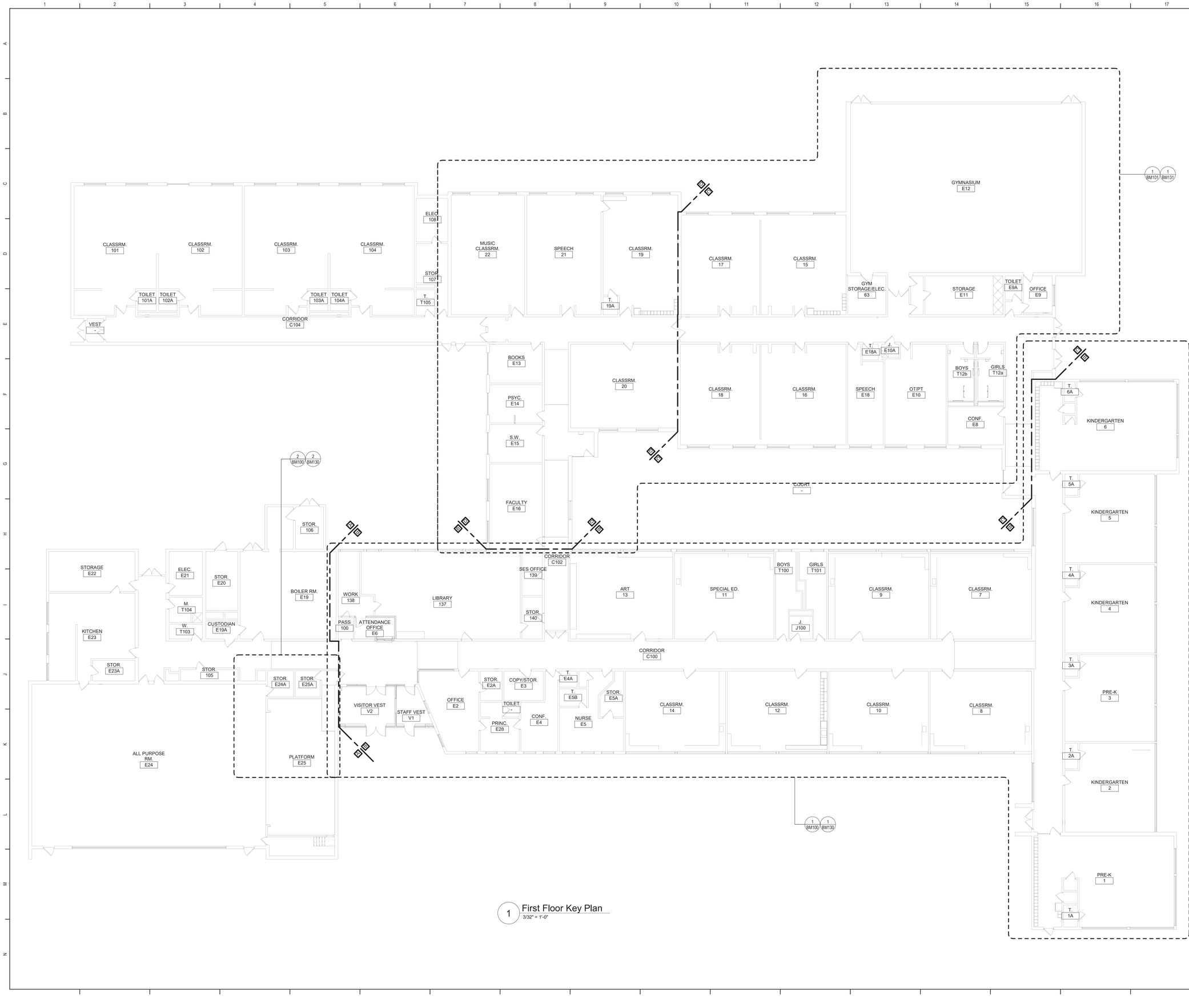
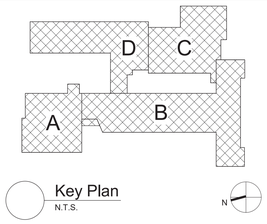


1 First Floor Key Plan
3/32" = 1'-0"

General Notes

A. THE FOLLOWING GENERAL NOTES APPLY TO ALL "BM" SERIES DRAWINGS.
B. REFER TO ALL CONTRACT DOCUMENTS; DRAWINGS AND SPECIFICATIONS, FOR DETAILED STANDARDS AND REQUIREMENTS.
C. REPORT UNSAFE OR UNSATISFACTORY CONDITIONS IN WRITING TO ARCHITECT AND RESOLVE ISSUES BEFORE PROCEEDING.
D. WORK INCLUDES ALL LABOR AND MATERIALS REQUIRED TO PROVIDE COMPLETE WORKING SYSTEMS.
E. COORDINATE PHASING REQUIREMENTS AT JOB MEETINGS AND ON WORK SCHEDULES.
F. DO NOT SCALE DRAWINGS. PIPING AND DUCTWORK ARE SHOWN DIAGRAMMATICALLY. IT IS NOT POSSIBLE TO SHOW EVERY TRANSITION, FITTING, ASPECT RATIO CHANGE, ETC.,; PROVIDE AS REQUIRED TO FIT WITHIN STRUCTURAL CONSTRAINTS. EXAMINE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND VERIFY ALL ACCESS, LOCATIONS, DIMENSIONS, ARRANGEMENTS, ELECTRICAL CHARACTERISTICS AND INTERFERENCE IN THE FIELD PRIOR TO BID.
G. VERIFY EXTENT OF CEILING WORK SHOWN ELSEWHERE IN THE CONTRACT DOCUMENTS. PROVIDE FOR ADDITIONAL CEILING SYSTEM REMOVAL, PROTECTION, AND REINSTALLATION AS REQUIRED FOR CONTRACT WORK.
H. DEMOLITION DRAWINGS SHOW THE GENERAL SCOPE OF ITEMS AND SYSTEMS TO BE REMOVED. IT IS NOT THE INTENT TO SHOW ALL ITEMS TO BE REMOVED. FIELD VERIFY AND REMOVE ALL ASSOCIATED ITEMS BACK TO POINT OF CONTINUED SERVICE, UNLESS OTHERWISE NOTED. VERIFY WHAT ALL EQUIPMENT SERVES PRIOR TO REMOVAL.
I. GIVE ALL REMOVED EQUIPMENT TO THE OWNER. DELIVER ON SITE WHERE DESIGNATED BY THE OWNER. PROMPTLY REMOVE FROM THE SITE AND LEGALLY DISPOSE OF ANY SUCH ITEMS DECLINED BY OWNER.
J. IF UNANTICIPATED MECHANICAL, ELECTRICAL, OR STRUCTURAL CONFLICTS ARE ENCOUNTERED, INVESTIGATE AND REPORT BOTH NATURE AND EXTENT OF THE CONFLICT. RE-ROUTE WORK AS REQUIRED.
K. CUT, DRILL, OR OTHERWISE CREATE OPENINGS AS NEATLY AS POSSIBLE, AS REQUIRED FOR THE INDICATED CONTRACT WORK. PROVIDE SUPPORT AS REQUIRED FOR AND USE METHODS LEAST LIKELY TO DAMAGE ELEMENTS TO REMAIN. PRIOR TO WORK, VERIFY LOCATIONS OF ALL STRUCTURAL MEMBERS INCLUDING CROSS BRACING, ELECTRICAL WIRING, PLUMBING, ETC. PROMPTLY NOTIFY ARCHITECT OF ANY CONFLICTS. DO NOT CUT ANY STRUCTURAL MEMBERS OR OTHER SERVICES UNTIL SPECIFICALLY DIRECTED TO DO SO. PENDING RECEIPT OF DIRECTIVE, REARRANGE SCHEDULE AS NECESSARY TO CONTINUE OVERALL JOB PROGRESS WITHOUT DELAY.
L. PATCH ALL DISTURBANCES RESULTING FROM DEMOLITION OR NEW WORK TO MATCH SURROUNDING SURFACES. PATCH FOLLOWING DEMOLITION, AND AGAIN FOLLOWING WORK. WHERE HOLES REMAIN FROM REMOVALS, INFILL AND PATCH TO MATCH UNLESS HOLE IS TO BE REUSED.
M. PROTECT ALL CONTRACT EQUIPMENT, ELEMENTS TO REMAIN, OWNER'S BELONGINGS, AND EQUIPMENT TO BE REUSED OR RETAINED BY OWNER DURING ALL CONTRACT WORK. AT NO ADDITIONAL COST TO OWNER, REPAIR OR REPLACE ITEMS WHICH ARE DAMAGED.
N. THOROUGHLY CLEAN FOLLOWING DEMOLITION AND BEFORE BEGINNING CONTRACT INSTALLATIONS. THOROUGHLY CLEAN AGAIN DURING AND FOLLOWING CONTRACT WORK AS REQUIRED. LEAVE ALL WORK AREAS CLEANER THAN FOUND. LEGALLY DISPOSE OF ALL CONSTRUCTION DEBRIS.
O. PROVIDE TEMPORARY PIPING, DUCT, HEAT, WEATHERPROOFING, ETC., TO SERVICES TO REMAIN UNTIL PERMANENT INSTALLATIONS CAN BE MADE.
P. ALL EXCESS MATERIALS AND SCRAPS ARE CONTRACTOR'S PROPERTY. PROMPTLY REMOVE FROM SITE UNLESS SPECIFICALLY DIRECTED OTHERWISE.
Q. EXISTING HVAC COMPONENTS IN THIS BUILDING MAY CONTAIN, BE IN PROXIMITY TO, OR, WORK ON THEM MAY CAUSE DISTURBANCE OF, ASBESTOS CONTAINING OR OTHER HAZARDOUS MATERIALS. REFER TO ABATEMENT SERIES DRAWINGS AND SPECIFICATIONS COMPLETE FOR ADDITIONAL INFORMATION.
R. SEAL ALL FLOOR, WALL AND CEILING PENETRATIONS PER FIRE-RESISTANCE RATINGS NOTED ON AG-SERIES DRAWINGS, BUT NOT LESS THAN 1-HOUR, AND IN ACCORDANCE WITH SECTION 07 84 13 - PENETRATION FIRESTOPPING. THIS INCLUDES ALL NEW PENETRATIONS AND EXISTING UNFIRESTOPPED PENETRATIONS CREATED BY REMOVALS, AS REQUIRED TO PERFORM THE WORK.



S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT — WHERE EXCELLENCE IS THE STANDARD

complex world | CLEAR SOLUTIONS

Tetra Tech Engineers, Architects & Landscape Architects, P.C.

BID SET

TETRA TECH ARCHITECTS & ENGINEERS

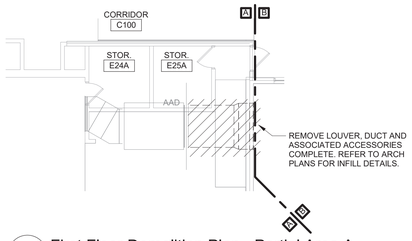
Beacon City School District
Beacon, New York

Additions and Alterations to:
Glenham Elementary School

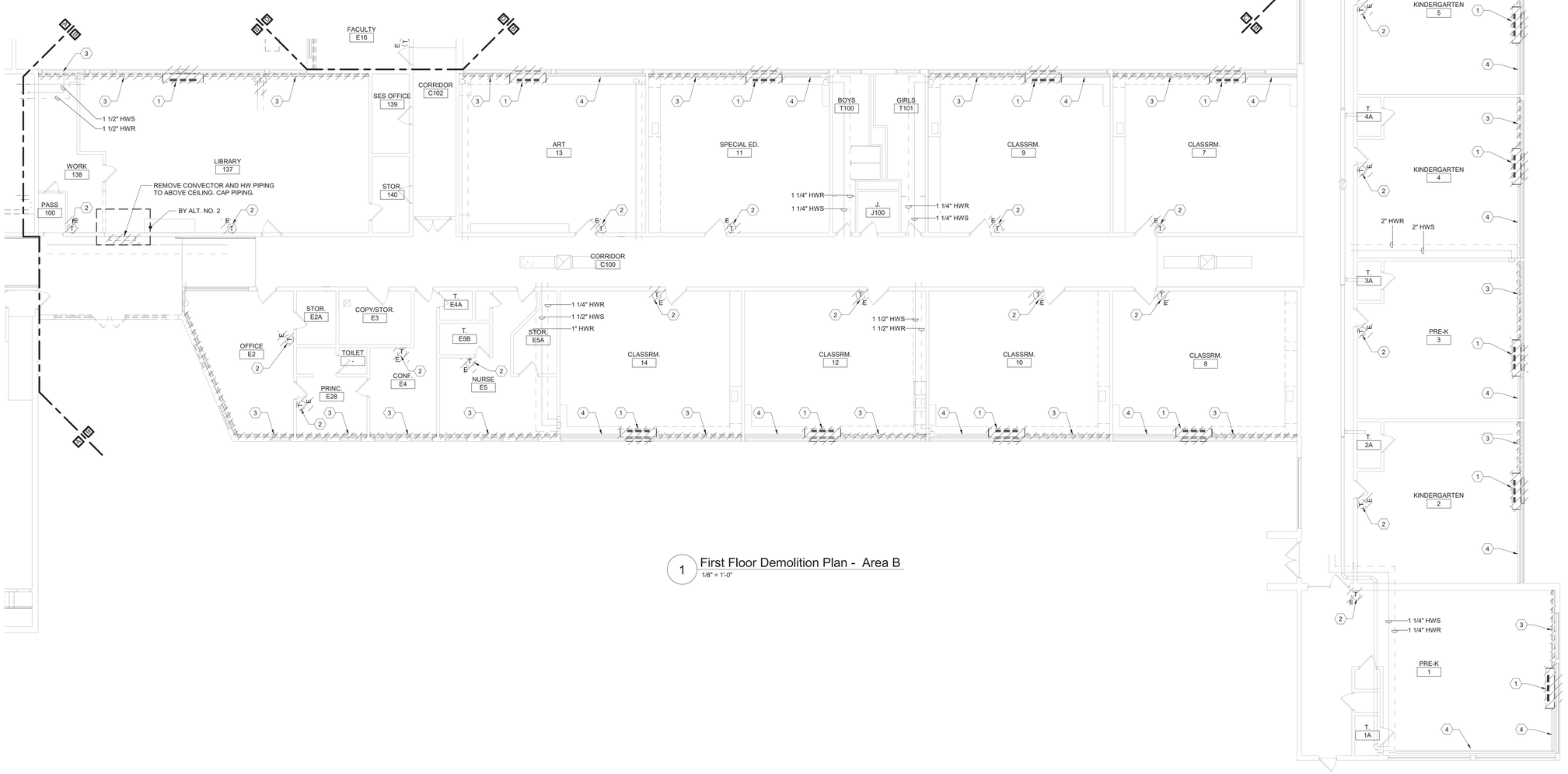
First Floor Key Plan

Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM051

Project No.: 279180-22004



2 First Floor Demolition Plan - Partial Area A
1/8" = 1'-0"



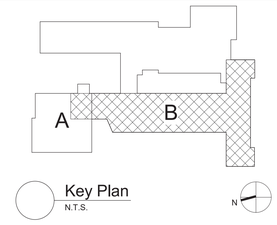
1 First Floor Demolition Plan - Area B
1/8" = 1'-0"

General Notes

A. REFER TO BM051 FOR GENERAL NOTES.

KEYED DEMOLITION NOTES:

1. REMOVE UNIT VENTILATOR, OUTDOOR AIR INTAKE SLEEVE AND ALL ASSOCIATED ACCESSORIES COMPLETE. REMOVE HWS/R PIPING AS REQUIRED FOR UV REMOVAL. REFER TO OTHER TRADES FOR LOUVER REMOVAL.
2. REMOVE THERMOSTAT AND ASSOCIATED ACCESSORIES.
3. REMOVE FINNED TUBE RADIATION AND ASSOCIATED ACCESSORIES COMPLETE. PREPARE FOR RECONNECTION.
4. FINNED TUBE RADIATION AND ASSOCIATED ACCESSORIES TO REMAIN.



Key Plan
N.T.S.

S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT — WHERE EXCELLENCE IS THE STANDARD

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TETRA TECH
ARCHITECTS & ENGINEERS

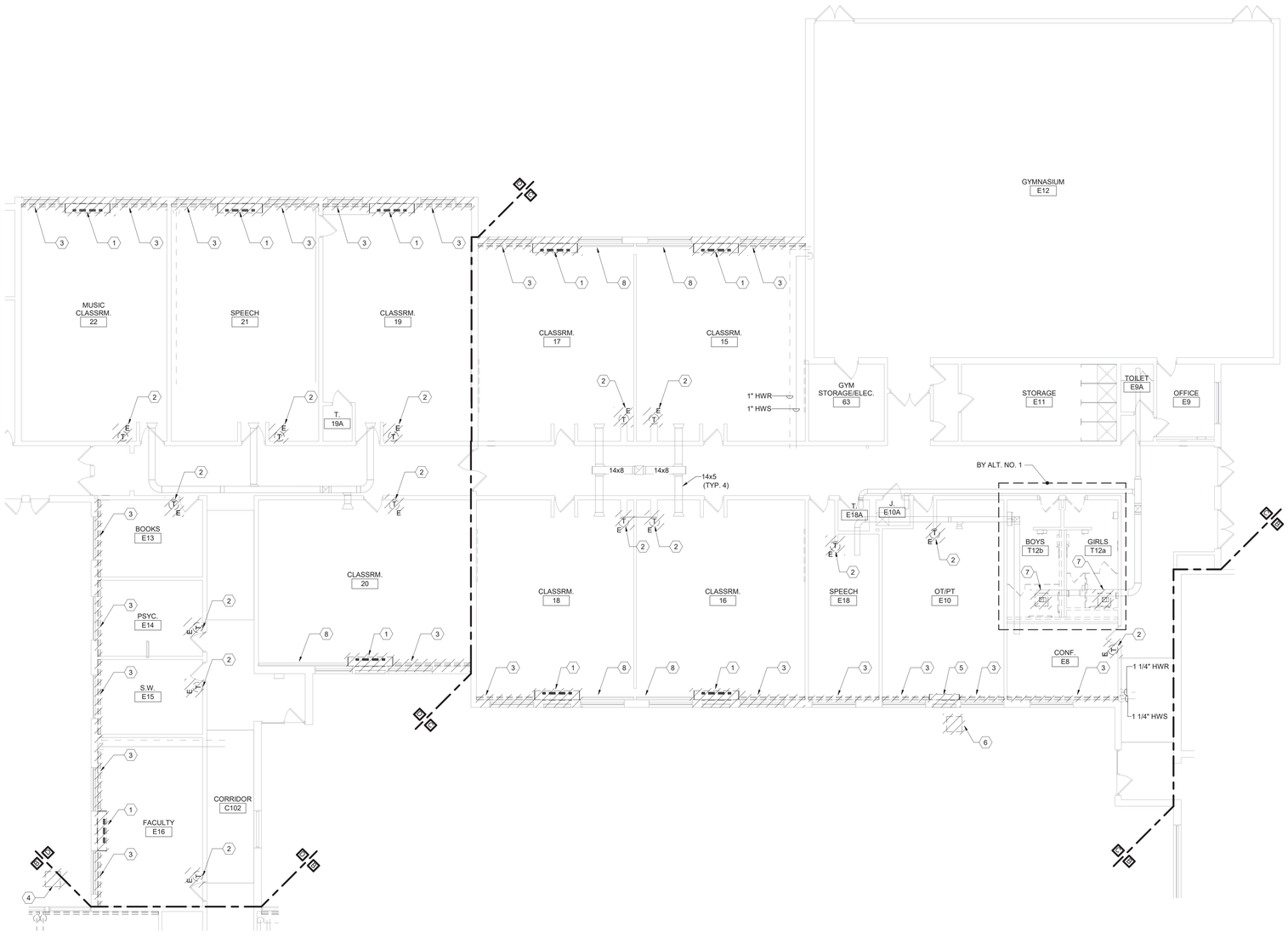
Beacon City School District
Beacon, New York

Additions and Alterations to:
Glenham Elementary School

First Floor Demolition Plans - Partial Area A and Area B

Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM100

Project No.: 279180-22004



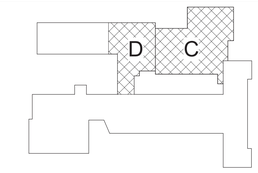
1 First Floor Demolition Plans - Area C and Parital Area D
1/8" = 1'-0"

General Notes

A. REFER TO BM051 FOR GENERAL NOTES.

KEYED DEMOLITION NOTES:

1. REMOVE UNIT VENTILATOR, LOUVER, OUTDOOR AIR INTAKE SLEEVE AND ALL ASSOCIATED ACCESSORIES COMPLETE. REMOVE HWS/R PIPING AS REQUIRED FOR UV REMOVAL.
2. REMOVE THERMOSTAT AND ASSOCIATED ACCESSORIES.
3. REMOVE FINNED TUBE RADIATION AND ASSOCIATED ACCESSORIES COMPLETE. PREPARE FOR RECONNECTION.
4. REMOVE CONDENSING UNIT, REFRIGERANT PIPING AND CONCRETE PAD.
5. REMOVE PACKAGED HEAT PUMP, 6" DIAMETER DUCTS TO COMPRESSOR AND LOUVER COMPLETE.
6. REMOVE ABANDONED CONDENSING UNIT AND CONCRETE PAD.
7. REMOVE EXHAUST GRILLE AND ASSOCIATED ACCESSORIES COMPLETE. PREPARE FOR RECONNECTION.
8. FINNED TUBE RADIATION AND ASSOCIATED ACCESSORIES TO REMAIN.



Key Plan
N.T.S.

S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT WHERE EXCELLENCE IS THE STANDARD

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Tetra Tech Engineers, Architects & Landscape Architects, P.C.

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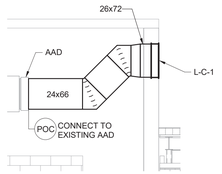
TETRA TECH ARCHITECTS & ENGINEERS

Beacon City School District
Beacon, New York

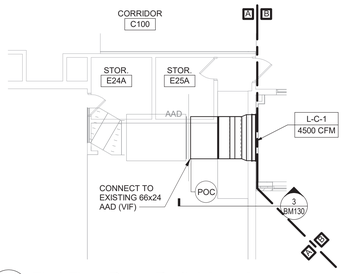
Additions and Alterations to:
Glenham Elementary School

First Floor Demolition Plans - Area C and Partial Area D

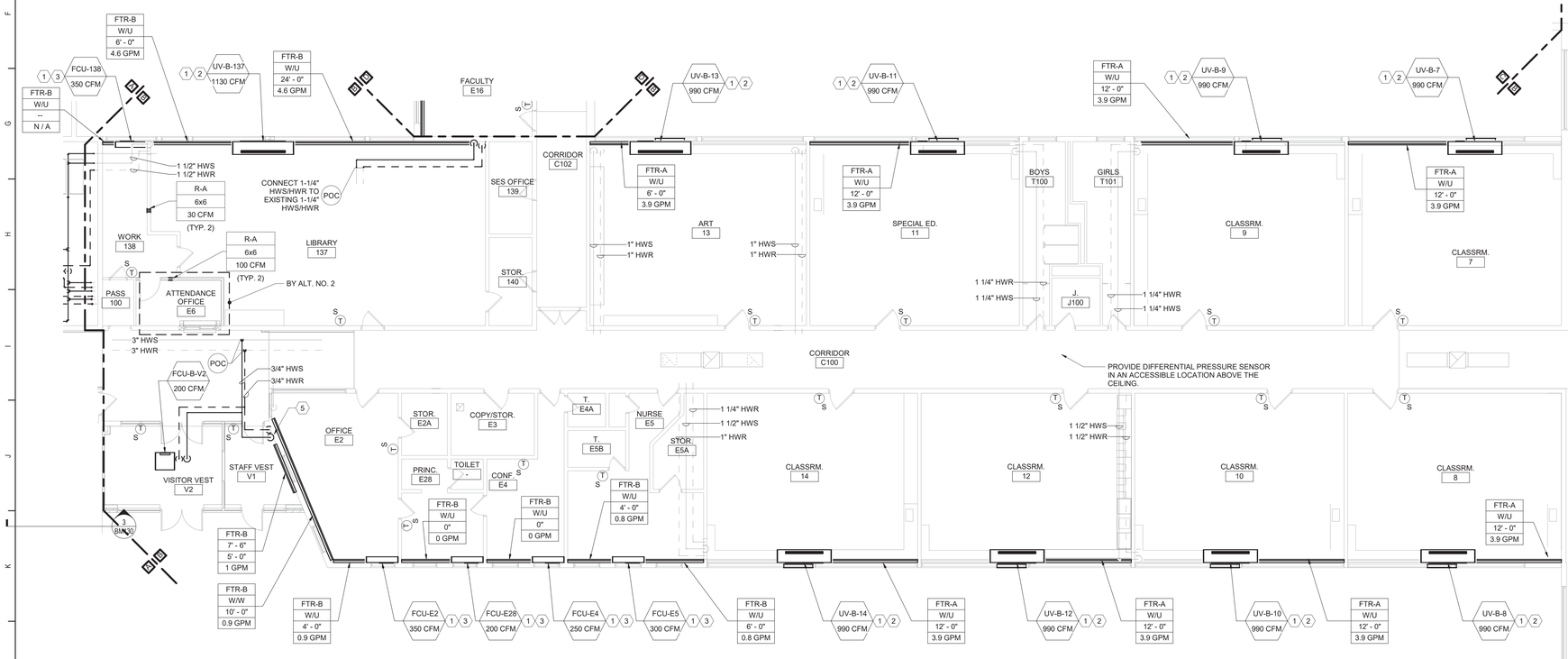
Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM101
Project No.: 279180-22004		



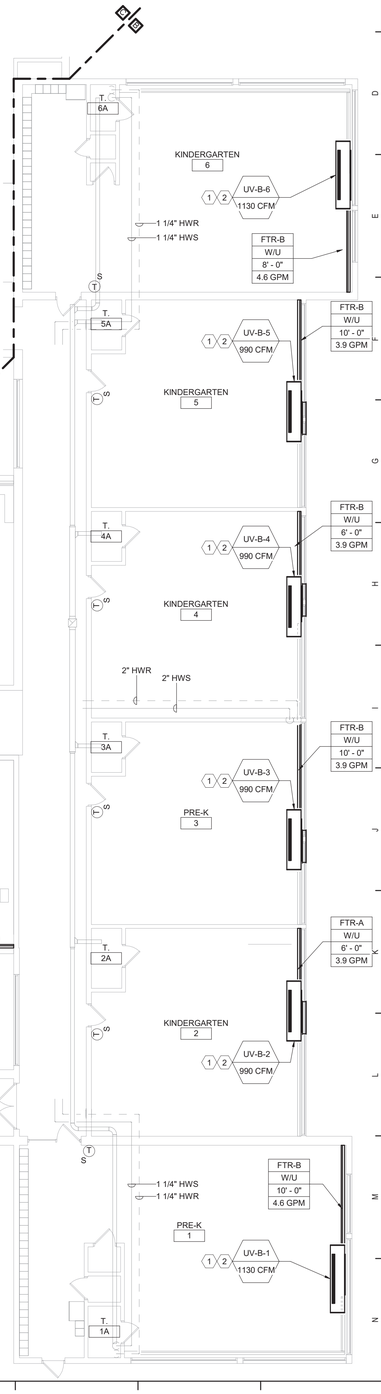
3 Stage Section View
1/4" = 1'-0"



2 First Floor Plan - Partial Area A
1/8" = 1'-0"



1 First Floor Plan - Area B
1/8" = 1'-0"

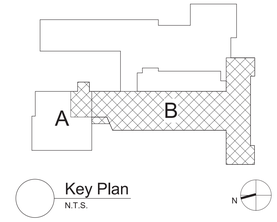


General Notes

A. REFER TO BM051 FOR GENERAL NOTES.

KEYED NOTES:

1. EXTEND HWS/R PIPING AS REQUIRED TO MAKE CONNECTION AND PIPE PER DETAIL.
2. PROVIDE LOUVER SIZED TO MATCH EXISTING OPENING. PROVIDE OA INTAKE SLEEVE AND SECURE TO LOUVER PER DETAIL. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER INSTALLATION.
3. PROVIDE LOUVER AND OA INTAKE SLEEVE AND SECURE PER DETAIL. REFER TO ARCHITECTURAL DRAWINGS FOR WALL OPENING AND LOUVER INSTALLATION.
4. EXTEND 1" HWS PIPING AS REQUIRED AND CONNECT INTO EXISTING 1" EXPANSION TANK PIPING.
5. PROVIDE SHEET METAL PIPE ENCLOSURE.



S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT — WHERE EXCELLENCE IS THE STANDARD

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Tetra Tech Engineers, Architects & Landscape Architects, P.C.

BID SET

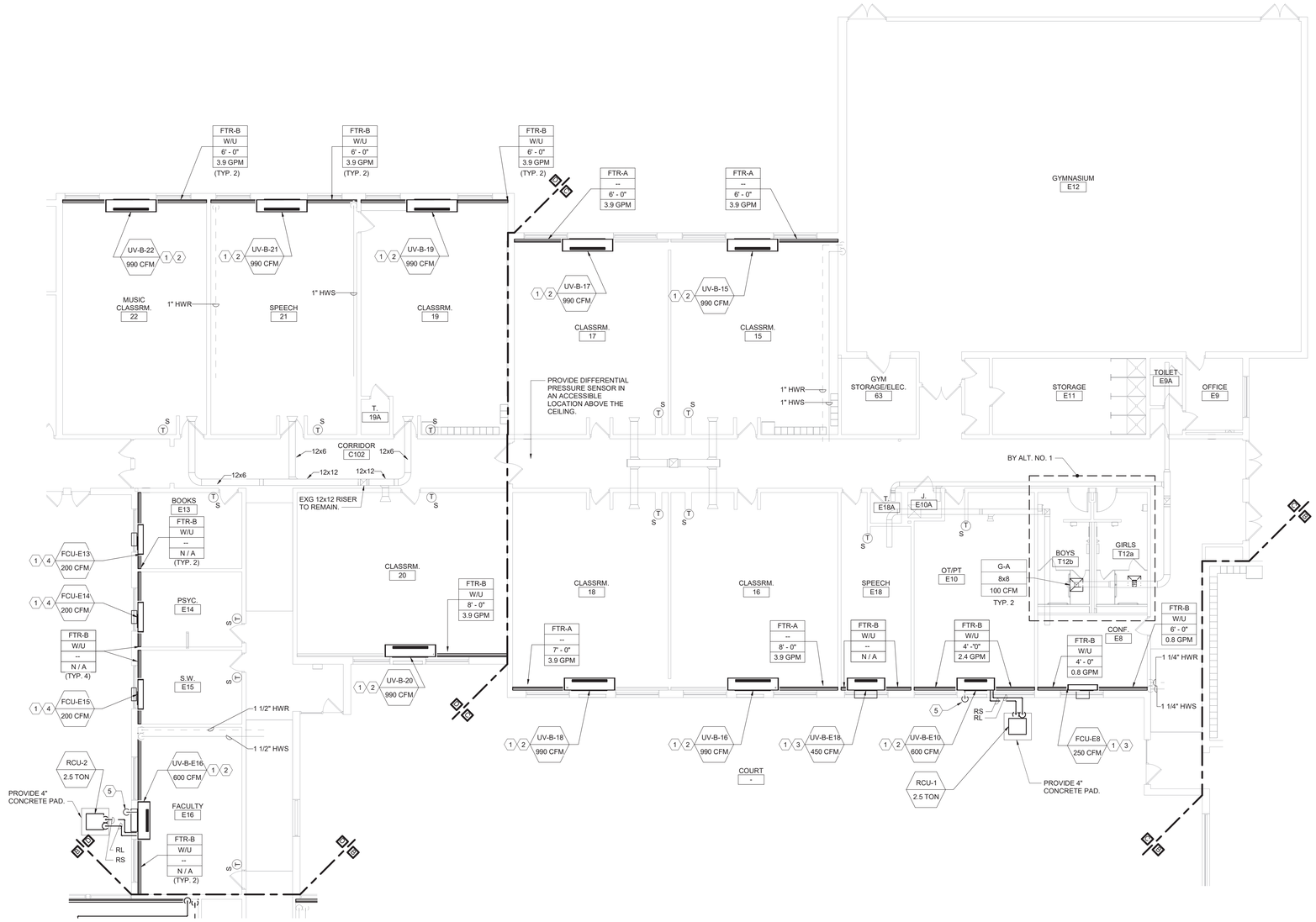
TETRA TECH
ARCHITECTS & ENGINEERS

Beacon City School District
Beacon, New York

Additions and Alterations to:
Glenham Elementary School

First Floor Plans - Partial Area A and Area B

Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM130
Project No.:		
279180-22004		



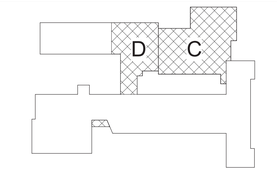
1 First Floor Plan - Area C and Parital Area D
1/8" = 1'-0"

General Notes

A. REFER TO BM051 FOR GENERAL NOTES.

KEYED NOTES:

1. EXTEND HWS/R PIPING AS REQUIRED TO MAKE CONNECTION AND PIPE PER DETAIL.
2. PROVIDE LOUVER SIZED TO MATCH EXISTING OPENING. PROVIDE OA INTAKE SLEEVE AND SECURE TO LOUVER PER DETAIL. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER INSTALLATION.
3. PROVIDE LOUVER AND OA INTAKE SLEEVE AND SECURE PER DETAIL. REFER TO ARCHITECTURAL DRAWINGS FOR WALL OPENING AND LOUVER INSTALLATION.
4. PROVIDE LOUVER AND OA INTAKE SLEEVE. FIELD FABRICATE POWDER COATED SHEETMETAL PLENUM AND SECURE TO LOUVER.
5. PROVIDE 1" CONDENSATE DRAIN. REFER TO BM500.



Key Plan
N.T.S.

S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT — WHERE EXCELLENCE IS THE STANDARD

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ARCHITECTS & ENGINEERS

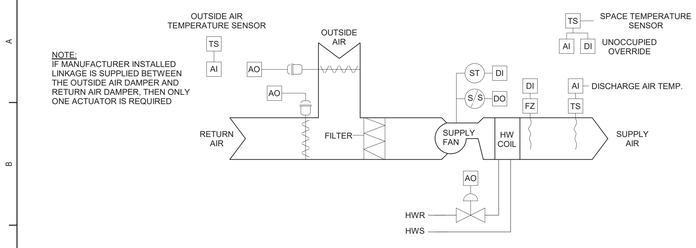
Beacon City School District
Beacon, New York

Additions and Alterations to:
Glenham Elementary School

First Floor Plan - Area C and Partial Area D

Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM131

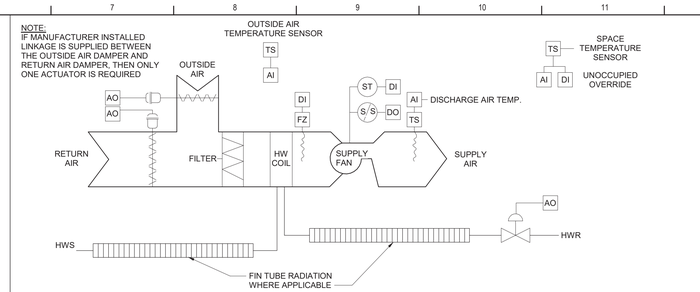
Project No.:
279180-22004



FAN COIL UNIT - HOT WATER - VALVE CONTROL - SEQUENCE OF OPERATIONS:

1. OCCUPIED MODE:
   a. SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL RUN CONTINUOUSLY.
   b. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE POSITION REQUIRED TO MAINTAIN THE MINIMUM OUTSIDE AIR QUANTITY AS INDICATED. OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM POSITION EXCEPT IN CASE OF ALARM.
   c. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE HEATING SETPOINT, THE 2-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE HEATING SETPOINT SUBJECT TO DISCHARGE HIGH LIMIT OF 110 DEG. F (ADJUSTABLE) AND DISCHARGE LOW LIMIT OF 70 DEG. F (ADJUSTABLE).
   d. WHEN THE SPACE TEMPERATURE RISES 3 DEG. F (ADJUSTABLE) ABOVE THE SPACE HEATING SETPOINT, AND THE OUTSIDE AIR TEMPERATURE IS LOWER THAN THE SPACE TEMPERATURE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL OPEN TO MAINTAIN THE OCCUPIED SETPOINT. THIS SHALL BE DONE SUBJECT TO DISCHARGE LOW LIMIT OF 55 DEG. F (ADJUSTABLE), AND WITH THE HEATING VALVE FULLY CLOSED.
2. UNOCCUPIED MODE:
   a. THE SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL BE OFF.
   b. THE OUTSIDE AIR DAMPER AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED.
   c. WHERE SPACE HAS FINNED TUBE RADIATION, RADIATION SHALL PROVIDE FIRST STAGE UNOCCUPIED HEATING.
   d. ON DROP IN SPACE TEMPERATURE BELOW THE UNOCCUPIED SETPOINT, CYCLE THE FAN AND COIL CONTROL VALVE FULL OPEN AS REQUIRED TO MAINTAIN REDUCED SPACE TEMPERATURE. USE 5 DEG. F (ADJUSTABLE) DEADBAND TO MINIMIZE SHORT CYCLING.
   e. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO OCCUPIED MODE FOR 1 HOUR (ADJUSTABLE). AT EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.
3. WARM-UP MODE:
   a. THE UNIT SHALL START PER AN OPTIMUM START PROGRAM.
   b. THE OUTSIDE AIR DAMPER AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED AND THE ASSOCIATED EXHAUST FAN SHALL BE OFF.
   c. THE SUPPLY FAN SHALL RUN AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN OCCUPIED SETPOINT.
4. PURGE VENTILATION MODE:
   a. PROVIDE GLOBAL INITIATION OF PURGE VENTILATION MODE AT THE OPERATOR'S WORKSTATION SUCH THAT ONE INITIATION STARTS OR STOPS PURGE VENTILATION MODE FOR ALL EQUIPMENT SO PROGRAMMED. PROVIDE FOR GLOBAL ADJUSTMENT OF THE BELOW DESCRIBED SCHEDULING AND PERCENTAGE VENTILATION CHANGES, AND ALSO FOR LOCAL ADJUSTMENT AWAY FROM GLOBAL SETPOINTS. IF GLOBAL SETPOINTS ARE SUBSEQUENTLY RE-ADJUSTED, PROVIDE WARNING WITH A LIST OF UNITS WITH LOCAL OVERRIDES, BUT DO NOT RE-ADJUST LOCAL OVER-RIDE SETPOINTS GLOBALLY.
   b. PROVIDE A PURGE VENTILATION MODE WITH INCREASED VENTILATION AS POSSIBLE WITHIN THE LIMITS OF THE EQUIPMENT. OPERATE WITH ALL THREE MODES DESCRIBED ABOVE WITH THE FOLLOWING MODIFICATIONS TO THE OCCUPIED PERIOD.
   c. START OCCUPIED VENTILATION MODE 1 HOUR (ADJ) EARLIER AND END IT 4 HOURS (ADJ) LATER.
   d. INCREASE VENTILATION AS POSSIBLE BY 100% (ADJ) WHERE 0% INCREASE IS THE MINIMUM VENTILATION DESCRIBED ABOVE AND 100% IS 100% OUTSIDE AIR WITH NO RETURN AIR.
   e. MAINTAIN OCCUPIED SPACE TEMPERATURE AND INCREASED VENTILATION AS POSSIBLE WITHIN HEATING CAPACITY CONSTRAINTS OF LOCAL AND PLANT HEATING CAPACITY. IF SPACE TEMPERATURE DROPS MORE THAN 2 DEG. F (ADJ) BELOW SPACE HEATING SETPOINT WITH THE HEATING VALVE 100% OPEN, MODULATE VENTILATION RATE BACK TO MINIMUM SPECIFIED VENTILATION RATE DESCRIBED ABOVE WITH HEATING VALVE AT 100% OPEN.
5. SAFETIES:
   a. A SEPARATE LOW LIMIT FREEZE STAT WITH AUTOMATIC RESET SHALL BE INSTALLED WITH SENSING ELEMENT SERPENTINED ACROSS THE FACE OF THE COIL, WHENEVER COIL FREEZE-UP CONDITIONS ARISE (36 DEG. F ADJUSTABLE) THE SUPPLY FAN SHALL STOP, THE OUTSIDE AIR DAMPER SHALL CLOSE 100% AND THE CONTROL VALVE SHALL OPEN 100%. AN ALARM SHALL ALSO BE ACTIVATED.
   b. UPON FAILURE OF THE FAN, AS SENSED BY THE CURRENT SENSING STATUS SWITCH, ACTIVATE AN ALARM.

11 FCU - Hot Water - Valve Control - With Outside Air
NTS



UNIT VENTILATOR - HOT WATER - VALVE CONTROL - SEQUENCE OF OPERATIONS:

1. OCCUPIED MODE:
   a. SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL RUN CONTINUOUSLY.
   b. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE POSITION REQUIRED TO MAINTAIN THE MINIMUM OUTSIDE AIR QUANTITY INDICATED. OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM POSITION EXCEPT IN CASE OF ALARM.
   c. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE HEATING SETPOINT, THE 2-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE HEATING SETPOINT SUBJECT TO DISCHARGE HIGH LIMIT OF 110 DEG. F (ADJUSTABLE) AND DISCHARGE LOW LIMIT OF 70 DEG. F (ADJUSTABLE).
   d. WHEN THE SPACE TEMPERATURE RISES 3 DEG. F (ADJUSTABLE) ABOVE THE SPACE HEATING SETPOINT, AND THE OUTSIDE AIR TEMPERATURE IS LOWER THAN THE SPACE TEMPERATURE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL OPEN TO MAINTAIN THE OCCUPIED SETPOINT. THIS SHALL BE DONE SUBJECT TO DISCHARGE LOW LIMIT OF 55 DEG. F (ADJUSTABLE), AND WITH THE HEATING VALVE FULLY CLOSED.
2. UNOCCUPIED MODE:
   a. SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL BE OFF.
   b. THE OUTSIDE AIR DAMPER AND ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED.
   c. WHERE SPACE HAS FINNED TUBE RADIATION, RADIATION SHALL PROVIDE FIRST STAGE UNOCCUPIED HEATING.
   d. ON DROP IN SPACE TEMPERATURE BELOW THE UNOCCUPIED SETPOINT, CYCLE THE FAN ON AND COIL CONTROL VALVE FULL OPEN AS REQUIRED TO MAINTAIN REDUCED SPACE TEMPERATURE. USE 5 DEG. F (ADJUSTABLE) DEADBAND AS REQUIRED TO MINIMIZE SHORT CYCLING.
   e. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO OCCUPIED MODE FOR 1 HOUR (ADJUSTABLE). AT EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.
3. WARM-UP MODE:
   a. THE UNIT SHALL START PER AN OPTIMUM START PROGRAM.
   b. THE OUTSIDE AIR DAMPER AND ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED AND THE ASSOCIATED EXHAUST FAN SHALL BE OFF.
   c. THE SUPPLY FAN SHALL RUN AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN OCCUPIED SETPOINT.
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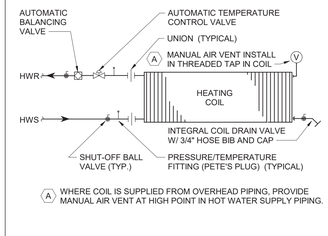
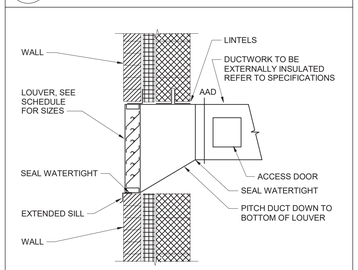
   a. PROVIDE GLOBAL INITIATION OF PURGE VENTILATION MODE AT THE OPERATOR'S WORKSTATION SUCH THAT ONE INITIATION STARTS OR STOPS PURGE VENTILATION MODE FOR ALL EQUIPMENT SO PROGRAMMED. PROVIDE FOR GLOBAL ADJUSTMENT OF THE BELOW DESCRIBED SCHEDULING AND PERCENTAGE VENTILATION CHANGES, AND ALSO FOR LOCAL ADJUSTMENT AWAY FROM GLOBAL SETPOINTS. IF GLOBAL SETPOINTS ARE SUBSEQUENTLY RE-ADJUSTED, PROVIDE WARNING WITH A LIST OF UNITS WITH LOCAL OVERRIDES, BUT DO NOT RE-ADJUST LOCAL OVER-RIDE SETPOINTS GLOBALLY.
   b. PROVIDE A PURGE VENTILATION MODE WITH INCREASED VENTILATION AS POSSIBLE WITHIN THE LIMITS OF THE EQUIPMENT. OPERATE WITH ALL THREE MODES DESCRIBED ABOVE WITH THE FOLLOWING MODIFICATIONS TO THE OCCUPIED PERIOD.
   c. START OCCUPIED VENTILATION MODE 1 HOUR (ADJ) EARLIER AND END IT 4 HOURS (ADJ) LATER.
   d. INCREASE VENTILATION AS POSSIBLE WITHIN HEATING CAPACITY CONSTRAINTS OF LOCAL AND PLANT HEATING CAPACITY. IF SPACE TEMPERATURE DROPS MORE THAN 2 DEG. F (ADJ) BELOW SPACE HEATING SETPOINT WITH THE HEATING VALVE 100% OPEN, MODULATE VENTILATION RATE BACK TO MINIMUM SPECIFIED VENTILATION RATE DESCRIBED ABOVE WITH HEATING VALVE AT 100% OPEN.
5. SAFETIES
   a. A SEPARATE LOW LIMIT FREEZE STAT WITH AUTOMATIC RESET SHALL BE INSTALLED WITH SENSING ELEMENT SERPENTINED ACROSS THE FACE OF THE COIL; WHENEVER COIL FREEZE-UP CONDITIONS ARISE (36 DEG. F ADJUSTABLE) THE SUPPLY FAN SHALL STOP, THE OUTSIDE AIR DAMPER SHALL CLOSE 100%, AND CONTROL VALVE SHALL OPEN 100%. AN ALARM SHALL ALSO BE ACTIVATED.
   b. UPON FAILURE OF THE FAN, AS SENSED BY THE CURRENT SENSING STATUS SWITCH, AN ALARM SHALL BE ACTIVATED.

8 UV - Hot Water - Valve Control w/ FTR
NTS

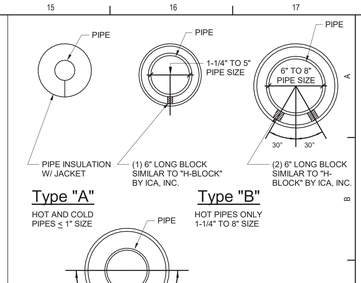


4 FCU/UV Hot Water Piping Schematic
NTS

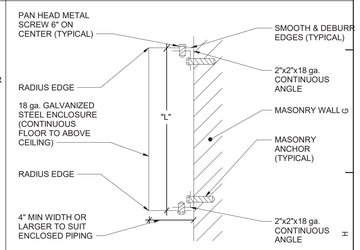


NOTES: 1. BRICK VENT INSTALLATION SIMILAR

5 Storm Louver Detail
NTS

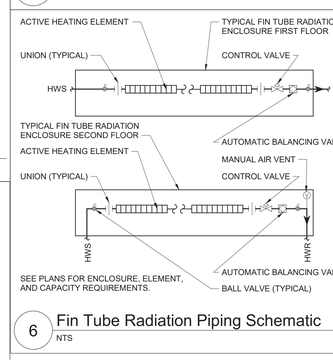


1 Insulation Shield and Blocking
NTS



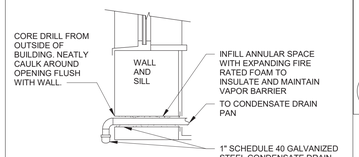
NOTES:
1. LENGTH "L" SHALL MATCH UNIT VENT SHELVING WIDTH WHERE APPLICABLE. MINIMUM "L" DIM. SHALL BE 8" OR TO SUIT INSULATED HEATING PIPING.
2. PRIME ALL METAL SURFACES AND FINISH. PAINT TWO COAT COLOR PER ARCHITECT.

2 Vertical Piping Enclosure Detail
NTS

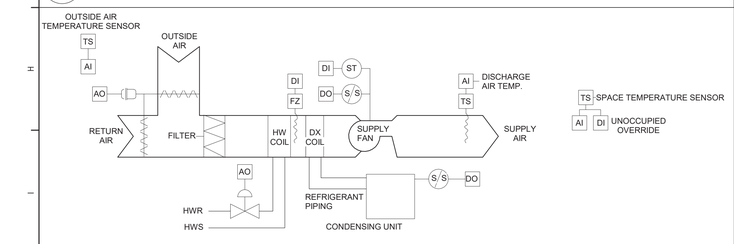


SEE PLANS FOR ENCLOSURE, ELEMENT, AND CAPACITY REQUIREMENTS.

6 Fin Tube Radiation Piping Schematic
NTS



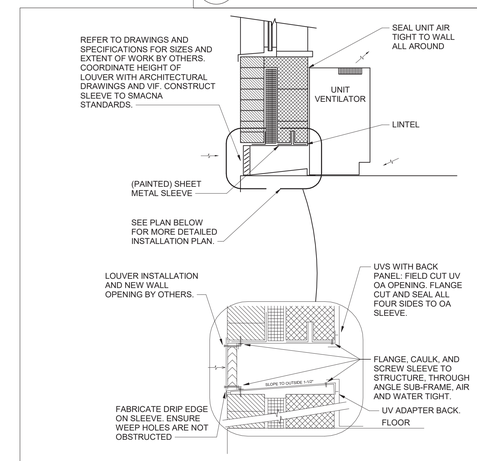
9 Exterior Wall Condensate Drain Detail
NTS



UNIT VENTILATOR - HOT WATER (VALVE CONTROL) AND DX COOLING - SEQUENCE OF OPERATIONS:

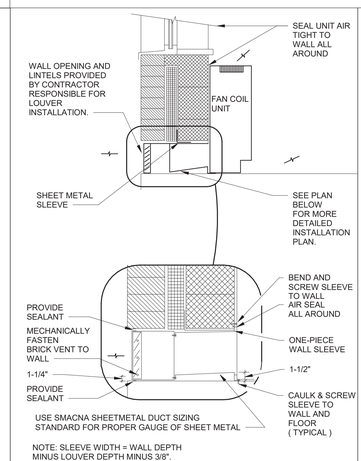
1. OCCUPIED MODE:
   a. SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL RUN CONTINUOUSLY.
   b. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE POSITION REQUIRED TO MAINTAIN THE MINIMUM OUTSIDE AIR QUANTITY INDICATED. OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM POSITION EXCEPT IN CASE OF ALARM.
   c. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE HEATING SETPOINT, THE 2-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE HEATING SETPOINT SUBJECT TO DISCHARGE HIGH LIMIT OF 110 DEG. F (ADJUSTABLE) AND DISCHARGE LOW LIMIT OF 70 DEG. F (ADJUSTABLE).
   d. WHEN THE SPACE TEMPERATURE RISES 3 DEG. F (ADJUSTABLE) ABOVE THE SPACE HEATING SETPOINT, AND THE OUTSIDE AIR TEMPERATURE IS LOWER THAN THE SPACE TEMPERATURE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN AND THE ASSOCIATED RELIEF HOOD DAMPER SHALL OPEN TO MAINTAIN THE OCCUPIED SETPOINT. THIS SHALL BE DONE SUBJECT TO DISCHARGE LOW LIMIT OF 55 DEG. F (ADJUSTABLE), AND WITH THE HEATING VALVE FULLY CLOSED. USE 5 DEG. F (ADJUSTABLE) DEADBAND BETWEEN HEATING AND COOLING SETPOINTS.
2. UNOCCUPIED MODE:
   a. SUPPLY FAN AND ASSOCIATED EXHAUST FAN SHALL BE OFF.
   b. THE OUTSIDE AIR DAMPER AND ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED.
   c. WHERE SPACE HAS FINNED TUBE RADIATION, RADIATION SHALL PROVIDE FIRST STAGE UNOCCUPIED HEATING.
   d. ON DROP IN SPACE TEMPERATURE BELOW THE UNOCCUPIED SETPOINT, CYCLE THE FAN ON AND COIL CONTROL VALVE FULL OPEN AS REQUIRED TO MAINTAIN REDUCED SPACE TEMPERATURE. USE 5 DEG. F (ADJUSTABLE) DEADBAND AS REQUIRED TO MINIMIZE SHORT CYCLING.
   e. A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO OCCUPIED MODE FOR 1 HOUR (ADJUSTABLE). AT EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.
3. WARM-UP MODE:
   a. THE UNIT SHALL START PER AN OPTIMUM START PROGRAM.
   b. THE OUTSIDE AIR DAMPER AND ASSOCIATED RELIEF HOOD DAMPER SHALL BE FULLY CLOSED, AND THE ASSOCIATED EXHAUST FAN SHALL BE OFF.
   c. THE SUPPLY FAN SHALL RUN AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN OCCUPIED SETPOINT.
4. PURGE VENTILATION MODE:
   a. PROVIDE GLOBAL INITIATION OF PURGE VENTILATION MODE AT THE OPERATOR'S WORKSTATION SUCH THAT ONE INITIATION STARTS OR STOPS PURGE VENTILATION MODE FOR ALL EQUIPMENT SO PROGRAMMED. PROVIDE FOR GLOBAL ADJUSTMENT OF THE BELOW DESCRIBED SCHEDULING AND PERCENTAGE VENTILATION CHANGES, AND ALSO FOR LOCAL ADJUSTMENT AWAY FROM GLOBAL SETPOINTS. IF GLOBAL SETPOINTS ARE SUBSEQUENTLY RE-ADJUSTED, PROVIDE WARNING WITH A LIST OF UNITS WITH LOCAL OVERRIDES, BUT DO NOT RE-ADJUST LOCAL OVER-RIDE SETPOINTS GLOBALLY.
   b. PROVIDE A PURGE VENTILATION MODE WITH INCREASED VENTILATION AS POSSIBLE WITHIN THE LIMITS OF THE EQUIPMENT. OPERATE WITH ALL THREE MODES DESCRIBED ABOVE WITH THE FOLLOWING MODIFICATIONS TO THE OCCUPIED PERIOD.
   c. START OCCUPIED VENTILATION MODE 1 HOUR (ADJ) EARLIER AND END IT 4 HOURS (ADJ) LATER.
   d. INCREASE VENTILATION AS POSSIBLE BY 100% (ADJ) WHERE 0% INCREASE IS THE MINIMUM VENTILATION DESCRIBED ABOVE AND 100% IS 100% OUTSIDE AIR WITH NO RETURN AIR.
   e. MAINTAIN OCCUPIED SPACE TEMPERATURE AND INCREASED VENTILATION AS POSSIBLE WITHIN HEATING CAPACITY CONSTRAINTS OF LOCAL AND PLANT HEATING CAPACITY. IF SPACE TEMPERATURE DROPS MORE THAN 2 DEG. F (ADJ) BELOW SPACE HEATING SETPOINT WITH THE HEATING VALVE 100% OPEN, MODULATE VENTILATION RATE BACK TO MINIMUM SPECIFIED VENTILATION RATE DESCRIBED ABOVE WITH HEATING VALVE AT 100% OPEN.
5. SAFETIES:
   a. A SEPARATE LOW LIMIT FREEZE STAT WITH AUTOMATIC RESET SHALL BE INSTALLED WITH SENSING ELEMENT SERPENTINED ACROSS THE FACE OF THE COIL; WHENEVER COIL FREEZE-UP CONDITIONS ARISE (36 DEG. F ADJUSTABLE) THE SUPPLY FAN SHALL STOP. THE OUTSIDE AIR DAMPER SHALL CLOSE 100%, AND CONTROL VALVE SHALL OPEN 100%. AN ALARM SHALL ALSO BE ACTIVATED.
   b. WHERE CONDENSATE PUMP IS PROVIDED, INTERLOCK WIRING SHALL DISABLE CONDENSING UNIT WHEN CONDENSATE PUMP HAS FAILED OR ITS OVERFLOW SWITCH IS TRIPPED.
   c. UPON FAILURE OF THE FAN, AS SENSED BY THE CURRENT SENSING STATUS SWITCH, ACTIVATE AN ALARM.

12 UV - Hot Water - Valve Control and DX Cooling
NTS



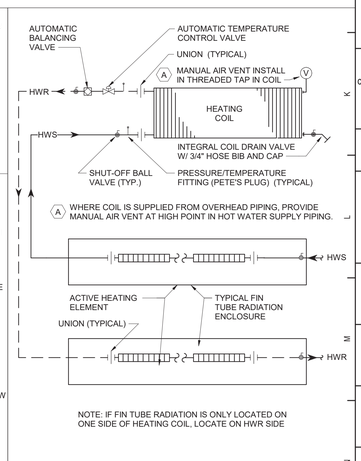
NOTE: COORDINATE INSTALLATION OF SLEEVE, LOUVER, AND UV WITH WALL.

10 Floor Mounted Unit Ventilator
NTS



NOTE: SLEEVE WIDTH = WALL DEPTH MINUS LOUVER DEPTH MINUS 3/8".

7 Floor Mounted Fan Coil Unit
NTS



NOTE: IF FIN TUBE RADIATION IS ONLY LOCATED ON ONE SIDE OF HEATING COIL, LOCATE ON HWR SIDE

3 FCU/UV Hot Water With FTR Piping Schematic
NTS

TEMPERATURE CONTROLS SYMBOLS LIST

AI	ANALOG IN
AO	ANALOG OUT
COM	COMMUNICATIONS PORT
CS	AIRBORNE CONTAMINANT SENSOR
DI	DIGITAL IN
	DAMPER MOTOR
DO	DIGITAL OUT
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
F	FLOW (WATER/AIR)
FM	FLOW METER
FS	AIR FLOW SENSOR
FZ	FREEZE STAT
H	HUMIDITY SENSOR
HL	HIGH LIMIT
KWH	KILOWATT HOUR METER
LL	LOW LIMIT
M/S	MANUAL SWITCH STOP / START
P	PRESSURE SENSOR
ΔP	DIFFERENTIAL PRESSURE
PS	POSITION SENSOR
S/S	STOP / START
SD	SMOKE DETECTOR
ST	STATUS
START	STARTER
T	ADJUSTABLE THERMOSTAT
TS	TEMPERATURE SENSOR
VFD	VARIABLE FREQUENCY DRIVE
WS	WATER SENSOR
%	PERCENT
ES	END SWITCH
BS	BOILER SWITCH

S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT — WHERE EXCELLENCE IS THE STANDARD

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BID SET

Tetra Tech Engineers, Architects & Landscape Architects, P.C.

TETRA TECH ARCHITECTS & ENGINEERS

Beacon City School District
Beacon, New York

Additions and Alterations to:
Glenham Elementary School

Details and Controls

Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM500
Project No.: 279180-22004		

UNIT VENTILATOR (UV) SCHEDULE

DWG LABEL	LOCATION	MODEL NO.	SA CFM	MIN. OA	HEATING DATA				HW COIL		COOLING DATA							ESP (IN. WG.)	RPM	ELECTRICAL						NOTES
					NO. ROW	EAT (°F)	LAT (°F)	CAP. (MBH)	GPM	WPD (FT HD)	NO. ROWS	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	TC (MBH)	SC (MBH)			MOTOR QTY	MOTOR SIZE (HP)	V/PH	FLA	MCA	MOP	
UV-B-1	PRE-K 1	VUVE150	1130	510	2	40.9	110.0	91.4	4.6	4.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-2	KINDERGARTEN 2	VUVE125	990	330	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-3	PRE-K 3	VUVE125	990	330	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-4	KINDERGARTEN 4	VUVE125	990	330	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-5	KINDERGARTEN 5	VUVE125	990	340	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-6	KINDERGARTEN 6	VUVE150	1130	510	2	40.9	110.0	91.4	4.6	4.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-7	CLASSRM. 7	VUVE125	990	380	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-8	CLASSRM. 8	VUVE125	990	350	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-9	CLASSRM. 9	VUVE125	990	380	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-10	CLASSRM. 10	VUVE125	990	350	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-11	SPECIAL ED. 11	VUVE125	990	390	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-12	CLASSRM. 12	VUVE125	990	350	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-13	ART 13	VUVE150	990	400	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-14	CLASSRM. 14	VUVE125	990	350	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-15	CLASSRM. 15	VUVE125	990	360	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-16	CLASSRM. 16	VUVE125	990	370	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-17	CLASSRM. 17	VUVE125	990	350	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-18	CLASSRM. 18	VUVE125	990	360	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-11
UV-B-19	CLASSRM. 19	VUVE125	990	380	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-9,11
UV-B-20	CLASSRM. 20	VUVE125	990	390	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-9,11
UV-B-21	SPEECH 21	VUVE125	990	390	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-9,11
UV-B-22	MUSIC CLASSRM. 22	VUVE125	990	380	2	40.0	110.0	77.1	3.9	2.3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-9,11
UV-B-137	LIBRARY 137	VUVE150	1130	520	2	40.9	110.0	91.4	4.6	4.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1120	2	0.25	120V/1ø	7.0	9.0	15	1,2,4,6-9,11
UV-B-E10	OT/PT E10	VUVE075	600	270	2	40.0	110.0	48.2	2.4	1.1	3	80.0	67.0	53.8	51.3	28.1	17.2	0.00	1110	1	0.25	120V/1ø	3.5	4.5	15	1-8, 10,11
UV-B-E16	FACULTY E16	VUVE075	600	160	2	51.2	110.0	43.7	2.2	1.0	3	80.0	67.0	53.8	51.3	28.1	17.2	0.00	1110	1	0.25	120V/1ø	3.5	4.5	15	1-8,11
UV-B-E18	SPEECH E18	VUVE075	450	140	2	43.5	110.0	39.8	2.0	0.9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	730	1	0.25	120V/1ø	3.5	4.5	15	1,2,4,6-11

NOTES:
1. DESIGN BASIS: TRANE
2. FLOOR MOUNTED UNIT
3. PROVIDE 1" MERV8 FILTERS.
4. HOT WATER COIL CONDITIONS: EWT=160°F, LWT=120°F
5. DX COIL CONDITIONS: SUCTION TEMP=45°F, LIQUID TEMP=110°F
6. VERIFY PIPE AND ELECTRICAL LEFT/RIGHT HAND CONNECTIONS PRIOR TO ORDERING.
7. UNIT 21-1/4" DEEP W/CLOSED PIPE TUNNEL.
8. NEMA 1 DISCONNECT SWITCH.
9. PROVIDE 1" MERV13 FILTER.
10. PROVIDE LOUVER AND WALL SLEEVE TO MATCH EXISTING WALL OPENING.
11. ADJUST UV FAN SPEED TO PROVIDE SCHEDULED SUPPLY AIR QUANTITY.

REMOTE CONDENSING UNIT (RCU) SCHEDULE

DWG LABEL	LOCATION	SERVES	MODEL NO.	REFRIG.	SUCTION (°F)	LIQUID (°F)	SUCTION SIZE	LIQUID SIZE	NOMINAL CAPACITY	COOLING CAPACITY	COMPRESSOR QTY & TYPE	FAN CONDENSER QTY & DRIVE TYPE	ELECTRICAL				NET WEIGHT (LBS)	NOTES
													EER	MCA	MOP	V/PH		
RCU-1	GROUND	UV-B-E10	4TTR4030	R-410A	45	110	3/8"	3/4"	2.5 TONS	30000 Btu/h	1 SCROLL	1 DIRECT	12.2	17.0	25	208 V/2ø	160	1-9
RCU-2	GROUND	UV-B-E16	4TTR4030	R-410A	45	110	3/8"	3/4"	2.5 TONS	30000 Btu/h	1 SCROLL	1 DIRECT	12.2	17.0	25	208 V/1ø	160	1-9

NOTES:
1. DESIGN BASIS: TRANE
2. PROVIDE MOTOR STARTER AND NEMA 3R DISCONNECT.
3. PROVIDE DEFROST CONTROLS.
4. PROVIDE LOW AMBIENT OPERATION BELOW 60°F.
5. PROVIDE INTERNAL THERMAL PROTECTION.
6. PROVIDE BRAZED TUBING REFRIGERANT LINE SETS AND COUPLINGS.
7. FIELD CHARGE REFRIGERANT FOR SUPPLY LINE, CONDENSER AND COILS.
8. VERIFY LINE SIZES WITH MANUFACTURER.
9. PROVIDE 4" CONCRETE PAD.

FAN COIL UNIT (FCU) SCHEDULE

DWG LABEL	LOCATION	MODEL NO.	SA CFM	MIN. OA	HEATING DATA				HW COIL		SUPPLY FAN		ELECTRICAL					NOTES
					NO. ROW	EAT (°F)	LAT (°F)	CAP. (MBH)	GPM	WPD (FT HD)	ESP (IN. WG.)	RPM	MOTOR SIZE (HP)	V/PH	FLA	MCA	MOP	
FCU-138	WORK 138	FCDB020	350	30	2	63.0	108.6	17.3	0.9	0.9	0.00	1280	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-B-V2	VISITOR VEST V2	FCDB020	200	0	2	60.0	111.8	11.2	0.6	0.4	0.00	800	0.13	120V/1ø	2.2	2.8	15	1,3-8
FCU-E2	OFFICE E2	FCDB020	350	30	2	63.0	108.6	17.3	0.9	0.9	0.00	1280	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E4	CONFERENCE E4	FCDB020	250	70	2	51.5	109.7	15.8	0.8	0.7	0.00	960	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E5	NURSE E5	FCDB020	300	30	2	62.1	110.4	15.7	0.8	0.7	0.00	1120	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E8	CONF. E8	FCDB020	250	70	2	51.5	109.7	15.8	0.8	0.7	0.00	960	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E13	BOOKS E13	FCDB020	200	20	2	62.1	113.9	11.2	0.6	0.4	0.00	800	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E14	PSYC. E14	FCDB020	200	20	2	62.1	113.9	11.2	0.6	0.4	0.00	800	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E15	S.W. E15	FCDB020	200	20	2	62.1	113.9	11.2	0.6	0.4	0.00	800	0.13	120V/1ø	2.2	2.8	15	1-7
FCU-E28	PRINC. E28	FCDB020	200	50	2	53.3	105.1	11.2	0.6	0.4	0.00	800	0.13	120V/1ø	2.2	2.8	15	1-7

NOTES:
1. DESIGN BASIS: TRANE
2. VERTICAL CABINET UNIT
3. HOT WATER COIL CONDITIONS: EWT=160°F, LWT=120°F
4. PROVIDE 1" MERV13 FILTER.
5. VERIFY PIPE AND ELECTRICAL LEFT/RIGHT HAND CONNECTIONS PRIOR TO ORDERING.
6. PROVIDE RETURN AIR BOTTOM INLET TOP GRILLE OUTLET AND OUTSIDE AIR WALL BOX..
7. PROVIDE NEMA 1 DISCONNECT SWITCH.
8. CEILING CABINET UNIT.

LOUVER (L) SCHEDULE

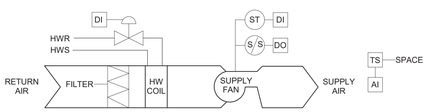
DWG LABEL	SERVES	MODEL NO.	TYPE	LENGTH (IN)	HEIGHT (IN)	DEPTH (IN)	FREE AREA (S.F.)	AIRFLOW (CFM)	VELOCITY (FPM)	MAX APD (IN WG)	NOTES
L-C-1	EXISTING AHU	ESD-635	INTAKE	72	26	6	6.00	4500	750	0.08	1-5

NOTES:
1. DESIGN BASIS: GREENHECK
2. PROVIDE WITH KYNAR FINISH.
3. COLOR TO BE SELECTED BY ARCHITECT.
4. PROVIDE WITH EXTENDED SILL.
5. PROVIDE WITH ALUMINUM BIRDSCREEN IN REMOVABLE FRAME.

GLENHAM BUILDING/EQUIPMENT VENTILATION CALCULATIONS

EQUIPMENT NUMBER	ZONE ID				MINIMUM VENTILATION RATES							
	ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	Az - AREA (SF)	Pz - ZONE OCCU. #/1000 FT	ZONE OCCU.	Rp (CFM/ Person)	RpP	Ra (CFM/SF)	RaA	Vbz (CFM)	EZ	Voz (CFM)
UV	1	PRE-K	CLASSROOMS (AGE 9 PLUS)	1071	35	38	10	380	0.12	129	509	0.9	570
UV	2	KINDERGARTEN	CLASSROOMS (AGE 9 PLUS)	705	35	25	10	250	0.12	85	335	0.9	370
UV	3	PRE-K	CLASSROOMS (AGE 9 PLUS)	691	35	25	10	250	0.12	83	333	0.9	370
UV	4	KINDERGARTEN	CLASSROOMS (AGE 9 PLUS)	706	35	25	10	250	0.12	85	335	0.9	370
UV	5	KINDERGARTEN	CLASSROOMS (AGE 9 PLUS)	710	35	25	10	250	0.12	85	335	0.9	370
UV	6	KINDERGARTEN	CLASSROOMS (AGE 9 PLUS)	1078	35	38	10	380	0.12	129	509	0.9	570
UV	7	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	803	35	29	10	290	0.12	96	386	0.9	430
UV	8	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	745	35	27	10	270	0.12	89	359	0.9	400
UV	9	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	795	35	28	10	280	0.12	95	375	0.9	420
UV	10	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	731	35	26	10	260	0.12	88	348	0.9	390
UV	11	SPECIAL ED.	CLASSROOMS (AGE 9 PLUS)	815	35	29	10	290	0.12	98	388	0.9	430
UV	12	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	733	35	26	10	260	0.12	88	348	0.9	390
UV	13	ART	ART CLASSROOM	841	20	17	10	170	0.18	151	321	0.9	360
UV	14	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	735	35	26	10	260	0.12	88	348	0.9	390
UV	15	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	769	35	27	10	270	0.12	92	362	0.9	400
UV	16	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	776	35	28	10	280	0.12	93	373	0.9	410
UV	17	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	743	35	27	10	270	0.12	89	359	0.9	400
UV	E18	SPEECH	CLASSROOMS (AGE 9 PLUS)	296	35	11	10	110	0.12	36	146	0.9	160
UV	18	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	759	35	27	10	270	0.12	91	361	0.9	400
UV	19	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	799	35	28	10	280	0.12	96	376	0.9	420
UV	20	CLASSRM.	CLASSROOMS (AGE 9 PLUS)	831	35	30	10	300	0.12	100	400	0.9	440
UV	21	SPEECH	CLASSROOMS (AGE 9 PLUS)	821	35	29	10	290	0.12	99	389	0.9	430
UV	22	MUSIC CLASSRM.	CLASSROOMS (AGE 9 PLUS)	812	35	29	10	290	0.12	97	387	0.9	430
FCU	E2	OFFICE	OFFICE SPACE	352	5	2	5	10	0.06	21	31	0.9	30
FCU	E4	CONF.	CONFERENCE/MEETING	198	50	10	5	50	0.06	12	62	0.9	70
FCU	E5	NURSE	OFFICE SPACE	282	5	2	5	10	0.06	17	27	0.9	30
	E6	ATTENDANCE OFFICE	OFFICE SPACE	82	5	1	5	5	0.06	5	10	0.9	10
FCU	E8	CONF.	CONFERENCE/MEETING	197	50	10	5	50	0.06	12	62	0.9	70
UV	E10	OT/PT	CLASSROOMS (AGE 9 PLUS)	565	35	20	10	200	0.12	68	268	0.9	300
FCU	E13	BOOKS	OFFICE SPACE	184	5	1	5	5	0.06	11	16	0.9	20
FCU	E14	PSYC.	OFFICE SPACE	182	5	1	5	5	0.06	11	16	0.9	20
FCU	E15	S.W.	OFFICE SPACE	179	5	1	5	5	0.06	11	16	0.9	20
UV	E16	FACULTY	BREAKROOMS	424	50	22	5	110	0.12	51	161	0.9	180
UV	E17	LIBRARY	CLASSROOMS (AGE 9 PLUS)	1093	35	39	10	390	0.12	131	521	0.9	580
FCU	138	WORK	OFFICE SPACE	146	5	1	5	5	0.06	9	14	0.9	20
FCU	E28	PRINC.	CONFERENCE/MEETING	143	50	8	5	40	0.06	9	49	0.9	50

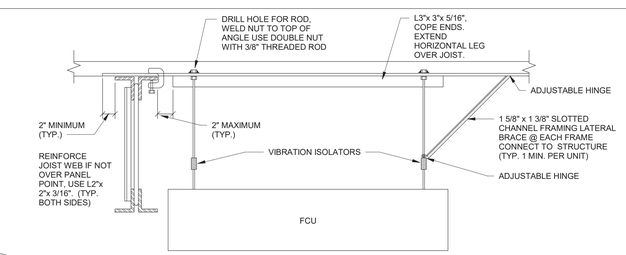
NOTES:
Rp = PEOPLE OUTDOOR AIR RATE, Ra = AREA OUTDOOR AIR RATE, Vbz = BREATHING ZONE OUTDOOR AIRFLOW ,
Ez = AIR DISTRIBUTION CONFIGURATION, Voz = ZONE OUTDOOR AIRFLOW



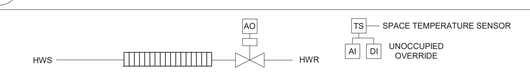
FAN COIL UNIT - HOT WATER - NO OUTSIDE AIR - VALVE CONTROL - SEQUENCE OF OPERATIONS:

1. OCCUPIED MODE:
   a. ON DROP IN SPACE TEMPERATURE BELOW OCCUPIED HEATING SETPOINT, CYCLE THE FAN ON AND OPEN CONTROL VALVE FULL TO MAINTAIN SPACE OCCUPIED SETPOINT, FAN SHALL HAVE DELAYED SHUT OFF AFTER VALVE CLOSES. USE 5 DEG. F (ADJUSTABLE) DEADBAND TO MINIMIZE SHORT CYCLING.
2. UNOCCUPIED MODE:
   a. ON DROP IN SPACE TEMPERATURE BELOW UNOCCUPIED HEATING SETPOINT, CYCLE THE FAN ON AND OPEN CONTROL VALVE FULL TO MAINTAIN SPACE UNOCCUPIED SETPOINT, FAN SHALL HAVE A DELAYED SHUT OFF AFTER VALVE CLOSES. USE 5 DEG. F (ADJUSTABLE) DEADBAND TO MINIMIZE SHORT CYCLING.
3. SAFETIES:
   a. PROVIDE CURRENT SENSOR TO SENSE THE STATUS OF THE FANS. WHEN FAN MOTOR AMP DRAW IS OUT OF NORMAL RANGE, GENERATE AN ALARM AT THE OWS.

3 Fan Coil Unit - Hot Water - Valve Control
NTS



1 Light Equipment Hanging Detail
NTS



FIN TUBE RADIATION - HOT WATER - WITH 2-WAY CONTROL VALVE - SEQUENCE OF OPERATIONS:

1. OCCUPIED MODE:
   a. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE OCCUPIED HEATING SETPOINT, THE CONTROL VALVE SHALL OPEN 100% TO MAINTAIN OCCUPIED SPACE SETPOINT.
2. UNOCCUPIED MODE:
   a. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE UNOCCUPIED HEATING SETPOINT, THE CONTROL VALVE SHALL OPEN 100% TO MAINTAIN UNOCCUPIED SPACE SETPOINT.
3. WARM-UP MODE:
   a. WHEN THE SPACE TEMPERATURE IS AT OR BELOW THE OCCUPIED HEATING SETPOINT, THE CONTROL VALVE SHALL OPEN 100% TO MAINTAIN OCCUPIED SPACE SETPOINT.
4. SAFETIES:
   a. IF THE SPACE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 10 DEG. F (ADJUSTABLE), THE CONTROL VALVE SHALL OPEN 100%. AN ALARM SHALL BE ACTIVATED.

2 Fin Tube Radiation - Hot Water - 2-Way Control Valve
NTS

S.E.D. Control No. 13-02-00-01-0-006-022

Rev. No.:	Date:	Description:

BEACON CITY SCHOOL DISTRICT — WHERE EXCELLENCE IS THE STANDARD

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Tetra Tech Engineers, Architects & Landscape Architects, P.C.

BID SET

TETRA TECH ARCHITECTS & ENGINEERS

Beacon City School District
Beacon, New York

Additions and Alterations to:
Glenham Elementary School

Schedules, Details and Controls

Drawn By:	Date:	Drawing Number:
JPF1/pgm	10/28/2022	BM600
Project No.: 279180-22004		