1-7) AND ASSEMBLY SUBSETS LISTED 15 AND 20 AMPERE RECEPTACLES SHALL BE LISTED TAMPER RESISTANT RECEPTACLES.

#12 AWG, 600 VOLT, COPPER WITH TYPE THHN/THWN INSULATION. PROVIDE SEPARATE #8 AWG AND LARGER SHALL BE STRANDED, #10 AWG AND SMALLER SHALL BE SOLID. COLOR WHITE NEUTRAL AND GREEN GROUND EXCEPT AS NOTED FOR 120 VOLT.

L NEMA CONFIGURATIONS AND REQUIRED ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT

#### IG EQUIPMENT DESIGNATIONS

, REMOVE ALL ASSOCIATE CONDUIT AND CONDUCTORS

REPLACED WITH NEW, CONNECT NEW EQUIPMENT TO EXISTING CIRCUIT

RELOCATED, JUNCTION AND EXTEND EXISTING CONDUIT AND CONDUCTORS NNECTED TO NEAREST AVAILABLE BRANCH CIRCUIT, PROVIDE NEW BRANCH CIRCUITRY FROM

(TO REMAIN) TO NEW DEVICE AS REQUIRED

IG EQUIPMENT, JUNCTION AND EXTEND CONDUIT AND CONDUCTORS AS REQUIRED

#### ABBREVIATIONS

	IMC	INTERMEDIATE METALLIC CONDUIT
	JB	JUNCTION BOX
	KVA	KILOVOLT-AMPERE
	KW	
	LTG	LIGHTING
	MCB	
	MCC	
	MEC	MASSACHUSETTS ELECTRICAL CODE
	MLO	MAIN LUGS ONLY
	MTD	MOUNTED
	MTG	
	NEC	
	No., #	NUMBER
	NS	NON-SYSTEM
	NTS	NOT TO SCALE
	PC	PLUMBING CONTRACTOR
	PWR	POWER
	RGS	RIGID STEEL CONDUIT
	RMS	ROOT MEAN SQUARE VALUE
	RPM	REVOLUTIONS PER MINUTE
	SF	SQUARE FOOT
	SN	SOLID NEUTRAL
	ST	SHUT TRIP CIRCUIT BREAKER
	SWBD	SWITCHBOARD
(GFPE CB)	TYP	TYPICAL
. (GFCI CB)	V	VOLTS
	VA	VOLT-AMPERE
	VFD	VARIABLE FREQUENCY DRIVE
	WP	WEATHERPROOF

#### CIRCUIT AND FEEDER SYMBOLS

D "PP1", CIRCUIT NUMBER "2 LE FOR BREAKER SIZE AND NUMBER OF POLES

ERWISE NOTED ICATES NUMBER OF INDIVIDUAL HOMERUNS "2", "4", AND "6" SE, WIRING FOR EACH CIRCUIT SHALL BE:

MERUNS MAY BE COMBINED IN CONDUIT IN ACCORDANCE WITH NEC REQUIREMENTS CH CIRCUIT CALLOUT:

i (PHASE), (1) #1 AWG (NEUTRAL), (1) #6 GROUND IN A 1-1/2" CONDUIT

ER CONCEALED UNLESS OTHERWISE NOTED. BRANCH CIRCUIT DIAGONAL LINES INDICATE , GROUND WIRE(S) NOT INDICATED. MINIMUM SIZE CONDUCTOR #12 AWG AND 3/4" CONDUIT,

MOTOR OR EQUIPMENT

#### CEPTACLES AND DEVICES

REFER TO FLOOR BOX SCHEDULE / DETAILS FOR ADDITIONAL INFORMATION TACLE AND DEVICE DETAILS

MOTORS AND CONTROLS						
(X2)	MOTOR, NUMERAL INDICATES HORSEPOWER					
S <sub>M</sub>	MANUAL MOTOR STARTER, RATED 20A, 250V, COORDINATE MOUNTING HEIGHT IN FIELD, MOUNTING HEIGHT SHALL NOT EXCEED 6'-7" AFF					
<sup>60A</sup> ☐	DISCONNECT SWITCH RATED 30A, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" INDICATES NEMA TYPE 3R ENCLOSURE "2P" INDICATES 2-POLE, SINGLE PHASE DISCONNECT "60A" INDICATES 60A SWITCH					
60AF 40AT ₪3R	FUSED DISCONNECT SWITCH RATED 30A, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" INDICATES NEMA TYPE 3R ENCLOSURE "2P" INDICATES 2-POLE, SINGLE PHASE DISCONNECT "60AF" INDICATES 60A FUSE SIZE "40AT" INDICATES 40A TRIP RATING					

#### PANELBOARD AND TERMINAL CABINET

120/208V PANEL, SURFACE MOUNTED, REFER TO PANEL SCHEDULES 120/208V PANEL, RECESSED MOUNTED, REFER TO PANEL SCHEDULES

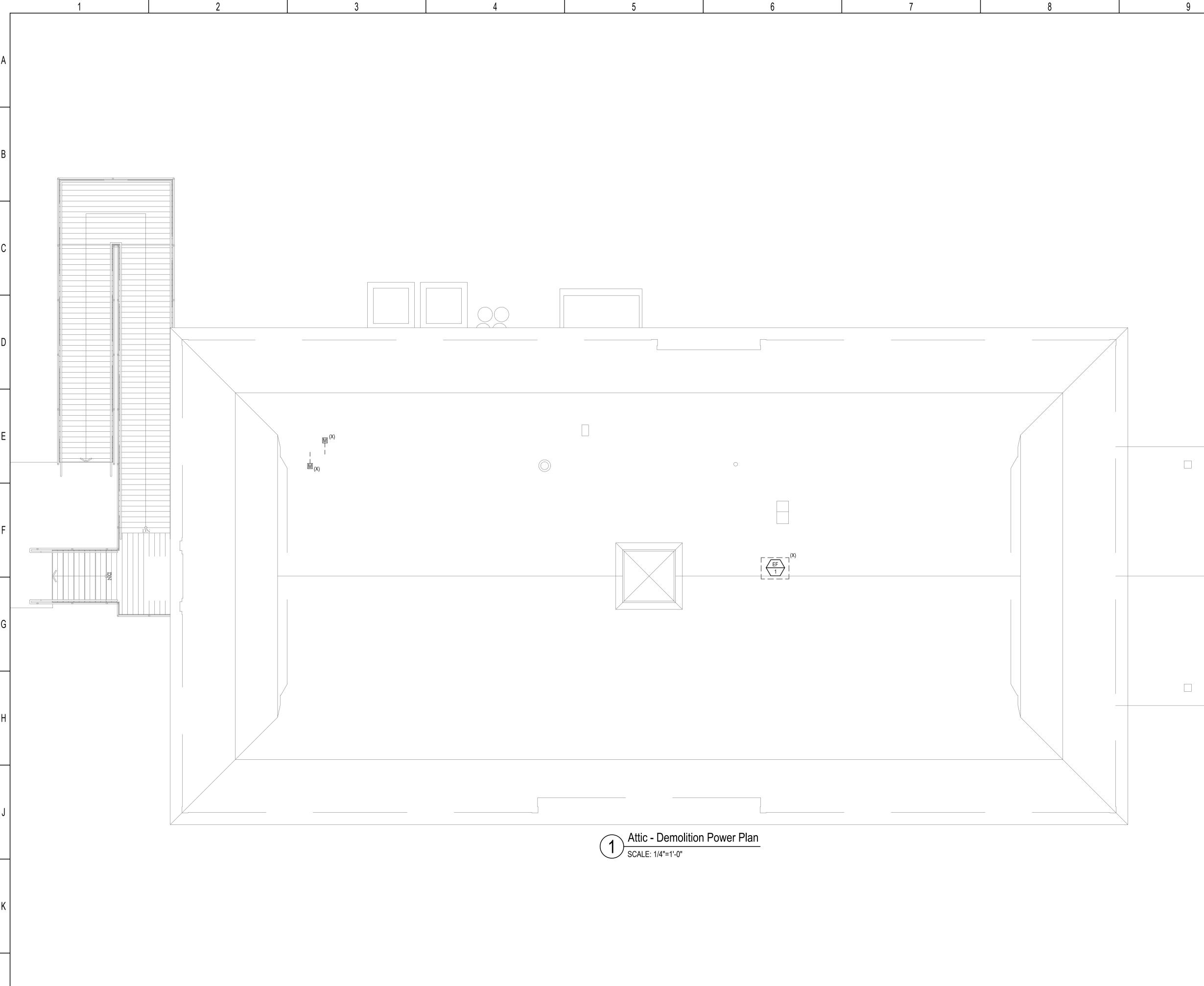
#### ANNOTATIONS

MECHANICAL EQUIPMENT TAG, REFER TO MECHANICAL EQUIPMENT COORDINATION SCHEDULE FOR ELECTRICAL REQUIREMENTS

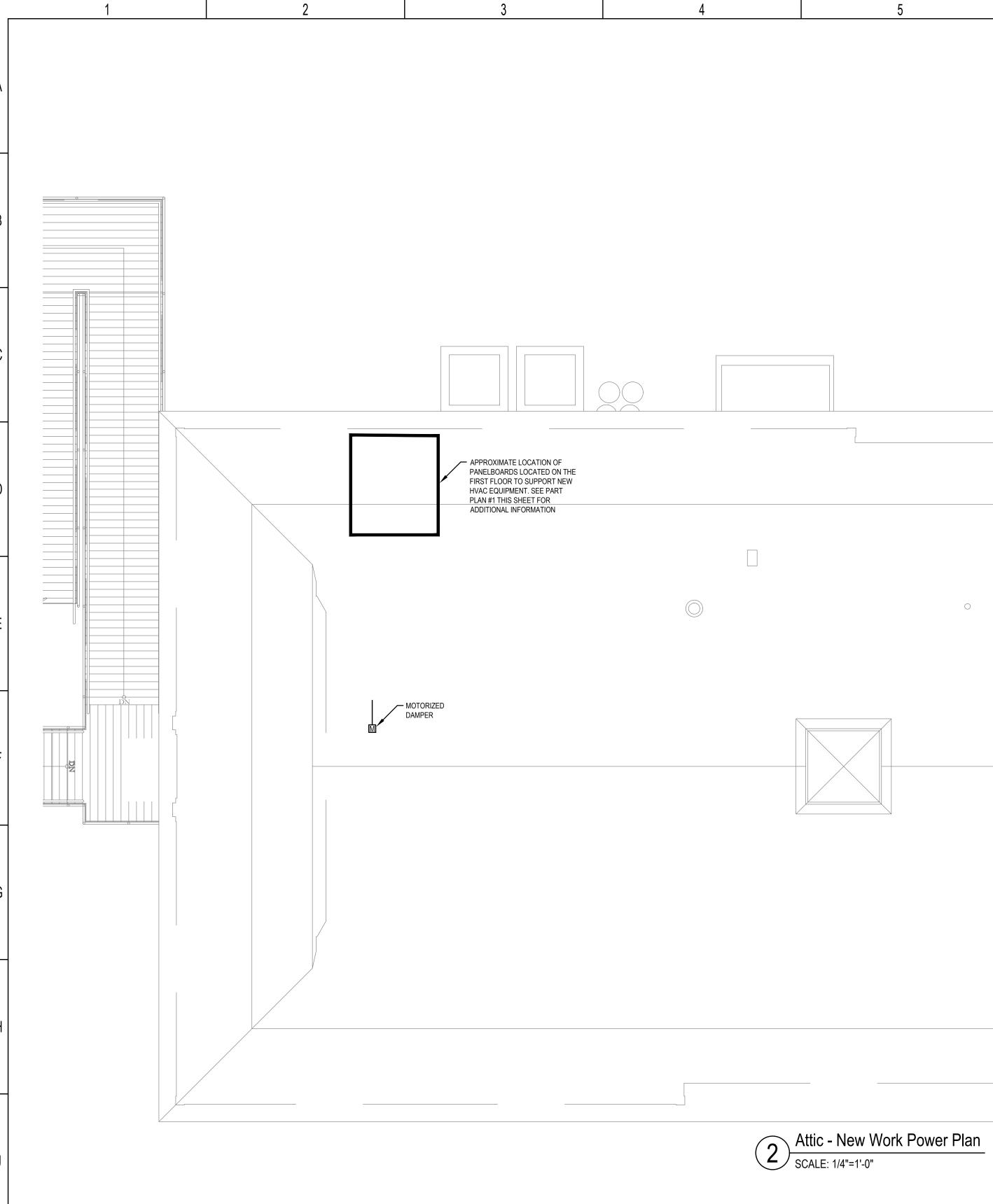


**REVISION TAG** 

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		PRICING 06/24/22
		ADDENDUM 09/20/22
		Revision:
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	MECHANICAL EQUIPMENT COORDINATION SCHEDULE																
EQUIP. TAG	EQUIPMENT DESCRIPTION	HP	MCA	kVA	VOLT	PHASE	PANEL CIRCUIT No.	CIRCUIT BREAKER	FEEDER	SM	$\boxtimes$	Ð	-Z	$\sim$	WP	SD	SEE NOTE
ERV-1	ENERGY RECOVERY UNIT		9.9	1.65	208	1	A3(25,27)	15A/2P	3#12,1#12G-¾"C			~	30AF/15AT	<ul> <li>Image: A start of the start of</li></ul>			1
М	MOTORIZED DAMPERS		5.0	0.48	120	1	A3(19)	20A/1P	2#12,1#12G-¾"C	~				~			2

MECHANICAL SCHEDULE NOTES:

PANELBOARD MANUFACTURED BY SQUARE D

2. RE-USE EXISTING CIRCUIT BREAKER MOUNTED IN POLE SPACE AS INDICATED.

SCHEDULE NOTES:

1. EQUIPMENT LOCATIONS SHOWN ON ELECTRICAL PLANS ARE APPROXIMATE LOCATIONS ONLY. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS. 2. REFER TO MECHANICAL SCHEDULES FOR ADDITIONAL INFORMATION AND DETAILS

3. ALL CONDUCTOR SIZES ARE FOR COPPER CONDUCTORS.

	MOTORIZED DAMPER	

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1. PROVIDE NEW CIRCUIT BREAKER AS INDICATED AND MOUNT IN AVALBLE POLE SPACE. NEW CIRCUIT BREAKER SHALL MATCH EXISTING IN STYLE, TYPE AND ITERRUPTING CAPACITY. EXISTING

