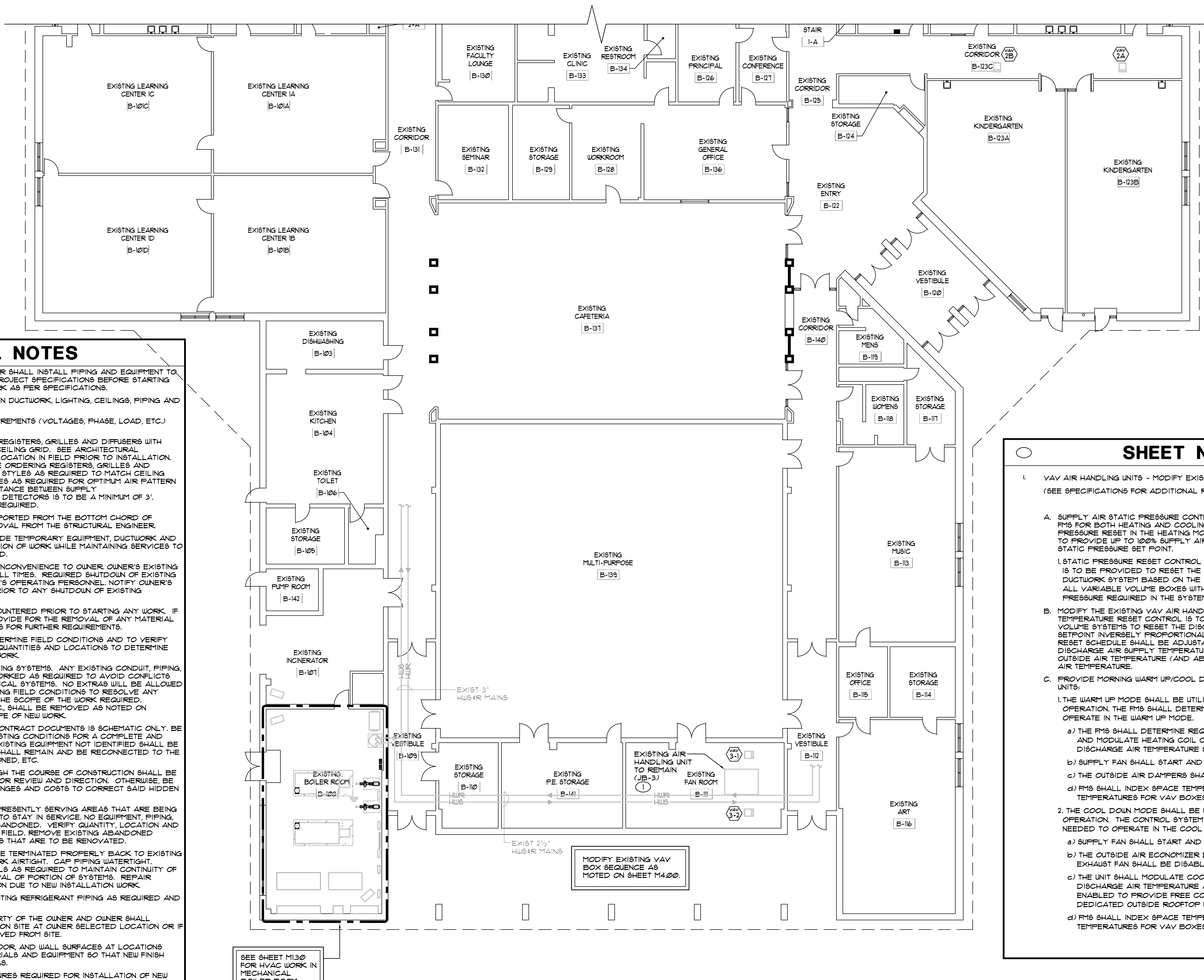


1 PARTIAL FIRST FLOOR PLAN - MECHANICAL FLOOR PLAN
3/32" = 1'-0"

GENERAL NOTES

A. LAYOUT IS DIAGRAMMATIC AND CONTRACTOR SHALL INSTALL PIPING AND EQUIPMENT TO MEET ACTUAL FIELD CONDITIONS. REVIEW PROJECT SPECIFICATIONS BEFORE STARTING ANY WORK. SUBMIT SHOP DRAWINGS OF WORK AS PER SPECIFICATIONS.

B. LAYOUT WORK TO AVOID CONFLICTS BETWEEN DUCTWORK, LIGHTING, CEILINGS, PIPING AND BUILDING STRUCTURE.

C. COORDINATE EQUIPMENT ELECTRICAL REQUIREMENTS (VOLTAGES, PHASE, LOAD, ETC.) BEFORE ORDERING ANY EQUIPMENT.

D. COORDINATE EXACT LOCATION OF CEILING REGISTERS, GRILLES AND DIFFUSERS WITH LIGHTING LAYOUT, SPRINKLER HEADS, AND CEILING GRID. SEE ARCHITECTURAL REFLECTED CEILING PLAN. VERIFY EXACT LOCATION IN FIELD PRIOR TO INSTALLATION. VERIFY CEILING STYLES AND TYPES BEFORE ORDERING REGISTERS, GRILLES AND DIFFUSERS. PROVIDE APPROPRIATE FRAME STYLES AS REQUIRED TO MATCH CEILING STYLE AND TYPES. SET ADJUSTABLE BLADES AS REQUIRED FOR OPTIMUM AIR PATTERN AND TO PREVENT DRAFTS. THE MINIMUM DISTANCE BETWEEN SUPPLY DIFFUSERS/REGISTERS AND SMOKE OR HEAT DETECTORS IS TO BE A MINIMUM OF 3'. COORDINATE WITH FIRE ALARM SYSTEM AS REQUIRED.

E. PIPING, EQUIPMENT, ETC. SHALL NOT BE SUPPORTED FROM THE BOTTOM CHORD OF ENGINEERED JOISTS WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

F. COORDINATE PHASING OF WORK AND PROVIDE TEMPORARY EQUIPMENT, DUCTWORK AND PIPING AS REQUIRED FOR THE IMPLEMENTATION OF WORK WHILE MAINTAINING SERVICES TO PORTIONS OF BUILDING TO REMAIN OCCUPIED.

G. SCHEDULE WORK TO AVOID DOWNTIME AND INCONVENIENCE TO OWNER. OWNER'S EXISTING FACILITY SHALL REMAIN IN OPERATION AT ALL TIMES. REQUIRED SHUTDOWN OF EXISTING UTILITIES SHALL BE SCHEDULED WITH OWNER'S OPERATING PERSONNEL. NOTIFY OWNER'S REPRESENTATIVE 48 HOURS IN ADVANCE PRIOR TO ANY SHUTDOWN OF EXISTING MECHANICAL SYSTEMS.

H. VERIFY IF EXISTING ASBESTOS WILL BE ENCOUNTERED PRIOR TO STARTING ANY WORK. IF ASBESTOS IS PRESENT, THE OWNER WILL PROVIDE FOR THE REMOVAL OF ANY MATERIAL CONTAINING ASBESTOS. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS.

I. VISIT SITE PRIOR TO BIDDING TO FULLY DETERMINE FIELD CONDITIONS AND TO VERIFY EXISTING MECHANICAL SYSTEMS INCLUDING QUANTITIES AND LOCATIONS TO DETERMINE THE FULL EXTENT OF NEW AND DEMOLITION WORK.

J. COORDINATE NEW INSTALLATIONS WITH EXISTING SYSTEMS. ANY EXISTING CONDUIT, PIPING, DUCTWORK, EQUIPMENT, ETC., SHALL BE REWORKED AS REQUIRED TO AVOID CONFLICTS WITH THE INSTALLATION OF THE NEW MECHANICAL SYSTEMS. NO EXTRAS WILL BE ALLOWED AFTER BIDDING FOR ANY REWORK OF EXISTING FIELD CONDITIONS TO RESOLVE ANY CONFLICTS OR NOT FULLY UNDERSTANDING THE SCOPE OF THE WORK REQUIRED. EXISTING EQUIPMENT, DUCTWORK, PIPING, ETC., SHALL BE REMOVED AS NOTED ON DRAWINGS AND AS REQUIRED TO MEET SCOPE OF NEW WORK.

K. EXISTING INFORMATION IDENTIFIED ON THE CONTRACT DOCUMENTS IS SCHEMATIC ONLY. BE RESPONSIBLE TO PROPERLY ADDRESS EXISTING CONDITIONS FOR A COMPLETE AND PROPER INSTALLATION OF NEW SYSTEMS. EXISTING EQUIPMENT NOT IDENTIFIED SHALL BE REVIEWED AS TO WHETHER THE EQUIPMENT SHALL REMAIN AND BE RECONNECTED TO THE NEW SERVICES, BE RELOCATED, BE ABANDONED, ETC.

L. ANY HIDDEN CONDITIONS IDENTIFIED THROUGH THE COURSE OF CONSTRUCTION SHALL BE IMMEDIATELY REPORTED IN WRITTEN FORM FOR REVIEW AND DIRECTION. OTHERWISE, BE RESPONSIBLE FOR ANY AND REQUIRED CHANGES AND COSTS TO CORRECT SAID HIDDEN CONDITION.

M. REMOVE EXISTING EQUIPMENT, PIPING, ETC. PRESENTLY SERVING AREAS THAT ARE BEING RENOVATED AND THAT ARE NOT REQUIRED TO STAY IN SERVICE. NO EQUIPMENT, PIPING, SUPPORTS, HANGERS, ETC, IS TO BE LEFT ABANDONED. VERIFY QUANTITY, LOCATION AND ELEVATION OF EXISTING TO BE REMOVED IN FIELD. REMOVE EXISTING ABANDONED EQUIPMENT, DUCTWORK AND PIPING IN AREAS THAT ARE TO BE RENOVATED.

N. REMOVED PIPING AND CONTROLS ARE TO BE TERMINATED PROPERLY BACK TO EXISTING MAINS. PATCH AND SEAL EXISTING DUCTWORK AIRTIGHT. CAP PIPING WATERTIGHT. PROVIDE ADDITIONAL, PIPING AND CONTROLS AS REQUIRED TO MAINTAIN CONTINUITY OF EXISTING SYSTEMS MODIFIED DUE TO REMOVAL OF PORTION OF SYSTEMS. REPAIR DAMAGED DUCTWORK AND PIPING INSULATION DUE TO NEW INSTALLATION WORK.

O. CAPTURE EXISTING REFRIGERANT FROM EXISTING REFRIGERANT PIPING AS REQUIRED AND REUSE OR DISPOSE OF IN A LEGAL MANNER.

P. EXISTING EQUIPMENT SHALL REMAIN PROPERTY OF THE OWNER AND OWNER SHALL DETERMINE IF EQUIPMENT IS TO BE STORED ON SITE AT OWNER SELECTED LOCATION OR IF EQUIPMENT IS TO BE ABANDONED OR REMOVED FROM SITE.

Q. PROVIDE FINISHING OF EXISTING CEILING, FLOOR, AND WALL SURFACES AT LOCATIONS AFFECTED BY REMOVAL OF EXISTING MATERIALS AND EQUIPMENT SO THAT NEW FINISH WILL MATCH EXISTING IN SURROUNDING AREAS.

R. REMOVE EXISTING CEILINGS AND LIGHT FIXTURES REQUIRED FOR INSTALLATION OF NEW WORK. REINSTALL CEILING AND LIGHT FIXTURES UPON COMPLETION OF WORK. REPLACE DAMAGED CEILING MATERIALS TO MATCH EXISTING.

S. REPAIR AND/OR REPLACE DAMAGED PIPE INSULATION THAT OCCURS AS THE RESULT OF THIS CONSTRUCTION.

T. MINIMUM SIZE FOR HOT WATER HEATING SUPPLY AND RETURN PIPING TO BE 3/4".

U. DRAIN AND REFILL EXISTING PIPING SYSTEMS AS REQUIRED FOR INSTALLATION OF NEW WORK. PROVIDE CHEMICAL TREATMENT, GLYCOL/ANTI-FREEZE MIXTURE FOR WATER PIPING SYSTEM ACCORDING TO OWNER'S REQUIREMENTS AFTER SYSTEM IS FILLED AND VENTED. PROPERLY VENT PIPING SYSTEMS.

SHEET NOTES

1. VAV AIR HANDLING UNITS - MODIFY EXISTING SEQUENCE AS FOLLOWS:
(SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.)

A. SUPPLY AIR STATIC PRESSURE CONTROL SHALL BE DETERMINED BY THE FMS FOR BOTH HEATING AND COOLING MODES. MODIFY THE STATIC PRESSURE RESET IN THE HEATING MODE TO ALLOW THE AIR HANDLING UNIT TO PROVIDE UP TO 100% SUPPLY AIR AS DETERMINED TO MAINTAIN DUCT STATIC PRESSURE SET POINT.

1. STATIC PRESSURE RESET CONTROL FOR VARIABLE AIR VOLUME SYSTEMS IS TO BE PROVIDED TO RESET THE STATIC PRESSURE SETPOINT IN THE DUCTWORK SYSTEM BASED ON THE POSITION OF THE VAV DAMPERS FOR ALL VARIABLE VOLUME BOXES WITHIN THE SYSTEM TO MINIMIZE THE STATIC PRESSURE REQUIRED IN THE SYSTEM.

B. MODIFY THE EXISTING VAV AIR HANDLING UNITS SO THAT THE SUPPLY AIR TEMPERATURE RESET CONTROL IS TO BE PROVIDED FOR VARIABLE AIR VOLUME SYSTEMS TO RESET THE DISCHARGE SUPPLY AIR TEMPERATURE SETPOINT INVERSELY PROPORTIONAL TO THE OUTSIDE AIR TEMPERATURE. RESET SCHEDULE SHALL BE ADJUSTABLE, WITH INITIAL SCHEDULE OF 55F DISCHARGE AIR SUPPLY TEMPERATURE SETPOINT FOR 50 DEGREES F OUTSIDE AIR TEMPERATURE (AND ABOVE) TO 65F SETPOINT AT 0F OUTSIDE AIR TEMPERATURE.

C. PROVIDE MORNING WARM UP/COOL DOWN CONTROL FOR VAV AIR HANDLING UNITS:

1. THE WARM UP MODE SHALL BE UTILIZED IN THE HEATING MODE OF OPERATION. THE FMS SHALL DETERMINE THE LENGTH OF TIME NEEDED TO OPERATE IN THE WARM UP MODE.

a) THE FMS SHALL DETERMINE REQUIRED DISCHARGE AIR TEMPERATURE AND MODULATE HEATING COIL CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE SET POINT.

b) SUPPLY FAN SHALL START AND RUN CONTINUOUSLY.

c) THE OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED.

d) FMS SHALL INDEX SPACE TEMPERATURE SET-POINTS TO OCCUPIED TEMPERATURES FOR VAV BOXES.

2. THE COOL DOWN MODE SHALL BE UTILIZED IN THE COOLING MODE OF OPERATION. THE CONTROL SYSTEM SHALL DETERMINE THE LENGTH OF TIME NEEDED TO OPERATE IN THE COOL DOWN MODE.

a) SUPPLY FAN SHALL START AND RUN CONTINUOUSLY.

b) THE OUTSIDE AIR ECONOMIZER DAMPER SHALL BE FULLY CLOSED AND EXHAUST FAN SHALL BE DISABLED.

c) THE UNIT SHALL MODULATE COOLING CAPACITY TO MAINTAIN DISCHARGE AIR TEMPERATURE AT 55 F (ADJ). ECONOMIZER SHALL BE ENABLED TO PROVIDE FREE COOLING AS DETERMINED BY THE DEDICATED OUTSIDE ROOFTOP UNIT CONTROLS.

d) FMS SHALL INDEX SPACE TEMPERATURE SET-POINTS TO OCCUPIED TEMPERATURES FOR VAV BOXES.

TRIA ARCHITECTURE

Millies Engineering Group

DUNELAND SCHOOL CORPORATION

2017 MECHANICAL RENOVATIONS AT:
JACKSON ELEMENTARY SCHOOL
811 N. 400 E. VALPARAISO, IN. 46383

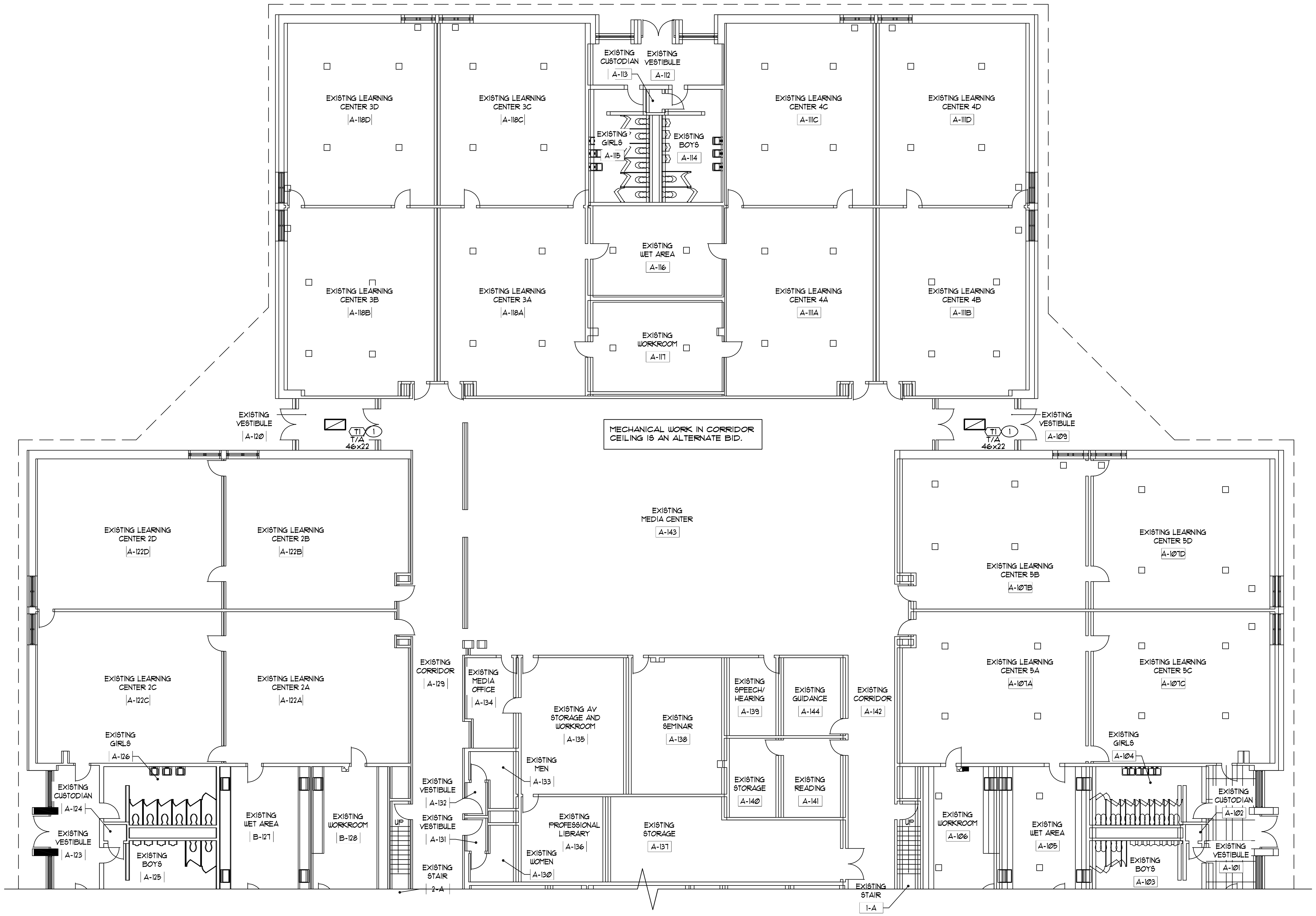
WILLIAM A. HROMADA
REGISTERED
No. 10708283
STATE OF INDIANA
PROFESSIONAL ENGINEER

PARTIAL FIRST FLOOR PLAN - MECHANICAL FLOOR PLAN

M1.10

SHEET NOTES

1. REMOVE EXISTING TRANSFER AIR GRILLE COMPLETE AS REQUIRED. REPLACE WITH NEW TRANSFER AIR GRILLE.



1 PARTIAL FIRST FLOOR PLAN - MECHANICAL FLOOR PLAN
3/32" = 1'-0"

TRIA ARCHITECTURE

Millies Engineering Group — MEP ENGINEER

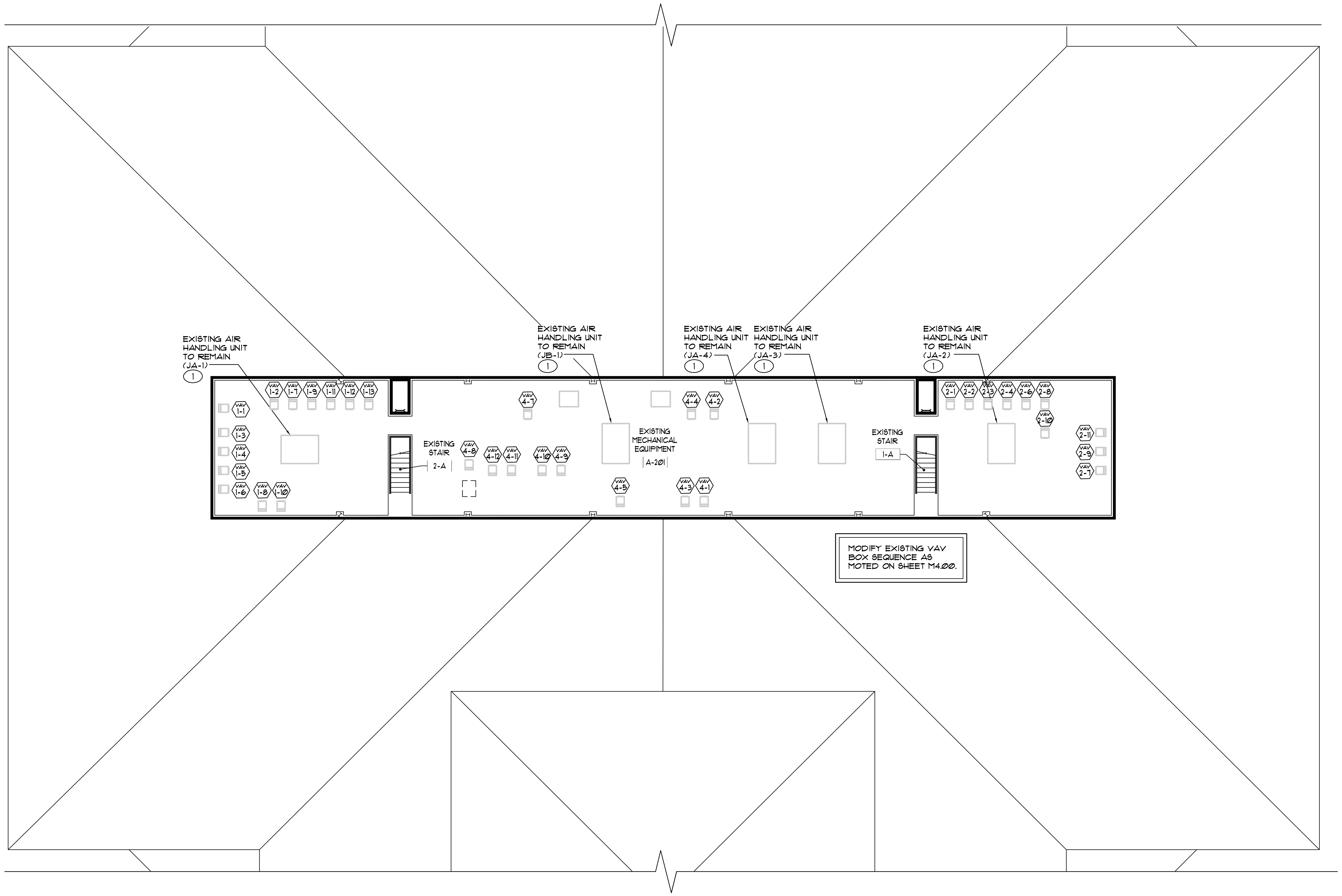
DUNELAND SCHOOL CORPORATION
2017 MECHANICAL RENOVATIONS AT: JACKSON ELEMENTARY SCHOOL
811 N. 400 E. VALPARAISO, IN. 46383

WILLIAM A. HROMADA — REGISTERED No. 10708283 — STATE OF INDIANA — PROFESSIONAL ENGINEER

PROJECT NUMBER: 17-006
PROJECT MANAGER: CH
DRAWN BY:
REVISIONS

PARTIAL FIRST FLOOR PLAN - MECHANICAL FLOOR PLAN

M1.11



1 PENTHOUSE PLAN - MECHANICAL FLOOR PLAN
3/32" = 1'-0"

SHEET NOTES

1. VAV AIR HANDLING UNITS - MODIFY EXISTING SEQUENCE AS FOLLOWS:
(SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.)

A. SUPPLY AIR STATIC PRESSURE CONTROL SHALL BE DETERMINED BY THE FMS FOR BOTH HEATING AND COOLING MODES. MODIFY THE STATIC PRESSURE RESET IN THE HEATING MODE TO ALLOW THE AIR HANDLING UNIT TO PROVIDE UP TO 100% SUPPLY AIR AS DETERMINED TO MAINTAIN DUCT STATIC PRESSURE SET POINT.

1. STATIC PRESSURE RESET CONTROL FOR VARIABLE AIR VOLUME SYSTEMS IS TO BE PROVIDED TO RESET THE STATIC PRESSURE SETPOINT IN THE DUCTWORK SYSTEM BASED ON THE POSITION OF THE VAV DAMPERS FOR ALL VARIABLE VOLUME BOXES WITHIN THE SYSTEM TO MINIMIZE THE STATIC PRESSURE REQUIRED IN THE SYSTEM.

B. MODIFY THE EXISTING VAV AIR HANDLING UNITS TO THAT THE SUPPLY AIR TEMPERATURE RESET CONTROL IS TO BE PROVIDED FOR VARIABLE AIR VOLUME SYSTEMS TO RESET THE DISCHARGE SUPPLY AIR TEMPERATURE SETPOINT INVERSELY PROPORTIONAL TO THE OUTSIDE AIR TEMPERATURE. RESET SCHEDULE SHALL BE ADJUSTABLE, WITH INITIAL SCHEDULE OF 55F DISCHARGE AIR SUPPLY TEMPERATURE SETPOINT FOR 50 DEGREES F OUTSIDE AIR TEMPERATURE (AND ABOVE) TO 65F SETPOINT AT 0F OUTSIDE AIR TEMPERATURE.

C. PROVIDE MORNING WARM UP/COOL DOWN CONTROL FOR VAV AIR HANDLING UNITS:

1. THE WARM UP MODE SHALL BE UTILIZED IN THE HEATING MODE OF OPERATION. THE FMS SHALL DETERMINE THE LENGTH OF TIME NEEDED TO OPERATE IN THE WARM UP MODE.
   a) THE FMS SHALL DETERMINE REQUIRED DISCHARGE AIR TEMPERATURE AND MODULATE HEATING COIL CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE SET POINT.
   b) SUPPLY FAN SHALL START AND RUN CONTINUOUSLY.
   c) THE OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED.
   d) FMS SHALL INDEX SPACE TEMPERATURE SET-POINTS TO OCCUPIED TEMPERATURES FOR VAV BOXES.
2. THE COOL DOWN MODE SHALL BE UTILIZED IN THE COOLING MODE OF OPERATION. THE CONTROL SYSTEM SHALL DETERMINE THE LENGTH OF TIME NEEDED TO OPERATE IN THE COOL DOWN MODE.
   a) SUPPLY FAN SHALL START AND RUN CONTINUOUSLY.
   b) THE OUTSIDE AIR ECONOMIZER DAMPER SHALL BE FULLY CLOSED AND EXHAUST FAN SHALL BE DISABLED.
   c) THE UNIT SHALL MODULATE COOLING CAPACITY TO MAINTAIN DISCHARGE AIR TEMPERATURE AT 55 F (ADJ). ECONOMIZER SHALL BE ENABLED TO PROVIDE FREE COOLING AS DETERMINED BY THE DEDICATED OUTSIDE ROOFTOP UNIT CONTROLS.
   d) FMS SHALL INDEX SPACE TEMPERATURE SET-POINTS TO OCCUPIED TEMPERATURES FOR VAV BOXES.

TRIA ARCHITECTURE

Millies Engineering Group

DUNELAND SCHOOL CORPORATION
2017 MECHANICAL RENOVATIONS AT:
JACKSON ELEMENTARY SCHOOL
811 N. 400 E. VALPARAISO, IN. 46383

WILLIAM A. HROMADA REGISTERED No. 10708283 STATE OF INDIANA PROFESSIONAL ENGINEER

PENTHOUSE PLAN - MECHANICAL FLOOR PLAN

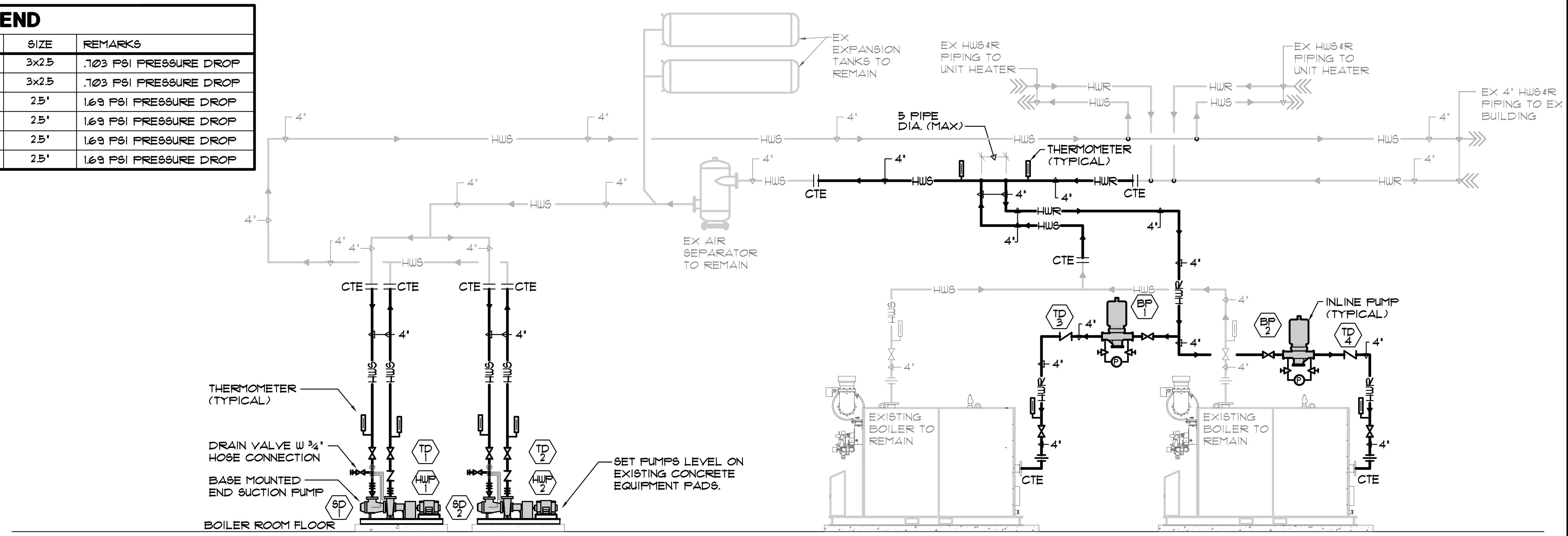
M2.00

HOT WATER SYSTEM PIPING DIAGRAM

SCHEMATIC ONLY

EQUIPMENT LEGEND

TAG	DESCRIPTION	MANUFACTURER	MODEL #	SIZE	REMARKS
SD-1	SUCTION DIFFUSER	BELL & GOSSETT	DC-3	3x2.5	.703 PSI PRESSURE DROP
SD-2	SUCTION DIFFUSER	BELL & GOSSETT	DC-3	3x2.5	.703 PSI PRESSURE DROP
TD-1	TRIPLE DUTY VALVE	BELL & GOSSETT	3DS-2.5S	2.5"	1.69 PSI PRESSURE DROP
TD-2	TRIPLE DUTY VALVE	BELL & GOSSETT	3DS-2.5S	2.5"	1.69 PSI PRESSURE DROP
TD-3	TRIPLE DUTY VALVE	BELL & GOSSETT	3DS-2.5S	2.5"	1.69 PSI PRESSURE DROP
TD-4	TRIPLE DUTY VALVE	BELL & GOSSETT	3DS-2.5S	2.5"	1.69 PSI PRESSURE DROP



DEMO SHEET NOTES

1. REMOVE EXISTING HOT WATER DISTRIBUTION PUMP AND ASSOCIATED HOT WATER SUPPLY AND RETURN PIPING, VALVES, CONTROLS, ELECTRICAL POWER CONNECTIONS, ETC. COMPLETE AS REQUIRED.
2. REMOVE EXISTING HOT WATER DISTRIBUTION PUMP MOTOR STARTERS AND ASSOCIATED CONTROLS, ELECTRICAL POWER CONNECTIONS, ETC. COMPLETE AS REQUIRED.

SHEET NOTES

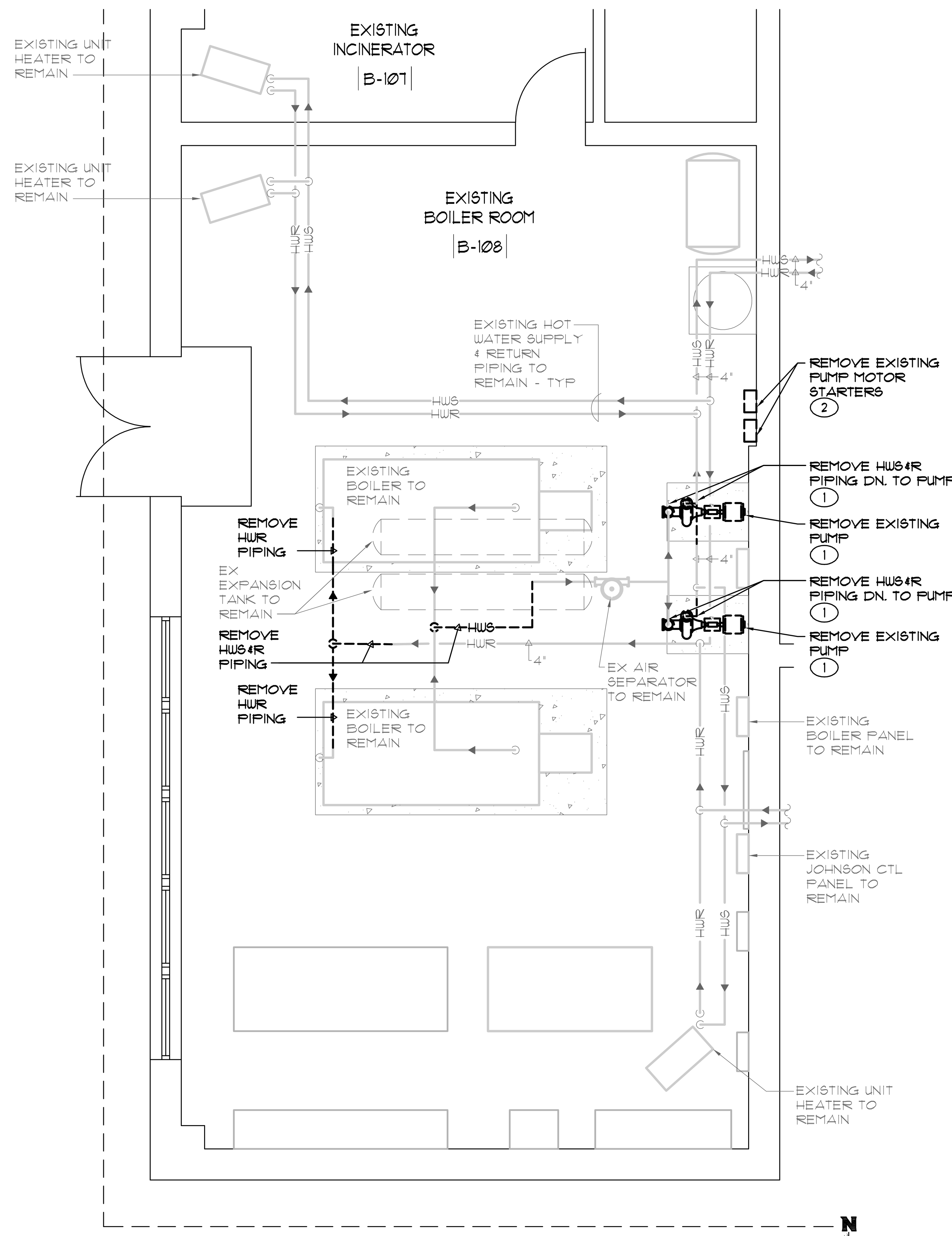
1. BOILER PLANT - MODIFY EXISTING SEQUENCE AS FOLLOWS: (SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.)

   A. MODIFY THE EXISTING HEATING COOLING CHANGE OVER TO INDEXING THE HEATING AND COOLING PLANTS FROM HEATING TO COOLING WILL BE ACTIVATED MANUALLY FROM THE BOILER ROOM OR FROM THE FMS WORKSTATION. (NOTE: CHILLER MUST BE FILLED WITH WATER BEFORE INDEXING SYSTEM TO THE COOLING MODE).

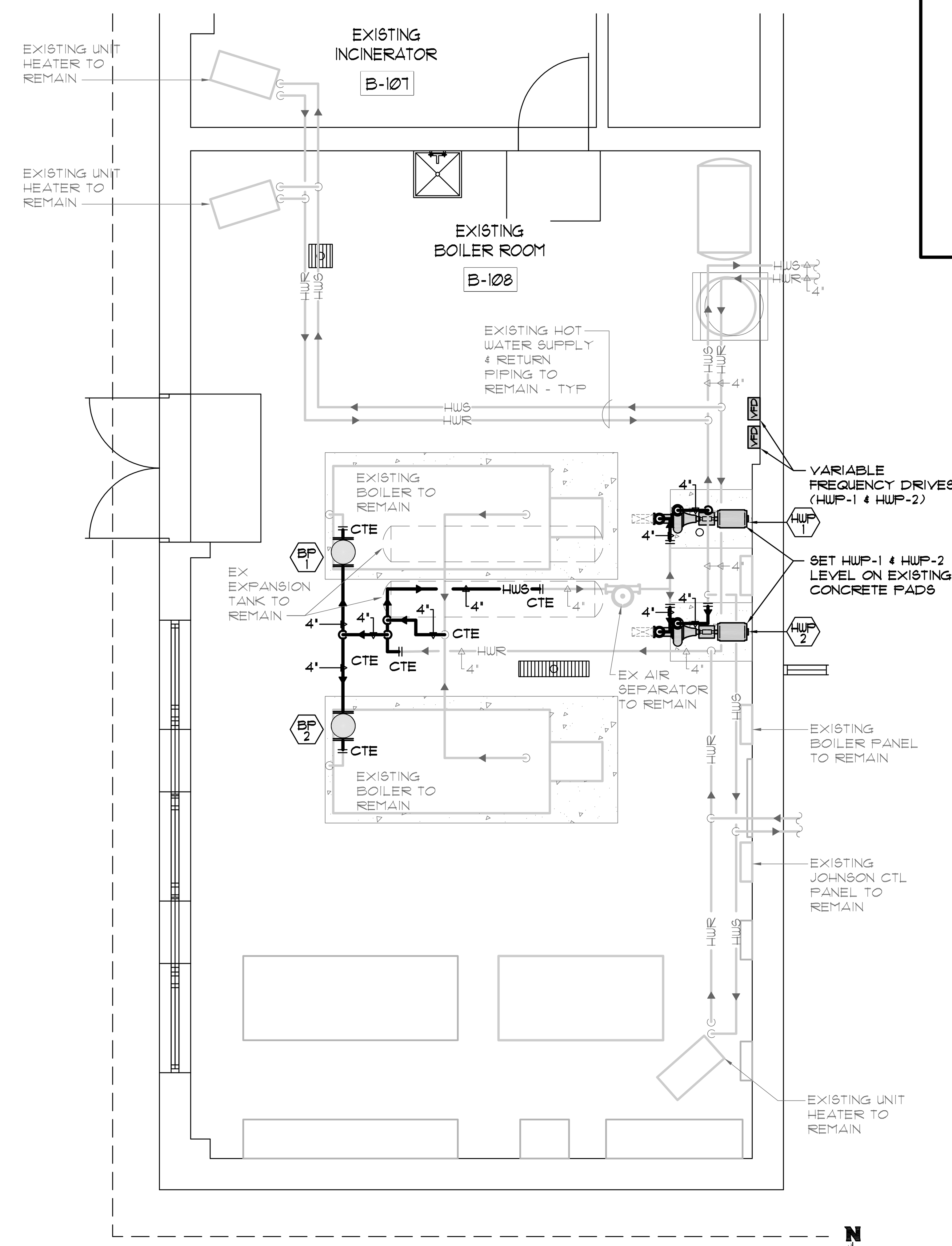
      1. FMS SHALL ENABLE BOILERS TO OPERATE IN THE WINTER HEATING MODES OF OPERATION. BOILERS SHALL BE ENABLED TO OPERATE IN THE WINTER HEATING MODE OF OPERATION WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 60 DEGREE F. (ADJ.).
      2. BOILERS SHALL BE OFF IN THE SUMMER COOLING MODE.

   B. MODIFY THE EXISTING BOILER SEQUENCED TO MAINTAIN THE PRIMARY BUILDING LOOP WATER TEMPERATURE RESET SCHEDULE: RESET SCHEDULE SHALL BE DETERMINED BY THE FMS AND SHALL BE ADJUSTABLE, WITH INITIAL SCHEDULE OF 180 (ADJ) F LOOP HOT WATER SUPPLY TEMPERATURE SET POINT AT 10 DEGREES F OUTSIDE AIR TEMPERATURE TO 140 (ADJ) DEGREES F SET-POINT AT 60F OUTSIDE AIR TEMPERATURE. PRIMARY LOOP TEMPERATURE SHALL BE SET TO MAINTAIN 180 (ADJ) F WHEN OUTSIDE AIR TEMPERATURE IS BELOW 10F. COORDINATE MINIMUM HOT WATER TEMPERATURE WITH BOILER MANUFACTURER RECOMMENDATIONS. PROVIDE TEMPERATURE SETPOINT RESET OUTPUT TO THE BOILER BURNERS FROM THE LOCAL DDC CONTROLLER.

   C. NEW BOILER CIRCULATING PUMPS SHALL BE CONTROLLED BY THE BOILER CONTROL PANEL. BOILER PUMPS SHALL START ON A CALL FOR THEIR RESPECTIVE BOILER TO FIRE. BOILER PUMPS SHALL RUN FOR 3 MINUTES AFTER BOILER SHUTS DOWN.



1 BOILER ROOM FLOOR PLAN - MECHANICAL DEMOLITION
1/4" = 1'-0"



2 BOILER ROOM FLOOR PLAN - MECHANICAL
1/4" = 1'-0"

TRIA ARCHITECTURE

M/E/P ENGINEER:
Millies Engineering Group

DUNELAND SCHOOL CORPORATION
2017 MECHANICAL RENOVATIONS AT:
JACKSON ELEMENTARY SCHOOL
811 N. 400 E. VALPARAISO, IN. 46383

WILLIAM A. HROMADA
REGISTERED
No. 10708283
STATE OF INDIANA
PROFESSIONAL ENGINEER

PROJECT NUMBER:
PROJECT MANAGER:
DRAWN BY:
ISSUED FOR BID:
REVISIONS:

BOILER ROOM FLOOR PLAN - MECHANICAL

M4.00

PUMP SCHEDULE

TAG	MANUFACTURER	MODEL NUMBER	DESCRIPTION	GPM	HEAD (FT.)	PUMP MOTOR DATA: HP	RPM	VOLT	PHASE	HZ.	STARTER BY: MC.	EC.	SUCTION/ DISCHARGE SIZE	REMARKS
BP-1	BELL & GOSSETT	SERIES 80: 3 x 3 x7B	BOILER (B-1) SECONDARY PUMP.	135	20	1.5	1750	480	3	60	X	-	3" / 3"	-
BP-2	BELL & GOSSETT	SERIES 80: 3 x 3 x7B	BOILER (B-2) SECONDARY PUMP.	135	20	1.5	1750	480	3	60	X	-	3" / 3"	-
HWP-1	BELL & GOSSETT	SERIES 1510 2 BD	HOT WATER PRIMARY CIRCULATION PUMP	135	70	5	1750	480	3	60	X	-	2.5" / 2"	HOT WATER PRIMARY PUMPS W/VFD OPERATING IN PARALLEL. 270 GPM AT 70 FT. HD. WITH DUAL POWER FEEDERS. INSTALL WATER PRESSURE SENSORS IN EXISTING HOT WATER SUPPLY PIPING 2/3 DOWNSTREAM FROM BOILER ROOM.
HWP-2	BELL & GOSSETT	SERIES 1510 2 BD	HOT WATER PRIMARY CIRCULATION PUMP	135	70	5	1750	480	3	60	X	-	2.5" / 2"	

GRILLE, REGISTER & DIFFUSER SCHEDULE

TAG	MANUFACTURER	MODEL NO.	DESCRIPTION	AIR PATTERN	MOUNTING	SIZE	TYPE OF CONTROL	REMARKS
T1	NAILOR	6145H	TRANSFER AIR GRILLE	LOUVERED GRILLE	LAY-IN PANEL	SEE PLANS	-	-

• ALL DIFFUSERS AND REGISTER SHALL HAVE A WHITE FINISH UNLESS OTHERWISE NOTED

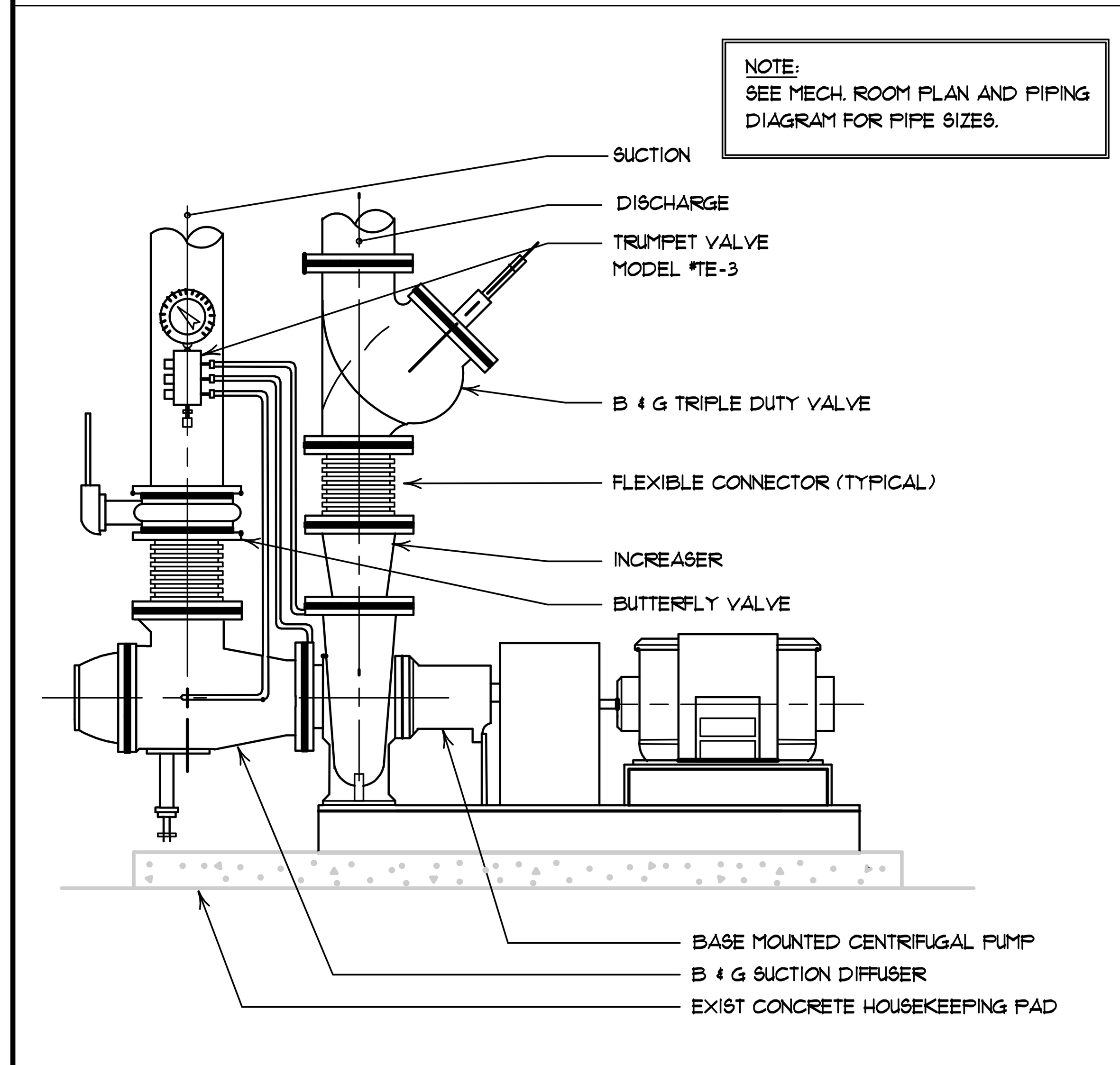
SYMBOLS/ABBREVIATIONS

SYMBOL	DESCRIPTION
	VAV W/ HOT WATER REHEAT COIL
	SEE SCHEDULES
	SHEET NOTE
—HWS—	HOT WATER SUPPLY PIPING
—HWR—	HOT WATER RETURN PIPING
- - - -	PIPING TO BE REMOVED
	EXISTING PIPING
	PIPE TURNED UP
	PIPE TURNED DOWN
	PIPE EXPANSION
	INLINE PUMP
	UNION
	CIRCUIT SETTER
	SHUT-OFF VALVE
	CHECK VALVE
	STRAINER
	PRESSURE REDUCING VALVE
	2-WAY AUTOMATIC VALVE
	3-WAY AUTOMATIC VALVE
	FLOW SWITCH
	RELIEF VALVE
	GRISWOLD VALVE
	MANUAL AIR VENT
	THERMOMETER
	PRESSURE GAUGE

ABBREVIATIONS	DESCRIPTION
AH	AIR HANDLING UNIT
B	BOILER
BP	BOILER PUMP
CEB	CONCRETE EQUIPMENT BASE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CS	CIRCUIT SETTER
CTE	CONNECT TO EXISTING
DN.	DOWN
DX	DIRECT EXPANSION
EC	ELECTRICAL CONTRACTOR
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
FD	FIRE DAMPER
FPM	FEET PER MINUTE
FMS	FACILITY MANAGEMENT SYSTEM
G	NATURAL GAS
GPM	GALLONS PER MINUTE
HP	HORSE POWER
HWP	HOT WATER PUMP
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
HW	HOT WATER
HZ	HERTZ
LWT	LEAVING WATER TEMPERATURE
MBH	1,000 BTU/HOUR
MC	MECHANICAL CONTRACTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
O/A	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
PNL	PANEL
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
T/A	TRANSFER AIR
TC	TEMPERATURE CONTROL
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WPD	WATER PRESSURE DROP

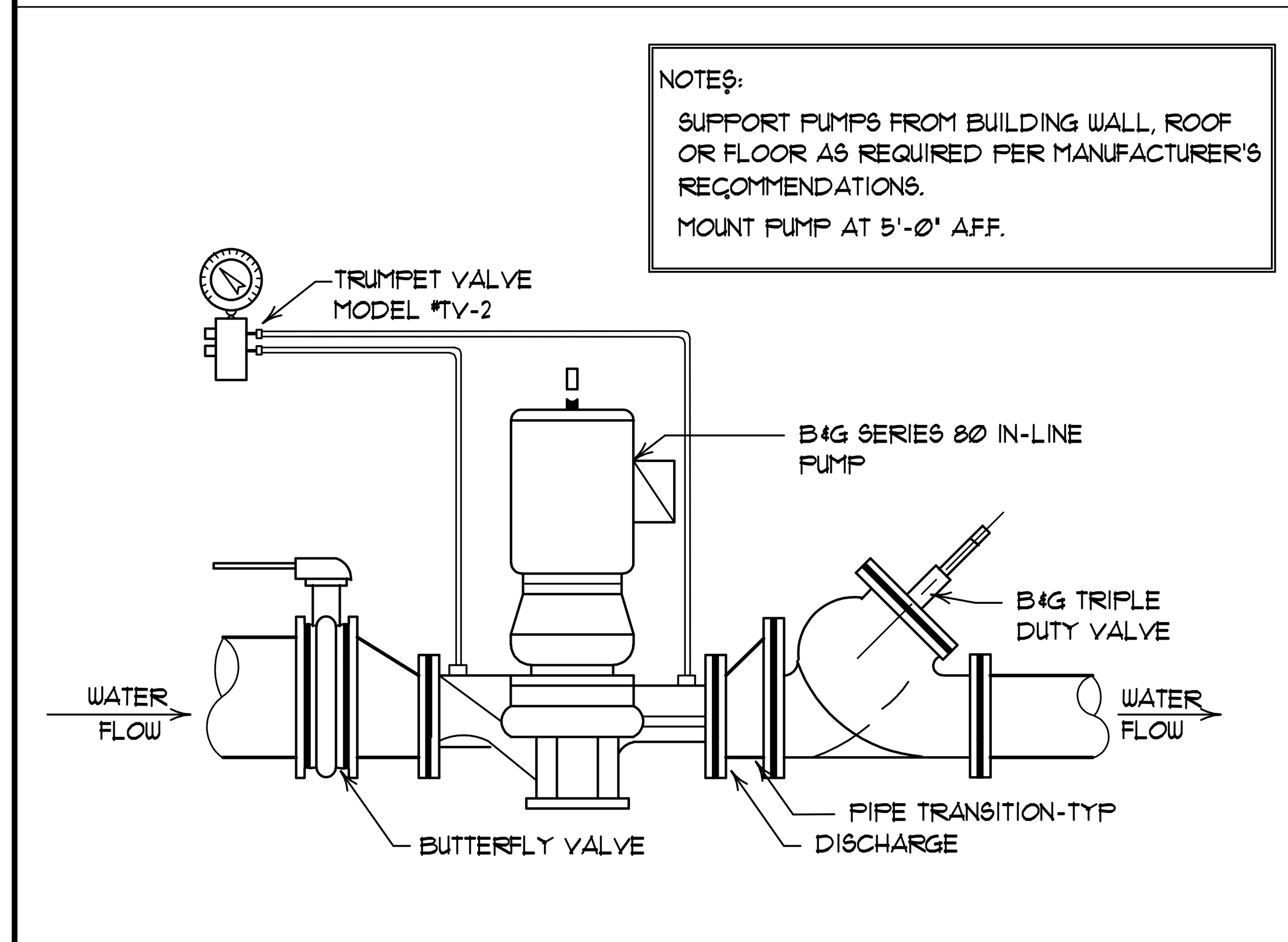
BASE MOUNTED PUMP DETAIL

(NTS)



IN-LINE PUMP DETAIL

(NTS)



EXISTING VAV TERMINAL SCHEDULE

TAG	CFM SETTING: MAX CFM	MIN CFM	CONTROL SEQUENCE: OPEN/ CLOSED	OPEN/CLOSED/ OPEN	REMARKS
VAV 1-1	1,180	600	-	X	NOTE 1.
VAV 1-2	1,220	600	X	-	NO CHANGE
VAV 1-3	1,420	700	-	X	NOTE 1.
VAV 1-4	1,420	700	-	X	NOTE 1.
VAV 1-5	1,420	700	X	-	NO CHANGE
VAV 1-6	1,420	700	-	X	NOTE 1.
VAV 1-7	800	450	-	X	NOTE 1.
VAV 1-8	1,220	600	X	-	NO CHANGE
VAV 1-9	1,080	550	-	X	NOTE 1.
VAV 1-10	880	450	-	X	NOTE 1.
VAV 1-11	1,420	700	-	X	NOTE 1.
VAV 1-12	1,220	600	-	X	NOTE 1.
VAV 1-13	1,220	600	X	-	NO CHANGE
-			-	-	-
VAV 2-1	1,140	600	X	-	NO CHANGE
VAV 2-2	1,220	600	X	-	NO CHANGE
VAV 2-3	1,220	600	-	X	NOTE 1.
VAV 2-4	1,420	700	-	X	NOTE 1.
VAV 2-6	1,080	600	-	X	NOTE 1.
VAV 2-7	1,420	700	-	X	NOTE 1.
VAV 2-8	1,420	700	X	-	NO CHANGE
VAV 2-9	1,420	700	-	X	NOTE 1.
VAV 2-10	1,220	600	-	X	NOTE 1.
VAV 2-11	1,140	600	X	-	NO CHANGE
VAV 2A	2,255	565	X	-	NO CHANGE
VAV 2B	1,810	4553	X	-	NO CHANGE
-			-	-	-
VAV 3-1	960	480	-	X	NOTE 1.
VAV 3-2	1,150	575	-	X	NOTE 1.
-			-	-	-
VAV 4-1	100	50	X	-	NO CHANGE
VAV 4-2	370	185	X	-	NO CHANGE
VAV 4-3	480	250	X	-	NO CHANGE
VAV 4-4	135	75	X	-	NO CHANGE
VAV 4-5	150	75	X	-	NO CHANGE
VAV 4-7	240	120	X	-	NO CHANGE
VAV 4-8	170	100	X	-	NO CHANGE
VAV 4-9	280	140	X	-	NO CHANGE
VAV 4-10	280	140	X	-	NO CHANGE
VAV 4-11	310	160	X	-	NO CHANGE
VAV 4-12	235	120	X	-	NO CHANGE

NOTE 1:

VAV BOXES - MODIFY EXISTING SEQUENCE THAT SERVE EXTERIOR ZONE AS FOLLOWS:

NOTE: CONFIRM SPACES THAT VAV BOXES SERVE PRIOR TO MODIFICATIONS.

(SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.)

OCCUPIED AND UNOCCUPIED MODES: MODIFY THE EXISTING VAV BOXES THAT SERVE EXTERIOR ZONES TO THE FOLLOWING:

1. PROVIDE SEPARATE ADJUSTABLE ROOM TEMPERATURE HEATING AND COOLING SET-POINTS FOR EACH VAV BOX FOR HEATING, COOLING, OCCUPIED AND UNOCCUPIED MODES OF OPERATION: COORDINATE SPACE TEMPERATURE SET POINTS FOR HEATING AND COOLING OCCUPIED AND UNOCCUPIED MODES WITH THE SCHOOL DISTRICT.
2. UPON A SIGNAL FROM THE FMS FOR THE ASSOCIATED AIR HANDLING UNIT SERVING THE TERMINAL BOX TO START, THE TERMINAL UNIT CONTROLLER SHALL ALSO BE ACTIVATED AND THE UNIT DAMPER SHALL MODULATE OPEN TO MINIMUM POSITION.
3. WHEN THE ROOM TEMPERATURE IS BETWEEN HEATING AND COOLING SET-POINTS AS SENSED BY THE ROOM'S THERMOSTAT/SENSOR, THE UNIT DAMPER SHALL BE AT MINIMUM POSITION AND THE HEATING CONTROL VALVE SHALL BE CLOSED.
4. UPON A RISE IN ROOM TEMPERATURE ABOVE ROOM TEMPERATURE COOLING SET-POINT, THE UNIT DAMPER SHALL MODULATE OPEN (INCREASING CFM) BETWEEN MINIMUM AND MAXIMUM DAMPER POSITIONS TO MAINTAIN THE OCCUPIED OR UNOCCUPIED ROOM TEMPERATURE SET-POINT. UPON A DECREASE IN ROOM TEMPERATURE, THE REVERSE SHALL OCCUR.
5. UPON A DROP IN TEMPERATURE BELOW ROOM TEMPERATURE HEATING SET-POINT THE FOLLOWING SHALL OCCUR:
   a) WHEN IN THE WINTER HEATING MODE OPEN/CLOSED/OPEN: THE HOT WATER VALVE SHALL MODULATE OPEN (UNIT DAMPER REMAINING AT MINIMUM POSITION) TO MAINTAIN ROOM SET-POINT. ON A FURTHER FALL IN ROOM TEMPERATURE THE TERMINAL UNIT DAMPER SHALL MODULATE OPEN TO INCREASE HEATING CFM MAINTAIN ROOM SET-POINT. UPON A RISE IN ROOM TEMPERATURE THE REVERSE SHALL OCCUR.
   b) WHEN IN THE SUMMER COOLING MODE: DAMPER SHALL REMAIN AT MINIMUM AIRFLOW POSITION. IF SPACE IS UNABLE TO BE MAINTAINED FOR TEN (10) MINUTES AN ALARM SHALL BE SENT TO THE FMS SYSTEM. UPON NOTIFICATION OF THE ALARM, THE OWNER SHALL DETERMINE IF THE HOT WATER HEATING BOILERS SHALL BE ACTIVATED TO INCREASE SPACE TEMPERATURE.

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DUNELAND SCHOOL CORPORATION
2017 MECHANICAL RENOVATIONS AT:
JACKSON ELEMENTARY SCHOOL
811 N. 400 E. VALPARAISO, IN. 46383

WILLIAM A. HROMADA
REGISTERED
No. 10708283
STATE OF INDIANA
PROFESSIONAL ENGINEER

PROJECT NUMBER: 17-006
PROJECT MANAGER:
DRAWN BY:
ISSUED FOR BID: 03/09/2017
REVISIONS: 1 2 3 4 5

MECHANICAL SCHEDULES

M5.00