CONTROLS LEGEND

- D — DIGITAL INPUT
- D — DIGITAL OUTPUT
- A — ANALOG INPUT
- A — ANALOG OUTPUT
- M — MOTOR OPERATOR / MOTORIZED DAMPER
- DP — DIFFERENTIAL PRESSURE SENSOR
- SP — STATIC PRESSURE SENSOR
- S/S — START/STOP
- NG — NATURAL GAS DETECTOR
- T — SPACE DRY BULB TEMPERATURE SENSOR
- T — COMBINATION SPACE DRY BULB TEMPERATURE SENSOR WITH RELATIVE HUMIDITY SENSOR INCLUDED
- H — RELATIVE HUMIDITY SENSOR
- H — WALL MOUNTED HUMIDITY SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- CO — CARBON MONOXIDE DETECTOR
- M — MOTORIZED DAMPER
- ST — STARTER
- VFD — VARIABLE FREQUENCY DRIVE
- ECM — ELECTRICALLY COMMUTATED MOTOR INTERFACE BOARD
- AMS — AIR MEASURING STATION
- CS — CURRENT SENSOR
- ES — END SWITCH
- OS — OCCUPANCY SENSOR
- PS — PRESSURE SENSOR
- SP — STATIC PRESSURE SENSOR
- H — HUMIDITY
- SD — SMOKE DETECTOR
- R — RELAY
- T — ELECTRIC THERMOSTAT DUCT MOUNTED
- F — AIRFLOW SENSOR
- A — ALARM
- T — TREND
- RT — RUN TIME
- T — TEMPERATURE SENSOR SINGLE POINT
- T — TEMPERATURE SENSOR AVERAGING SENSING ELEMENT
- M — 2-WAY CONTROL VALVE ELECTRIC ACTUATOR
- M — 3-WAY CONTROL VALVE ELECTRIC ACTUATOR

DOUBLE LINE SYMBOLS LEGEND

- SUPPLY DIFFUSER
- RETURN DIFFUSER
- SQUARE-THROATED ELBOW WITH TURNING VANES
- DS-X — ELBOW STYLE DUCT SILENCER
- DS-X — STRAIGHT DUCT STYLE DUCT SILENCER
- R / R — DUCTWORK RADIUS ELBOW
- F/S — COMBINATION FIRE/SMOKE DAMPER
- F — FIRE DAMPER
- M — MOTORIZED DAMPER
- FLEXIBLE SUPPLY AIR DUCTWORK MAXIMUM 3-FOOT LENGTH
- VOLUME DAMPER
- RETURN AIR RISE
- EXHAUST AIR RISE
- SUPPLY AIR RISE
- X — KEYED NOTE DESIGNATION TAG

SINGLE LINE SYMBOLS LEGEND

- HWS — HEATING WATER SUPPLY PIPING
- HWR — HEATING WATER RETURN PIPING
- COND — COOLING COIL CONDENSATE PIPING
- RL — REFRIGERANT LIQUID PIPING
- RS — REFRIGERANT SUCTION PIPING
- ST — STEAM PIPING
- SC — STEAM CONDENSATE PIPING
- 90 DEGREE PIPE ELBOW DOWN
- PIPE RISER UP SYMBOL
- MID-PIPE DOWN
- PIPE CAP
- PIPE BREAK
- X — PIPE GUIDE
- UNION
- FLOW DIRECTION
- PIPING/DUCTWORK/EQUIPMENT REMOVALS
- CHECK VALVE
- SHUTOFF BALL VALVE
- S — SOLENOID VALVE
- 2-WAY CONTROL VALVE
- 3-WAY MODULATING CONTROL VALVE
- GATE VALVE CIRCUIT SETTER BALANCING VALVE - 2-1/2" SIZE AND UP
- CALIBRATED BALANCE VALVE CIRCUIT SETTER BALANCING VALVE - 2" SIZE AND BELOW
- PRESSURE REDUCING VALVE
- 3-WAY CONTROL VALVE
- OR — BUTTERFLY VALVE
- RELIEF VALVE
- PRESSURE RELIEF VALVE
- AUTOMATIC AIR VENT
- PUMP
- OR — PRESSURE GAGE
- OR — STRAINER
- OR — THERMOMETER
- POINT OF CONNECTION
- POINT OF DISCONNECTION

ABBREVIATIONS LEGEND

AC	AIR CONDITIONER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLER UNIT
APD	AIR PRESSURE DROP
AS	AIR SEPARATOR
ATS	AIR TRANSFER SLEEVE
AVG	AVERAGE SPACE TEMPERATURE
BC	BLOWER COIL
BHP	BRAKE HORSEPOWER
BTM	BOTTOM
BTUH	BRITISH THERMAL UNITS/HOUR
BTU/H/LF	BRITISH THERMAL UNIT/HOUR/ LINEAR FOOT
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CO	CARBON MONOXIDE SENSOR
COND.	CONDENSATE PIPING
CONT.	CONTINUATION
CP	STEAM CONDENSATE PUMP/RECEIVER SET
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CV	CONVECTOR
cV	VALVE COEFFICIENT
D	DIFFUSER
DB	DRY BULB
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROL
DEG. F	DEGREES FAHRENHEIT
DHWR	DOMESTIC HOT WATER RETURN
DIA	DIAMETER
DN	DOWN
DS	DUCT SILENCER
DWDI	DUAL WIDTH, DUAL INLET
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
E.C.	EXPANSION COMPENSATOR
EDB	ENTERING DRY BULB
EDR	EQUIVALENT DIRECT RADIATION
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EHC	IN-DUCT ELECTRIC HEATING COIL
EL	EXPANSION LOOP
ER	EXHAUST REGISTER
ERV	STATIC PLATE ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EVAV	EXHAUST VARIABLE AIR VOLUME BOX
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
F	FAN
°F	FAHRENHEIT
FC	FORWARD CURVED
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FEI	FAN EFFICIENCY INDEX
FLA	FULL LOAD AMPS
FLR	FLOOR
FO	FLAT OVAL
FPM	FEET PER MINUTE
FSD	FIRE SMOKE DAMPER
FT	FIN TUBE
FT. OR '	FEET
F.T.R.	FIN TUBE RADIATION
G	GRILLE
GAL	GALLON
GPM	GALLONS PER MINUTE
GRV	GRAVITY RELIEF VENTILATOR
H	HOOD
HP	HORSEPOWER
HPSF	HEAT PUMP SEASONAL PERFORMANCE FACTOR
H&V	HEATING AND VENTILATION
HW	DOMESTIC HOT WATER
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
IN OR "	INCHES
INT	INTERNAL
KEF	KITCHEN EXHAUST FAN
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LDB	LEAVING DRY BULB
LF	LINEAR FOOT
LMTD	LOGARITHMIC MEAN TEMPERATURE DIFFERENCE
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MC	MOTOR CONTROLLER
MCA	MINIMUM CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MH	MOUNTING HEIGHT
MD	MOTORIZED DAMPER
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
MFG	MANUFACTURER
NG	NATURAL GAS
NO	NORMALLY OPEN
NOL	NON OVER LOADING
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DAMPER
OED	OPEN END DUCT
OS&Y	OPEN STEM & YOKE
P	PUMP
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PG	PROPYLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
R	HEATING WATER RADIATION UNIT
RA	RETURN AIR
RAC	ROOFTOP AIR CONDITIONER
RD	RETURN DIFFUSER
RF	RELIEF FAN
RH	RELATIVE HUMIDITY
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RP	HYDRONIC RADIANT HEAT PANEL
RPZ	REDUCED PRESSURE ZONE ASSEMBLY
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SC	STEAM CONDENSATE PIPING
SF	SQUARE FOOT
SD	SUPPLY DIFFUSER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SP	STATIC PRESSURE
SPS	STATIC PRESSURE SENSOR
SR	SHORT RADIUS
SS	STAINLESS STEEL
ST	STEAM PIPING
SWSI	SINGLE WIDTH SINGLE INLET
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TR	DUCTWORK TRANSITION
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
W	WIDTH
WB	WET BULB
WC	WATER COLUMN
WPD	WATER PRESSURE DROP
WTD	WATER TEMPERATURE DROP
WH	WATER HEATER

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

STATE OF NEW YORK — JOHN VENDITTI — 082994 — LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 11/30/2023

NANUET

NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: 12" = 1'-0"

SHEET NAME:
HVAC SYMBOLS, LEGENDS AND ABBREVIATIONS

SHEET NUMBER:

HS-M001

ISSUE FOR BID SET

DRAWN BY: Author
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UNIT HEATER SCHEDULE

Mark	LOCATION	CFM	FAN MOTORS RPM	FAN MOTORS VOLTS	FAN MOTORS PH	WATTS	CAPACITY	TEMP EWT	TEMP LWT	WPD (FT)	GPM	BASIS OF DESIGN MANUFACTURER AND MODEL	REMARKS
UH-HS-1	MECH 240 (BASEMENT)	245	1550	115	1	16	8,030 Btu/h	180 °F	160.0 °F	0.80	0.80	STERLING HS-108A	

HEATING COIL SCHEDULE

1. FIN MATERIAL SHALL BE ALUMINUM, COPPER TUBE, 0.020" THICK.
2. FIN MATERIAL SHALL BE ALUMINUM, COPPER TUBE, 0.016" THICK.

Mark	SUPPLY AIRFLOW	SIZE HEIGHT	SIZE LENGTH	FLUID TYPE	CAPACITY HEATING	TEMPERATURE EWT	TEMPERATURE LWT	FLOW	PRESSURE DROP HEATING	TEMPERATURE EAT	TEMPERATURE LAT	AIR PRESSURE DROP	FACE VELOCITY	COIL FINS PER FOOT	COIL ROWS	VOLUME	BASIS OF DESIGN MFG. AND MODEL	REMARKS
HC-HS-2	4,500 CFM	29 in	54 in	WATER	427,844 Btu/h	180 °F	150 °F	28.5 GPM	16.40 Feet	8.0 °F	94.9 °F	0.430 in-wg	667 FPM	108	3	3.00 gal	DAIKIN 5WQ0903B	1
HC-HS-3	7,000 CFM	33 in	59 in	WATER	303,660 Btu/h	180 °F	150 °F	20.23 GPM	2.25 Feet	50.0 °F	90.0 °F	0.105 in-wg	518 FPM	134	1	2.43 gal	TRANE D5WB33059G0AA1348ABA0A	2
HC-HS-4	4,500 CFM	27 in	51 in	WATER	400,180 Btu/h	180 °F	150 °F	26.66 GPM	2.05 Feet	8.0 °F	90.0 °F	0.147 in-wg	467 FPM	124	2	2.35 gal	TRANE DUWB27051G0BA124CAABOOA	2

DIFFUSER, REGISTER AND GRILLE SCHEDULE

1. PROVIDE WITH COATED STEEL OPPOSED BLADE DAMPER.
2. THE DIFFUSER BACK PAN SHALL BE EXTERNALLY INSULATED WITH A MOLDED HEAVY DUTY FOIL/SCRIM VAPOR BARRIER WITH AN R-VALUE OF SIX. THE INSULATION SHALL MEET THE REQUIREMENTS OF UL181 AND NFPA 90A.

Mark	DESCRIPTION/PATTERN	OVERALL SIZE	DUCT CONNECTION SIZE	MOUNTING	MATERIAL	BASIS OF DESIGN MANUFACTURER AND MODEL	REMARKS
ER-HS-4	45° DEFLECTION AND 3/4 IN. BLADE SPACING		48"x8"	WALL	STEEL	PRICE 530	
RR-HS-1	45° DEFLECTION AND 3/4 IN. BLADE SPACING		20"x28"	SURFACE	STEEL	PRICE 530	
SD-HS-7	SPIRAL DUCT MOUNTED, DOUBLE DEFLECTION, 3/4" BLADE SPACING SUPPLY REGISTER		20"x10"	SPIRAL DUCT	EXTRUDED ALUMINUM	PRICE SDGE	1
SD-HS-8	SPIRAL DUCT MOUNTED, DOUBLE DEFLECTION, 3/4" BLADE SPACING SUPPLY REGISTER		16"x4"	SPIRAL DUCT	EXTRUDED ALUMINUM	PRICE SDGE	1
SD-HS-9	Modular Louvered Face Diffuser	19-3/4"x19-3/4"	10"ø	SURFACE	STEEL	PRICE SMD	2

DUCT SILENCER SCHEDULE

1. SHALL BE A STRAIGHT DISSIPATIVE SILENCER.
2. SHALL BE A RECTANGULAR, ELBOW, DISSIPATIVE SILENCER.
3. SHALL BE A ROUND DISSIPATIVE SILENCER

Mark	LENGTH	HEIGHT	WIDTH	SIZE DIAMETER	LEG A	LEG B	AIRFLOW	VELOCITY	AIR PRESSURE DROP (IN WG)	Description	OCTAVE BAND DYNAMIC INSERTION LOSS (dB) 63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	BASIS OF DESIGN MFG. AND MODEL	REMARKS
DS-HS-5	3' - 0"			18 in			2,500 CFM	1,415 FPM	0.07	Circular Medium Velocity - Absorptive Silencer	4	6	14	26	35	36	27	19	Price Industries CS	3
DS-HS-6	3' - 0"			20 in			2,620 CFM	1,201 FPM	0.09	Circular Medium Velocity - Absorptive Silencer	4	7	15	27	39	41	31	22	Price Industries CS	3
DS-HS-7	4' - 6"	20 in	36 in		45"	45"	5,650 CFM	-1,130 FPM	0.08	Elbow Medium Velocity - Absorptive Silencer	6	10	17	22	27	25	21	18	Price Industries ERM54/3A	2
DS-HS-8	4' - 6"	20 in	36 in		45"	45"	6,300 CFM	-1,260 FPM	0.14	Elbow Medium Velocity - Absorptive Silencer	7	12	20	26	32	29	24	21	Price Industries ERM54/3B	2
DS-HS-9	3' - 0"	20 in	34 in				5,650 CFM	1,196 FPM	0.06	Rectangular High Velocity - Absorptive Silencer	3	5	8	13	10	8	7	5	Price Industries RH36/7A	1
DS-HS-10	4' - 0"	20 in	38 in				6,300 CFM	1,194 FPM	0.09	Rectangular High Velocity - Absorptive Silencer	4	7	10	16	11	10	8	6	Price Industries RH48/WC	1

CONDENSATE PUMP SCHEDULE

Mark	TYPE	CAPACITY SQ. FT. EDR	FLOW	DISCHARGE PRESSURE	RPM	SUCTION X DISCHARGE (IN. X IN.)	FLUID TYPE	RECEIVER CAPACITY	ELECTRICAL DATA HP	ELECTRICAL DATA VOLTS	ELECTRICAL DATA PH	BASIS OF DESIGN MFG. AND MODEL	REMARKS
CP-HS-2	DUPLEX STEEL CONDENSATE UNIT	30,000	45.0 GPM	40 psig	3,500	3"x1-1/2"	STEAM CONDENSATE	45.0 gal	2	208	3	SHIPCO DS	

SHELL AND TUBE HEAT EXCHANGER SCHEDULE

1. TUBE MATERIAL SHALL BE COPPER. SHELL MATERIAL SHALL BE STEEL. HEAD MATERIAL SHALL BE CAST IRON.

Mark	TYPE	LOCATION	TOTAL HEAT EXCHANGED (MBH)	SHELL DIAMETER	BUNDLE LENGTH	HIGH TEMPERATURE SIDE - SHELL FLUID	STEAM INLET PRESSURE	FLOW RATE (POUNDS PER HOUR)	INLET TEMPERATURE	PRESSURE DROP	LOW TEMPERATURE SIDE - TUBE FLUID	GPM	PRESSURE DROP	EWT	LWT	SURFACE AREA (SQUARE FEET)	BASIS OF DESIGN MFG. AND MODEL	REMARKS
HX-HS-2	SHELL AND TUBE	BOILER ROOM	4,883.33	14 in	70 in	STEAM	5 psig	5,050.9	226.4 °F	0.64 psi	WATER	500	1.330 psi	160 °F	180 °F	148.3	BELL AND GOSSETT QSU-145-2	1

CABINET UNIT HEATER SCHEDULE

1. PROVIDE WITH UNIT MOUNTED DISCONNECT SWITCH AND ELECTRICALLY COMMUTATED FAN MOTOR.

Mark	LOCATION	TYPE	CFM	FAN MOTORS RPM	FAN MOTORS VOLTS	FAN MOTORS PH	HP	CAPACITY (MBH)	TEMP EWT	TEMP LWT	WPD (FT)	GPM	BASIS OF DESIGN MANUFACTURER AND MODEL	REMARKS
CUH-HS-1	BASEMENT VESTIBULE	RECESSED CEILING, BOTTOM INLET/OUTLET	230	1,050	115	1	1/15	14.1	180 °F	160 °F	0.15	1.41	STERLING RC-1200-02	1
CUH-HS-2	BASEMENT STORAGE ROOM	CEILING SURFACE MOUNTED, BOTTOM INLET/FRONT OUTLET	230	1,050	115	1	1/15	14.1	180 °F	160 °F	0.15	1.64	STERLING C-1180-02	1
CUH-HS-3	KITCHEN	CEILING SURFACE MOUNTED, BOTTOM INLET/FRONT OUTLET	630	1,050	115	1	1/10	49.8	180 °F	150 °F	1.30	3.27	STERLING C-1160-06	1

HORIZONTAL BLOWER COIL AIR HANDLING UNIT SCHEDULE

1. PROVIDE UNIT WITH MIXING BOX WITH REAR OUTDOOR AIR OPENING AND BOTTOM INLET RETURN AIR OPENING

TAG	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	ELECTRICALLY COMMUTATED SUPPLY FAN DATA: TOTAL SUPPLY AIRFLOW	OUTSIDE AIRFLOW	TOTAL STATIC PRESSURE (IN WC)	EXTERNAL STATIC PRESSURE (IN WC)	FAN SPEED (RPM)	DIRECT EXPANSION COOLING COIL - REFRIGERANT R410A: TOTAL CAPACITY	SENSIBLE CAPACITY	AIR PRESSURE DROP	FINS/IN	COIL ROWS	ENTERING AIR TEMPERATURE (DB)	ENTERING AIR TEMPERATURE (WB)	LEAVING AIR TEMPERATURE (DB)	LEAVING AIR TEMPERATURE (WB)	HEATING COIL DATA: TOTAL CAPACITY	FLUID TYPE	FLOW RATE (GPM)	PRESSURE DROP (FEET OF WATER)	COIL ROWS	TEMPERATURE EAT	TEMPERATURE LAT	AIR PRESSURE DROP	TEMPERATURE EWT	TEMPERATURE LWT	ELECTRICAL: VOLTAGE	PHASE	FREQUENCY	FLA	MCA	MAX FUSE SIZE	ECM BRAKE HORSEPOWER	MOTOR HP	FILTER DATA: FILTER TYPE	FILTER PRESSURE DROP	DIMENSIONS AND WEIGHT: SIZE HEIGHT	SIZE LENGTH	SIZE WIDTH	OPERATING WEIGHT	REMARKS
BC-HS-1	DAIKIN BCHE0301	2,500 CFM	810 CFM	1.82	1	2,228										181,284 Btu/h	WATER	8.00 GPM	1.95	2	48 °F	114.3 °F	0.180 in-wg	180 °F	133.8 °F	208 V	3	60 Hz		14.40	25	1.07	4.42	4" MERV-13	0.65 in-wg	26 in	72 in	49 in	591.0 lb	1
BC-HS-2	DAIKIN BCHE0301	2,620 CFM	915 CFM	1.84	1	2,289										160,545 Btu/h	WATER	5.00 GPM	0.85	2	45 °F	100.9 °F	0.190 in-wg	180 °F	114.8 °F	208 V	3	60 Hz		14.40	25	1.14	4.42	4" MERV-13	0.65 in-wg	26 in	72 in	49 in	591.0 lb	1

INDOOR AIR HANDLING UNIT SCHEDULE

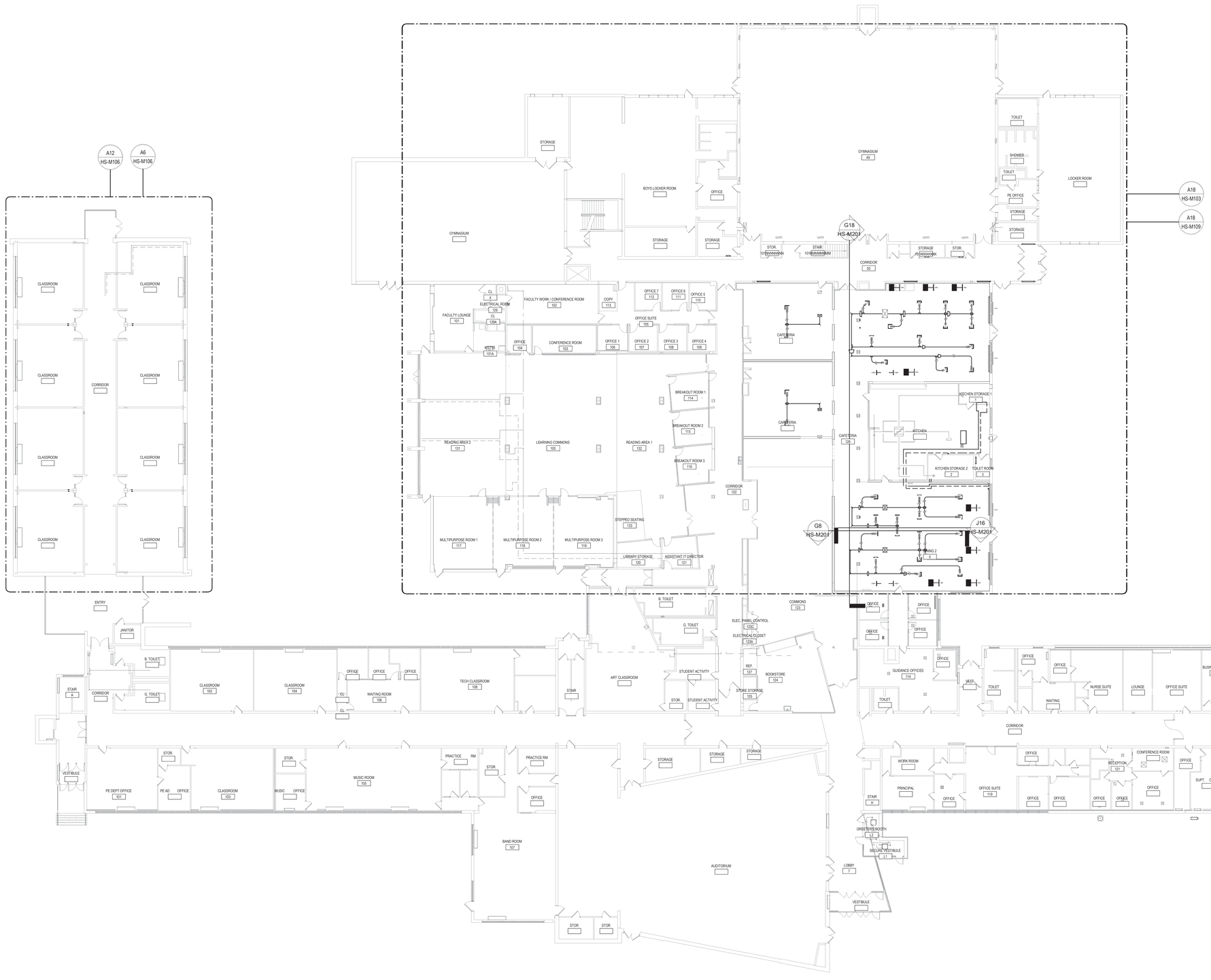
1. UNIT SHALL INCLUDE 6" HIGH FORMED CHANNEL BASE. UNIT SHALL INCLUDE MAXIMUM EXTERNAL DIMENSIONS OF 140" LENGTH x 80" WIDTH x 78" HEIGHT (INCLUDING CHANNEL BASE). UNIT SHALL INCLUDE THE FOLLOWING SECTIONS, SHIPPED SEPARATE IN MAXIMUM 32" LONG SECTIONS: 30" LONG MIXING BOX W/ TOP OA INTAKE OPENING AND DAMPER AND END RA INTAKE OPENING AND DAMPER, 12" LONG PANEL FILTER SECTION, 12" LONG HOT WATER COIL SECTION, 30" LONG DX COOLING COIL SECTION, 24" LONG SUPPLY FAN ARRAY SECTION AND 32" LONG PLENUM SECTION WITH TOP OUTLET.
2. THE FAN ARRAY SHALL UTILIZE 4 ELECTRICALLY COMMUTATED MOTOR FANS (WITH VFD'S BUILT INTO THE FAN HUB) WIRED TO A SINGLE 0-10 VDC CONTROL INPUT. THE DDC SYSTEM SHALL PROVIDE A 0-10 VDC SIGNAL TO THE UNIT MOUNTED CONTROL BOX TO VARY FAN SPEED OUTPUT.
3. PROVIDE ACCESS DOORS AT THE FOLLOWING SECTIONS: MIXING BOX (26" WIDE x 68" HIGH), FILTER SECTION (8" WIDE x 68" HIGH), DX COOLING COIL SECTION (12" WIDE x 62" HIGH), PLENUM SECTION (24" WIDE x 68" HIGH)

Mark	IDENTITY: MFG	MODEL	LOCATION	AREA SERVED	FAN TYPE	TOTAL AIR VOLUME	OCCUPIED MODE OUTSIDE AIR RATE	MIXING BOX APD	PLENUM SECTION APD	SUPPLY FAN ARRAY SECTION: SUPPLY FAN QUANTITY	CFM PER FAN	FAN WHEEL DIAMETER (PER FAN)	EXTERNAL STATIC PRESSURE (IN WC)	TOTAL STATIC PRESSURE (IN WC)	OPERATING SPEED (RPM)	MOTOR DRIVE	BHP PER FAN	HP PER FAN	VOLTS	PHASE	MCA	MOP	HEATING COIL SECTION: CAPACITY HEATING	HEATING COIL TEMPERATURE EAT	HEATING COIL TEMPERATURE LAT	ROWS	HEATING COIL FINS/IN	APD (IN-WG)	FACE VEL. (FPM)	HEATING COIL TEMPERATURE EWT	HEATING COIL TEMPERATURE LWT	HEATING COIL FLOW RATE	WPD (FT-WG)	DIRECT EXPANSION COOLING COIL: TOTAL COOLING CAPACITY	SENSIBLE COOLING CAPACITY	EAT DB	EAT WB	LAT DB	LAT WB	COIL AIR PRESSURE DROP	FACE VELOCITY (FPM)	ROWS	REFRIGERANT	NUMBER OF REFRIGERANT CIRCUITS	TOTAL REFRIGERANT WEIGHT	FILTER: TYPE	FACE AREA (SF)	DEPTH SIZE (INCHES)	CLEAN APD (IN-WG)	UNIT SIZE (IN): L	W	H	OPERATING WEIGHT	NOTES
AHU-HS-3	DAIKIN APPLIED	CAH030GDQM	GYM MEZZANINE	GYMNASIUM 49	AXIAL DISCHARGE, AIRFOIL BLADES	14,000 CFM	3,200 CFM	0.15 in-wg	0.11 in-wg	4	3,500	17.71 in	1.5	2.89	1,825	Direct	2.56	4.8	208 V	3	46.8	50	692,526 Btu/h	55.0 °F	100.2 °F	2	8	0.18	525	180 °F	149.8 °F	45.9 GPM	2.60	454,298 Btu/h	342,325 Btu/h	79.2 °F	65.3 °F	56.8 °F	54.6 °F	0.63 in-wg	501	4	R410A	2	58 lb	Pre Pleat (MERV 13)	30.3	2.00	0.31	140	80	72	3,615 lb	1, 2, 3

ROOFTOP UNIT SCHEDULE

1. PROVIDE UNIT WITH FACTORY WIRED 115 VOLT CONVENIENCE OUTLET.

| Mark | IDENTITY DATA: MANUFACTURER | MODEL | ELECTRICAL - LOADS: VOLTS | PHASE | HERTZ | SUPPLY FAN HP | SUPPLY FAN BRAKE HP | HP EXHAUST FAN | HP BRAKE EXHAUST FAN | MCA | MOCP | FLA | STAINLESS STEEL GAS HEAT SECTION: GROSS INPUT | GROSS OUTPUT | GAS PRESSURE (MIN/MAX, IN H2O) | AIR HEATING COIL PRESSURE DROP | MODULATION | HEATING EAT | HEATING LAT | FILTER SECTION: PRE-FILTER FILTER | FINAL FILTER | MEAN AIR PRESSURE DROP (IN WC) | AIRFLOW DATA: MAXIMUM SUPPLY AIR | ESP | TOTAL STATIC PRESSURE (IN WC) | RETURN AIR | MAXIMUM OCCUPIED OUTSIDE AIR | MAXIMUM OCCUPIED EXHAUST AIR | EXHAUST FAN ESP | DIRECT EXPANSION COOLING SYSTEM SECTION: COOLING EAT DB | COOLING EAT WB | COOLING LAT COIL DB | COOLING LAT COIL WB | COOLING LAT UNIT DB | COOLING LAT UNIT WB | COOLING SENSIBLE CAPACITY (MBH) | COOLING TOTAL CAPACITY (MBH) | COOLING TOTAL TONNAGE | EVAPORATOR PRESSURE DROP | IEER | EER | ENERGY RECOVERY WHEEL SECTION: ERV OA AIRFLOW | ERV EXHAUST AIRFLOW | ERV PRESSURE DROP | ERV TOTAL COOLING CAPACITY | ERV TOTAL HEATING CAPACITY | ERV OA TEMPERATURE COOLING EAT DB | ERV OA TEMPERATURE COOLING EAT WB | ERV OA TEMPERATURE COOLING LAT DB | ERV OA TEMPERATURE COOLING LAT WB | SUMMER MIXED AIR DB | SUMMER MIXED AIR WB | ERV EXHAUST EAT SUMMER DB | ERV EXHAUST EAT SUMMER WB | ERV OA TEMPERATURE EAT DB WINTER | ERV OA TEMPERATURE EAT WB WINTER | ERV OA TEMPERATURE LAT DB WINTER | ERV OA TEMPERATURE LAT WB WINTER | WINTER MIXED AIR DB | WINTER MIXED AIR WB | ERV EXHAUST EAT DB WINTER | ERV EXHAUST EAT WB WINTER | SUMMER TOTAL EFFECTIVENESS | SUMMER SENSIBLE EFFECTIVENESS | WINTER TOTAL EFFECTIVENESS | WINTER SENSIBLE EFFECTIVENESS | OPERATING WEIGHT | MAXIMUM DISCHARGE dB LEVELS BY OCTAVE BAND: 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---



A18 OVERALL FIRST FLOOR PLAN

1/16" = 1'-0"

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ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
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Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

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JOHN VENDITTI
083994
LICENSED PROFESSIONAL ENGINEER
REGISTRATION EXPIRES:
11/30/2023

NANUET

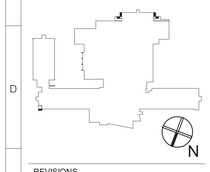
NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: 1/16" = 1'-0"

SHEET NAME:
OVERALL FIRST FLOOR PLAN

SHEET NUMBER:

HS-M101

ISSUE FOR BID SET

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PROJECT NUMBER: 2111002.00

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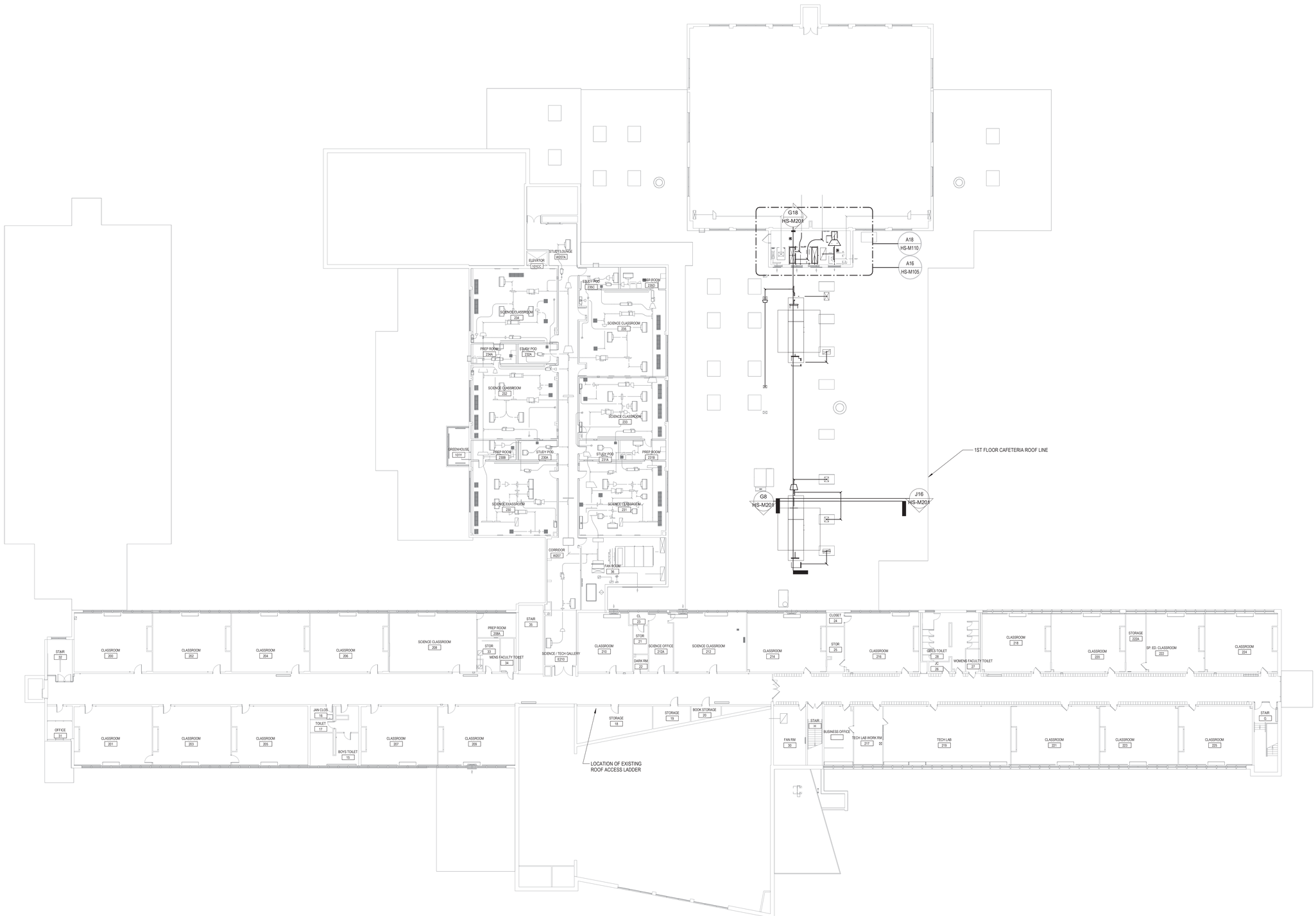

A18 OVERALL SECOND FLOOR PLAN

1/16" = 1'-0"

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NEW YORK OKLAHOMA

KSQ Design
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646.435.0660 office
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103 Church St, Nanuet, NY 10954
845.627.9880 office
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Saugerties, NY 12477
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MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
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□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

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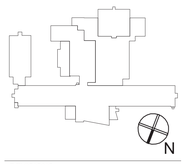

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: 1/16" = 1'-0"

SHEET NAME:
OVERALL SECOND FLOOR PLAN

SHEET NUMBER:

HS-M102

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C:\Users\JLaNor\Documents\3086 NANUET HS-MEP_Ishaq+ETS7.rvt
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PROJECT NUMBER: 2111002.00

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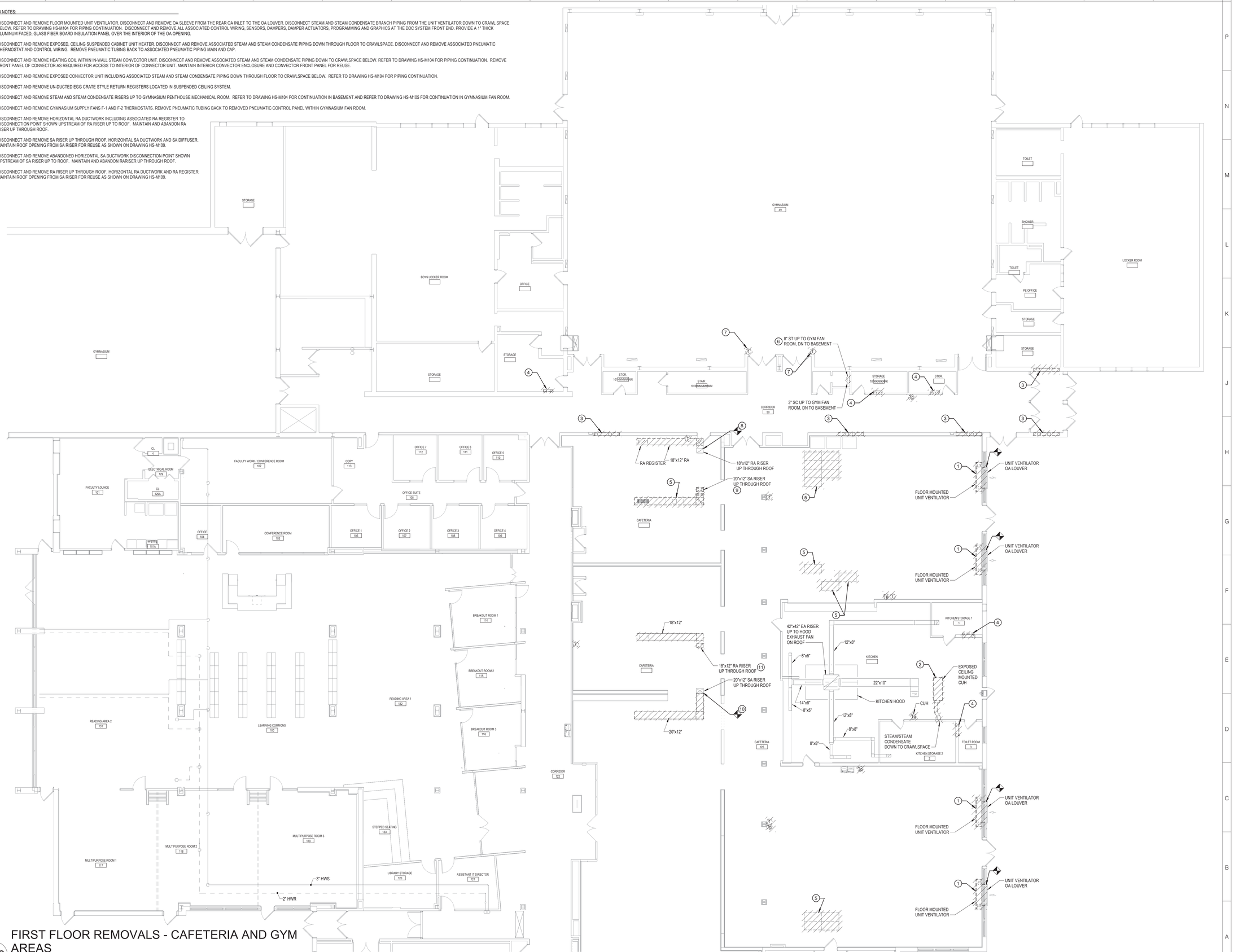
KEYED NOTES:

1. DISCONNECT AND REMOVE FLOOR MOUNTED UNIT VENTILATOR. DISCONNECT AND REMOVE OA SLEEVE FROM THE REAR OA INLET TO THE OA LOUVER. DISCONNECT STEAM AND STEAM CONDENSATE BRANCH PIPING FROM THE UNIT VENTILATOR DOWN TO CRAWL SPACE BELOW. REFER TO DRAWING HS-M104 FOR PIPING CONTINUIATION. DISCONNECT AND REMOVE ALL ASSOCIATED CONTROL WIRING, SENSORS, DAMPERS, DAMPER ACTUATORS, PROGRAMMING AND GRAPHICS AT THE DDC SYSTEM FRONT END. PROVIDE A 1" THICK ALUMINUM FACED, GLASS FIBER BOARD INSULATION PANEL OVER THE INTERIOR OF THE OA OPENING.
2. DISCONNECT AND REMOVE EXPOSED, CEILING SUSPENDED CABINET UNIT HEATER. DISCONNECT AND REMOVE ASSOCIATED STEAM AND STEAM CONDENSATE PIPING DOWN THROUGH FLOOR TO CRAWLSPACE. DISCONNECT AND REMOVE ASSOCIATED PNEUMATIC THERMOSTAT AND CONTROL WIRING. REMOVE PNEUMATIC TUBING BACK TO ASSOCIATED PNEUMATIC PIPING MAIN AND CAP.
3. DISCONNECT AND REMOVE HEATING COIL WITHIN IN-WALL STEAM CONVECTOR UNIT. DISCONNECT AND REMOVE ASSOCIATED STEAM AND STEAM CONDENSATE PIPING DOWN TO CRAWLSPACE BELOW. REFER TO DRAWING HS-M104 FOR PIPING CONTINUIATION. REMOVE FRONT PANEL OF CONVECTOR AS REQUIRED FOR ACCESS TO INTERIOR OF CONVECTOR UNIT. MAINTAIN INTERIOR CONVECTOR ENCLOSURE AND CONVECTOR FRONT PANEL FOR REUSE.
4. DISCONNECT AND REMOVE EXPOSED CONVECTOR UNIT INCLUDING ASSOCIATED STEAM AND STEAM CONDENSATE PIPING DOWN THROUGH FLOOR TO CRAWLSPACE BELOW. REFER TO DRAWING HS-M104 FOR PIPING CONTINUIATION.
5. DISCONNECT AND REMOVE UN-DUCTED EGG CRATE STYLE RETURN REGISTERS LOCATED IN SUSPENDED CEILING SYSTEM.
6. DISCONNECT AND REMOVE STEAM AND STEAM CONDENSATE RISERS UP TO GYMNASIUM PENTHOUSE MECHANICAL ROOM. REFER TO DRAWING HS-M104 FOR CONTINUIATION IN BASEMENT AND REFER TO DRAWING HS-M105 FOR CONTINUIATION IN GYMNASIUM FAN ROOM.
7. DISCONNECT AND REMOVE GYMNASIUM SUPPLY FANS F-1 AND F-2 THERMOSTATS. REMOVE PNEUMATIC TUBING BACK TO REMOVED PNEUMATIC CONTROL PANEL WITHIN GYMNASIUM FAN ROOM.
8. DISCONNECT AND REMOVE HORIZONTAL RA DUCTWORK INCLUDING ASSOCIATED RA REGISTER TO DISCONNECTION POINT SHOWN UPSTREAM OF RA RISER UP TO ROOF. MAINTAIN AND ABANDON RA RISER UP THROUGH ROOF.
9. DISCONNECT AND REMOVE SA RISER UP THROUGH ROOF, HORIZONTAL SA DUCTWORK AND SA DIFFUSER. MAINTAIN ROOF OPENING FROM SA RISER FOR REUSE AS SHOWN ON DRAWING HS-M109.
10. DISCONNECT AND REMOVE ABANDONED HORIZONTAL SA DUCTWORK DISCONNECTION POINT SHOWN UPSTREAM OF SA RISER UP TO ROOF. MAINTAIN AND ABANDON RARISER UP THROUGH ROOF.
11. DISCONNECT AND REMOVE RA RISER UP THROUGH ROOF, HORIZONTAL RA DUCTWORK AND RA REGISTER. MAINTAIN ROOF OPENING FROM SA RISER FOR REUSE AS SHOWN ON DRAWING HS-M109.



FIRST FLOOR REMOVALS - CAFETERIA AND GYM AREAS

A18

1/8" = 1'-0"

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ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

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Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
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Construction Manager

Jacobs
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54th Floor, Suite 5420
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www.jacobs.com

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NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME: FIRST FLOOR REMOVALS - CAFETERIA AND GYM AREAS

SHEET NUMBER:

HS-M103

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00

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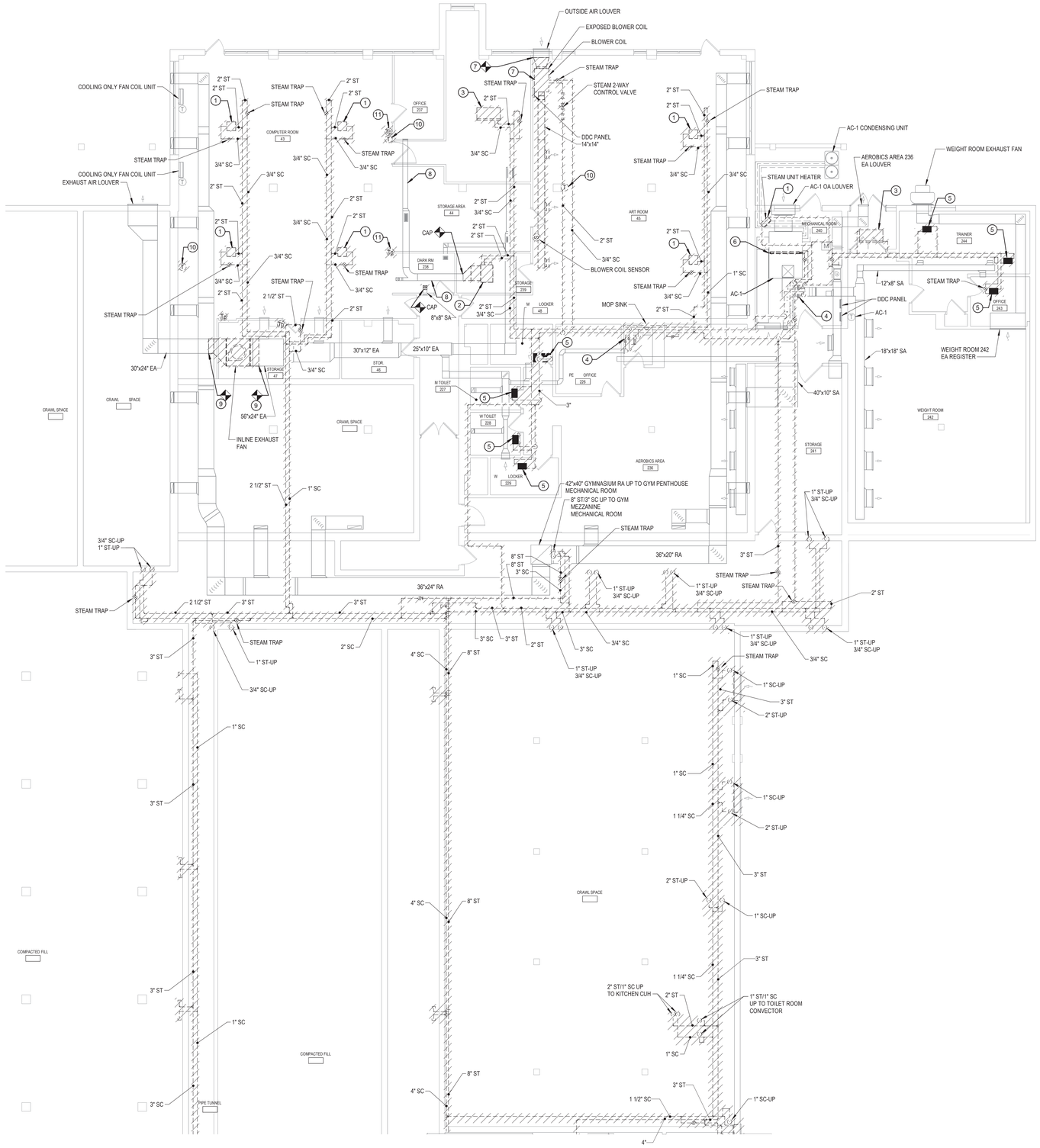

A16 BASEMENT FLOOR REMOVALS

1/8" = 1'-0"

KEYED NOTES:

1. DISCONNECT AND REMOVE STEAM UNIT HEATER INCLUDING ASSOCIATED STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAP, AND STEAM PIPING ACCESSORIES. DISCONECT AND REMOVE SPACE TEMPERATURE SENSOR AND ALL ASSOCIATED CONTROL WIRING, PROGRAMMING AND GRAPHICS. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN.
2. DISCONNECT AND REMOVE STEAM FAN COIL UNIT. DISCONNECT AND REMOVE SA DUCTWORK FROM OUTLET OF FAN COIL UNIT TO DISCONNECTION POINT SHOWN AND CAP. DISCONNECT AND REMOVE ASSOCIATED STEAM AND STEAM CONDENSATE PIPING. DISCONNECT AND REMOVE ASSOCIATED PNEUMATIC THERMOSTAT. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN.
3. DISCONNECT AND REMOVE STEAM CABINET UNIT HEATER. DISCONNECT AND REMOVE ASSOCIATED STEAM AND STEAM CONDENSATE PIPING. DISCONNECT AND REMOVE ASSOCIATED PNEUMATIC THERMOSTAT. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN.
4. DISCONNECT AND REMOVE STEAM CONDENSATE PUMP/RECEIVER SET INCLUDING ALL ASSOCIATED STEAM CONDENSATE PIPING AND VENT PIPING.
5. DISCONNECT AND REMOVE CEILING MOUNTED STEAM RADIANT PANEL INCLUDING ASSOCIATED STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAP, AND STEAM PIPING ACCESSORIES.
6. DISCONNECT AND REMOVE STEAM HEATING COIL WITHIN AIR HANDLING UNIT AC-1 AT LOCATION SHOWN. DISCONNECT AND REMOVE ASSOCIATED STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAP. STEAM PIPING ACCESSORIES AND STEAM ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE CONTROL VALVE WIRING BACK TO ASSOCIATED DDC CONTROLLER WITHIN THE MECHANICAL ROOM.
7. DISCONNECT AND REMOVE EXPOSED BLOWER COIL UNIT INCLUDING BLOWER COIL MIXING BOX AND RETURN AIR AND OUTSIDE AIR DAMPERS. DISCONNECT AND REMOVE OUTSIDE AIR DUCTWORK TO DISCONNECTION POINT SHOWN AND CAP. DISCONNECT AND REMOVE BLOWER COIL STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAP AND STEAM ACCESSORIES. DISCONNECT AND REMOVE STEAM ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE BLOWER COIL TEMPERATURE SENSOR, RA AND OA DAMPER ACTUATORS AND ALL BLOWER COIL CONTROL WIRING BACK TO ASSOCIATED DDC PANEL. REMOVE BLOWER COIL CONTROLLER AND ALL ASSOCIATED DDC PROGRAMMING AND GRAPHICS.
8. ABANDON DUCTWORK AND SUPPLY REGISTERS IN PLACE ABOVE INACCESSIBLE CEILING AREA. CAP OPEN-ENDED DUCT LEFT FROM REMOVAL OF FAN COIL UNIT.
9. DISCONNECT AND REMOVE INLINE EXHAUST FAN AND ASSOCIATED EA DUCTWORK TO DISCONNECTION POINTS SHOWN. DISCONNECT AND REMOVE ALL CONTROL RELAYS, SENSORS AND DEVICES RELATED TO THE REMOVED FAN. DISCONNECT, REMOVE AND REINSTALL THE SUSPENDED CEILING SYSTEM WITHIN STORAGE 47 AS REQUIRED TO REMOVE THE FAN AND THE ASSOCIATED EA DUCTWORK.
10. DISCONNECT AND REMOVE LINE VOLTAGE THERMOSTAT SERVING REMOVED UNIT HEATERS INCLUDING ASSOCIATED LINE VOLTAGE WIRING BACK TO ASSOCIATED PANELBOARD.
11. DISCONNECT AND REMOVE LINE VOLTAGE THERMOSTAT SERVING REMOVED UNIT HEATERS INCLUDING ASSOCIATED LINE VOLTAGE WIRING BACK TO ASSOCIATED PANELBOARD DISCONNECT AND REMOVE ABANDONED PNEUMATIC THERMOSTATS INCLUDING ASSOCIATED PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN. PROVIDE STAINLESS STEEL COVER PLATE OVER REMOVED THERMOSTAT LOCATION.
12. DISCONNECT AND REMOVE PNEUMATIC OPERATOR SERVING REMOVED INLINE EXHAUST FAN F-HS-2. REMOVE PNEUMATIC TUBING SERVING REMOVED OPERATOR BACK TO ASSOCIATED PNEUMATIC MAIN AND CAP. REFER TO ELECTRICAL REMOVAL DRAWINGS FOR REMOVAL OF F-HS-2 MOTOR STARTER.

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ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

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Nanuet Union Free School District
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■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

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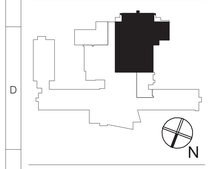
KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME:
BASEMENT HVAC REMOVALS

SHEET NUMBER:

HS-M104

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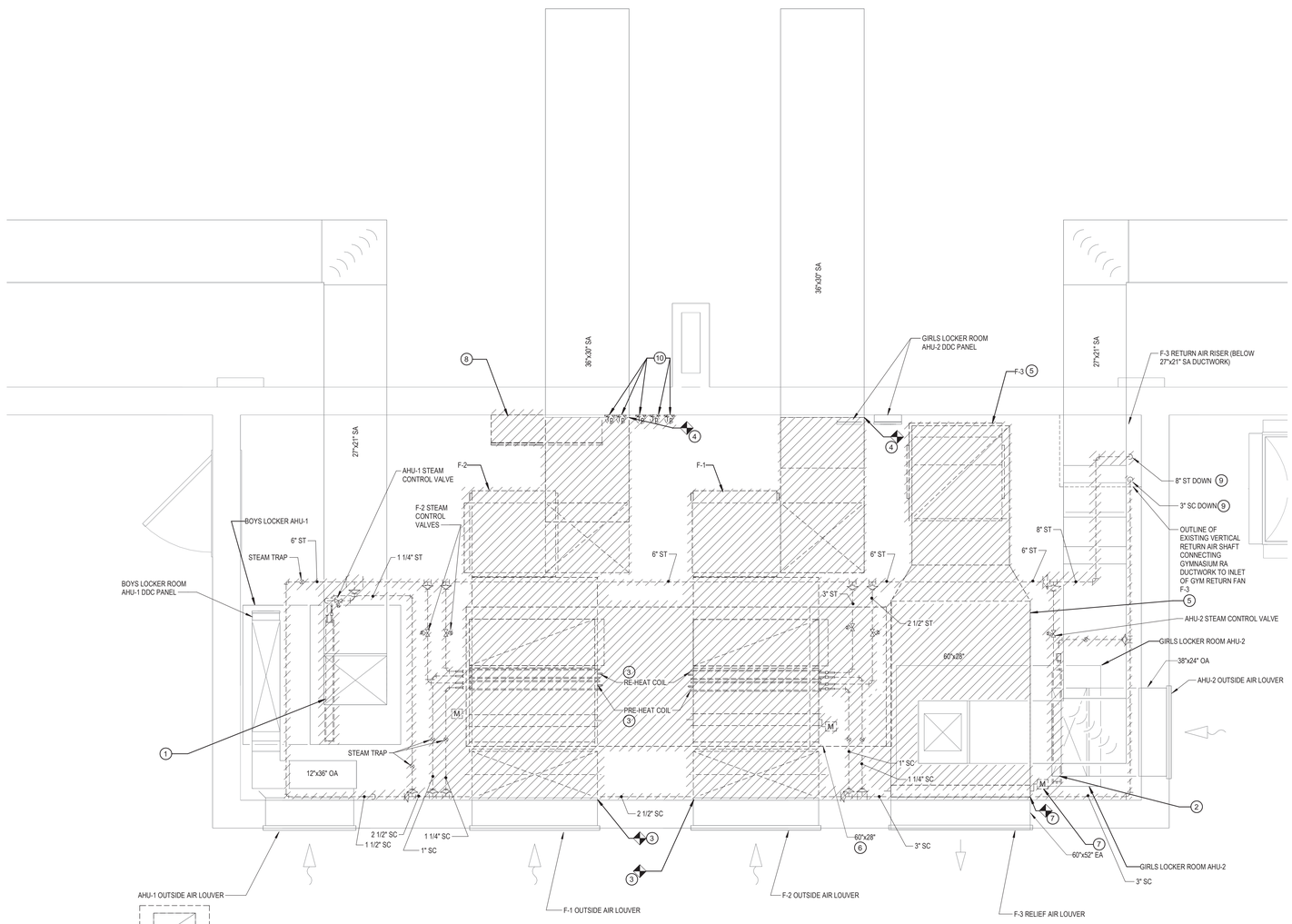
KEYED NOTES:

1. DISCONNECT AND REMOVE STEAM HEATING COIL WITHIN AIR HANDLING UNIT AHU-1 AT LOCATION SHOWN. DISCONNECT AND REMOVE ASSOCIATED STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAP, STEAM PIPING ACCESSORIES AND STEAM ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE CONTROL VALVE WIRING BACK TO ASSOCIATED DDC CONTROLLER.
2. DISCONNECT AND REMOVE STEAM HEATING COIL WITHIN AIR HANDLING UNIT AHU-2 AT LOCATION SHOWN. DISCONNECT AND REMOVE ASSOCIATED STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAP, STEAM PIPING ACCESSORIES AND STEAM ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE CONTROL VALVE WIRING BACK TO ASSOCIATED DDC CONTROLLER.
3. DISCONNECT AND REMOVE GYMNASIUM UTILITY SUPPLY FAN SYSTEMS F-1 AND F-2. DISCONNECT AND REMOVE OUTSIDE AIR DUCTWORK FROM DISCONNECTION POINTS SHOWN TO INLET OF FANS. DISCONNECT AND REMOVE PRE-HEAT AND RE-HEAT STEAM COILS WITHIN INLET DUCTWORK. DISCONNECT AND REMOVE STEAM PNEUMATIC CONTROL VALVES. DISCONNECT AND REMOVE ALL ASSOCIATED STEAM PIPING, STEAM CONDENSATE PIPING, STEAM TRAPS AND STEAM ACCESSORIES. DISCONNECT AND REMOVE PNEUMATIC TUBING BACK TO REMOVE PNEUMATIC CONTROL OPERATOR PANEL.
4. DISCONNECT AND REMOVE SUPPLY AIR DUCTWORK FROM REMOVED UTILITY SUPPLY FAN UNITS F-1 AND F-2 TO DISCONNECTION POINTS SHOWN.
5. DISCONNECT AND REMOVE UN-DUCTED INLET GYMNASIUM UTILITY RETURN AIR FAN F-3 INCLUDING ASSOCIATED OUTLET DUCTWORK TO REMOVED PNEUMATIC RELIEF AIR DAMPER AS SHOWN.
6. DISCONNECT AND REMOVE 60"x28" RETURN DUCTWORK. DISCONNECT AND REMOVE RETURN AIR DROPS DOWN TO REMOVED F-1 AND F-2 SUPPLY PLENUMS. DISCONNECT AND REMOVE F-1 AND F-2 OUTSIDE AIR AND RETURN AIR PNEUMATIC DAMPERS. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO REMOVED PNEUMATIC CONTROL OPERATOR PANEL.
7. DISCONNECT AND REMOVE GYMNASIUM RELIEF/EXHAUST AIR DAMPER AND ASSOCIATED PNEUMATIC ACTUATOR. CAP RELIEF AIR PLENUM AT DISCONNECTION POINT SHOWN AND RECONNECT AS SHOWN ON DRAWING HS-M110. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO REMOVED PNEUMATIC CONTROL OPERATOR PANEL.
8. DISCONNECT AND REMOVE PNEUMATIC CONTROL PANEL AT LOCATION SHOWN INCLUDING ALL PNEUMATIC OPERATORS, PNEUMATIC SENSORS, AND PNEUMATIC RELAYS. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP.
9. DISCONNECT AND REMOVE STEAM AND STEAM CONDENSATE RISERS DOWN TO CRAWLSPACE. REFER TO DRAWING HS-M104 FOR CONTINUATION.
10. DISCONNECT AND REMOVE ALL AHU-1, AHU-2, F-1 AND F-2 PNEUMATIC TO ELECTRONIC TRANSDUCERS AND PNEUMATIC OPERATORS BACK TO REMOVED PNEUMATIC CONTROLER OPERATOR PANEL.



A16 ENLARGED GYMNASIUM FAN ROOM REMOVALS
1/2" = 1'-0"

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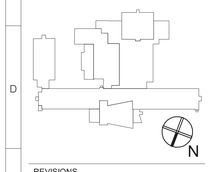
Nanuet, NY 10954

KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME:
GYMNASIUM FAN ROOM REMOVALS

SHEET NUMBER:
HS-M105

ISSUE FOR BID SET

DRAWN BY: Author
CHECKED BY: Checker
Checker/Shared/Documents/2086 NANUET-HS-MECH_sheetsHS707.rvt
6/5/2023 4:07:04 PM

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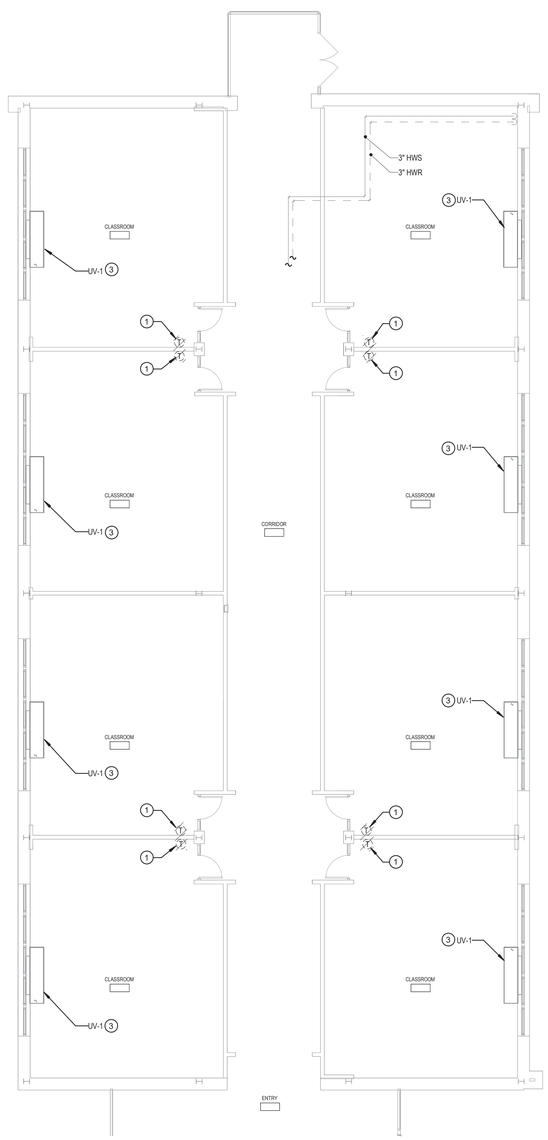
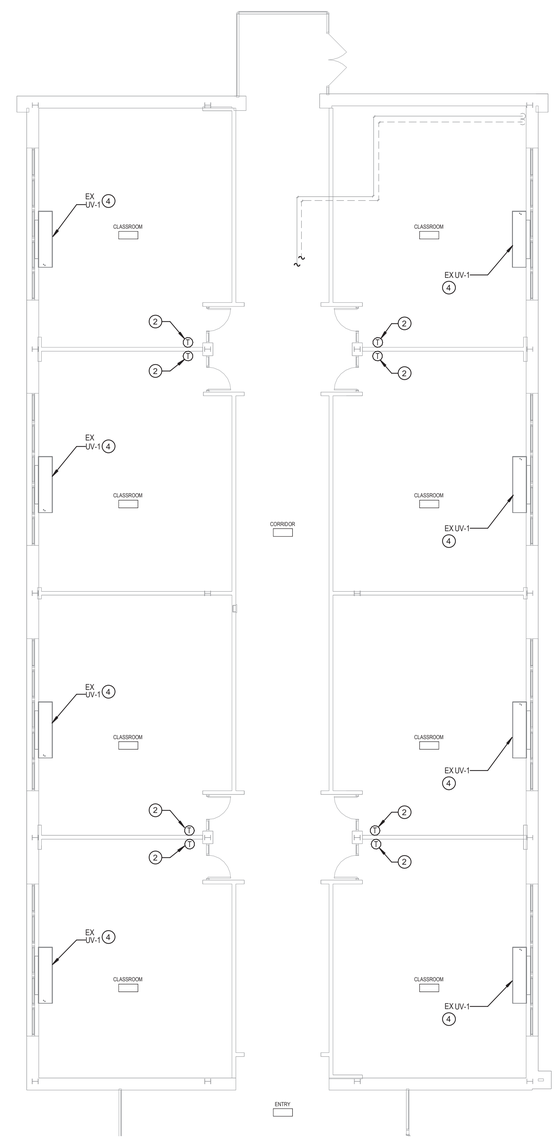
KEYED NOTES:

1. DISCONNECT AND REMOVE REMOTE SPACE TEMPERATURE SENSOR FOR THE EXISTING UNIT VENTILATOR.
2. PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND UTILIZE FOR SPACE TEMPERATURE CONTROL OF THE UNIT VENTILATOR AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN SENSOR AND UNIT VENTILATOR DDC CONTROLLER AS REQUIRED.
3. DISCONNECT AND REMOVE FLOOR MOUNTED UNIT VENTILATOR INTREGRAL MICROTECH II CONTROLLER LOCATED WITHIN THE UNIT VENTILATOR ACCESS ENCLOSURE. DISCONNECT AND REMOVE ALL ASSOCIATED CONTROL WIRING BETWEEN CONTROLLER AND REMOVED SPACE THERMOSTAT AND BETWEEN CONTROLLER AND UNIT VENTILATOR SENSORS, RELAYS, DAMPER ACTUATORS, AND CONTROL VALVE AS REQUIRED. MAINTAIN UNIT VENTILATOR CONTROL VALVE, OA/RA DAMPER AND ACTUATOR, FACE&BYPASS DAMPER AND ACTUATOR.
4. PROVIDE DDC SYSTEM EQUIPMENT CONTROLLER WITHIN THE EXISTING ACCESS ENCLOSURE AREA OF EXISTING FLOOR MOUNTED UNIT VENTILATOR AT LOCATION SHOWN. PROVIDE DDC CONTROL POINTS PER CONTROL DRAWING LOCATED ON A10HS-M602. PROVIDE CONTROL WIRING FROM DDC CONTROLLER TO WALL MOUNTED SPACE TEMPERATURE SENSOR. PROVIDE CONTROL WIRING BETWEEN DDC CONTROLLER AND EXISTING UNIT VENTILATOR HEATING WATER CONTROL VALVE AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN DDC CONTROLLER AND EXISTING UNIT VENTILATOR OA/RA DAMPER ACTUATOR AND FACE&BYPASS DAMPER ACTUATOR. PROVIDE SENSORS AS OUTLINED AND PROVIDE CONTROL WIRING TO ALLOW START/STOP OPERATION OF EXISTING UNIT VENTILATOR MECHANICAL COOLING SYSTEM.



A12 FIRST FLOOR REMOVALS - 2004 ADDITION
1/8" = 1'-0"



A6 FIRST FLOOR PLAN - 2004 ADDITION
1/8" = 1'-0"

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

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REGISTRATION EXPIRES: 11/30/2023

NANUET

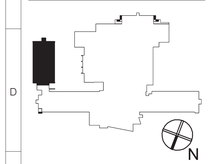
NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME:
2004 ADDITION HVAC REMOVAL AND INSTALL PLANS

SHEET NUMBER:

HS-M106

ISSUE FOR BID SET

DRAWN BY: Author
CHECKED BY: Checker
DRAWING NAME: C:\Users\ksqadmin\Documents\386 NANUET HS-MECH_sheaxqdET37.rvt
6/5/2023 4:07:06 PM

PROJECT NUMBER: 2111002.00

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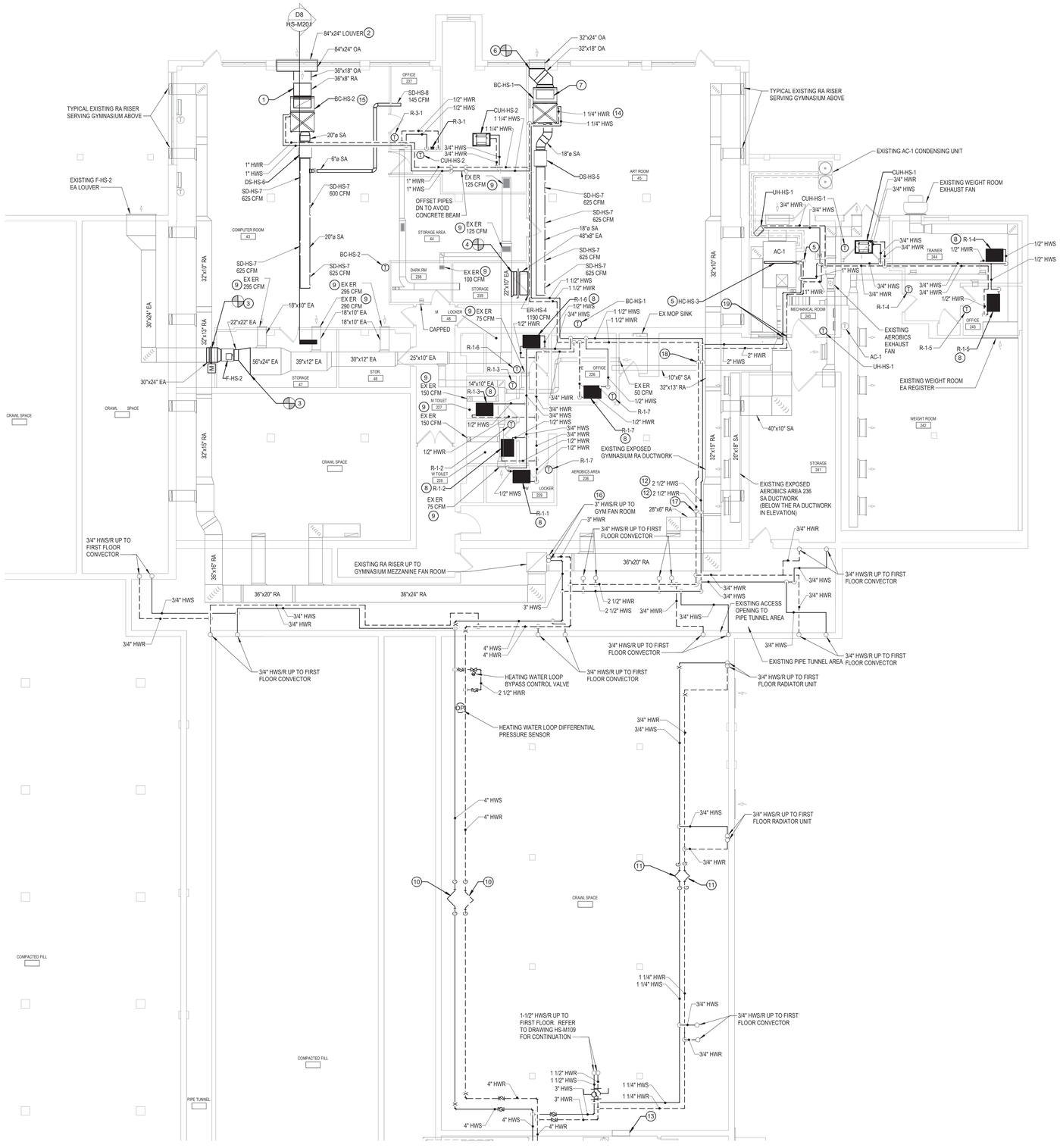

KEYED NOTES:

1. PROVIDE 36"x18" OUTSIDE AIR DUCTWORK TO REAR INLET OPENING ON BLOWER COIL BC-HS-2 MIXING BOX. PROVIDE 36"x18" RISER OUT OF TOP RA INLET ON BC-HS-2 MIXING BOX, THEN PROVIDE A TRANSITION ELBOW TO 36"x8" RA DUCTWORK. ROUTE 36"x8" RETURN AIR DUCT STACKED ABOVE 36"x18" OUTSIDE AIR DUCT AND TERMINATE OPEN-ENDED WITH 1/4" GALVANIZED WIRE MESH SCREEN.
2. PROVIDE 84"x24" OUTSIDE AIR PLENUM CONNECTED TO 84"x24" LOUVER MOUNTED IN TOP OF EXISTING GLAZING SYSTEM PANEL AS OUTLINED ON THE ARCHITECTURAL DRAWINGS. ROUTE OA DUCTWORK FROM OA PLENUM TO REAR INLET MIXING BOX ON BC-HS-2 AS REQUIRED.
3. PROVIDE INLINE FAN F-HS-2 AT LOCATION SHOWN ABOVE SUSPENDED CEILING SYSTEM IN STORAGE ROOM 47. PROVIDE TRANSITIOINS FROM EXISTING EXHAUST AIR DUCTWORK TO INLET AND OUTLET CONNECTIONS ON F-HS-2 AS REQUIRED. CONNECT 30"x24" EXHAUST AIR DUCT TO EXISTING 30"x24" EXHAUST AIR DUCT AT OUTLET OF FAN. CONNECT 22"x22" TO 56"x24" TRANSITION DUCT FITTING TO EXISTING 56"x24" EXHAUST AIR DUCT AT INLET OF FAN AS REQUIRED. PROVIDE A MOTORIZED DAMPER AT OUTLET OF FAN IN EA DUCTWORK. DISCONNECT/REMOVE/REINSTALL SUSPENDED CEILING SYSTEM IN STORAGE 47 AS REQUIRED TO INSTALL FAN AND ASSOCIATED INLET AND OUTLET EA DUCTWORK.
4. CONNECT 48"x8" EXHAUST AIR DUCT TO EXISTING 22"x10" EXHAUST AIR DUCT MAIN AT CONNECTION POINT SHOWN AND PROVIDE A WALL MOUNTED EA REGISTER WITHIN ART ROOM 45, MOUNTED ABOVE THE DOORWAY TO STORAGE ROOM 239.
5. PROVIDE A 59" WIDE x 33" HIGH HOT WATER HEATING COIL HC-HS-3 WITHIN EXISTING AIR HANDLER AC-1 HEATING COIL SECTION. AC-1 IS A TRANE MODEL LPCAC14D HORIZONTAL AIR HANDLING UNIT. COORDINATE INSTALLATION OF THE HEATING COIL WITHIN THE EXISTING AIR HANDLING UNIT HEATING COIL SECTION WITH THE LOCAL TRANE REPRESENTATIVE. PROVIDE 2" HWS/R DROPS DOWN TO THE HEATING COIL INLET AND OUTLET CONNECTION POINTS.
6. CONNECT 32"x18" OUTSIDE AIR INTAKE DUCT TO EXISTING 32"x24" OUTSIDE AIR INTAKE DUCT AT CONNECTION POINT SHOWN. ROUTE 32"x18" OUTSIDE AIR DUCT TO REAR INLET ON BLOWER COIL BC-HS-1 MIXING BOX.
7. PROVIDE TOP INLET RA OPENING ON BC-HS-1 MIXING BOX.
8. PROVIDE EXPOSED CEILING MOUNTED RADIATOR UNITS AT LOCATIONS SHOWN SUPPORTED FROM FLOOR DECK ABOVE.
9. BALANCE EXISTING EA REGISTER TO AIRFLOW AMOUNTS SHOWN WITH INLINE EXHAUST FAN F-HS-2 OPERATING AT FULL AIRFLOW CAPACITY.
10. PROVIDE 43.75" LONG x 18.875" WIDE V-TYPE, FLANGED EXPANSION LOOP AT LOCATIONS SHOWN ON THE 4" HWS/R MAINS. CAPABLE OF 3" +/- MOVEMENT. PROVIDE PIPE GUIDES AND ANCHORS AS SHOWN INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. SUPPORT THE RETURN BEND OF THE LOOP PER THE MANUFACTURER'S INSTRUCTIONS.
11. PROVIDE 26.25" LONG x 12" WIDE V-TYPE, SWEAT CONNECTION EXPANSION LOOP AT LOCATIONS SHOWN ON THE 1-1/4" HWS/R MAINS. CAPABLE OF 3" +/- MOVEMENT. PROVIDE PIPE GUIDES AND ANCHORS AS SHOWN INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. SUPPORT THE RETURN BEND OF THE LOOP PER THE MANUFACTURER'S INSTRUCTIONS.
12. ROUTE 2-1/2" HWS/R PIPING MAINS EXPOSED WITHIN AEROBICS AREA 236 PARALLEL IN HEIGHT WITH EXISTING EXPOSED RETURN DUCTWORK ROUTED NORTH-SOUTH THROUGH THE AERBOICS AREA, AND ABOVE THE EXPOSED SUPPLY AIR DUCTWORK SERVING THE AEROBICS AREA. PROVIDE PVC JACKETING OVER THE INSULATED 2-1/2" HWS/R PIPING MAINS.
13. LOCATION OF EXISTING 3-FOOT WIDE x 4-FOOT HIGH ACCESS DOOR OPENING TO CRAWLSPACE AREA FROM BOILER ROOM. ROUTE HWS/R PIPING BETWEEN BOILER ROOM AND AEROBICS AREA 236 WITHIN CRAWLSPACE AREA AS SHOWN. PROVIDE PVC JACKETING OVER THE INSULATED HWS/R PIPING LINESS WITHIN THE CRAWLSPACE.
14. ROUTE HWS/R PIPING MAINS EXPOSED WITHIN ART ROOM 45 ALONG EAST WALL OF ART ROOM. PROVIDE 1-1/4" HWS/R BRANCHES TO BLOWER COIL BC-HS-1 HEATING COIL AS REQUIRED. PROVIDE HEATING COIL ON LEFT HAND SIDE OF BLOWER COIL TO ALLOW COIL PULL TO WEST SIDE OF ART ROOM 45. PROVIDE PVC JACKETING OVER ALL EXPOSED INSULATED HWS/R PIPING. MOUNT BLOWER COIL EXPOSED IN ART ROOM 45 BELOW EXISTING NORTH-SOUTH CONCRETE BEAM. PROVIDE EXPOSED SPIRAL SA DUCTWORK OUT OF FRONT DISCHARGE OUTLET LOCATION ON BLOWER COIL.
15. MOUNT BLOWER COIL BC-HS-2 EXPOSED WITHIN WOODSHOP 43. PROVIDE EXPOSED SPIRAL SA DUCTWORK OUT OF FRONT DISCHARGE OUTLET LOCATION ON BLOWER COIL.
16. ROUTE 3" HWS/R PIPING APPROXIMATELY 22-FEET VERTICALLY FROM PIPING TUNNEL UP TO GYMNASIUM MEZZANINE FAN ROOM. ROUTE PIPING VERTICALLY THROUGH EXISTING VERTICAL CHASE OPENING.
17. ROUTE HWS/R PIPING MAINS BELOW EXISTING 28"x6" RA BRANCH AT LOCATION SHOWN, THEN PROVIDE A RISE UP AND ROUTE THE HWS/R PIPING MAINS WITH TOP OF PIPING EVEN WITH TOP OF EXISTING 32"X15" RA MAIN.
18. PROVIDE DROP IN ELEVATION ON THE HWS/R PIPING MAINS AT LOCATION SHOWN ONCE PAST THE EXISTING 10"X6" SA BRANCH.
19. ROUTE 2" HWS/R PIPING BRANCHES BELOW EXISTING SA DUCTWORK CONNECTED TO EXISTING AC-1 AND PENETRATE MECHANICAL ROOM 240 WALL BELOW AC-1 SA DUCTWORK AS SHOWN.

A18 BASEMENT FLOOR PLAN

1/8" = 1'-0"

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

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REGISTRATION EXPIRES: 11/30/2023

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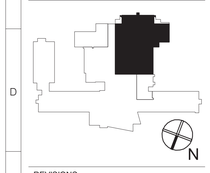
NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME:
BASEMENT HVAC PLAN

SHEET NUMBER:
HS-M107

ISSUE FOR BID SET

DRAWN BY: Author
CHECKED BY: Checker
Checker Stamp#Documents\2086 NANUET-45-MECH_sheets\HS107.rvt

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PROJECT NUMBER: 2111002.00

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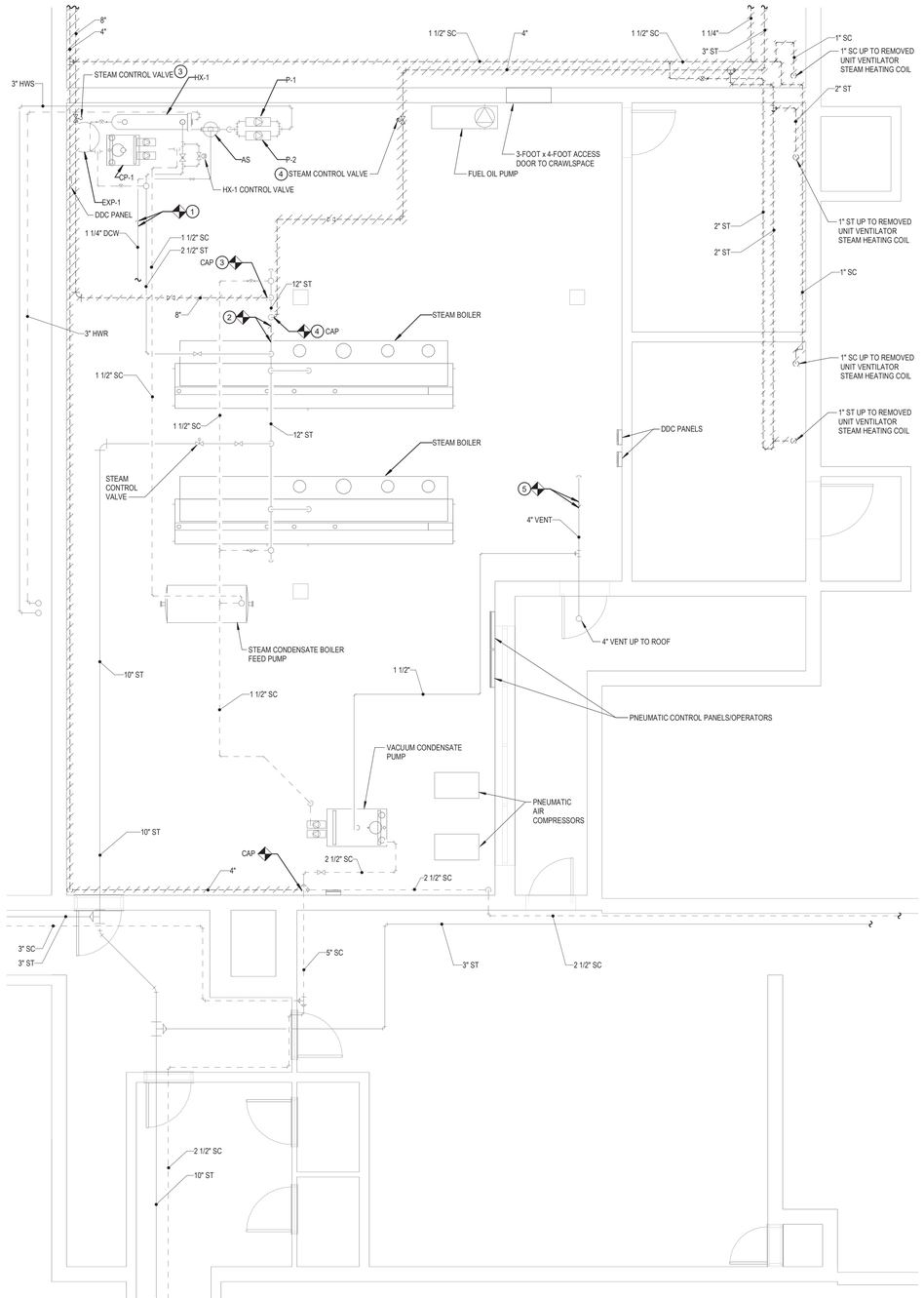
KEYED NOTES:

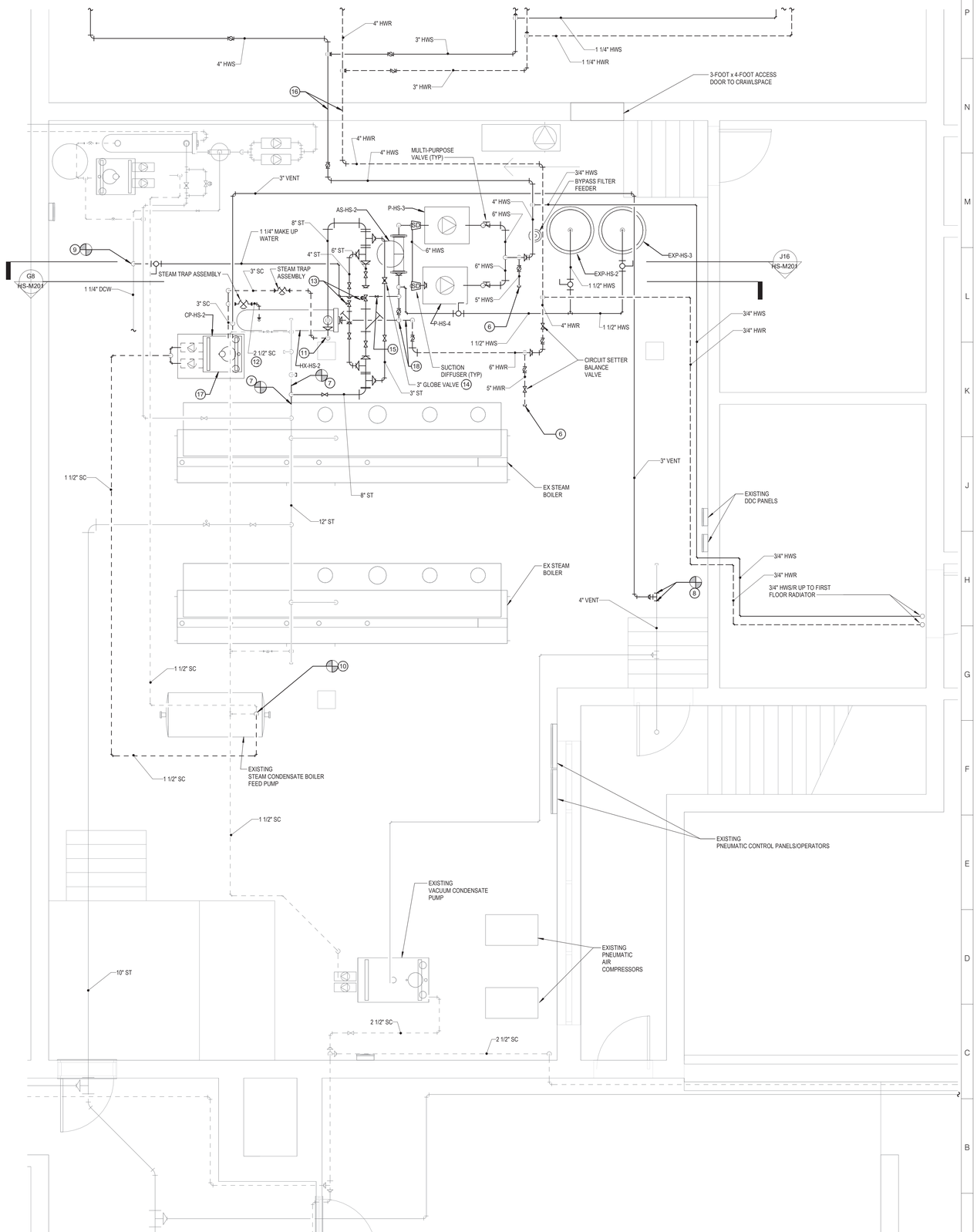
1. DISCONNECT AND REMOVE A PORTION OF THE 1 1/4" DOMESTIC COLD WATER MAKE-UP WATER PIPE AS INDICATED FOR A TEE BRANCH FITTING TO BE INSTALLED.
2. DISCONNECT AND REMOVE A PORTION OF THE 12" STEAM HEADER AS INDICATED FOR A TEE BRANCH FITTING TO BE INSTALLED.
3. DISCONNECT AND REMOVE THE 8" STEAM BRANCH AS SHOWN. CAP OPEN-ENDED PIPE AFTER REMOVALS. DISCONNECT AND REMOVE STEAM ELECTRONIC CONTROL VALVE WITHIN 8" STEAM BRANCH. DISCONNECT AND REMOVE ASSOCIATED CONTROL WIRING, CONTROL PROGRAMMING AND GRAPHICS AT THE DDC SYSTEM.
4. DISCONNECT AND REMOVE THE 4" STEAM BRANCH AS SHOWN. CAP OPEN-ENDED PIPE AFTER REMOVALS. DISCONNECT AND REMOVE STEAM ELECTRONIC CONTROL VALVE WITHIN 4" STEAM BRANCH. DISCONNECT AND REMOVE ASSOCIATED CONTROL WIRING, CONTROL PROGRAMMING AND GRAPHICS AT THE DDC SYSTEM.
5. DISCONNECT AND REMOVE A PORTION OF THE 4" VENT AS INDICATED FOR A TEE BRANCH FITTING TO BE INSTALLED.
6. PROVIDE 5" HOT WATER SUPPLY AND RETURN BRANCHES AT LOCATION SHOWN WITH BUTTERFLY SHUT-OFF VALVES IN CLOSED POSITION FOR FUTURE CONTINUATION TO SERVE 1958 AUDITORIUM, CLASSROOM, AND ADMINISTRATION WINGS. PROVIDE BLIND FLANGE CAP AT OUTLET OF EACH BRANCH.
7. PROVIDE 8" STEAM TAP OFF THE TOP OF THE EXISTING 12" STEAM HEADER AT LOCATION SHOWN. ROUTE 8" STEAM TO SHELL-AND-TUBE HEAT EXCHANGER HX-HS-2. PROVIDE 1/3-2/3 CONTROL VALVE ARRANGEMENT WITH ONE 4" STEAM CONTROL VALVE, ONE 2" CONTROL VALVE AND A 3" BYPASS BRANCH WITH A NORMALLY CLOSED 3" GLOBE VALVE.

KEYED NOTES (CONTINUED):

8. CONNECT 3" VENT FROM OUTLET OF STEAM CONDENSATE PUMP/RECEIVER SET CP-HS-2 TO EXISTING 4" VENT AT LOCATION SHOWN.
9. CONNECT 1-1/4" MAKE UP WATER LINE TO EXISTING 1-1/4" DOMESTIC WATER LINE AT LOCATION SHOWN. PROVIDE PRESSURE REDUCING VALVE UPSTREAM OF CONNETION TO HEATING WATER LOOP WITH PRESSURE SET TO EXPANSION TANK PRE-SET AIR PRESSURE.
10. CONNECT 1-1/2" STEAM CONDENSATE FROM OUTLET OF CP-HS-2 TO EXISTING 1 1/2" STEAM CONDENSATE AT LOCATION SHOWN.
11. PROVIDE STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY AT LOCATION SHOWN WITH 3" STEAM CONDENSATE BRANCH.
12. PROVIDE 2-1/2" STEAM CONDENSATE PIPING FROM BOTTOM OUTLET CONNECTION ON SHELL&TUBE HEAT EXCHANGER. ROUTE 2-1/2" STEAM CONDENSATE TO STEAM TRAP ASSEMBLY, THEN ROUTE TO 3" STEAM CONDENSATE MAIN UPSTREAM OF STEAM CONDENSATE INLET CONNECTION TO CONDENSATE PUMP CP-HS-2.
13. PROVIDE 1/3-2/3 STEAM CONTROL VALVE ASSEMBLY ON THE STEAM PIPING MAIN SERVING HEAT EXCHANGER HX-HS-2. THE 1/3 CONTROL VALVE ARRANGEMENT SHALL BE 4" STEAM PIPE SIZE AND THE 2/3 VALVE ARRANGEMENT SHALL BE 6" STEAM PIPE SIZE. PROVIDE GATE VALVE AND STRAINER ON INLET SIDE OF EACH CONTROL VALVE AND GATE VALVE AT OUTLET OF EACH CONTROL VALVE.
14. PROVIDE 3" STEAM PIPING BYPASS ARRANGEMENT AROUND THE 1/3-2/3 CONTROL VALVE ASSEMBLY WITH A NORMALLY CLOSED 3" GLOBE VALVE IN THE BYPASS PIPING ARRANGEMENT. PROVIDE GATE VALVE UPSTREAM OF GLOBE VALVE.
15. PROVIDE DOMESTIC MAKE-UP WATER PRESSURE REDUCING VALVE WITH PRESSURE SETTING EQUAL TO EXPANSION TANKS EXP-HS-2/EXP-HS-3 AIR PRE-CHARGE SETTING.
16. ROUTE 4" HWS/R PIPING MAINS FROM BOILER ROOM TO CRAWLSPACE. REFER TO DRAWING HS-M107 FOR CONTINUATION.
17. PROVIDE 5" HIGH CONCRETE HOUSEKEEPING PAD AROUND STEAM CONDENSATE PUMP AND RECEIVER SET CP-HS-2.
18. ROUTE HWR FROM OUTLET OF SHELL AND TUBE HEAT EXCHANGER BELOW HWS ROUTED TO INLET OF HEAT EXCHANGER.



A18 BOILER ROOM REMOVALS
1/4" = 1'-0"



A9 BOILER ROOM PLAN
3/8" = 1'-0"

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

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Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
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Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
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REGISTRATION EXPIRES: 11/30/2023

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■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

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Nanuet, NY 10954

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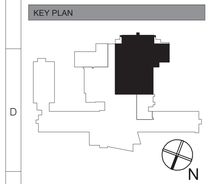

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: As indicated

SHEET NAME:
ENLARGED BOILER ROOM REMOVAL AND INSTALLATION PLANS

SHEET NUMBER:

HS-M108

ISSUE FOR BID SET

DRAWN BY: JLaMor
CHECKED BY: JVen
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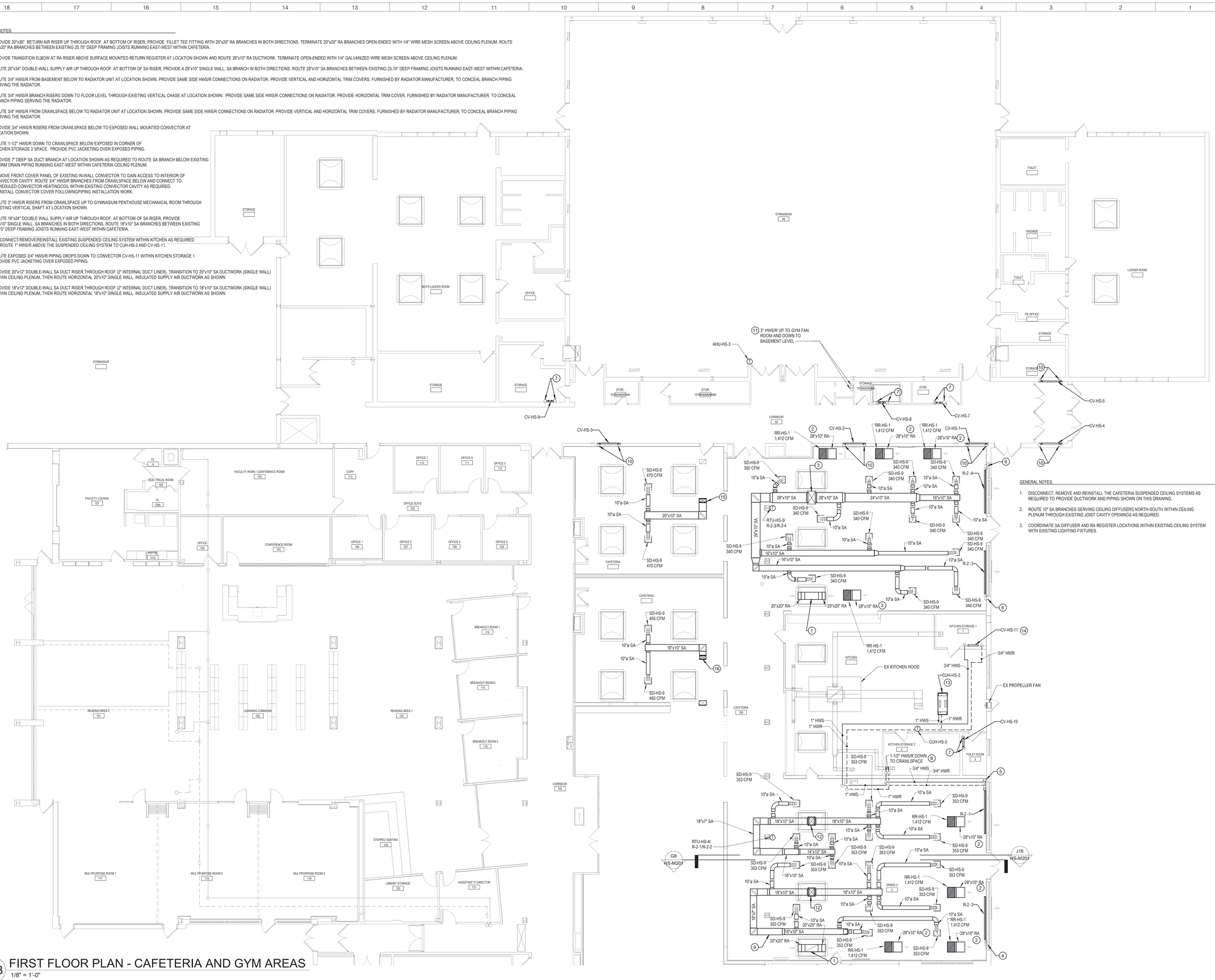
6/5/2023 4:07:17 PM

PROJECT NUMBER: 2111002.00 COPYRIGHT © 2014 KSQ ARCHITECTS, PC

KEYED NOTES:

1. PROVIDE 20"x36" RETURN AIR RISER UP THROUGH ROOF. AT BOTTOM OF RISER, PROVIDE FILLET TEE FITTING WITH 20"x20" RA BRANCHES IN BOTH DIRECTIONS. TERMINATE 20"x20" RA BRANCHES OPEN-ENDED WITH 1/4" WIRE MESH SCREEN ABOVE CEILING PLENUM. ROUTE 20"x20" RA BRANCHES BETWEEN EXISTING 25.75" DEEP FRAMING JOISTS RUNNING EAST-WEST WITHIN CAFETERIA.
2. PROVIDE TRANSITION ELBOW AT RA RISER ABOVE SURFACE MOUNTED RETURN REGISTER AT LOCATION SHOWN AND ROUTE 28"x10" RA DUCTWORK. TERMINATE OPEN-ENDED WITH 1/4" GALVANIZED WIRE MESH SCREEN ABOVE CEILING PLENUM.
3. ROUTE 20"x34" DOUBLE-WALL SUPPLY AIR UP THROUGH ROOF. AT BOTTOM OF SA RISER, PROVIDE A 28"x10" SINGLE WALL, SA BRANCH IN BOTH DIRECTIONS. ROUTE 28"x10" SA BRANCHES BETWEEN EXISTING 25.75" DEEP FRAMING JOISTS RUNNING EAST-WEST WITHIN CAFETERIA.
4. ROUTE 3/4" HWS/R FROM BASEMENT BELOW TO RADIATOR UNIT AT LOCATION SHOWN. PROVIDE SAME SIDE HWS/R CONNECTIONS ON RADIATOR. PROVIDE VERTICAL AND HORIZONTAL TRIM COVERS, FURNISHED BY RADIATOR MANUFACTURER, TO CONCEAL BRANCH PIPING SERVING THE RADIATOR.
5. ROUTE 3/4" HWS/R BRANCH RISERS DOWN TO FLOOR LEVEL THROUGH EXISTING VERTICAL CHASE AT LOCATION SHOWN. PROVIDE SAME SIDE HWS/R CONNECTIONS ON RADIATOR. PROVIDE HORIZONTAL TRIM COVER, FURNISHED BY RADIATOR MANUFACTURER, TO CONCEAL BRANCH PIPING SERVING THE RADIATOR.
6. ROUTE 3/4" HWS/R FROM CRAWLSPACE BELOW TO RADIATOR UNIT AT LOCATION SHOWN. PROVIDE SAME SIDE HWS/R CONNECTIONS ON RADIATOR. PROVIDE VERTICAL AND HORIZONTAL TRIM COVERS, FURNISHED BY RADIATOR MANUFACTURER, TO CONCEAL BRANCH PIPING SERVING THE RADIATOR.
7. PROVIDE 3/4" HWS/R RISERS FROM CRAWLSPACE BELOW TO EXPOSED WALL MOUNTED CONVECTOR AT LOCATION SHOWN.
8. ROUTE 1-1/2" HWS/R DOWN TO CRAWLSPACE BELOW EXPOSED IN CORNER OF KITCHEN STORAGE 2 SPACE. PROVIDE PVC JACKETING OVER EXPOSED PIPING.
9. PROVIDE 7" DEEP SA DUCT BRANCH AT LOCATION SHOWN AS REQUIRED TO ROUTE SA BRANCH BELOW EXISTING STORM DRAIN PIPING RUNNING EAST-WEST WITHIN CAFETERIA CEILING PLENUM.
10. REMOVE FRONT COVER PANEL OF EXISTING IN-WALL CONVECTOR TO GAIN ACCESS TO INTERIOR OF CONVECTOR CAVITY. ROUTE 3/4" HWS/R BRANCHES FROM CRAWLSPACE BELOW AND CONNECT TO SCHEDULED CONVECTOR HEATINGCOIL WITHIN EXISTING CONVECTOR CAVITY AS REQUIRED. REINSTALL CONVECTOR COVER FOLLOWINGPIPING INSTALLATION WORK.
11. ROUTE 3" HWS/R RISERS FROM CRAWLSPACE UP TO GYMNASIUM PENTHOUSE MECHANICAL ROOM THROUGH EXISTING VERTICAL SHAFT AT LOCATION SHOWN.
12. ROUTE 16"x24" DOUBLE WALL SUPPLY AIR UP THROUGH ROOF. AT BOTTOM OF SA RISER, PROVIDE 18"x10" SINGLE WALL, SA BRANCHES IN BOTH DIRECTIONS. ROUTE 18"x10" SA BRANCHES BETWEEN EXISTING 25.75" DEEP FRAMING JOISTS RUNNING EAST-WEST WITHIN CAFETERIA.
13. DISCONNECT/REMOVE/REINSTALL EXISTING SUSPENDED CEILING SYSTEM WITHIN KITCHEN AS REQUIRED TO ROUTE 1" HWS/R ABOVE THE SUSPENDED CEILING SYSTEM TO CUH-HS-3 AND CV-HS-11.
14. ROUTE EXPOSED 3/4" HWS/R PIPING DROPS DOWN TO CONVECTOR CV-HS-11 WITHIN KITCHEN STORAGE 1. PROVIDE PVC JACKETING OVER EXPOSED PIPING.
15. PROVIDE 20"x12" DOUBLE-WALL SA DUCT RISER THROUGH ROOF (2" INTERNAL DUCT LINER), TRANSITION TO 20"x10" SA DUCTWORK (SINGLE WALL) WITHIN CEILING PLENUM, THEN ROUTE HORIZONTAL 20"x10" SINGLE WALL, INSULATED SUPPLY AIR DUCTWORK AS SHOWN.
16. PROVIDE 18"x12" DOUBLE-WALL SA DUCT RISER THROUGH ROOF (2" INTERNAL DUCT LINER), TRANSITION TO 18"x10" SA DUCTWORK (SINGLE WALL) WITHIN CEILING PLENUM, THEN ROUTE HORIZONTAL 18"x10" SINGLE WALL, INSULATED SUPPLY AIR DUCTWORK AS SHOWN.



GENERAL NOTES:

1. DISCONNECT, REMOVE AND REINSTALL THE CAFETERIA SUSPENDED CEILING SYSTEMS AS REQUIRED TO PROVIDE DUCTWORK AND PIPING SHOWN ON THIS DRAWING.
2. ROUTE 10" SA BRANCHES SERVING CEILING DIFFUSERS NORTH-SOUTH WITHIN CEILING PLENUM THROUGH EXISTING JOIST CAVITY OPENINGS AS REQUIRED.
3. COORDINATE SA DIFFUSER AND RA REGISTER LOCATIONS WITHIN EXISTING CEILING SYSTEM WITH EXISTING LIGHTING FIXTURES.

A18 FIRST FLOOR PLAN - CAFETERIA AND GYM AREAS

1/8" = 1'-0"

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

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REGISTRATION EXPIRES: 11/30/2023

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NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

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103 Church St.
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Barr Middle School
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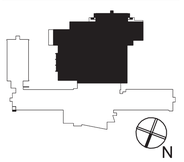
KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME:
FIRST FLOOR PLAN - CAFETERIA AND GYM AREAS

SHEET NUMBER:
HS-M109

ISSUE FOR BID SET

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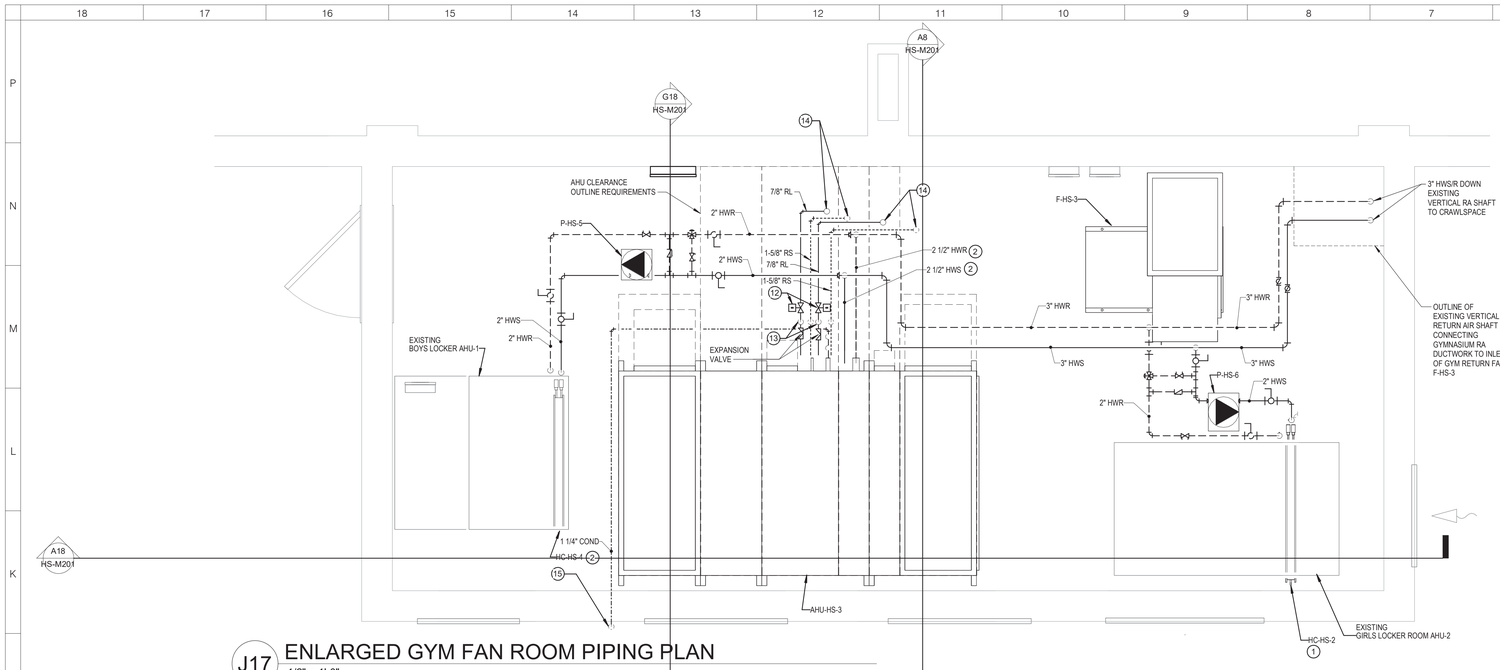
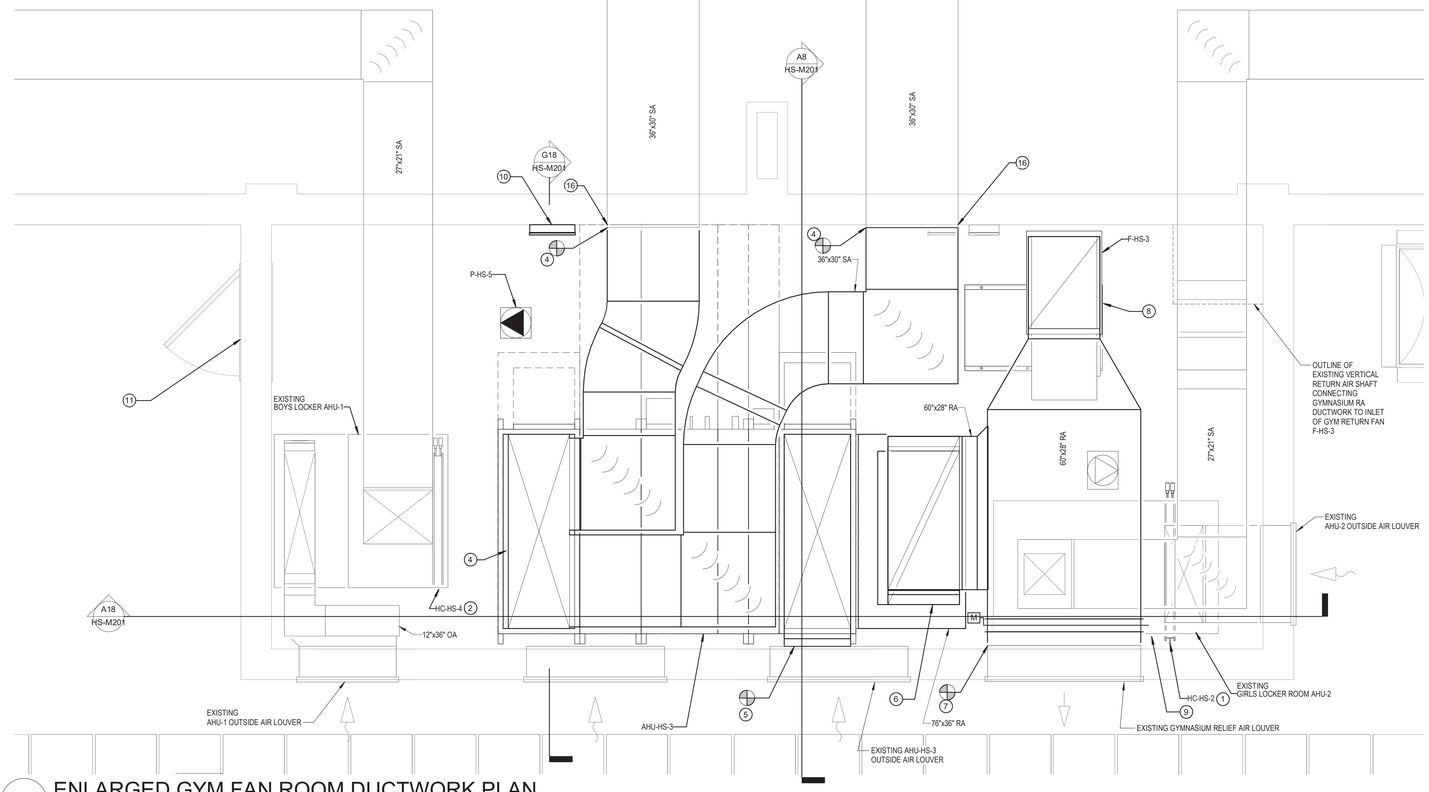


J17 ENLARGED GYM FAN ROOM PIPING PLAN

1/2" = 1'-0"



A18 ENLARGED GYM FAN ROOM DUCTWORK PLAN

1/2" = 1'-0"

KEYED NOTES:

1. PROVIDE A 54" WIDE x 29" HIGH HOT WATER HEATING COIL HC-HS-2 WITHIN EXISTING AIR HANDLER AHU-2 HEATING COIL SECTION. AHU-2 IS A TRANE MODEL MCC80H0 HORIZONTAL AIR HANDLING UNIT. COORDINATE INSTALLATION OF THE HEATING COIL WITHIN THE EXISTING AIR HANDLING UNIT HEATING COIL SECTION WITH THE LOCAL TRANE REPRESENTATIVE. PROVIDE 2" HWS/R DROPS DOWN TO THE HEATING COIL INLET AND OUTLET CONNECTION POINTS.
2. PROVIDE A 51" WIDE x 27" HIGH HOT WATER HEATING COIL HC-HS-4 WITHIN EXISTING AIR HANDLER AHU-1 HEATING COIL SECTION. AHU-1 IS A MCQUAY MODEL CAH008GHAM STACKED AIR HANDLING UNIT. COORDINATE INSTALLATION OF THE HEATING COIL WITHIN THE EXISTING AIR HANDLING UNIT HEATING COIL SECTION WITH THE LOCAL DAIKIN MCQUAY REPRESENTATIVE. PROVIDE 2" HWS/R DROPS DOWN TO THE HEATING COIL INLET AND OUTLET CONNECTION POINTS.
3. PROVIDE 2-1/2" HWS/R BRANCH CONNECTIONS OFF THE 3" HWS/R MAINS AND ROUTE 2-1/2" HWS/R PIPING TO AHU-HS-3 STACKED HEATING COIL. PROVIDE SEPARATE 2" HWS/R CONNECTIONS TO THE BOTTOM AND TOP HEATING COILS ON AHU AS REQUIRED.
4. PROVIDE A 36"x54" SA RISER OUT OF TOP DISHCARGE OUTLET CONNECTION ON AHU-HS-3 AND PROVIDE TWO 36"x30" SA BRANCHES OFF THE RISER, THEN CONNECT TO THE EXISTING 36"x30" SA BRANCHES AT CONNECTION POINTS SHOWN. PROVIDE 1-1/2" THICK GLASS FIBER BOARD INSULATION WITH FIELD APPLIED WEATHERPROOFING JACKETING OVER ALL NEW AND EXISTING SUPPLY AIR DUCTWORK LOCATED WITHIN THE MEZZANINE FAN ROOM.
5. PROVIDE A 26"x36" OUTSIDE AIR CONNECTION TO THE EXISTING 54"x36" OUTSIDE AIR PLENUM AT CONNECTION POINT SHOWN. THEN PROVIDE A MITERED TRANSITION ELBOW FROM THE 26"x36" OA BRANCH AND DROP DOWN TO THE TOP 76"x26" INLET CONNECTION ON AHU-HS-3 MIXING BOX AS REQUIRED.
6. CONNECT TO THE EXISTING 60"x28" HORIZONTAL RA MAIN AT CONNECTION POINT SHOWN ON BOTTOM OF RA MAIN AND PROVIDE A 28"x60" RA DROP TO REAR RA INLET ON AHU-HS-3. PROVIDE A 28"x60" VERTICAL 45 DEGREE ENTRY TAP INTO THE 76"x36" HORIZONTAL RA DUCT CONNECTED TO THE REAR RA INLET OF AHU AS REQUIRED.
7. PROVIDE A TRANSITION FROM TOP OUTLET OF FLOOR MOUNTED UTILITY FAN F-HS-3 AND ROUTE 60"x28" RA MAIN TO EXISTING RELIEF AIR DUCT MAIN UPSTREAM OF EXISTING RELIEF AIR LOUVER AT CONNECTION POINT SHOWN.
8. PROVIDE OPEN-ENDED RA INLET TO FLOOR MOUNTED UTILITY FAN F-HS-3. PROVIDE INLET GUARD OVER OPENING. RETURN AIR TO FAN IS ACCOMPLISHED VIA THE EXISTING VERTICAL RA SHAFT CONNECTING THE GYM RA DUCTWORK TO THE GYM MECHANICAL PENTHOUSE.
9. PROVIDE AN ELECTRONIC MOTORIZED DAMPER AND ACTUATOR UPSTREAM OF THE RELIEF AIR LOUVER AND PROVIDE CONTROL WIRING TO THE ACTUATOR CONNECTED TO THE DDC CONTROLLERS LOCATED WITHIN THE GYMNASIUM FAN ROOM.
10. PROVIDE A DDC CONTROL PANEL ENCLOSURE AT LOCATION SHOWN TO HOUSE THE DDC CONTROLLERS SERVING THE NEW CONTROL EQUIPMENT WITHIN THE GYMNASIUM FAN ROOM.
11. RIG AIR HANDLING UNIT AHU-HS-3 TO CAFETERIA ROOFTOP OUTSIDE GYMNASIUM PENTHOUSE DOORWAY AS REQUIRED. RIG UNIT IN 5 SECTIONS: MIXING BOX SECTION, PANEL FILTER/HOT WATER COIL SECTION, DX COIL SECTION, SUPPLY FAN ARRAY SECTION AND DISCHARGE PLENUM SECTION. COMPLETELY DISASSEMBLE EACH INDIVIDUAL AHU SECTION OUTSIDE THE PENTHOUSE, THEN DELIVER THE AHU SECTION PIECES TO THE INSTALLATION LOCATION WITHIN THE PENTHOUSE, THEN RE-ASSEMBLE THE AHU SECTIONS AS REQUIRED. THE SUPPLY FAN MODULE SECTION SHALL INCLUDE FOUR CENTRIFUGAL PLENUM FANS IN A 2 ROW x 2 COLUMN ARRANGEMENT. COORDINATE THE DISASSEMBLY/RE-ASSEMBLY OF THE UNIT WITH THE AHU MANUFACTURER'S REPRESENTATIVE. THE MAXIMUM LENGTH OF EACH SECTION SHALL BE 32" WITH MAXIMUM WIDTH OF 80" AND MAXIMUM HEIGHT OF 72".
12. PROVIDE 120-VOLT LINE VOLTAGE SOLENOID VALVES ON THE TWO REFRIGERANT LIQUID LINE CIRCUITS UPSTREAM OF THE COOLING COIL CONNECTIONS. THE SOLENOID VALVES ON THE LIQUID LINES SHALL BE INSTALLED UPSTREAM OF THE THERMAL EXPANSION VALVES AND SIGHT GLASSES AND DOWNSTREAM OF THE LIQUID LINE FILTER DRIERS.
13. PROVIDE TRAP ON REFRIGERANT LIQUID PIPING LINES UPSTREAM OF COOLING COIL LIQUID CONNECTIONS TO PROTECT THERMAL EXPANSION VALVES. COORDINATE LOCATION AND SIZE OF TRAP WITH MANUFACTURER'S REPRESENTATIVE PRIOR TO INSTALLATION.
14. PROVIDE TWO REFRIGERANT PIPING CIRCUITS BETWEEN ROOFTOP AIR COOLED CONDENSING UNIT ACCU-HS-2 AND DX COOLING COIL WITHIN AHU-HS-3. EACH CIRCUIT SHALL INCLUDE 1-5/8" REFRIGERANT SUCTION-7/8" REFRIGERANT LIQUID LINES. PROVIDE TRAPS AT BASE OF EACH REFRIGERANT SUCTION LINE PRIOR TO RISER PENETRATIONS UP THROUGH ROOF. COORDINATE SIZE OF ALL PIPING LINES WITH MANUFACTURER'S REPRESENTATIVE PRIOR TO INSTALLATION.
15. ROUTE 1-1/4" CONDENSATE DRAIN PIPING FROM AHU-HS-3 DRAIN PAN OUTLET OUT THROUGH EXTERIOR WALL. TERMINATE WITH MITER CUT ELBOW OPEN-ENDED FACING ROOF SURFACE.
16. PROVIDE CLOSED CELL, SPRAY FOAM INSULATION WITHIN THE MASONRY WALL GAPS SEPARATING THE MEZZANINE FAN ROOM AND THE GYMNASIUM AROUND THE EXISTING SUPPLY DUCTS PENETRATION THE WALL TO AVOID CONDENSATION ON THE OUTER SURFACE OF THE DUCTWORK ONCE MECHANICAL AIR CONDITIONING IS OPERATIONAL.

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
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Construction Manager

Jacobs
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54th Floor, Suite 5420
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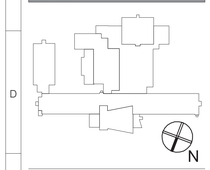
KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

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

SHEET NAME:
GYMNASIUM FAN ROOM PLAN

SHEET NUMBER:

HS-M110

ISSUE FOR BID SET

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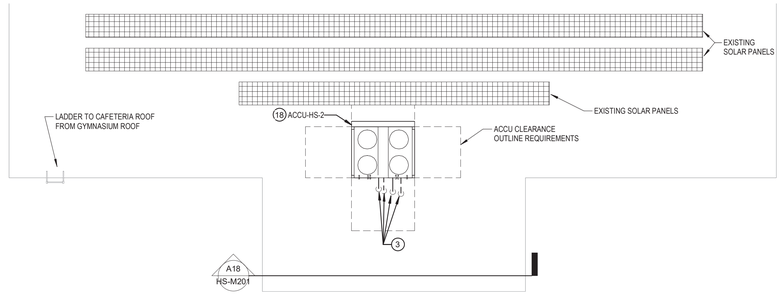
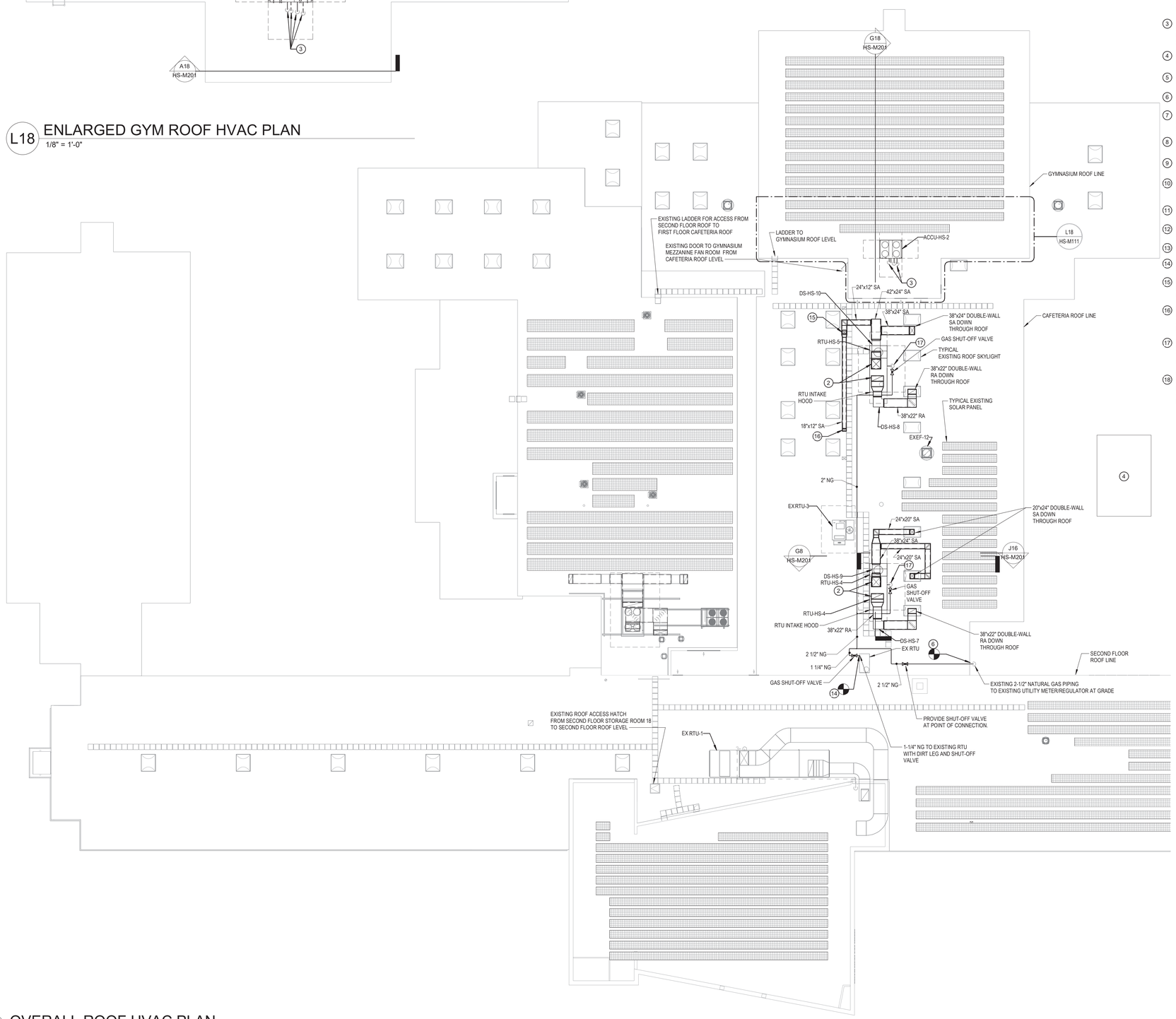


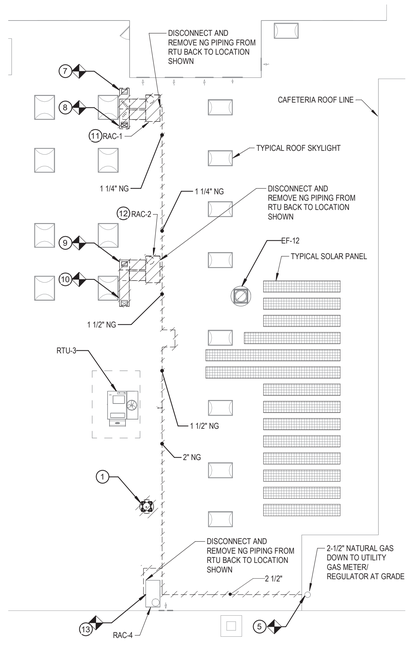
L18 ENLARGED GYM ROOF HVAC PLAN

1/8" = 1'-0"



A18 OVERALL ROOF HVAC PLAN

1/16" = 1'-0"



A4 OVERALL ROOF HVAC REMOVALS

1/16" = 1'-0"

GENERAL NOTES:

1. ROOF MOUNTED SUPPLY DUCTWORK SHALL BE INTERNALLY LINED, DOUBLE-WALL DUCTWORK WITH 2" THICK DUCT LINER. DUCT DIMENSIONS LISTED ARE EXTERNAL DIMENSIONS.
2. ROOF MOUNTED RETURN DUCTWORK SHALL BE INTERNALLY LINED, DOUBLE-WALL DUCTWORK WITH 1" THICK DUCT LINER. DUCT DIMENSIONS LISTED ARE EXTERNAL DIMENSIONS.
3. PROVIDE WEATHER PROOFING JACKETING OVER ALL, EXPOSED ROOFTOP SUPPLY AND RETURN DUCTWORK INCLUDING OVER ROOFTOP DUCT SILENCERS.
4. PROVIDE EQUIPMENT AND DUCTWORK IDENTIFICATION ON THE OUTSIDE OF THE WEATHER PROOFING JACKETING FOR ALL ROOFTOP DUCTWORK SYSTEMS AND DUCT SILENCERS.

KEYED NOTES:

1. DISCONNECT AND REMOVE ABANDONED EXHAUST FAN AT LOCATION SHOWN. DISCONNECT ABANDONED EXHAUST AIR DUCT AT ROOF PENETRATION AND CAP. REMOVE ROOF CURB.
2. PROVIDE BOTTOM DISCHARGE AND INLET CONNECTIONS TO RTU-HS-4 AND RTU-HS-5 AND ROUTE SA AND RA DUCT MAINS ON ROOF. RTU-HS-4 AND RTU-HS-5 SHALL BE MOUNTED ON TOP OF STEEL BEAMS ABOVE ROOF SURFACE. SA AND RA DUCT MAINS SHALL BE EXPOSED ABOVE ROOF SURFACE FOLLOWING DUCT PENETRATIONS IN AND OUT OF THE BOTTOM OF THE RTU. MOUNT RTU ON TOP OF STEEL DUNNAGE PER MANUFACTURER'S RECOMMENDATIONS AND AFFIX RTU PERIMETER BASE RAIL TO STEEL PER MANUFACTURER'S INSTRUCTION. SUPPORT THE ENTIRE PERIMETER OF THE RTU ON THE STEEL DUNNAGE.
3. PROVIDE TWO REFRIGERANT PIPING CIRCUITS FROM ROOFTOP AIR COOLED CONDENSING UNIT ACCU-HS-2 DOWN THROUGH ROOF TO TWO SECTION DX COOLING COIL WITHIN AHU-HS-3. EACH CIRCUIT SHALL INCLUDE 1-5/8" REFRIGERANT SUCTION-7/8" REFRIGERANT LIQUID LINES. PROVIDE INVERTED TRAPS AT TOP OF EACH REFRIGERANT SUCTION LINE PRIOR TO SUCTION LINE CONNECTION TO CONDENSING UNIT. COORDINATE SIZE OF ALL PIPING LINES WITH MANUFACTURER'S REPRESENTATIVE PRIOR TO INSTALLATION.
4. APPROXIMATE LOCATION OF CRANE FOR RIGGING AHU-HS-3 COMPONENTS TO CAFETERIA ROOF AND FOR RIGGING RTUs TO CAFETERIA ROOM. CRANE TO BE LOCATED IN EXISTING PARKING LOT LOCATED NORTH OF CAFETERIA ROOF.
5. DISCONNECT AND REMOVE ROOF MOUNTED NATURAL GAS PIPING BACK TO DISCONNECTION POINT SHOWN AT TOP OF 2-1/2" GAS RISER FROM UTILITY METER/REGULATOR LOCATED AT GRADE LEVEL, INCLUDING BRANCH CONNECTIONS TO GAS FIRED ROOFTOP UNITS.
6. CONNECT TO EXISTING NATURAL GAS PIPING RISER MAIN LOCATED ON CAFETERIA ROOF AND ROUTE NATURAL GAS PIPING TO GAS PIPING CONNECTIONS ON ROOFTOP UNITS AS SHOWN.
7. DISCONNECT AND REMOVE ROOFTOP RETURN DUCTWORK SERVING RAC-1 TO 18"x12" ROOF PENETRATION. PROVIDE CURB CAP ABOVE ROOF PENETRATION AND ABANDON RA RISER BELOW ROOF PENETRATION. PROVIDE ROOF FLASHING OVER CURB CAP ABOVE ROOF SURFACE AS REQUIRED.
8. DISCONNECT AND REMOVE ROOFTOP SUPPLY DUCTWORK SERVING RAC-1 INCLUDING 20"x12" ROOF PENETRATION DOWN TO FIRST FLOOR CEILING. MAINTAIN ROOF PENETRATION OPENING FOR REUSE AS SHOWN ON DRAWING HS-M109.
9. DISCONNECT AND REMOVE ROOFTOP RETURN DUCTWORK SERVING RAC-2 INCLUDING 18"x12" ROOF PENETRATION DOWN TO FIRST FLOOR CEILING. MAINTAIN ROOF PENETRATION OPENING FOR REUSE AS SHOWN ON DRAWING HS-M109.
10. DISCONNECT AND REMOVE ROOFTOP SUPPLY DUCTWORK SERVING RAC-2 TO 20"x12" ROOF PENETRATION. PROVIDE CURB CAP ABOVE ROOF PENETRATION AND ABANDON SA RISER BELOW ROOF PENETRATION. PROVIDE ROOF FLASHING OVER CURB CAP ABOVE ROOF SURFACE AS REQUIRED.
11. DISCONNECT AND REMOVE ROOFTOP UNIT RAC-1 AND ITS ASSOCIATED ROOF CURB. DISCONNECT AND REMOVE ALL ASSOCIATED CONTROLS, PROGRAMMING, GRAPHICS AT THE DDC SYSTEM FRONT END AND CONTROL WIRING.
12. DISCONNECT AND REMOVE ROOFTOP UNIT RAC-2 AND ITS ASSOCIATED ROOF CURB. DISCONNECT AND REMOVE ALL ASSOCIATED CONTROLS, PROGRAMMING, GRAPHICS AT THE DDC SYSTEM FRONT END AND CONTROL WIRING.
13. DISCONNECT AND REMOVE 1-1/4" NATURAL GAS PIPING CONNECTION TO ROOFTOP UNIT TO REMAIN.
14. PROVIDE 1-1/4" NATURAL GAS PIPING BRANCH TO EXISTING ROOFTOP UNIT AND RECONNECT GAS PIPING TO INLET CONNECTION ON EXISTING RTU AS REQUIRED.
15. PROVIDE 20"x12" SA, DOUBLE-WALL (2" THICK INTERNAL DUCT LINER) DROP FROM BOTTOM OF SA MAIN DOWN THROUGH ROOF. UTILIZE EXISTING ROOF PENETRATION FOR RISER THROUGH ROOF. PROVIDE 12" HIGH INSULATED ROOF CURB WITH INSULATED TOP AT PENETRATION THROUGH ROOF.
16. PROVIDE 18"x12" SA, DOUBLE-WALL (2" THICK INTERNAL DUCT LINER) SA DOWN THROUGH ROOF. UTILIZE EXISTING ROOF PENETRATION FOR RISER THROUGH ROOF. PROVIDE 90 DEGREE ELBOW WITH TURNING VANES AT TRANSITION FROM HORIZONTAL ROOF MOUNTED DUCTWORK TO SA RISER THROUGH ROOF. PROVIDE 12" HIGH INSULATED ROOF CURB WITH INSULATED TOP AT PENETRATION THROUGH ROOF.
17. ROUTE 2" NATURAL GAS PIPING ABOVE ROOF SURFACE BELOW RTU, THEN PROVIDE 2" GAS PIPE RISE UP TO DUAL GAS INLET CONNECTION ON RTU. PROVIDE ONE CONNECTION THROUGH RTU CABINET, THEN PROVIDE TWO CONNECTIONS TO RTU GAS HEAT EXCHANGER PER MANUFACTURER'S RECOMMENDATION WITHIN RTU HEAT EXCHANGER CABINET. PROVIDE DIRT LEG PER DETAIL A18 ON DRAWING HS-M602 UPSTREAM OF CONNECTION THROUGH RTU CABINET.
18. MOUNT CONDENSING UNIT ACCU-HS-2 ON 12" EQUIPMENT ROOF CURB SYSTEM. EQUIPMENT SUPPORT SHALL BE SIZED TO SUPPORT CONDENSING UNIT CORNER WEIGHTS OF 632, 729, 630 AND 728 POUNDS. PROVIDE STEEL CHANNELS OR I-BEAM FRAMES FOR THE EQUIPMENT STRUCTURAL SUPPORT MECHANISM. PROVIDE RESTRAINED SPRING ISOLATORS CAPABLE OF 2" DEFLECTION AT EACH OF THE 4 CORNERS OF THE CONDENSING UNIT AND MOUNT THE BOTTOM OF THE CONDENSING UNIT TO THE TOP OF THE SPRING ISOLATORS AS REQUIRED.

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
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Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
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Environmental Engineer

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REGISTRATION EXPIRES: 11/30/2023

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NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
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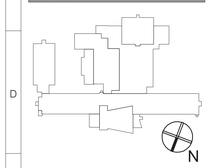
KEY PLAN



REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: As indicated

SHEET NAME:
OVERALL ROOF HVAC PLAN

SHEET NUMBER:
HS-M111

ISSUE FOR BID SET

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PROJECT NUMBER: 2111002.00

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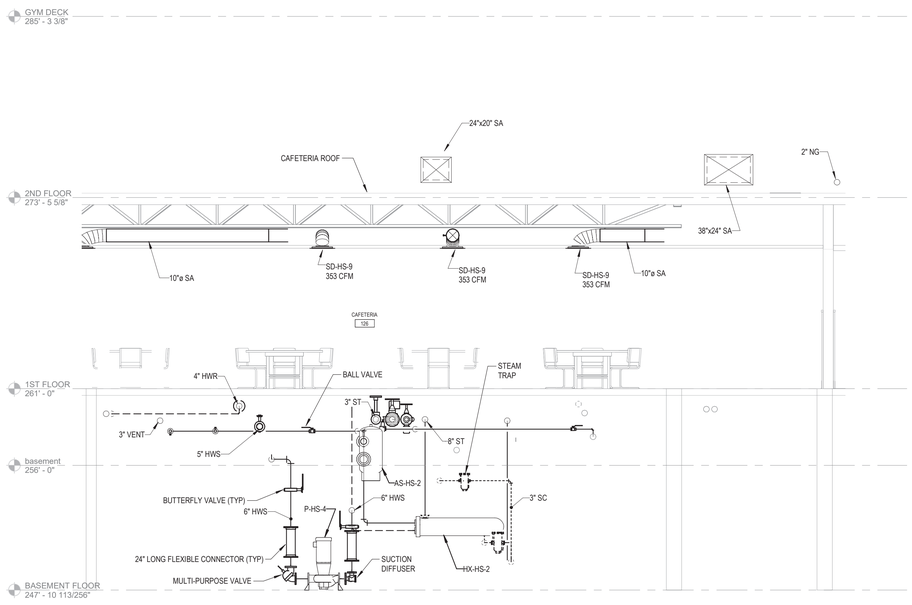
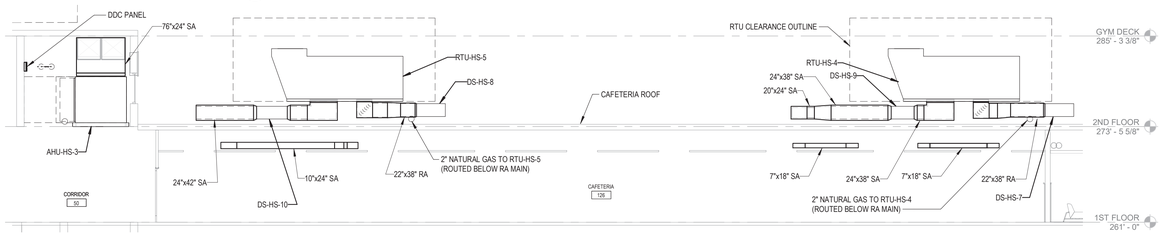
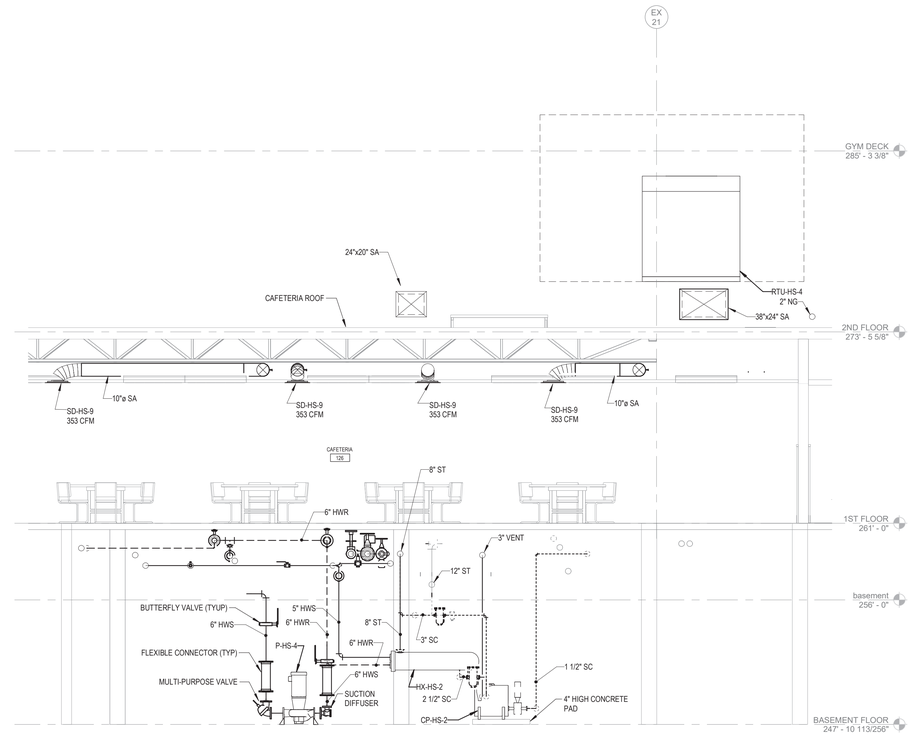


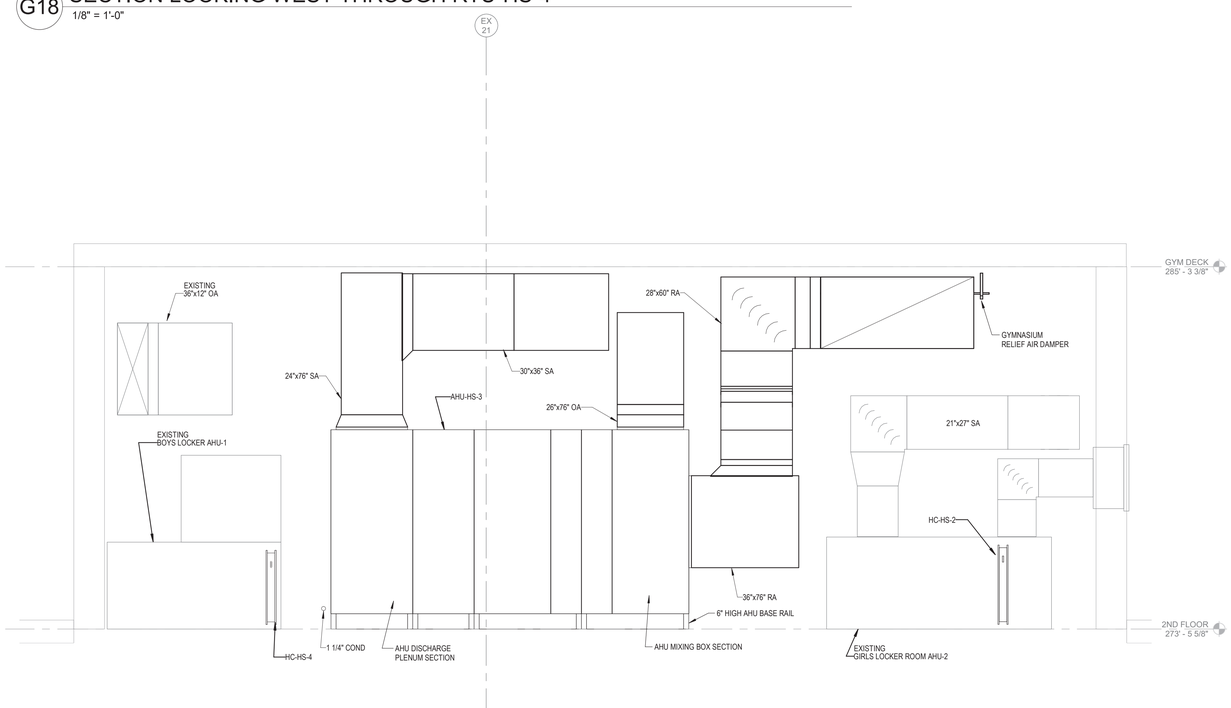
J16 SECTION LOOKING SOUTH THROUGH BOILER ROOM
1/4" = 1'-0"



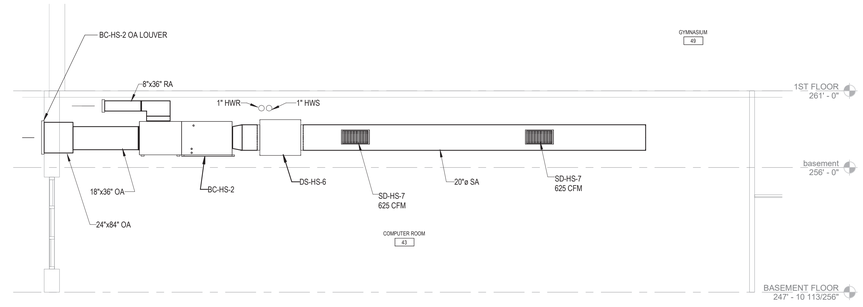
G18 SECTION LOOKING WEST THROUGH RTU-HS-4
1/8" = 1'-0"



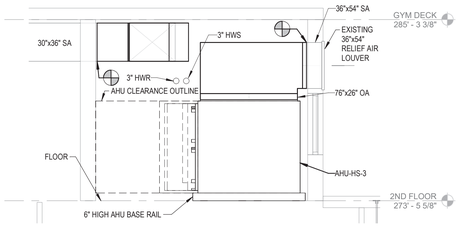
G8 SECTION LOOKING NORTH THROUGH BOILER ROOM
1/4" = 1'-0"



A18 SECTION LOOKING SOUTH THROUGH GYMNASIUM PENTHOUSE MECHANICAL ROOM
1/2" = 1'-0"



D8 SECTION LOOKING WEST THROUGH WOODSHOP 43
1/4" = 1'-0"



A8 SECTION LOOKING WEST THROUGH AHU-HS-3
1/4" = 1'-0"

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

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11/30/2023

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BOND
PROJECTS
PH3

☐ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
☐ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: As indicated
SHEET NAME:
HVAC SECTIONS

SHEET NUMBER:
HS-M201

ISSUE FOR BID SET

DRAWN BY: Author
CHECKED BY: Checker
Checker:Sheet:Documents:0986 NANUET HS-MECH_Union:R23TJ.rvt
6/5/2023 4:07:31 PM

PROJECT NUMBER: 2111002.00

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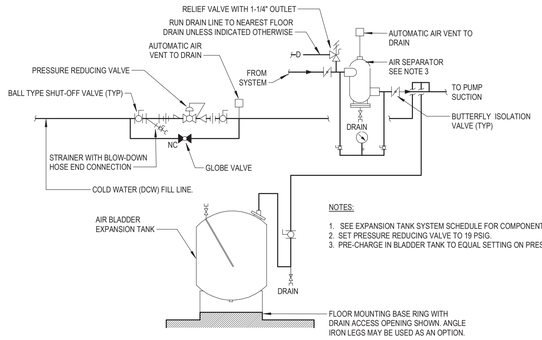
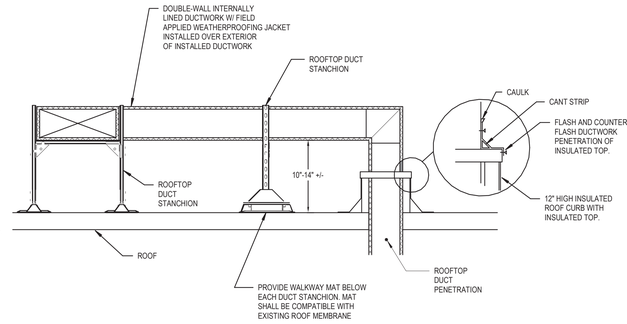


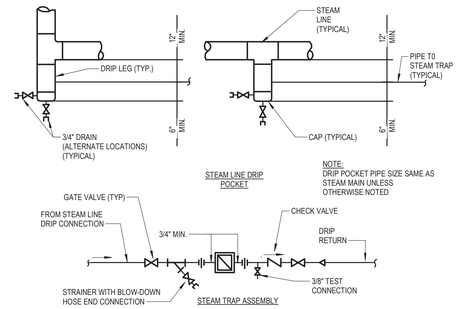
NOTES:

1. SEE EXPANSION TANK SYSTEM SCHEDULE FOR COMPONENT SIZES.
2. SET PRESSURE REDUCING VALVE TO 19 PSIG.
3. PRE-CHARGE IN BLADDER TANK TO EQUAL SETTING ON PRESSURE REDUCING VALVE

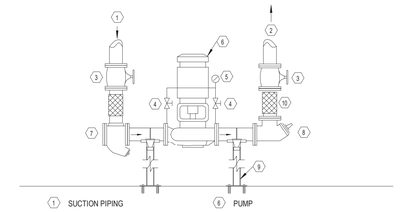
L18 FLOOR MOUNTED EXPANSION TANK - PIPING CONNECTIONS
NOT TO SCALE



L12 ROOFTOP DUCTWORK INSTALLATION DETAIL
NOT TO SCALE

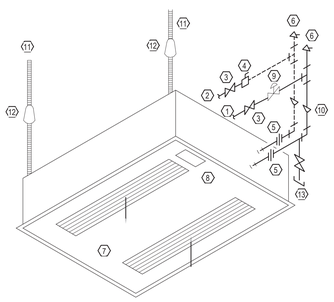


L7 STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY
NOT TO SCALE



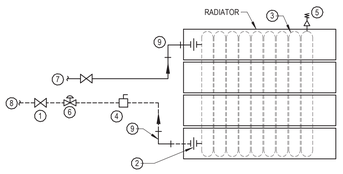
1. SUCTION PIPING
2. DISCHARGE PIPING
3. SHUT-OFF VALVE (TYP)
4. SHUTOFF BALL COCK
5. PRESSURE GAUGE
6. PUMP
7. SUCTION DIFFUSER
8. COMBINATION PUMP DISCHARGE VALVE
9. FLOOR MOUNTED PIPE SUPPORT (TYP) EXPANSION ANCHOR TO FLOOR
10. FLEX CONNECTOR (TYP)

L4 SPLIT COUPLED VERTICAL INLINE PUMP INSTALLATION DETAIL
NOT TO SCALE



1. HWS
2. HWR
3. SHUT-OFF VALVE
4. BALANCING VALVE
5. UNION
6. MANUAL AIR VENT
7. HINGED FRONT PANEL
8. LOCKED ACCESS DOOR
9. 2-WAY CONTROL VALVE
10. INCREASER/REDUCER (TYP)
11. HANGER RODS TO STRUCTURE ABOVE
12. VIBRATION ISOLATORS
13. DRAIN VALVE W/ HOSE END AND CAP

G18 CEILING CABINET UNIT HEATER INSTALLATION DETAIL
NOT TO SCALE

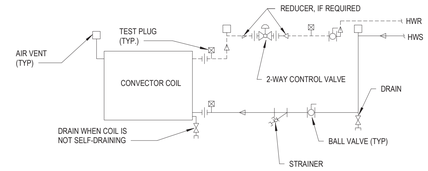


1. SHUT-OFF VALVE (TYP)
2. UNION (TYP)
3. FIN ELEMENT
4. BALANCE VALVE
5. AIR VENT
6. 2-WAY MODULATING CONTROL VALVE
7. HWS
8. HWR
9. EXPANSION COMPENSATOR

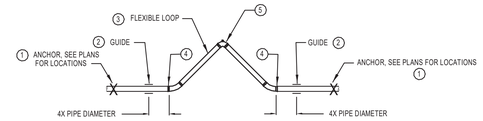
NOTE:

1. DETAIL FOR PIPING TO RADIATION PIPED FROM THE SIDE TO SAME END CONNECTIONS ON RADIATOR.

H13 HOT WATER RADIATION PANEL DETAIL
NOT TO SCALE

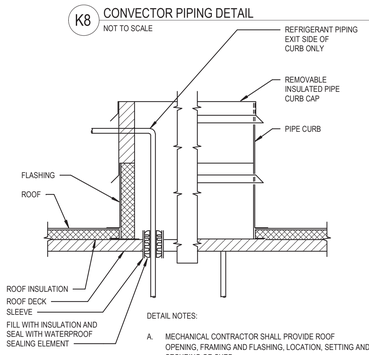


K8 CONVECTOR PIPING DETAIL
NOT TO SCALE



1. METRAFLEX MODEL PA OR EQUAL
2. GUIDE: METRAFLEX STYLE 4 SPIDER TYPE
3. METRAFLEX MODEL VLF WITH 3" MOVEMENT OR EQUAL
4. WELD END JOINT ON STEEL PIPE, BRAZED JOINTS ON COPPER PIPE
5. SUPPORT ELBOW WHEN INSTALLED IN THE HORIZONTAL

J5 HEATING WATER EXPANSION LOOP DETAIL
NOT TO SCALE

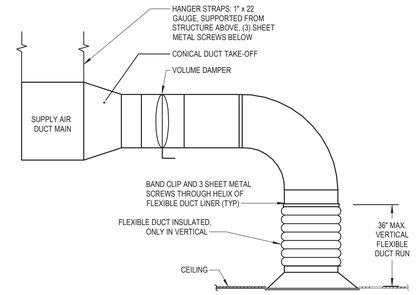


DETAIL NOTES:

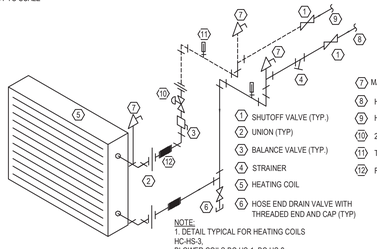
A. MECHANICAL CONTRACTOR SHALL PROVIDE ROOF OPENING, FRAMING AND FLASHING, LOCATION, SETTING AND SECURING OF CURB.

B. PROVIDE SHIMS WHERE REQUIRED TO LEVEL CURB.

F9 SIDE ENTRY REFRIGERANT PIPING CURB PENETRATION DETAIL
NOT TO SCALE

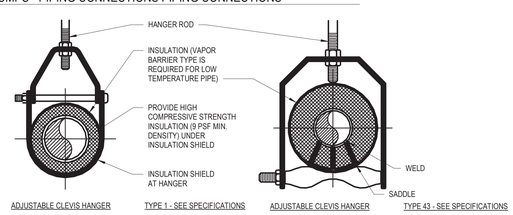


F5 SUPPLY AIR DUCTWORK CONNECTION DETAIL TO SUPPLY DIFFUSERS
NOT TO SCALE

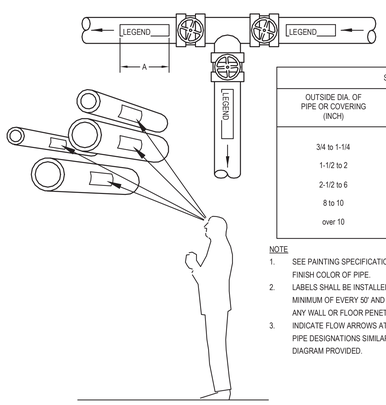


NOTE:
1. DETAIL TYPICAL FOR HEATING COILS HC-HS-3, BLOWER COILS BC-HS-1, BC-HS-2

E18 HEATING COIL INSTALLATION DETAIL - 2-WAY CONTROL VALVES
NOT TO SCALE



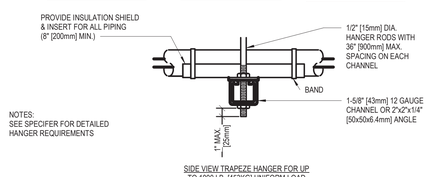
E13 CONDENSATE PUMPS - PIPING CONNECTIONS PIPING CONNECTIONS
NOT TO SCALE



SIZE OF LEGEND LETTERS		
OUTSIDE DIA. OF PIPE OR COVERING (INCH)	LENGTH OF COLOR FIELD [A] (INCH)	LETTER HEIGHT [B] (INCH)
3/4 to 1-1/4	8	1/2
1-1/2 to 2	8	3/4
2-1/2 to 6	12	1-1/4
8 to 10	24	2-1/2
over 10	32	3-1/2

NOTE

1. SEE PAINTING SPECIFICATION FOR FINISH COLOR OF PIPE.
2. LABELS SHALL BE INSTALLED AT A MINIMUM OF EVERY 50' AND AT ANY WALL OR FLOOR PENETRATION.
3. INDICATE FLOW ARROWS AT EACH PIPE DESIGNATIONS SIMILAR TO DIAGRAM PROVIDED.



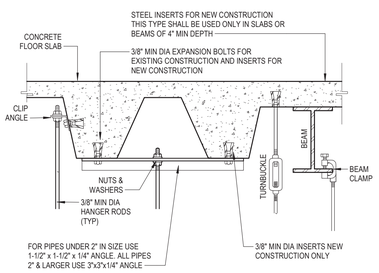
NOTES:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. [453KG] UNIFORM LOAD

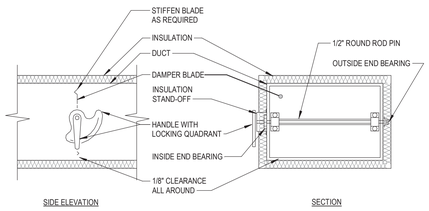
MAXIMUM PIPE/TUBING SUPPORT SPACING																		
NOM. SIZE	IN. [mm]	THRU 3/4 THRU [20]	1 [25]	1 1/4 [32]	1 1/2 [40]	2 [50]	2 1/2 [65]	3 [75]	4 [100]	5 [125]	6 [150]	8 [200]	10 [250]	12 [300]	14 [350]	16 [400]	18 [450]	20 [500]	24 [600]
PIPE	FT. [mm]	7 [2100]	7 [2100]	7 [2100]	9 [2700]	10 [3000]	11 [3400]	12 [3700]	14 [4100]	16 [4900]	17 [5200]	19 [5800]	22 [6700]	23 [7000]	25 [7600]	27 [8200]	28 [8500]	30 [9100]	32 [9600]
TUBING	FT. [mm]	5 FT [1500]	6 [1800]	7 [2100]	8 [2400]	8 [2400]	9 [2700]	10 [3000]	12 [3700]	13 [4000]	14 [4100]	16 [4900]	-	-	-	-	-	-	-
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																			

A18 PIPING SYSTEM IDENTIFICATION
NOT TO SCALE

A13 PIPE HANGERS
NOT TO SCALE



A8 SECURING HANGER RODS DETAIL
NOT TO SCALE

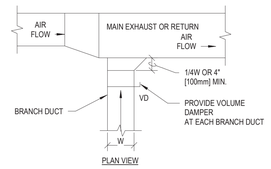


DETAIL NOTES:

A. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.

B. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS AND ROUND DAMPERS.

A4 DUCTWORK VOLUME DAMPER DETAIL
NOT TO SCALE



D4 EXHAUST/RETURN BRANCH DUCTWORK
NOT TO SCALE

NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET

D8 FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY
NOT TO SCALE

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

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REGISTRATION EXPIRES: 11/30/2023

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NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: As indicated

SHEET NAME:
HVAC DETAILS

SHEET NUMBER:
HS-M601

ISSUE FOR BID SET

DRAWN BY: Author
CHECKED BY: Checker
Checker/Sheet/Documents/086 NANUET HS-MEOV_Ulmer.RVT.rvt

6/5/2023 4:07:34 PM

PROJECT NUMBER: 2111002.00

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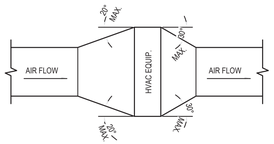
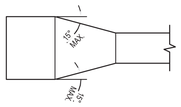


TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW

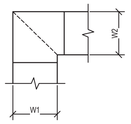


TYPICAL DUCTWORK TRANSITION PLAN OR SIDE VIEW

NOTE:

1. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

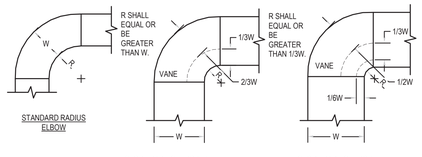
M17 DUCTWORK TRANSITIONS INSTALLATION DETAIL
NOT TO SCALE



NOTE:

1. ALL VANED ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

M13 DUCTWORK SQUARE VANED ELBOW DETAIL
NOT TO SCALE



STANDARD RADIUS ELBOW

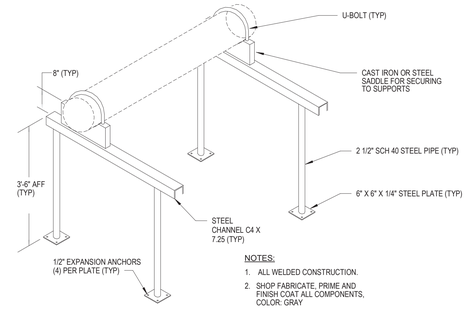
SHORT RADIUS ELBOW WITH ONE VANE

SHORT RADIUS ELBOW WITH TWO VANES

NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

M9 DUCTWORK RADIUS ELBOW DETAIL
NOT TO SCALE



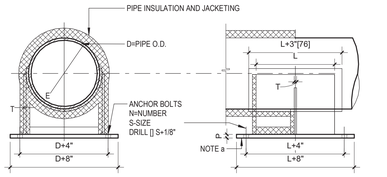
NOTES:

1. ALL WELDED CONSTRUCTION.
2. SHOP FABRICATE, PRIME AND FINISH COAT ALL COMPONENTS, COLOR: GRAY

M4 HEAT EXCHANGER SUPPORT DETAIL
NOT TO SCALE

PIPE ANCHOR SCHEDULE

D		L		F		E		D		N		S		BOLT PATTERN
IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
6"	152	8 1/2"	216	3/4"	19	3/8"	10	1/4"	6	4"	102	7/8"	22	
8"	203	10"	254	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22	
10"	254	12"	305	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22	
12"	305	14"	356	3/4"	19	1/2"	13	1/4"	6	4"	102	7/8"	22	
14"	356	16"	406	3/4"	19	1/2"	13	1/2"	13	4"	102	7/8"	22	
16"	406	18"	457	3/4"	19	1/2"	13	1/2"	13	4"	102	7/8"	22	
18"	457	20"	508	1"	25	1/2"	16	1/2"	13	6"	152	1"	25	



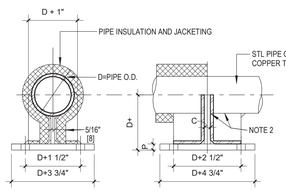
NOTES:

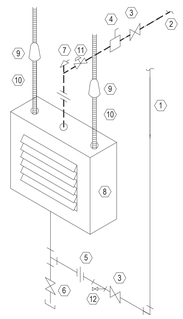
1. INSTALL WALL PLATE FIRST THEN WELD ON REMAINING ASSEMBLY.
2. WHERE USED FOR COPPER TUBE OR PIPE, BRAZE TO FABRICATED STEEL ANCHOR

H17 PIPE ANCHORS
NOT TO SCALE

PIPE ANCHOR SCHEDULE

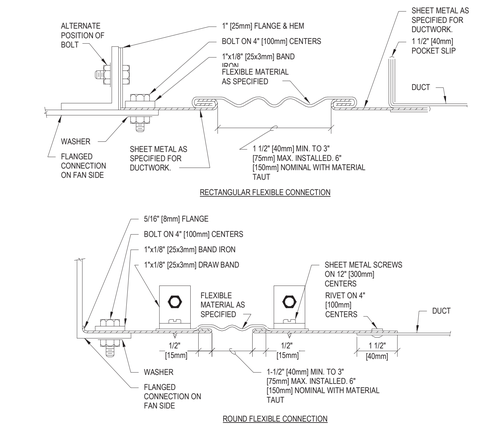
D		P		C		N		S		BOLT PATTERN
IN	MM									
4"	102	5/8"	16	3/4"	19	4"	102	3/4"	19	
3"	76	1/2"	13	1/2"	13	4"	102	5/8"	16	
2 1/2"	64	3/8"	10	3/8"	10	4"	102	5/8"	16	
2"	51	3/8"	10	3/8"	10	4"	102	5/8"	16	
1 1/2"	38	3/8"	10	1/4"	6	4"	102	1/2"	13	





1. HWS
2. HWR
3. SHUT-OFF VALVE
4. BALANCING VALVE
5. UNION
6. DRAIN VALVE W/ HOSE END AND CAP
7. MANUAL AIR VENT
8. UNIT HEATER
9. VIBRATION ISOLATOR (TYP.)
10. THREADED ROD (SUPPORT TO STRUCTURE)
11. CONTROL VALVE
12. STRAINER

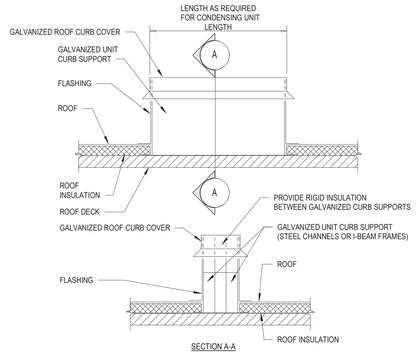
H12 HYDRONIC UNIT HEATER DETAIL
1/2" = 1'-0"



RECTANGULAR FLEXIBLE CONNECTION

ROUND FLEXIBLE CONNECTION

H9 FLEXIBLE DUCT CONNECTIONS
NOT TO SCALE

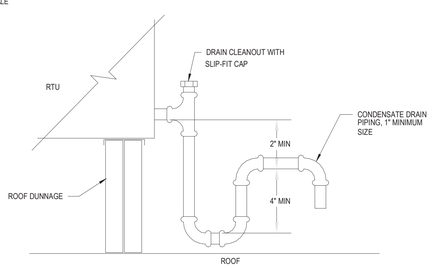


SECTION A-A

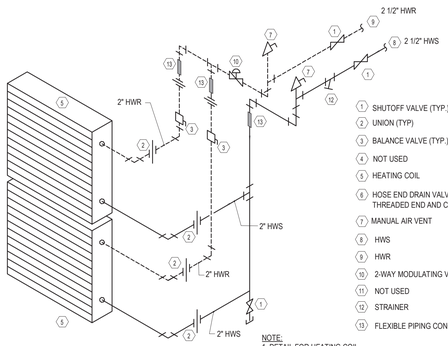
DETAIL NOTES:

A. CONTRACTOR SHALL CUT BACK INSULATION AND PROVIDE FLASHING, LOCATION, SETTING AND SECURING OF CURB.
B. PROVIDE SHIMS WHERE REQUIRED TO LEVEL CURB.
C. LENGTH OF SUPPORTS AS REQUIRED FOR HEAT PUMP LENGTH. PROVIDE BLOCKING BENEATH SUPPORTS IN FLUTES OF METAL DECKS.
D. MECHANICAL CONTRACTOR SHALL CONTACT AND COORDINATE TIE-IN TO EXISTING ROOFING SYSTEMS IN ACCORDANCE WITH EXISTING ROOFING MANUFACTUER'S RECOMMENDATIONS AND WARRANTY REQUIREMENTS.

G4 CONDENSING UNIT ROOF CURB SUPPORT DETAIL
NOT TO SCALE



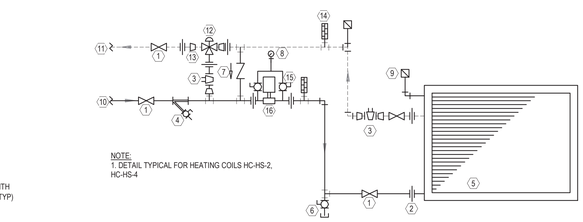
F18 RTU CONDENSATE DRAIN DETAIL
NOT TO SCALE



1. SHUTOFF VALVE (TYP.)
2. UNION (TYP)
3. BALANCE VALVE (TYP.)
4. NOT USED
5. HEATING COIL
6. HOSE END DRAIN VALVE WITH THREADED END AND CAP (TYP)
7. MANUAL AIR VENT
8. HWS
9. HWR
10. 2-WAY MODULATING VALVE
11. NOT USED
12. STRAINER
13. FLEXIBLE PIPING CONNECTION

NOTE:
1. DETAIL FOR HEATING COIL SERVING AHU-HS-3

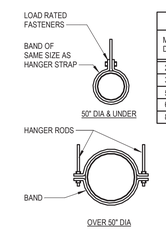
E13 DOUBLE STACK HOT WATER COIL PIPING DETAIL
NOT TO SCALE



NOTE:
1. DETAIL TYPICAL FOR HEATING COILS HC-HS-2, HC-HS-4

1. SHUTOFF VALVE (TYP)
2. UNION (TYP)
3. BALANCE VALVE
4. STRAINER
5. HEATING COIL
6. HOSE END DRAIN VALVE WITH THREADED END AND CAP
7. CHECK VALVE
8. PRESSURE GAGE
9. MANUAL AIR VENT (TYP)
10. HOT WATER SUPPLY
11. HOT WATER RETURN
12. 3-WAY MODULATING CONTROL
13. REDUCER (TYP)
14. THERMOMETER (TYP)
15. BALL VALVE
16. PUMP

E9 3-WAY VALVE HEATING COIL DETAIL
NOT TO SCALE

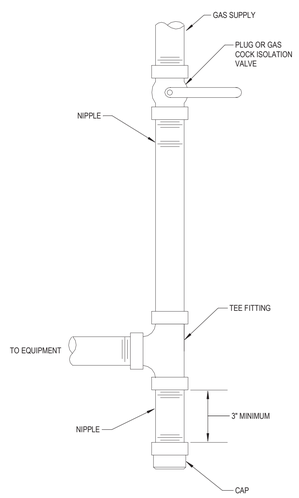


HANGER STRAPS OR RODS

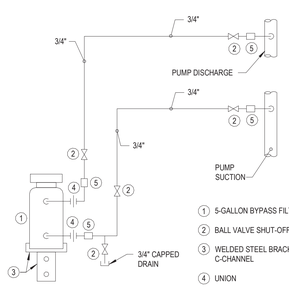
MAX. DUCT DIA IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10] ∅ . RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13] ∅ RODS	2500 [1133]	144 [3600]

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

E4 ROUND DUCT HANGERS
NOT TO SCALE



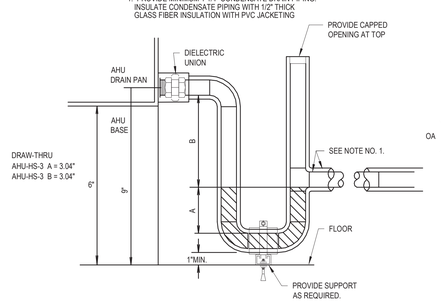
A18 GAS LEG DETAIL
NOT TO SCALE



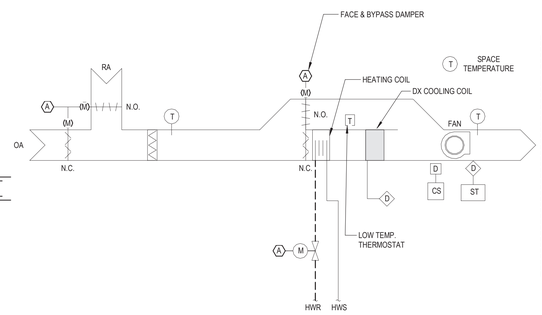
1. 5-GALLON BYPASS FILTER FEEDER
2. BALL VALVE SHUT-OFF
3. WELDED STEEL BRACKET FABRICATED FROM C-CHANNEL
4. UNION
5. DIELECTRIC NIPPLE

A16 CLOSED HEATING WATER SYSTEM FILTER FEEDER DETAIL
1/2" = 1'-0"

NOTES:
1. PROVIDE MINIMUM 1-1/4" CONDENSATE DRAIN PIPING. INSULATE CONDENSATE PIPING WITH 1/2" THICK GLASS FIBER INSULATION WITH PVC JACKETING



A13 AHU CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



UNIT VENTILATOR POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
ZONE SPACE TEMPERATURE			X			T, A
ZONE SETPOINT ADJUSTMENT			X			
DISCHARGE AIR TEMPERATURE			X			T
FACE AND BYPASS DAMPER OPERATION				X		T
UNIT VENTILATOR FAN START/STOP		X				RT, T
RETURN AIR/OUTSIDE AIR DAMPER OPERATION				X		T
ZONE OVERRIDE	X					
LOW TEMPERATURE THERMOSTAT	X				X	A
UNIT VENTILATOR FAN STATUS	X					A
MIXED AIR TEMPERATURE			X			T
2-WAY MODULATING HEATING CONTROL VALVE				X		T
DX COOLING OPERATION		X				RT, T

A9 EXISTING UNIT VENTILATOR CONTROL DIAGRAM
NOT TO SCALE

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

STATE OF NEW YORK · JOHN VENDITTI · 082994 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 11/30/2023

NANUET

NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE

DATE: 06/06/2023

SCALE: As indicated

SHEET NAME:
HVAC DETAILS AND CONTROL DIAGRAMS

SHEET NUMBER:
HS-M602

ISSUE FOR BID SET

DRAWN BY: Author
CHECKED BY: Checker
Checker3Dwg=F:\Documents\3860-NANUET-HS-MECH_sheepsDET37.rvt
6/5/2023 4:07:37 PM

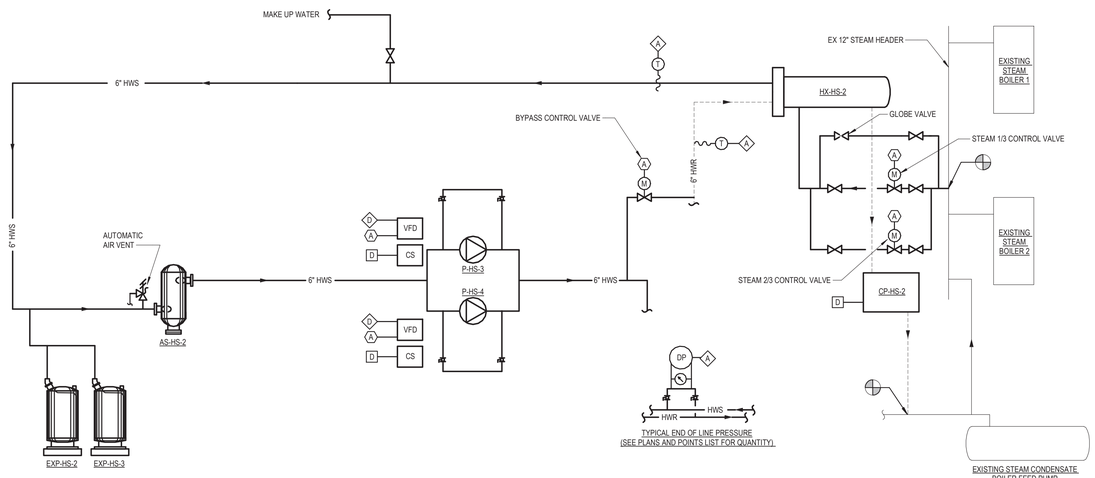
PROJECT NUMBER: 2111002.00 COPYRIGHT © 2014 KSQ ARCHITECTS, PC

HEATING WATER SYSTEM POINTS LIST

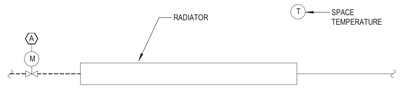
ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
HOT WATER SUPPLY TEMPERATURE			X			T
HOT WATER RETURN TEMPERATURE			X			T
PUMP P-HS-3 START/STOP		X				RT, T
PUMP P-HS-4 START/STOP		X				RT, T
PUMP P-HS-3 SPEED				X		T
PUMP P-HS-4 SPEED				X		T
PUMP P-HS-3 STATUS	X					A
PUMP P-HS-4 STATUS	X					A
STEAM 1/3-CONTROL VALVE (cV RATING = 63.3)				X		RT, T
STEAM 2/3-CONTROL VALVE (cV RATING = 126.5)				X		RT, T
HEATING LOOP DIFFERENTIAL PRESSURE			X			T
HEATING LOOP BYPASS CONTROL VALVE (cV RATING = 55.9)				X		RT, T
CONDENSATE PUMP CP-HS-2 HIGH WATER ALARM	X					A

NOTE:

1. THE MECHANICAL CONTRACTOR SHALL PROVIDE IMMERSION WELLS WITHIN THE HWS&R PIPING WITHIN THE BOILER ROOM TO PROVIDE THE TEMPERATURE SENSORS OUTLINED IN THE CONTROL DIAGRAM.



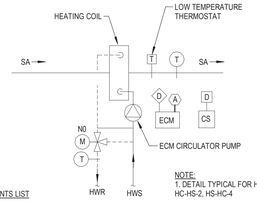
J18 HOT WATER FLOW AND CONTROL DIAGRAM
NOT TO SCALE



WALL RADIATOR/FLOOR RADIATOR/CEILING RADIATOR POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	NOTES
HEATING CONTROL VALVE				X	T
SPACE TEMPERATURE			X		T, A

G18 FLOOR HEATING RADIATION CONTROL DIAGRAM
NOT TO SCALE

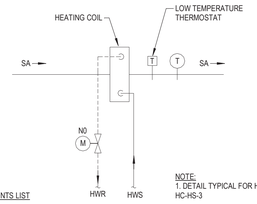


NOTE:
1. DETAIL TYPICAL FOR HEATING COILS HC-HS-2, HS-HC-4

HEATING WATER COIL POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
3-WAY MODULATING HEATING CONTROL VALVE				X		T
DISCHARGE AIR TEMPERATURE			X			T
LOW TEMPERATURE THERMOSTAT	X				X	A
HEATING COIL PUMP START/STOP		X				RT, T
HEATING COIL PUMP STATUS	X					RT, T
HEATING COIL RETURN WATER TEMPERATURE			X			T
HEATING COIL PUMP SPEED			X			T

D18 HEATING COIL CONTROL DIAGRAM
NOT TO SCALE

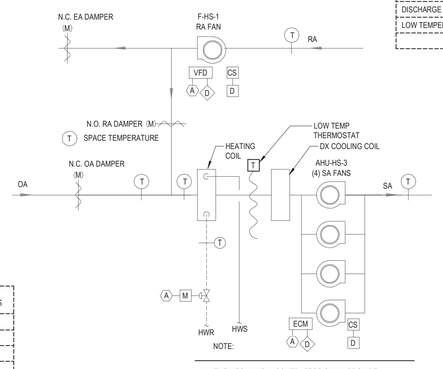


NOTE:
1. DETAIL TYPICAL FOR HEATING COIL HC-HS-3

HEATING WATER COIL POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
2-WAY MODULATING HEATING CONTROL VALVE				X		T
DISCHARGE AIR TEMPERATURE			X			T
LOW TEMPERATURE THERMOSTAT	X				X	A

G9 HEATING COIL CONTROL DIAGRAM - 2-WAY CONTROL VALVES
NOT TO SCALE



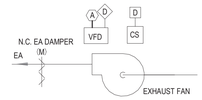
NOTE:
1. THE MECHANICAL CONTRACTOR SHALL PROVIDE IMMERSION WELL WITHIN THE EXISTING HWR PIPING TO PROVIDE THE TEMPERATURE SENSOR OUTLINED IN THE CONTROL DIAGRAM

D13 GYMNASIUM AHU-HS-3 CONTROL DIAGRAM
NOT TO SCALE

AHU-HS-3 POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
AHU-HS-3 SUPPLY FAN START / STOP		X				RT, T
RETURN AIR DAMPER				X		T
OUTSIDE AIR DAMPER				X		T
OUTSIDE AIR TEMPERATURE			X			T
SUPPLY AIR TEMPERATURE			X			T
AHU-HS-3 SPACE TEMPERATURE			X			T
LOW TEMPERATURE THERMOSTAT	X				X	A
AHU-HS-3 SUPPLY FAN STATUS	X					A
HEATING COIL 2-WAY CONTROL VALVE (cV=23.6)				X		T
HEATING COIL RETURN TEMP			X			T
RETURN AIR TEMPERATURE			X			T
AHU MIXED AIR TEMPERATURE			X			T
AHU SUPPLY FAN SPEED				X		T
F-HS-3 RETURN FAN SPEED				X		T
F-HS-3 RETURN FAN START / STOP		X				RT, T
F-HS-3 RETURN FAN STATUS	X					A
EXHAUST AIR DAMPER				X		T
DX COOLING OPERATION				X		T

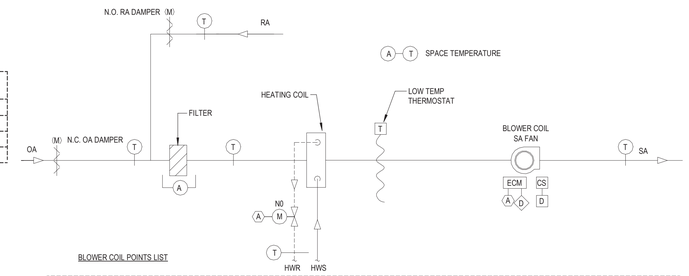
NOTE: THE DDC SYSTEM CONTROLLER SHALL SEND A 0-10 VDC SIGNAL TO THE AHUs ASSOCIATED AIR COOLED CONDENSING UNIT REFRIGERATION SYSTEM CONTROLLER TO ALLOW THE RTU TO MODULATE THE COOLING.



EXHAUST FAN F-HS-2 POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	NOTES
FAN START/STOP		X			RT, T
FAN STATUS	X				A
MOTORIZED DAMPER		X			T
EXHAUST FAN SPEED				X	T

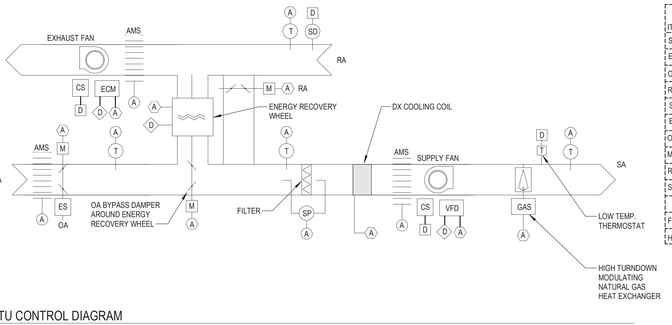
K4 WOODSHOP-ART ROOM EXHAUST FAN CONTROL DIAGRAM
NOT TO SCALE



BLOWER COIL POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
BLOWER COIL SUPPLY FAN START / STOP		X				RT, T
OUTSIDE AIR DAMPER				X		T
RETURN AIR DAMPER				X		T
BLOWER COIL SUPPLY FAN SPEED				X		T
OUTSIDE AIR TEMPERATURE			X			T
MIXED AIR TEMPERATURE			X			T
RETURN AIR TEMPERATURE			X			T
SUPPLY AIR TEMPERATURE			X			T
FILTER DIFFERENTIAL PRESSURE			X			T, A
LOW TEMPERATURE THERMOSTAT	X				X	A
BLOWER COIL SUPPLY FAN STATUS	X					A
SPACE TEMPERATURE			X			T, A
HEATING COIL CONTROL VALVE				X		T
HEATING COIL HWR TEMPERATURE			X			T

D6 BLOWER COIL UNIT CONTROL DIAGRAMS
NOT TO SCALE



A18 RTU CONTROL DIAGRAM
NOT TO SCALE

RTU-HS-4 AND RTU-HS-5 POINTS LIST

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	NOTES
SUPPLY FAN START / STOP		X			RT, T
EXHAUST FAN START / STOP		X			RT, T
OUTSIDE AIR DAMPER				X	T
RETURN AIR DAMPER				X	T
SUPPLY FAN SPEED				X	T
EXHAUST FAN SPEED				X	T
OUTSIDE AIR TEMPERATURE			X		T
MIXED AIR TEMPERATURE			X		T
RETURN AIR TEMPERATURE			X		T
SUPPLY DISCHARGE AIR TEMPERATURE			X		T
FILTER STATUS			X		A
HIGH TURNDOWN MODULATING NATURAL GAS HEAT EXCHANGER				X	T

ITEM	DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	LOCAL INTERLOCK	NOTES
RETURN AIR SMOKE DETECTOR	X				X	A
SUPPLY FAN STATUS	X					A
EXHAUST FAN STATUS	X					A
OUTSIDE AIRFLOW MEASURING STATION			X			T
SUPPLY AIRFLOW MEASURING STATION			X			T
EXHAUST AIRFLOW MEASURING STATION			X			T
DX COOLING OPERATION				X		T
LOW TEMPERATURE THERMOSTAT	X				X	A
ENERGY RECOVERY WHEEL START/STOP		X				RT, T
ENERGY RECOVERY WHEEL SPEED				X		T
ENERGY RECOVERY BYPASS DAMPER				X		T

NOTES:
1. THE DDC SYSTEM CONTROLLER SHALL SEND A 0-10 VDC SIGNAL TO THE RTU REFRIGERATION SYSTEM CONTROLLER TO ALLOW THE RTU TO MODULATE THE COOLING.
2. THE DDC SYSTEM CONTROLLER SHALL SEND A 0-10 VDC SIGNAL TO THE RTU GAS HEATING CONTROLLER TO ALLOW THE RTU TO MODULATE THE HEATING.

ARCHITECT

ksqdesign

NEW YORK OKLAHOMA

KSQ Design
215 W 40th Street 15th Floor
New York, NY 10018
646.435.0660 office
www.ksq.design

Owner

Nanuet Union Free School District
103 Church St, Nanuet, NY 10954
845.627.9880 office
http://www.nanuetsd.org/

Structural Engineer

Clapper Structural Engineering
160 Partition Street
Saugerties, NY 12477
845.943.9601
www.clapperstructural.com

MEP Engineer

Sage Engineering Associates, LLP
9 Columbia Circle
Albany NY 12203
518.453.6091 office
518.453.6092 fax
www.sagellp.com

Environmental Engineer

Quest Environmental Solutions
1376 Route 9
Wappingers Falls, NY 12590
845.298.6251
www.qualityenv.com

Construction Manager

Jacobs
One Penn Plaza
54th Floor, Suite 5420
New York, NY 10119
646.908.6550
www.jacobs.com

STATE OF NEW YORK · JOHN VENDITTI · 083994 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 11/30/2023

NANUET

NUFSD BOND PROJECTS PH3

■ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
□ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: NOT TO SCALE
SHEET NAME: CONTROL DIAGRAMS
SHEET NUMBER: HS-M603

ISSUE FOR BID SET

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